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Evaluation Report covering the

Evaluation of the EU's regulatory framework for electricity market design and consumer protection in the fields of electricity and gas

Evaluation of the EU rules on measures to safeguard security of electricity supply and infrastructure investment (Directive 2005/89)

Accompanying the document

**Proposal for a Directive of the European Parliament and of the Council on common
rules for the internal market in electricity (recast)**

**Proposal for a Regulation of the European Parliament and of the Council on the
electricity market (recast)**

**Proposal for a Regulation of the European Parliament and of the Council establishing
a European Union Agency for the Cooperation of Energy Regulators (recast)**

**Proposal for a Regulation of the European Parliament and of the Council on risk
preparedness in the electricity sector**

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1. EXECUTIVE SUMMARY

1.1. Background and purpose of the evaluation

This Evaluation supports the concomitant Impact Assessment aimed at improving the EU regulatory framework governing the internal electricity market ("Market Design Initiative"). The Evaluation analyses to what extent the existing legislation was successful in achieving its goals¹. In contrast, the purpose of the Impact Assessment is to identify and weigh options for a future reform of the regulatory framework.

As set out in the Evaluation Roadmap², this Evaluation will focus on developments in electricity markets which have been subject to a several legislative reforms in the past 20 years. The latest reform of the regulatory framework – which is the object of this evaluation - dates back to 2009 and is commonly referred to as the 'Third Energy Package'. The package followed on a first and second set of landmark energy legislation adopted in 1996 ('First Energy Package') and 2003 ('Second Energy Package') respectively.

The Third Energy Package pursued the general objective of completing the internal energy market and moving towards a competitive, secure and sustainable Energy Union. It covers in particular five main areas:

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

This Evaluation also analyses the effects of the Security of Electricity Supply Directive (SoS Directive)³ as adopted in 2005 to establish some first rules on security of supply in electricity, and which has in the meantime been complemented and partly superseded by the Third Energy Package of 2009 and by other legislation⁴.

1.2. Key findings

Tangible progress

Overall and within the scope of the two evaluations carried out, the evaluation's findings support the view that the Third Package has positively contributed to competition and performance of the internal electricity market, delivering tangible market benefits that have translated into added net social welfare.

¹ See in detail the Commission's "Better Regulation Guidelines", SWD(2015)111 of 19.5.2015.

² Evaluation Roadmap " Evaluation of aspects of the regulatory framework of the EU electricity markets – AP 2015/ENER/061"; http://ec.europa.eu/smart-regulation/roadmaps/docs/2015_ener_061_evaluation_eu_electricity_market_en.pdf

³ Directive 2005/89/EC of the European Parliament and of the Council of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment, OJ L 33, 4.2.2006, p. 22–27.

⁴ Evaluation Roadmap " Evaluation of the Directive 2005/89/EC on security of electricity supply – AP 2016/ENER/032"; http://ec.europa.eu/smart-regulation/roadmaps/docs/2016_ener_032_evaluation_elec_supply_investment_en.pdf

Although only a handful of years have passed since the entry into force of the Third Energy Package in 2011, the evaluation showed that the initiative to further increase competition and to remove obstacles to cross-border competition in electricity markets has **generally been effective**, and that active enforcement of the legislation has led to **positive results for electricity markets and consumers**.

The reinforced unbundling rules had a positive effect on competition and helped to limit problems of market foreclosure. Markets are in general less concentrated and more integrated than in 2009. The new rules aiming at removing barriers to cross-border trade and to enhance cooperation between transmission system operators and regulators contributed to **increased liquidity** of electricity markets and a **significant increase in cross-border trade**, resulting in more competitive wholesale markets and contributing to lower wholesale prices.

As regards retail markets, the set of new consumer rights introduced by the Third Energy Package have clearly **improved the position of consumer in energy markets**. The new rules enabled consumers to make better use of emerging competition between different suppliers in many countries, and switching between different suppliers increased. Also, consumers have access to a single point of contact for queries and to alternative (supplier-consumer) dispute settlement services while self-generation and smart technologies started to spread in several markets.

Remaining obstacles

However, in other fields the success of the rules of the Third Package in developing the internal electricity market further to the benefit of customers **remains limited**.

On *wholesale markets*, **persisting barriers to cross-border trade** and unused interconnector capacities resulting notably from insufficient cooperation between national grid operators and regulators on the shared use of interconnectors. The national perspective of the involved parties still prevents effective cross-border solutions in many cases and limits possible cross-border flows.

With regards to *retail markets*, competition performance could be significantly improved. Electricity and gas prices still vary significantly from Member State to Member State for non-market reasons, and **prices have risen steadily** for households as a result of significant increases in non-contestable charges in recent years (network charges, taxes and levies). Poor competition, as evidence through a range of market structure and conduct indicators, may help to explain lacklustre consumer satisfaction and engagement in the energy markets, as well as the slow deployment of innovative retail products such as dynamic price supply contracts. A number of Member States still practice some form of blanket price regulation for electricity and/or gas – a practice that may cause gross market distortions.

With regard to **consumer protection**, rising energy poverty, as well as lack of clarity on the most appropriate means of tackling consumer vulnerability and energy poverty, hamper the further deepening of the internal energy market. Switching related fees such as contract termination charges continue to constitute a significant financial barrier to consumer engagement. In addition, poor consumer satisfaction with energy bills, and poor awareness of information conveyed in bills⁵ suggests that there may still be scope to improve the comparability and clarity of billing information.

⁵ European Commission (2016), 'Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU',

New developments were not addressed by the existing rules

While the principles of the Third Energy Package achieved its main purposes (e.g. more supplier competition), new developments in electricity markets led to significant changes in the market functioning in the last five years and dampened the positive effect of the reforms for customers.

The commitment to **decarbonize** the economy led to a steep increase of energy generated from renewable energy sources (RES). The physical nature of renewable electricity generation – more variable, unpredictable and decentralized than traditional generation – had important practical consequences on electricity markets and grid operation. As most RES generation can only be predicted shortly before the actual production (due to weather uncertainties), effective **short-term markets** play a key role today. Most electricity from RES is produced decentrally and fed into the local distributions grid. The market design rules of the Third Package, however, are based on the predominant generation form of the last decade, i.e. central, large-scale fossil fuel-based power plants.

In parallel, we have seen a dramatic increase of **state interventions** into the electricity market. Sub-optimal rules for the support of RES generation had the unintended effect to distort the wholesale market price signal. Uncertainty about the ability of the new market to incentivise sufficient investments led many Member States to introduce national subsidies aiming at protecting existing generation or triggering new (so-called Capacity Mechanisms). These state interventions had a significant impact on the market price signals of the market to guarantee lower consumer prices investment signals and to limit cross-border trade. State interventions also translated into higher transmission tariffs, ultimately neutralising the positive developments on wholesale electricity markets and driving up prices for end customers at the retail level. The volumes of electricity trade affected by such state interventions contracted under such mechanisms have increase significantly in the last years, with increasing impacts on functioning of the internal electricity market.

Equally dramatic changes have taken place on the **technological** side. Power exchanges (PX) and market coupling are facilitating wholesale trading while digitalisation of energy markets and metering increasingly allows to use so-called '**demand response**' solutions, enabling the demand of industry, businesses and households to participate in electricity markets. However, the current legislation has not been effective in removing the primary market barriers especially for independent demand response service-providers and creating a level playing field for them. Nor was it designed to address currently known challenges in managing large, commercially valuable consumption **data** flows. In addition, technological progress allows **distribution system operators** to reduce network investments by locally managing the challenges posed by increasing amounts of distributed RES E directly connected to distribution systems. However, outdated regulatory frameworks prevent them from operating more innovatively and efficiently. And the increased use of online comparison tools is changing the way consumers interact with the retail market. The nature of the transformation of Europe's energy system and the gap in the existing legislation to deal with these changes has been clearly confirmed by stakeholders.

Overall, the Third Package partially fulfilled its original mission and created a stable market-based approach on which however further legislation should be built on. However, retail level competition could be significantly improved, and consumer protection strengthened further in order to ensure that the full benefits of the internal market can be passed through to all EU consumers. Moreover, the existing rules are not fully adapted to deal with the recent changes in electricity markets effectively. The direction and speed of such changes had not been fully

foreseen by the Third Package, creating a clear rationale to update market rules so that they may be able to cope with the reality of today's energy system.

In the area of **security of electricity supply**, the evaluation finds that the objectives that inspired SoS Directive are still relevant. But the Directive itself was quickly overruled by newest EU rules and had a limited impact on the security of electricity supply in Europe. Moreover, its objectives match only partially the current needs on security of supply in Europe, in particular concerning risk preparedness. Indeed, the Directive failed to address emergency related aspects, i.e. how to make sure that Member States are aware and duly prepared to all kind of security of supply risks, that they clarify roles and responsibilities in case of emergency and that they take into consideration the potential cross border impact when adopting safeguard measures.

2. INTRODUCTION

2.1. Scope of the evaluation

The evaluation covers four EU Directives and Regulations concerning the electricity sector, namely the three forming the so-called "Third Electricity Package", adopted in 2009, as well as the Directive on Electricity Security of Supply (SoS Directive), adopted already in 2005. The main evaluated acts are:

- Directive 2009/72 of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, OJ L 211, 14.8.2009, p. 55–93 (henceforth the "Electricity Directive");
- Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity repealing Regulation (EC) No 1228/2003, OJ L 211, 14.8.2009, p. 15–35 (henceforth "Electricity Regulation");
- Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators. OJ L 211, 14.8.2009, p. 1–14 (henceforth "ACER Regulation");
- Directive 2005/89 of the European Parliament and of the Council of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment, OJ L 33, p.22 (henceforth, "Security of Supply or SoS Directive").

The EU regulatory framework for *gas* markets⁶ will only be evaluated partly, namely only for those provisions which concern common "horizontal" topics in electricity and gas legislation, such as the provisions on governance (e.g. rules on the European Agency for the Cooperation of Energy Regulators (ACER)), as well as open and fair retail markets, smart meters and consumer protection rules⁷.

⁶ 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 ("Gas Directive") and 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 ("Gas Regulation").

⁷ See e.g. Articles 5-9 of the Electricity and Gas Regulations. Parallel provisions can also be found in the Directives, see e.g. Articles 4, 5, 6 and 39 of the Electricity Directive and the corresponding Articles 5, 7, 8 and 43 of the Gas Directive.

Recent EU legislation on transparency (e.g. the Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency - "REMIT"⁸) or on infrastructure (e.g. Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure⁹ - "TEN-E Regulation") will *not* be subject of this evaluation, but considered in separate evaluations. The evaluation will take into account, where possible, recently adopted delegated acts under comitology rules (e.g. the CACM Guideline¹⁰, the Requirement for Generators network code¹¹).

For further details see the two published Evaluation Roadmaps (henceforth, "the Evaluation Roadmaps"):

- Evaluation of aspects of the regulatory framework of the EU electricity markets – AP 2015/ENER/061¹²;
- Evaluation of the Directive 2005/89/EC on security of electricity supply – AP 2016/ENER/032¹³.

The evaluation is based on a several comprehensive **monitoring reports** on the functioning of the implemented market legislation¹⁴, as well as on a number of specific **public consultations** issued by the Commission to verify the effects of its legislation (see the consultative communications "*Launching the public consultation process on a new energy market design*" (COM(2015) 340 Final)¹⁵, "*Delivering a new deal for energy consumers*" (COM(2015) 339 Final)¹⁶, as well as two public consultations on "*Risk preparedness in the area of security of electricity supply*"¹⁷ and "*Retail Energy Markets*"¹⁸. 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. For instance, a High Level Conference on electricity market design took place on 8 October 2015 in Florence. The Florence Forum was

⁸ Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency, *OJ L 326*, 8.12.2011, p. 1–16

⁹ 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, *OJ L 115*, 25.4.2013, p. 39–75

¹⁰ Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, *OJ L 197*, 25.7.2015, p. 24–72

¹¹ Commission Regulation (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for grid connection of generators, *OJ L 112*, 27.4.2016, p. 1–68

¹² http://ec.europa.eu/smart-regulation/roadmaps/docs/2015_ener_061_evaluation_eu_electricity_market_en.pdf

¹³ http://ec.europa.eu/smart-regulation/roadmaps/docs/2016_ener_032_evaluation_elec_supply_investment_en.pdf

¹⁴ See (2012 monitoring report; 2014 Monitoring Report; Energy Union Communication 2015); "Report on the progress concerning measures to safeguard security of electricity supply and infrastructure investment" COM (2010) 330 final.

¹⁵ http://ec.europa.eu/energy/sites/ener/files/documents/1_EN_ACT_part1_v11.pdf

¹⁶ https://ec.europa.eu/energy/sites/ener/files/documents/1_EN_ACT_part1_v8.pdf

¹⁷ <https://ec.europa.eu/energy/en/consultations/public-consultation-risk-preparedness-area-security-electricity-supply> of 15 July 2015

¹⁸ <https://ec.europa.eu/energy/en/consultations/consultation-retail-energy-market>

set up to discuss the creation of true internal electricity and gas markets in Europe¹⁹. The Third Energy Package and its implementation was discussed in this stakeholder forum at several occasions.

2.2. Purpose of the evaluation

This evaluation provides the basis for the impact assessment for the initiative to review the existing EU electricity market design rules²⁰, including the creation of a new framework on security of electricity supply²¹ ("Market Design Initiative"). It seeks to contribute to the formulation of an adequate and effective policy response to the challenges electricity markets are currently facing.

The evaluation will assess whether the abovementioned EU rules introduced in 2006 and 2009 have been successful in meeting their stated objectives, in particular achieving a better-functioning internal electricity market and ensure a higher level of security of electricity supply. The evaluation will analyse the effectiveness, efficiency, coherence, relevance and EU added value of the relevant measures in relation to the objectives strived by the Third Electricity Package and the Security of Electricity Supply Directive. In view of some recent changes in electricity markets (see in detail below), the evaluation will also analyse the possible relevance of these changes for EU electricity market regulation and verify to what extent the electricity market rules adopted in 2006 and 2009 and the EU internal energy market framework are able to respond to the energy sector's new challenges and to meet current and future expectations on security of supply in Europe.

3. BACKGROUND TO THE EVALUATED INITIATIVES

3.1. Objectives of the Initiatives

3.1.1. Objectives of the Third Electricity Package

Prior to the EU's liberalisation initiatives, electricity was produced, purchased, transported and sold mostly by domestic, state-controlled monopoly companies. Competition in electricity markets was almost absent, with only limited cross-border exchanges of electricity. 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 internal electricity market ("IEM"). The process started with the adoption of the First Electricity Directive in 1996²². The liberalisation initiative brought some first successes, but

¹⁹ The participants are national regulatory authorities, Member States, the European Commission, transmission and distribution system operators, electricity traders, consumers, network users, and power exchanges. The Forum convenes once or twice a year.

²⁰ Commission's legislative initiative on "market design and regional electricity markets, and coordination of capacities to ensure security of supply, boosting cross-border trade and facilitating integration of renewable energy, including review of the Agency for the Cooperation of Energy". Agenda Planning reference: 2016/ENER/007.

²¹ Agenda Planning reference: 2016/ENER/026.

²² The Directive provided for a partial market opening, giving new energy suppliers a possibility to transport their energy on grids 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 Directives also required grid owners to create separate accounting for their grid business, and to nominate a dedicated management for their grids which should not be active in

progress remained limited. In 2003, a Second Electricity Package was therefore adopted to stimulate the development of competition in electricity markets²³.

Despite good progress in some individual countries, the Commission's systematic **sector inquiry** into the energy sector from 2005-2007²⁴ revealed that **significant obstacles** to 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 systematically used their control over their electricity grids to avoid competition from new energy suppliers. The results of the sector inquiry triggered the Commission's proposal for a comprehensive Third Electricity Package. The new legislation mainly aimed at addressing the problems identified in the Sector Inquiry²⁵, 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); and
- 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 TSOs²⁶ 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 framework²⁷.

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

production/supply businesses ("management and accounting unbundling"). Member States were obliged to provide for basic regulatory oversight of these rules.

²³ The Second Package replaced the right for grid owners to negotiate grid access rules freely with potential grid users and introduced regulated Third Party Access rules. For this purpose, every Member State had to create national energy regulators to determine grid 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 grid 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).

²⁴ http://ec.europa.eu/competition/sectors/energy/2005_inquiry/index_en.html

²⁵ See also: Impact assessment for the Third Package (SEC(2007) 1179/2) <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52007SC1179>

²⁶ 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 eg. cases .g. E.ON http://europa.eu/rapid/press-release_IP-09-1099_en.htm or RWE http://europa.eu/rapid/press-release_MEMO-07-186_en.htm?locale=en).

²⁷ COM (2006) 841, Communication from the Commission, Prospects for the internal gas and electricity market.

electricity sector through better regulation and unbundling aimed at removing obstacles resulting from the fact that most established national incumbent electricity suppliers were vertically integrated²⁸ and could use the control over their electricity grids to keep off potential new competitors. The goal of improving competition was coupled with improving **security of supply**, *inter alia* by strengthening the incentives for sufficient investment in transmission and distribution capacities.

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 electricity suppliers; and (ii) to 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 2007²⁹.

At the same time the Third Energy Package sought to ensure protection of vulnerable consumers and to mitigate the problem of energy poverty. 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 market³⁰.

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**³¹.

3.1.2. *Objectives of the Security of Electricity Supply Directive*

As concerns security of energy supply, the first two liberalization packages of 1996 and 2003 contained only rudimentary rules. Directive 2003/54/EC³² was based on the assumption that a stable regulatory framework would facilitate the necessary investments in new generating capacity and networks, thereby contributing to security of supply. It contained a mere obligation for Member States to monitor security of supply issues, so that appropriate measures could be taken if security of supply was compromised. Finally, Member States were allowed to take safeguard measures in the event of a "sudden crisis" in the energy market.³³

²⁸ 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.

²⁹ Article 33 of the Electricity Directive and Article 37 of the Gas Directive

³⁰ As stated in paragraph (2) of the Directive 2003/54/EC concerning common rules for the internal market in electricity, which says that "important shortcomings and possibilities for improving the functioning of the market remain, notably concrete provisions are needed to ensure a level playing field in generation and (...) ensuring that the rights of small and vulnerable customers are protected (...)."

³¹ COM (2010) 2020, Communication from the Commission, Europe 2020, A strategy for smart, sustainable and inclusive growth.

³² Directive 2003/54/EC of the European Parliament and the Council of 26 June 2003 concerning common rules for the internal market in electricity OJ L 176, 15.7.2003, p.37

³³ For more details about the baseline situation on Security of Supply, see the "Note of DG Energy & Transport on Directives 2003/54/EC and 2003/55/EC on the Internal market in Electricity and Natural Gas – Measures to secure electricity supply", dated 16/01/2004.

Between 2000 and 2003, several incidents (blackouts in California in 2000-2001; European heat wave in 2003; several blackouts in Europe, especially one in Italy, that affected 55 million of Europeans and lasted up to 24 hours) raised concerns about the lack of cooperation between European grid operators and network adequacy (*i.e.* having sufficient transmission capacities available at all times), but also on the market ability to deliver the required demand/supply balance (e.g. following the nuclear phase out decision in Germany in 2001).

With electricity markets growing together and increasing interdependences between national grids, it turned out that some more concrete rules on how to safeguard security of supply and to manage emergency situations were needed, notably to avoid that national measures would endanger security of supply in neighboring countries. A closer integrated market necessitated indeed more aligned, transparent and non-discriminatory security of supply policies at national level, the absence of which could lead to problems with security of supply and distortions of competition.³⁴

The SoS Directive therefore came in to complement the Second Package rules with the objective to safeguard the security of electricity supply so as to ensure the proper functioning of the internal market for electricity. However, its provisions were not prescriptive enough and were soon superseded by new EU rules³⁵.

3.2. Description of the initiatives

3.2.1. Third Electricity Package

The Third Electricity Package followed up on the liberalisation steps in the two "packages" from 1996 and 2003. It built upon key concepts established in the previous packages (e.g. Third Party Access 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 electricity wholesale and retail markets, to the benefit of consumers.

The legislation of the Third Energy 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, 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 assumption that if a single company operates a transmission or distribution network and generates or sells energy at the same time,

³⁴ Commission Staff Working Paper, Extended Impact Assessment, (COM(2003) 740 final).

³⁵ Directive 2005/89/EC was to be implemented by 24th February 2008. By then, the Commission had already adopted its proposal for a Third Package (that would be adopted in 2009) and new guidelines for trans-European energy networks (TEN-E) were in place, introducing the concept of 'project of European interest' and strengthening project coordination (Decision No 1364/2006/EC of the European Parliament and of the Council of 6 September 2006 laying down guidelines for trans-European energy networks and repealing Decision 96/391/EC and Decision No 1229/2003/EC).

it may 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 system³⁶ operators must take place in one of three ways, depending on the preferences of individual EU countries:

- Ownership Unbundling where all 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
- 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 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. Under the Third Package, the requirements for national regulators have undergone a number of changes. Specifically: (1) 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; (2) regulators can issue binding decisions to companies and impose penalties on those that do not comply with their legal obligations; (3) electricity generators, gas network operators, and energy suppliers are required to provide accurate data to regulators; (4) 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 authorities³⁷.

(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

³⁶ Transmission System Operators (“TSOs”) are high voltage/high pressure grids which transport the main electricity over long distances. Distribution System Operators (“DSOs”) are usually smaller grids, 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 TSOs with more than 100000 customers).

³⁷ https://ec.europa.eu/energy/sites/ener/files/documents/2010_01_21_the_regulatory_authorities.pdf

- deciding on cross-border issues if national regulators cannot agree or if they ask it to intervene
- monitoring the functioning of the internal market including retail prices, network access for electricity produced from renewables, and consumer rights

(4) The Third Electricity Package also created a framework for the co-operation of Transmission System Operators ("TSOs") by creating the European Network for Transmission System Operators for Electricity ("ENTSO-E"). Before the reform, national transmission system operators were responsible for ensuring electricity and natural gas is effectively transported through pipelines and grids in a secure manner, without any legal framework for the coordination of their activities. Due to the cross-border nature of Europe's energy market, they must work together to ensure the optimal management of EU networks. These organisations develop standards and draft network codes to help harmonise the flow of electricity and gas across different transmission systems. They also coordinate the planning of new network investments and monitor the development of new transmission capabilities. This includes publishing a Europe-wide ten year investment plan to help identify investment gaps every two years.

(5) In order to pursue the objective of consumer empowerment, the Third Energy Package contains provisions on a number of aspects related to electricity and gas supplies, such as *switching and contract termination fees, billing of electricity and gas consumption*³⁸, the right to receive information on energy consumption, and quickly and cheaply resolve disputes.

With regard to consumer protection, the Third Energy Package prescribes the Member States to define the concept of vulnerable consumers at the national level at the 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 prices³⁹. Regulated prices are unlawful under current Gas and Electricity Directives as interpreted by the Court of Justice⁴⁰, unless they form part of a public service obligation (PSO) imposed on undertakings in electricity or gas sector and fulfil specific conditions prescribed by the Third Package.

Smart metering is a crucial 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 fostering the smart metering roll-out and **targeting the active participation of consumers in the energy supply market**, through (i) transparency

³⁸ The issue of billing is also addressed by Energy Efficiency Directives (addressed in this evaluation in order safeguard coherence), as well as in the Renewable Energy Directive (addressed in the REFIT for that Directive).

³⁹ 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 many different forms of price regulation, such as setting or approving prices, standardisation of prices or combinations thereof.

⁴⁰ 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 (See: Case C-265/08, Federutility and others v Autorità per l'energia elettrica e il gas). 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 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.

provided by the meter (timely and accurate information on consumption: predictability of costs, awareness), (ii) third party access to data and interoperability (facilitate competitive offers at the customer end, facilitate system integration, lower cost) and (iii) due regard to best practises (for instance installation of in-home displays, connection to home automation, self-consumption, etc.)⁴¹.

The intervention logic table from the Impact Assessment for the Third Package⁴² illustrates the relationship between the measures and the structural problems addressed by the respective measures.

Table 1: Intervention logic table

Problems	Market concentration	Vertical foreclosure	Lack of market integration and cooperation (cross-border)	Lack of transparency (insufficient info e.g. on generation &)	Distorted price formation (e.g. regulated prices, cross-subsidies)	Downstream market foreclosure (access to customers)	Secure grid investments & cross-border connections
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. interconnection investment
Strengthen NRA	To ensure level playing field;	To better monitor unbundling obligations	To monitor management of interconnectio	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	oversees ETSO+/GTE+	Indirect effect	Indirect effect	To assess crossborder Art. 22 requests
ENTSO-E	To improve interconnection and create larger markets	To develop common rules on TPA and grid	To develop market and technical codes, coordinate grid	To develop market and technical codes, rules on trading &	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	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	To strengthen compliance officers, NRA	to eliminate brand confusion; NRA	N/A

⁴¹ These provisions were then complemented with provisions under the Energy Performance in Buildings Directive 2010/31/EU, and the Energy Efficiency Directive 2014/32/EU which amongst others added demand response as a specific means for energy efficiency benefits via novel energy services based on smart metering data.

⁴² 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.

3.2.2. Security of Electricity Supply Directive

The adoption of the Security of Electricity Supply Directive in 2006 was a first attempt to provide the EU with a framework on security of electricity supply. The Directive came at a point in time where a comprehensive set of energy acquis was already in place (2nd IEM package, RES, EE, infrastructure guidelines), but rules addressing specifically supply security and secure operation of the electricity system were still missing.

The SoS Directive required Member States to lay down an appropriate and stable framework which would facilitate security of electricity supply, as a precondition for the proper functioning of the internal market for electricity. It mainly contained *principles* to ensure security of supply and stable grid operation without undue distortions of the internal market, e.g. by an adequate level of generation capacity, an adequate balance between supply and demand, and an appropriate level of interconnection between Member States. It also required a national regulatory framework that guarantees stable investments in networks, as well as some reporting obligations on national security of supply policies.

The SoS Directive came to complement the framework set by the Second Package and, together with it, provided a co-ordinated set of basic rules for the following issues:

1. Requirement for a stable and transparent wholesale market design - facilitating generation investment and energy efficiency measures in a competitive market framework, and preventing MS from intervening in the markets,
2. Ensuring that network operation rules are agreed and adhered to by transmission system operators,
3. Providing for the maintenance and renewal of transmission and distribution networks,
4. Introduction of a monitoring and reporting system for important interconnection projects.

The table below presents an overview of the 4 issues outlined above:

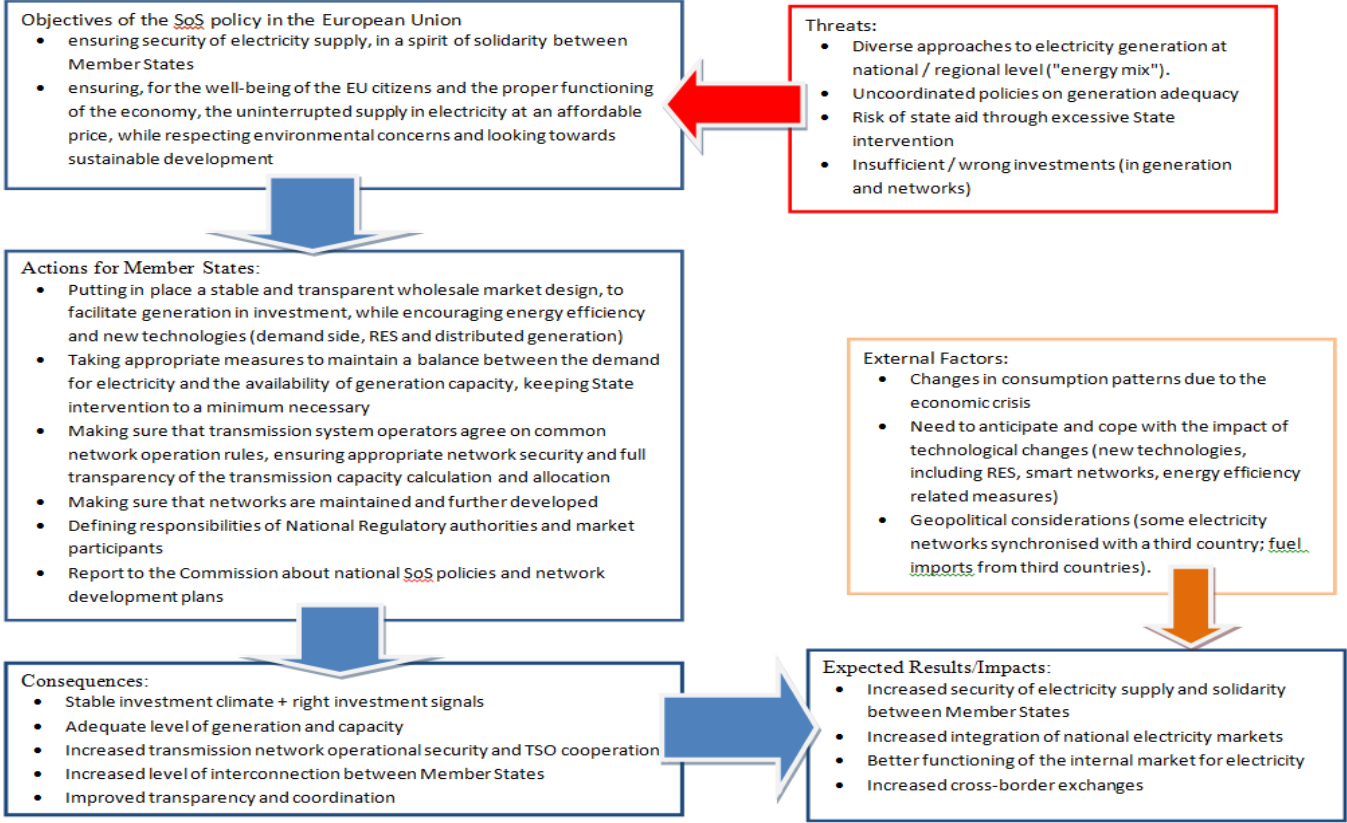
Table 2: Overview of security of supply measures

Relevant legislation	Stable and transparent wholesale market design - facilitating generation investment in a competitive market framework	Ensuring network operation rules are agreed and adhered to by transmission system operators	Providing for the maintenance and renewal of transmission and distribution networks	Introduction of a monitoring and reporting system
D 2005/89	Art 3(2)(g), Art 5	Art 4(1), 4(3), 4(4)	Art 4(2), 6(1)	Art 6(2), 7
D 2003/54	Art 3, Art 6, Art 7	Art 24	Art 23(2)	Art 4 Art 28(1)(c)(d)
R 1228/2003		Art 5, 8(4)	Art 6(6)	

Source: DG ENER

The obligations imposed on Member States as well as the Directive's rationale are illustrated in the following intervention logic scheme:

Figure 1: Intervention logic scheme for security of supply

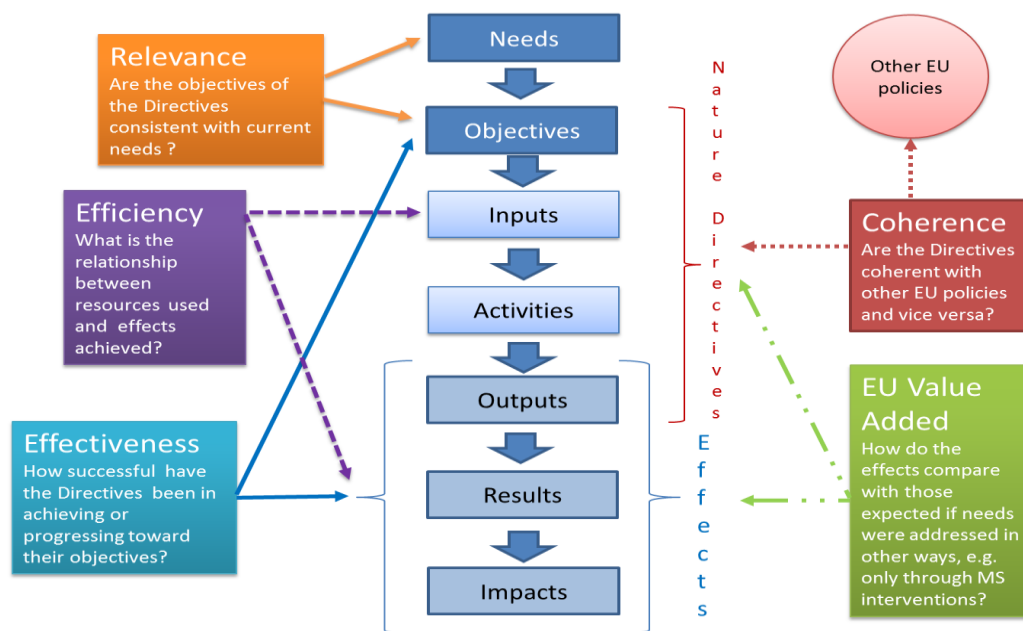


Source: DG ENER

4. EVALUATION LOGIC

The evaluation logic is framed under five different evaluation categories: Effectiveness, Efficiency, Relevance, Coherence and EU added Value (Figure 2). 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 electricity sector and the objectives of the legislation. Coherence looks for evidence of synergies or inconsistencies between the Directives and other EU policies which 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 evaluation questions, set out in the mandate, are given (see the published Evaluation Roadmaps). These questions are presented under Section 7 for each category.

Figure 2: Fitness Check evaluation logic



5. EVALUATION METHOD

The Evaluation Roadmaps were prepared in October 2015 and made publicly available⁴³.

Since 2001, the European Commission has reported yearly on the progress and implementation of the internal electricity market. Indeed, since the adoption of the Electricity Directive, Article 47 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 on an annual basis. Such monitoring and reporting has been conducted yearly⁴⁴. 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 implication if the Third Energy Package on the electricity market⁴⁵.

As the implementation of the rules of the Third Energy Package is ongoing (e.g. adoption of last network codes and implementation of adopted network codes), the evaluation was based on the status quo of the implementation⁴⁶. Throughout the evaluation period, legal documents, position papers, studies, reports, statistical data and other pieces of written evidence were reviewed. The evaluation made use of a number of studies prepared for the Impact Assessment in support of the proposal for a new Market Design. These make up a bulk of close to 30 studies, most of which carried by independent parties and covering a range of

⁴³ Supra note.

⁴⁴ <https://ec.europa.eu/energy/en/topics/markets-and-consumers/single-market-progress-report>

⁴⁵ See the list of the studies with reports carried out for the European Commission in the field of energy market https://ec.europa.eu/energy/en/studies?field_associated_topic_tid=42

⁴⁶ However, problems in the implementation, such as the difficulties amongst Member states to agree on network codes, provided evidence in itself which was used for the evaluation.

different methodologies, including both qualitative and quantitative aspects⁴⁷. For detailed information on the content, authors and how to access such studies we refer the reader to Annex V of said Impact Assessment.

Kex data (such as raw market data) are based on data supplied 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.

In addition, two specific stakeholder consultations⁴⁸ were launched on the 15 July 2015 in the form of a consultation on the future initiative on electricity market design⁴⁹ and on risk preparedness⁵⁰. The stakeholder consultations ended in 9 October 2015. They were open to EU and Member States' authorities, energy market participants and their associations, SMEs, energy consumers, NGOs, other relevant stakeholders and Citizens.

A wide public consultation⁵¹ on a new energy market design (COM(2015)340) was conducted from 15 July 2015 to 9 October 2015. It was open to EU and Member States' authorities, energy market participants and their associations, SMEs, energy consumers, NGOs, other relevant stakeholders and citizens. The public consultation on a new market design aimed at obtaining stakeholder's views on how fit the current regulatory framework is to meet the challenges that the market faces and on how the issues may need to be addressed in a redesign of the European electricity market.

As regards representativeness and quality, the Commission received 320 replies to the consultation. About 50 % of submissions come from national or EU-wide industry associations. 26% of answers stem from undertakings active in the energy sector (suppliers, intermediaries, customers), 9% from network operators. 17 national governments and several national regulatory authorities submitted also a reply. A significant number of individual citizens and academic institutes participated in the consultation.

A public consultation on risk preparedness in the area of security of electricity supply was organized between July 15th and October 9th 2015. This public consultation aimed at obtaining stakeholder's views in particular on how Member States should prepare themselves and co-operate with others, with a view to identify and manage risks relating to security of electricity supply.

⁴⁷ For some aspects concerning supplementary evidence, only preliminary results were available at the time of the Evaluation; however, since more than one study was investigating main issues (for example competitiveness or liquidity of short-term markets), the robustness of the Evaluation was not put into question.

⁴⁸ <https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>

⁴⁹ The Commission issued two Communications - (COM(2015) 340 Final) "*Launching the public consultation process on a new energy market design*" and (COM(2015) 339 Final) "*Delivering a new deal for energy consumers*" – as well as a public consultation on risk preparedness in the area of security of electricity supply

⁵⁰ <https://ec.europa.eu/energy/en/consultations/public-consultation-risk-preparedness-area-security-electricity-supply>

⁵¹ <https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>

The consultation resulted in 75 responses including public authorities (e.g. Ministries, NRAs), international organizations (e.g. IEA), European bodies (ACER, ENTSO-E) and most relevant stakeholders, including SMEs, industry and consumers associations, companies and citizens. The following paragraphs provide a summary of the responses.

The results of the public consultations have been discussed in the Inter-Service Steering Group (ISG) (it was decided to use the same ISG for both evaluations: SoS and Electricity Market Design).

A study⁵² was carried out to analyse risk preparedness policies in the Member States.

For detailed information about the studies and documents that constituted the basis for this Evaluation as well as methodologies applied thereto, we refer also to Annex 1 and 2 of this Evaluation.

6. 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, ENTSO-E 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 concerned⁵³.

Several Member States were nevertheless reluctant to transpose all required provisions of the Third Electricity Package on time (i.e. by 3.3.2011). The Commission has therefore also resorted to formal legal action where required.

In a first step ("transposition checks"), the Commission opened 19 infringement proceedings against 19 Member States to ensure full transposition of the Electricity 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 Electricity 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 Electricity 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

⁵² Review of current national rules and practices relating to risk preparedness in the area of security of electricity supply, prepared by VVA for DG Energy. (Contract ENER/B4/ADM/2015-623/SI2.717165).

⁵³ Interpretative notes are available at <http://ec.europa.eu/energy/en/topics/markets-and-consumers/market-legislation>.

Member States⁵⁴. 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 1st July 2016, 8 of these EU Pilot cases have resulted in infringement procedures where, *inter alia*, violation of EU electricity market rules is at stake. Further EU-Pilots cases remain open and might lead to more infringement procedures.

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 1st July 2016, two such infringement procedures are still pending.

At the time of writing, some form of price regulation exists in 17 Member States⁵⁵. 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 systematically challenged via infringements while price regulation for *households*⁵⁶ 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.

Deregulating household prices may be politically unpopular as regulation in Member States is often justified by social policy objectives and/or lack of competition and 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, infringement actions against price regulation for households are not excluded in the follow-up to informal consultations.

The Commission published a detailed report on its enforcement activities in relation to the Third Electricity Package (see the document Enforcement of the Third Internal Energy Market Package (SWD(2014) 315 final⁵⁷).

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

⁵⁴ EU Pilot is a scheme designed to resolve compliance problems without having to resort to infringement proceedings. It is based on a website which 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.

⁵⁵ BG, HR, CY, DK, FR, UK, EL, HU, IT, LT, LI, MT, PL, PT, RO, SI, ES.

⁵⁶ And other comparable customers such as SMEs, schools, hospitals etc.

⁵⁷ https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex6_0.pdf. Figures presented here are updated, to the extent necessary.

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, see Article 10 and 11 of the Electricity Directive). The Commission has provided opinions in more than 100 cases since 2009. 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 17 Electricity Regulation). To the extent pertinent, the experience gained from these ex-ante approval procedures will be fed into the evaluation (see "Effectiveness" section).

Regarding **security of electricity supply**, Member States had to implement SoS Directive by 24th February 2008. The Commission issued an interpretative note, meant to help Member States in implementing the Directive⁵⁸. Non-transposition infringement procedures were opened in 2008 against 17 Member States. Between 2009 and 2010, Member States produced comprehensive correlation tables reflecting the transposition in their national legislative frameworks, which served as a basis for the Commission when carrying out systematic conformity checks. Ultimately, no infringement procedure was opened on non-conformity with the SoS Directive. This was, on the one hand, due to the fact that the SoS Directive contains, apart from monitoring and reporting obligations, only a few, rather general, obligations, often in the form of broad principles to be respected. On the other hand, the "Third Package", which entered into force in 2009, superseded some of the rather general provisions of the SoS Directive (e.g. notably concerning grid operation, grid investment or congestion management rules).

Accordingly, the Commission received only a limited number of complaints related to this Directive. None of these led to the opening of an infringement procedure on security of supply related issues. The progress report on the SoS Directive⁵⁹ published on 2010 concluded that Member States had implemented the provisions of the Directive either through the creation of new legislative provisions or the use of existing provisions emanating from other European legislation.

7. ANSWERS TO THE EVALUATION QUESTIONS

This section summarises the main findings in relation to the analysis of each of the questions set out in the Evaluation Roadmaps. Questions are either dealt with individually or have been combined where there are significant overlaps in information justifying a unified approach. Additional key provisions of the Third Package - not covered by the questions - have also been evaluated, although more briefly.

7.1. Effectiveness

The effectiveness evaluation aims at verifying whether the Third Energy Package and the Electricity Security of Supply Directive have been achieving their objectives. This is being done by comparing the intended objectives with the actual effects generated in the various areas under consideration.

⁵⁸ The note was sent to Member States and is not publicly available.

⁵⁹ COM (2010) 330 final, Report on the progress concerning measures to safeguard security of electricity supply and infrastructure investment.

<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1467289040003&uri=CELEX:52010DC0330>

For the Third Energy Package, 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 (7.1.1.) and to what extent the new provisions improved the situation for consumers in terms of consumer protection (7.1.2.). As concerns the Electricity Security of Supply Directive, the analysis focussed on whether the general rules of the Directive have effectively increased security of supply and risk preparedness (7.1.3.).

7.1.1. *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 electricity markets, the Third Energy Package strengthened the unbundling rules to completely remove any conflict of interest between generators 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 operators (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 July 2013, regarding electricity, 16 Member States had implemented ownership unbundling, 6 Member States had implemented the ITO framework, and one Member State the ISO framework.

Compliance with unbundling requirements is monitored at national level by the national regulatory authorities, under a procedure set out in Articles 10 and 11 of the Electricity Directive. Under this procedure, national regulatory authorities 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. National regulatory authorities 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 Electricity Directive has been successfully implemented in practice. In the period of 3 March 2012⁶⁰ until 31 May 2016, the Commission has issued 127 Opinions on draft certifications of national regulatory authorities from 26 Member States⁶¹. Of these, 67 Opinions concerned transmission system operators for gas, and 60 concerned transmission system operators for electricity⁶².

⁶⁰ The application date for the unbundling requirements, as set out in Article 9(1) of Electricity Directive.

⁶¹ This includes draft certifications by which a transmission system operator previously certified under the ITO or ISO model was re-certified under the OU model.

⁶² The Commission Opinions are available on the website of DG Energy under the following link: https://ec.europa.eu/energy/sites/ener/files/documents/certifications_decisions.pdf

The positive impact of the reinforced unbundling rules was confirmed by a specific evaluation of the new unbundling rules, as required by Art. 47(3) of the Electricity Directive. In its report on the ITO model from October 2014⁶³, 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 are usually sufficient and adequate to ensure effective separation of the transmission business from generation 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 Package⁶⁴, had become less frequent after the introduction of the reinforced unbundling rules.

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 transparent third party access in distribution networks, in order to promote competition in the energy market. There is no evidence⁶⁵ that the intervention within the boundaries of the unbundling requirements, did not achieve the objective of promoting competition in the market.

According to CEER's data for 24 EU Member States⁶⁵ there is a total of 2,600 electricity DSOs operating in across EU. From these DSOs, 2,347 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 Electricity Directive. Eurelectric⁶⁶ also reports a total number of 2,331 DSOs operating in EU (data for 27 Member States). According to Eurelectric from this total number 2,148 DSOs fall under the 100,000 rule leaving only 183 to have obligations of unbundling⁶⁷.

⁶³ https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex3.pdf

⁶⁴ 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\(02\)](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\(01\)](http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1439992538223&uri=CELEX:52010XC0522(01))

⁶⁵ "Status Review on the Transposition of Unbundling Requirements for DSOs and Closed Distribution System Operators" (2013) CEER.

⁶⁶ "Power Distribution in Europe Facts & Figures", Eurelectric.

⁶⁷ CEER and Eurelectric numbers only coincide for very few Member States. In some cases the discrepancy is very high, for instance for the Czech Republic CEER reports 308 DSOs while Eurelectric only 3, also in Romania 41 (CEER) and 8 (Eurelectric).

According to CEER only around 189 DSOs across EU are legally unbundled. There are no known cases where Member States have decided to go beyond the provisions of the Electricity Directive. There is only the exception of Netherlands where ownership unbundling requirements have been introduced for DSOs.

Increased liquidity and competition leading to lower prices on wholesale markets

The Commission's analyses of the development of the electricity market⁶⁸ showed that the set of the different measures of the Third Electricity Package had a positive effect on liquidity and competition in the wholesale market.

In power markets, Eurostat data on the development of market concentration between 2009 and 2014 indicate new players could enter the wholesale generation and supply market in several countries, leading to decreasing market shares of the largest generators. This is, for instance, the case in Belgium, Czech Republic, Germany, Greece and Latvia. The market concentration, measured by the so-called "Herfindahl Hirschmann Index" (HHI) in the electricity generation market⁶⁹ has significantly decreased in several Member States. In Belgium, for instance, HHI was 7 390 in 2008 and 4 700 in 2013. It has also decreased slightly in Italy from example going from 1 087 in 2011 to 884 in 2014).

However, in many Member States, the traditional incumbent generation and supply company holds a dominant position. No significant change in the market can, for instance, be observed in France, Italy, Poland, Romania and Slovakia. The HHI has stayed constant in many Member States such as in Ireland (1 150) or Greece (6 844 in 2011 and 6 183 in 2014) in Spain (around 1 300) or in France (above 8 500). The market share of the largest generator is still higher than 50% in 10 Member States in 2014 (in 11 Member States in 2011). This reveals for some Member States the limited progress brought by the Third Package when it comes to fostering competition through reducing dominant positions and stimulating new entry.

The Commission's market monitoring reports of 2012 and 2014 showed that more competition between generators contributed⁷⁰ to a **reduction of the electricity prices at wholesale level**. In 2014, nearly all EU day-ahead wholesale prices prolonged the **downward trend** that has been observed since 2011⁷¹.

⁶⁸ European Commission, EU Energy Markets in 2014, SWD (2014) 310 final and SWD (2014) 311 final accompanying the Communication "Progress towards completing the Internal Energy Market" COM (2014) 634 final of 13 October 2014;

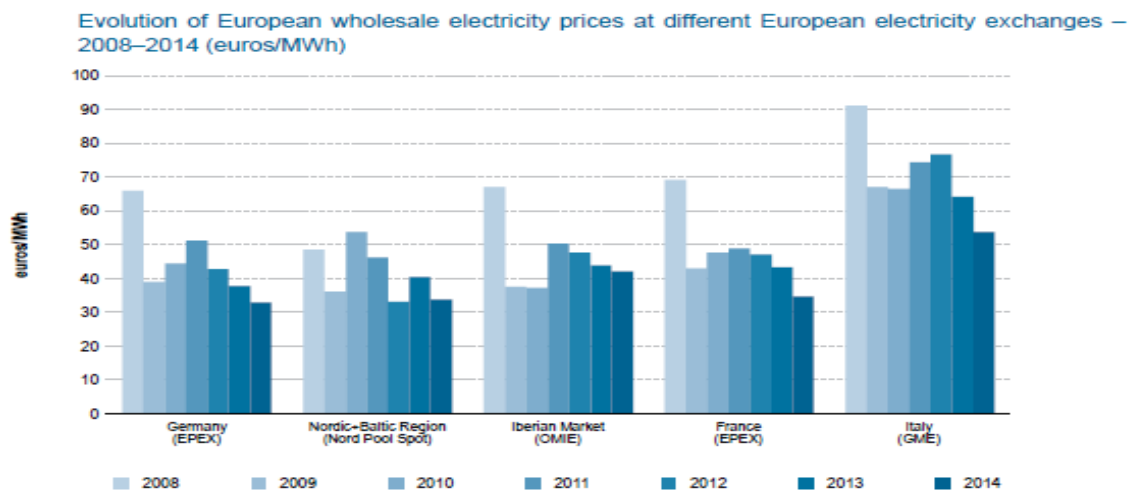
European Commission, Energy markets in the European Union in 2011, Commission Staff Working Document SWD (2012) 368 final of 15 November 2012 accompanying the Communication "Making the internal energy market work" (COM(2012) 663 final).

⁶⁹ The HHI is a commonly accepted measure of market concentration. It is calculated by squaring the market share of each firm competing on the market and then summing the result numbers the higher the index the more concentrated the market.

⁷⁰ Other factors such as subsidies for certain generation technologies combined with regulatory dispatch rules or changes in energy demand have also contributed to this development. However, the decrease in electricity prices has been higher than the decrease for other energy prices, see e.g. [Commission Communication COM\(2012\) 663 final, p. 4.](#)

⁷¹ ACER market monitoring report 2014 : <http://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Reports.aspx>;

Figure 3:



Source: EMOS, Platts, PXs and data provided by NRAs through the ERI (2015) and ACER calculations.

Cross-border electricity trade has increased...

The general objective of the Electricity Directive, as set out in its Article 1 to improve and integrate competitive electricity markets in the EU. In order to measure progress towards market integration, market concentration, the volume of cross-border trade as well as the development of market coupling should be looked at.

One of the main issues at the time of adoption of the Third Package was the lack of sufficient rules and necessary coordination to permit cross-border trade to work effectively. Data on cross-border trade show that **cross-border trade in electricity between most EU countries has increased** and so has the use of interconnectors – the share of imports in the total electricity available for final consumption has grown in 23 Member States between 2008 and 2012. Despite a decline in EU electricity demand between 2008 and 2014, traded volume of electricity increased in Europe between 2008 and 2014⁷².

⁷² ACER market monitoring report 2014 : <http://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Reports.aspx>

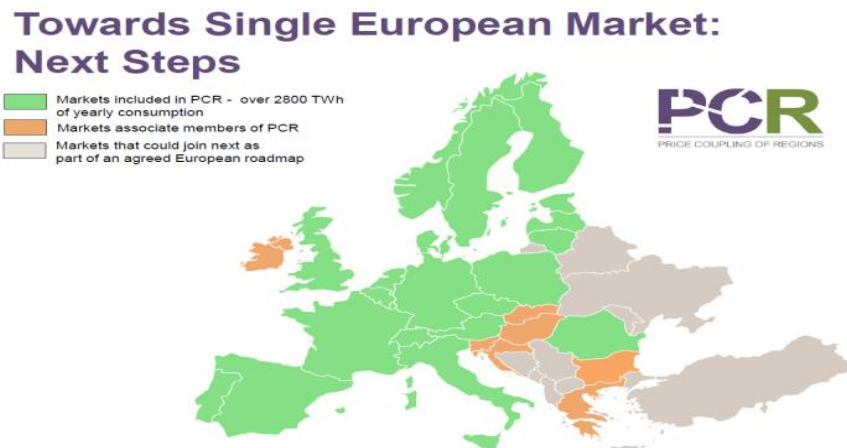
Figure 4:



Source: ACER market monitoring report 2015, p. 150

Since 2009, electricity national markets have notably grown together through the development of so-called "**market coupling**", a coordinated form of electricity trading over a central platform which aggregates all bids and offers, thereby optimising electricity flows almost EU-wide⁷³. The Third Package paved the way for market coupling, which has in the meantime been made legally binding through implementing legislation⁷⁴. Today, 19 Member States representing 86% of the EU's energy consumption are connected via the common platform.

Figure 5:



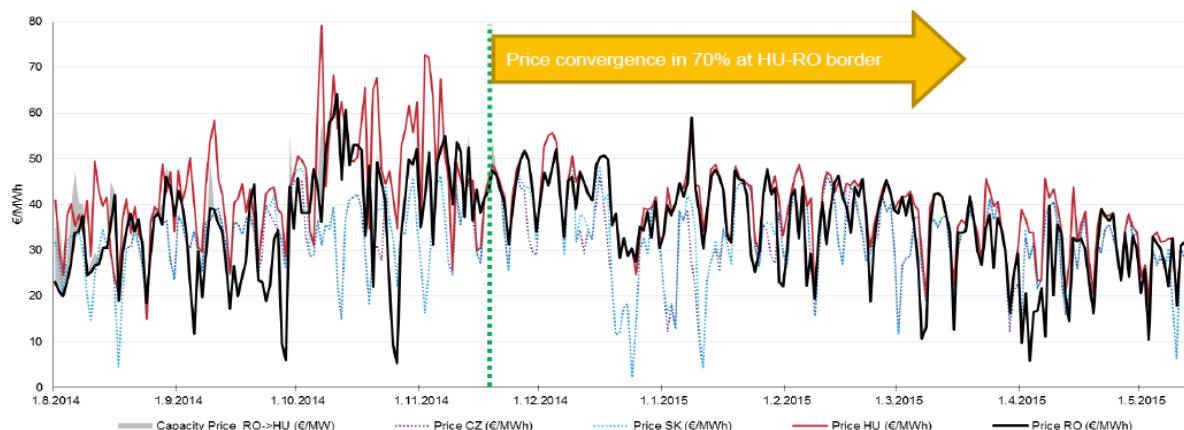
Source: <http://www.nordpoolspot.com/globalassets/download-center/pcr/pcr-presentation.pdf>

⁷³ Market coupling ensures that interconnectors are more efficiently used by simultaneously clearing their capacity with all bids and offers into the day-ahead auction. Before interconnectors were coupled, traders had first to secure capacity ahead of time on the interconnector and then offer or bid into the power exchanges on each end of the interconnector (Source: Booz & Company final Report: "Benefits of an integrated European energy market").

⁷⁴ Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, *OJ L 197*, 25.7.2015, p. 24–72

Evidence shows that market coupling increased the **convergence of wholesale prices** between neighbouring markets in the EU⁷⁵.

Figure 6: Illustration on price convergence after introducing market coupling between Romania, Czech Republic, Hungary and Slovakia



Source: ENTSO-E, https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/3736161/179B1C2EE4372E9CE053C92FA8C0C45E.PDF

By making more cross-border capacities available, market coupling is also beneficial for cross-border competition, the integration of renewables and security of supply.

The Commission had found frequent evidence of "underinvestment" in cross-border interconnections⁷⁶. One of the aims of the Third Package was therefore to improve security of supply by strengthening incentives for sufficient investments in transmission. To make this possible the Third Package foresees measures to monitor more closely through regulators whether TSOs carry out the adequate investments (for example Article 37 of the Electricity Directive⁷⁷ and the unbundling provisions on investment monitoring – Article 22 Electricity Directive), and to encourage closer coordination between TSOs as regards their investments (e.g. long term planning for the development of their systems through a ten-year network development plan as required by Article 22 of the Electricity Directive). Data show that investments into cross-border infrastructure are likely to increase further in the current decade⁷⁸.

⁷⁵ See also example the study from CIGRE, *Market coupling, facing a glorious past*, 2016

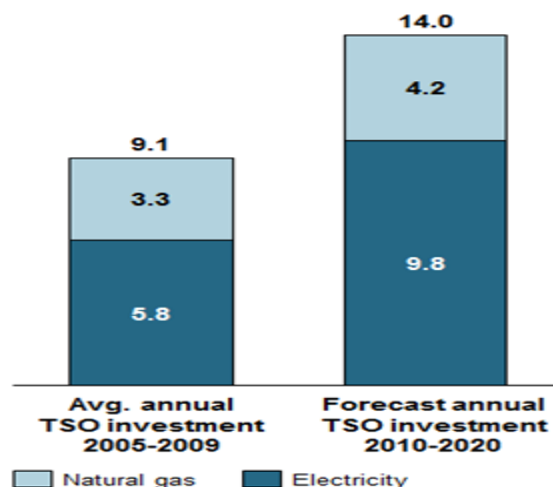
⁷⁶ See for example : Commission Decision of relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case COMP/39.315 – ENI)

http://ec.europa.eu/competition/antitrust/cases/dec_docs/39315/39315_3019_9.pdf

⁷⁷ Article 37 Electricity Directive "Duties and powers of the regulatory authority": "1. The regulatory authority shall have the following duties:[...] (g) monitoring investment plans of the transmission system operators, and providing in its annual report an assessment of the investment plans of the transmission system operators as regards their consistency with the Community-wide network development plan referred to in Article 8(3)(b) of Regulation (EC) no 714/2009; such assessment may include recommendations to amend those investment plans[.]"

⁷⁸ Final Report by Roland Berger strategy consultants, " The structuring and financing of energy infrastructure projects, financing gaps and recommendations regarding the new TEN-E financial instrument, July 2011: https://ec.europa.eu/energy/sites/ener/files/documents/2011_ten_e_financing_report.pdf

Figure 7: Comparison of past and planned future TSO investments [EUR billion]



(Source: Annual reports of TSOs, interviews, Roland Berger research)

...but significant barriers to cross-border trade remain

A report of the European Court of Auditors from 2015⁷⁹ commented on the effects of the Third Package as follows "While the aim of unbundling and other measures was to create the regulatory conditions for an internal energy market, a liberalised and competitive market has often not emerged. This is because many governments and incumbent energy companies have continued to restrict third-party network access through regulations and technical restrictions".

Indeed, while the measures of the Third Electricity Package clearly had a positive impact in the development of cross-border trade, important barriers to the trade of electricity across borders are still in place. One key barrier to cross-border-trade remains the uncoordinated use of interconnectors, leading to a **limitation of available cross-border capacity**. Even where interconnection capacity between countries is *physically* available, TSOs do often not make this capacity available to the market. According to recent ACER analyses, up to 75% of the physically available interconnector capacity cannot be used because of such practices. At some borders, cross-border capacities offered by TSOs have even been reduced to 0 or close to zero, although a large physical interconnection is in place (e.g. at the German/Polish or German/Danish border⁸⁰). The main motivation for TSOs to reduce existing cross-border capacities and not to make all capacities available to the market is to avoid problems in the internal grid of the TSOs. It is the TSOs task to guarantee stability of the electricity grid. If the internal grid capacity is not sufficient to transport all energy produced, TSOs need to take measures to ensure grid stability ("congestion management"). Such measures can for example

⁷⁹ Special Report of 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/Lists/ECADocuments/SR15_16/SR_ENERGY_SECURITY-EN.pdf

⁸⁰ ACER market monitoring report 2014 : page 162
<http://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Reports.aspx>

consist in so-called "re-dispatch" (e.g. paying generators to de- or increase their generation against a compensation payment), or in the reduction of interconnector capacities. ACER showed in its analysis that TSOs systematically reduce interconnector capacity to deal with internal congestion problems⁸¹. One main reason for the increasing reductions of cross-border capacities is the significant **increase of volatile generation** from wind and sun. If the internal grid is not strong enough to accommodate this renewable energy production (e.g. in peak times of strong winds or sun), imports are often reduced or stopped⁸². This is also the result of a bidding zone configuration which is not yet optimised within the EU⁸³.

Also **uncoordinated national state interventions** in the form of renewables support schemes or capacity mechanisms have reduced the effectiveness of the measures of the Third Package and introduced new barriers to cross-border trade, as evidenced in the Commission's comprehensive report of 2014 on this issue⁸⁴. Support schemes which do not take into account that continental Europe is connected through a synchronised grid can lead to reductions of cross-border flows and lead to problems to transport energy in neighbour states⁸⁵. National state aid for generators in the form of capacity mechanism reduced also cross-border electricity exchanges, as most capacity mechanism are not open to production from foreign countries⁸⁶.

Another problem is the lack of adequate and efficient investment in electricity infrastructure to support the development of cross-border trade⁸⁷. ACER's recent monitoring report and other reports on the EU regulatory framework stress that the incentives to build new interconnections are still not optimal. In the current regulatory framework, TSOs earn money from so-called congestion rents⁸⁸. If TSOs reduce congestion between two countries, their revenues will therefore decrease. The Third Package has identified this dilemma and addressed through obliging TSOs to use congestion rents either for investments in new interconnection or to lower network tariffs. Experience with this rule has, however, shown

⁸¹ See footnote above.

⁸² While other measures would be available which would not limit cross-border flows (e.g. "redispatch"), ACER showed that TSOs prefer to limit cross-border capacity to costly redispatching measures.

⁸³ ACER market monitoring report 2014 : page 162
<http://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Reports.aspx>

⁸⁴ Communication from the Commission, Delivering the internal electricity market and making the most of public intervention, C(2013) 7243 available at
http://ec.europa.eu/energy/sites/ener/files/documents/com_2013_public_intervention_en_0.pdf

⁸⁵ See for a description of the so-called "loop-flow problem" the ACER market monitoring report 2014 p. 163.

⁸⁶ See the Commission's interim report of the sector inquiry into capacity mechanisms, p. 14
http://ec.europa.eu/competition/sectors/energy/state_aid_to_secure_electricity_supply_en.html

⁸⁷ ACER market monitoring report 2014 and 2015
<http://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Reports.aspx>

⁸⁸ Price differences between bidding areas occur when the surplus volume in one or more bidding area is greater than the total export capacity from this/these areas. The sales and purchase curves then have to be balanced taking the transmission capacity into account. This will lead to a relatively low price in the surplus area and a relatively high price in the deficit area – utilizing the maximum capacity between the areas. These price differences generate an ownerless income on the spot market trading flow from the area with a lower price to the area with a higher price. In specific situations the spot market flow on single connections may also flow from an area with a higher price towards an area with a lower price, thus generating an ownerless cost. This income (or cost) is referred to as the congestion rent and is allocated to the TSOs as owners of the transmission grid.

that most TSOs prefer to use congestion rents to lower their tariff to investing into new interconnectors⁸⁹.

Cooperation between TSOs increased...

The creation of ENTSO-E and ENTSO-G as a cooperation bodies for European TSOs has intensified the cooperation between TSOs across Europe and within regions. The ENTOSOs have notably worked intensively on developing draft text proposals for so-called "network codes", i.e. implementing legislation for more coordinated grid operation and trading rules. Based on the ENTOSOs work and other stakeholders' input, the Commission was in a position to adopt a large number of implementing Regulations under comitology rules since 2009⁹⁰. ENTSO-E has also delivered the required input for a more coordinated infrastructure planning⁹¹. According to the results of the Commission's stakeholder consultations on the ENTOSOs work on network codes (see the Consultation on the establishment of the annual priority lists for the development of network codes and guidelines⁹²) and the ENTOSOs role in general, stakeholders consider the creation of the ENTOSOs as a step into the right direction for more TSO cooperation. Also recent reports from ACER⁹³ confirm that both ENTOSOs 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 which require action of several neighbouring TSOs (e.g. to coordinate redispatch measures in order to limit negative impact on neighbours) and created new regional groupings of TSOs within which TSOs have to cooperate⁹⁴.

...but cross-border trade is still hampered by insufficient TSO coordination

However, the evaluation has also identified some shortcomings in the regulatory framework created for ENTOSOs. A common concern raised by stakeholders in consultations⁹⁵ relates to a possible conflict of interest in ENTSO-E's role – being at the same time an association called to represent the public interest, involved e.g. in network code drafting, and a "lobby organisation" of commercial operators with an interest to expand the own business. Indeed,

⁸⁹ ACER 2016 Report on Congestion at Interconnection points in 2015
http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%202016%20Report%20on%20Congestion%20at%20IPs%20in%202015.pdf

⁹⁰ The network codes which have been adopted or on in preparation can be found at:
<http://ec.europa.eu/energy/en/topics/wholesale-market/electricity-network-codes>

⁹¹ European Network of Transmission System Operators for Electricity, Ten-Year Network Development Plan 2014,
https://www.entsoe.eu/major-projects/ten-year-network-development-plan/tyndp-2014/Documents/TYNDP%202014_FINAL.pdf

⁹² <http://ec.europa.eu/energy/en/consultations/consultation-establishment-annual-priority-lists-development-network-codes-and>

⁹³ ACER Report, "Energy Regulation: A Bridge to 2025 Conclusions Paper", 19 September 2014

See also recent annual activity reports of ACER :

http://www.acer.europa.eu/official_documents/publications/pages/publication.aspx

⁹⁴ See Article 15 on capacity calculation regions in the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management.

⁹⁵ See contributions to the market design public consultation from EUROPEX, ACER, CEER and E-Control, Eurelectric for example

<https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>

the Commission had to rework some draft network codes in order to ensure that the interest of all stakeholders and consumers are taken into account in a balanced manner. Stakeholders argued that independence and transparency requirements should therefore be reinforced, and regulatory oversight over the ENTSOs should be reinforced⁹⁶. Stakeholders also suggested in this context that the process for developing network codes should be revisited in order to provide a greater a balance of interests and ensure optimal results for the internal market.

Despite the creation of ENTSOs as coordination body for TSOs, significant problems through insufficient coordination remain. While being connected through a synchronised grid and albeit electricity is traded EU-wide via market coupling, today 42 individual TSOs decide separately about the flows of electricity within this synchronised grid. TSOs tend to maximise benefits within their grid area and to disregarding negative effects outside their grid area. Stakeholders and ACER criticise that this leads to sub-optimal results and hampers cross-border trade⁹⁷. To accommodate the need for coordination across TSO areas, Regulation (EC) No 714/2009 established regions for the coordination of capacity calculation, capacity allocation and secure network operation. These regions were further developed in one of the subsequently adopted network codes called 'CACM Regulation'⁹⁸. The frequent individual and uncoordinated reductions of interconnector capacities through individual TSOs described above show that coordination between TSOs is still underdeveloped. According to the ACER 2014 Market Monitoring Report, progress in coordinating capacity calculation is very limited and varies from region to region. It concludes that there is still significant scope for improvements in the area of capacity calculation coordination and that the inefficiencies of the current methods are probably one of the main obstacles to further market integration. The new obligations for regional coordination between TSOs on electricity trading and system operation issues are likely to improve the situation.

In addition, TSOs have voluntarily launched so-called *Regional Security Coordination Initiatives* in the recent years (e.g. "Coreso" and "TSC"⁹⁹) covering a greater part of the European interconnected networks aiming at improving TSO cooperation by providing a set of services to national TSOs and maintaining or increasing security of operation of European interconnected networks. This RSCI approach is widely recognised as a positive step forward¹⁰⁰ and is further formalised in European legislation with the new Guideline on System Operation which received a positive vote from Member States on 4 May 2016¹⁰¹.

⁹⁶ ACER Report, "Energy Regulation: A Bridge to 2025 Conclusions Paper", 19 September 2014

⁹⁷ See Eurelectric position paper: "Optimal use of the transmission network a regional approach" , June 2016 http://www.eurelectric.org/media/278462/eurelectric_report_congestion_management_-2016-2210-0009-01-e.pdf

⁹⁸ Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management

⁹⁹ TSOs have a long tradition of cooperation. In the early 2000s, they voluntarily set up regional entities to provide them with regional data and calculations - the now called Regional Security Coordinators. RSCs complement the TSOs own data and support the TSOs' decision-making on which actions to take to secure their grid while integrating more and more volatile generation and with more and more cross-border exchanges.

¹⁰⁰ European Parliament, Report on Towards a New Energy Market Design (2015/2322(INI), Committee on Industry, Research and Energy, 21.6.2016.

ENTSO-E Policy paper Future TSO Coordination for Europe, November 2014

https://www.entsoe.eu/Documents/Publications/Position%20papers%20and%20reports/141119_ENTSO-E_Policy_Paper_Future_TSO_Coordination_for_Europe.pdf

¹⁰¹ <https://ec.europa.eu/energy/en/topics/wholesale-market/electricity-network-codes>

However, given the economic importance (and distributive effects) of the decisions TSOs have to agree on, experience has shown that voluntary cooperation between TSOs was not able to overcome the problems that block progress in the internal electricity market (e.g. definition of fair bidding zones, effective cross-border curtailments). Absent robust rules on regional TSO cooperation in the Third Package (including decision-making rules), only limited progress could be achieved on issues requiring a compromise between TSOs.

A clear majority of stakeholders who responded to the public consultation is **in favour of closer cooperation**¹⁰² between TSOs. Stakeholders mentioned different functions which could be better operated by TSOs in a regional set-up and called for less fragmentation in some important parts of the work of TSOs.

Regulatory independence and cooperation between regulators has improved...

As concerns the newly introduced rules on the reinforcement of independence of national regulators, the Commission's systematic compliance checks showed that the detailed provisions on how to guarantee regulatory independence were implemented in most Member States. The independence rules even go beyond the requirements in other areas such as competition¹⁰³.

The Third Package also created a new coordination body for regulators, the Agency for the Coordination of Energy Regulators (ACER). The evaluation has shown that ACER's activity has provided tangible benefits for EU citizens. Since its creation in 2011, ACER has coordinated the work of 28 national regulators and moderated their discussions within working groups and the Board of Regulators, monitored EU markets as well as the activities of the ENTSOs, and provided valuable advice on regulatory issues, notably in the process of the development of network codes.¹⁰⁴ The positive impact of ACER on market functioning has been acknowledged by most stakeholders. Since its creation through the Third Package, ACER has also been given new tasks, namely in the field of market supervision in the framework of the "REMIT"-regulation and infrastructure planning, in the framework of the new "TEN-E"-regulation¹⁰⁵.

...but problems with regulatory independence and coordination remain

The Evaluation showed that despite clearer rules on regulatory independence, many governments try to interfere in competence areas reserved to independent regulators. The Commission has opened several infringement procedures for non-conformity of Member State legislation as regards national regulatory authorities, notably concerning attempts from national governments to interfere in areas which are deliberately reserved to the competence

¹⁰² As reflected in the contributions of ACER and CEER, IFIEC, the IEA and Eurelectric for example

<https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>

¹⁰³ SWD(2014) 231 final: "Enhancing competition enforcement by the Member States' competition authorities: institutional and procedural issues", recital 27.

¹⁰⁴ ACER also provided first opinions on contentious regulatory questions at the request of national regulators under Article 7(4) of the ACER Regulation, see ACER Opinion 09-2015 on the compliance of NRAs' decisions approving methods of cross-border capacity allocation in the CEE region, 23.9.2015

http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2009-2015.pdf

¹⁰⁵ In particular ACER received a key role in in the monitoring of trading activity in wholesale energy products to detect and to prevent trading based on inside information and market manipulation, as well as in the energy network planning by participating on the process for the selection of Projects of Common Interest (PCIs) and their regulatory treatment.

of independent regulators, such as the setting of adequate transmission tariffs¹⁰⁶. Also the 2015 Special Report of the European Court of Auditors¹⁰⁷ stated that problems with regulatory independence still hamper the internal market and identified three main problems in the operation of the NRAs. Regarding their independence, they underline that the principles set out in the Electricity Directives are not always followed. They illustrate this with examples in Member States where the heads of regulatory bodies are not selected in a transparent manner and provided with sufficient freedom to operate. The Court of Auditors also mentions the existence of restrictions to the scope of their powers. They mention for instance that some governments still retain for themselves (at least partially) certain regulatory powers, notably of tariff setting which are of the competence of the NRA based on the Electricity Directive. This has been addressed by the Commission through the opening of several infringement procedures against Member States. Another concern relates to the level of resources available to the different NRAs which vary considerably from one NRA to another, staff ranging from 21 to more than 200. Some NRAs are for instance better equipped than others to participate in international cooperation and in the work of ACER for instance.

The evaluation identified also deficits in the regulatory set-up of ACER that hamper the internal market. One of the problems relates to the fact that ACER remains largely an advisory body without tangible decisions powers. Indeed, none of the very few decision powers ACER was given in the Third Package (e.g. concerning infrastructure exemption decisions¹⁰⁸) have to date been exercised. This has created problems in the implementation of the network codes. Some technical features require a common regional method (e.g. a common algorithm for the market coupling process). However, while a regional group of TSOs can decide by majority on proposals for such methods, ACER cannot approve this method. Instead, each individual regulator has to approve the common method individually. Only after this procedural step, ACER can decide (using its arbitration function under Article 8 of the ACER Regulation) on this method. This has already caused significant delays in the implementation of the CACM regulation¹⁰⁹. Unlike in other EU agencies, Member States retain a decisive role within ACER. National regulators chair the main decision body ("Board of Regulators"). It is not the independent ACER director or a group of directors who take decisions within ACER (as in similar EU agencies¹¹⁰), but national regulators, voting with a

¹⁰⁶ The Commission plans to conduct a specific study on the subject of national regulatory authorities and their independence in the course of 2017.

¹⁰⁷ Special Report of 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/Lists/ECADocuments/SR15_16/SR_ENERGY_SECURITY-EN.pdf

¹⁰⁸ See Art. 8 and 9 of the ACER Regulation.

¹⁰⁹ On 17 May 2016, the ACER has been informed by the NRAs, that they could not reach a unanimous decision on the definition of capacity calculation regions. (ACER Consultation document "The definition of capacity calculation regions", PC_2016_E_02 of 22 June 2016).

http://www.acer.europa.eu/Official_documents/Public_consultations/PC_2016_E_02/PC_2016_E_02%20on%20the%20capacity%20calculation%20regions.pdf

¹¹⁰ See for example the ESMA Agency: Regulation (EU^o No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission decision 2009/77/EC, OJ L 331, 15.12.2010, p. 84.

<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02010R1095-20140523>

Or the EASA Agency : Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, regulation (EC) No 1592/2002 and Directive 2004/36/EC, OJ L 079 19.3.2008, p. 1.

two-thirds majority. Experience with this rule has shown that a "blocking minority" of only 1/3 of the regulators can veto regulatory proposals, which led to failure or delays of regulatory initiatives¹¹¹.

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

The first observation on electricity and gas consumer prices is that these vary significantly between different MS. Denmark (30.38 euro cents/kWh) remains the country with the highest electricity household post-tax prices (POTP), more than three times the POTP charged to electricity households in Bulgaria (8.63 euro cents/kWh), the country with the lowest POTP in Europe. Household gas prices in 2014 remained lowest in Romania (3.14 euro cents/kWh post-tax), and highest in Sweden (11.61 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 applied¹¹².

The second observation is that industrial consumers pay, in general, between two to three times less for their electricity and gas than household consumers do. 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.

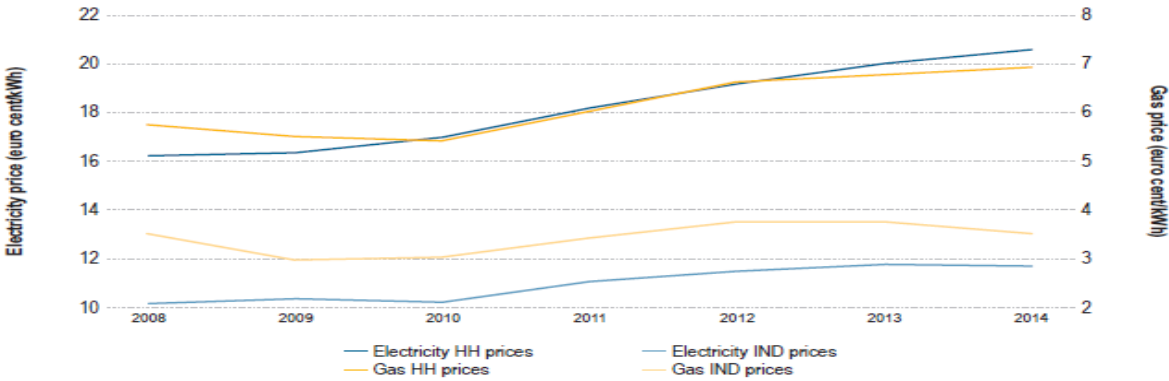
The third pertinent observation, illustrated in the chart below, is that electricity and gas prices for household consumers rose steadily between 2008 and 2014. Most recently, between 2013 and 2014, post-tax prices (POTP) for electricity and gas supplied to households increased on average by 2.6% and 2.1%, respectively. In contrast to household prices, industrial prices remained largely stable between 2008 and 2014, even declining between 2013 and 2014.

<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1459786766853&uri=CELEX:02008R0216-20160126>

¹¹¹ Such as in the case of the proposed network code on gas tariff harmonisation, where a minority of Member States could prevent that ACER tables a proposal.

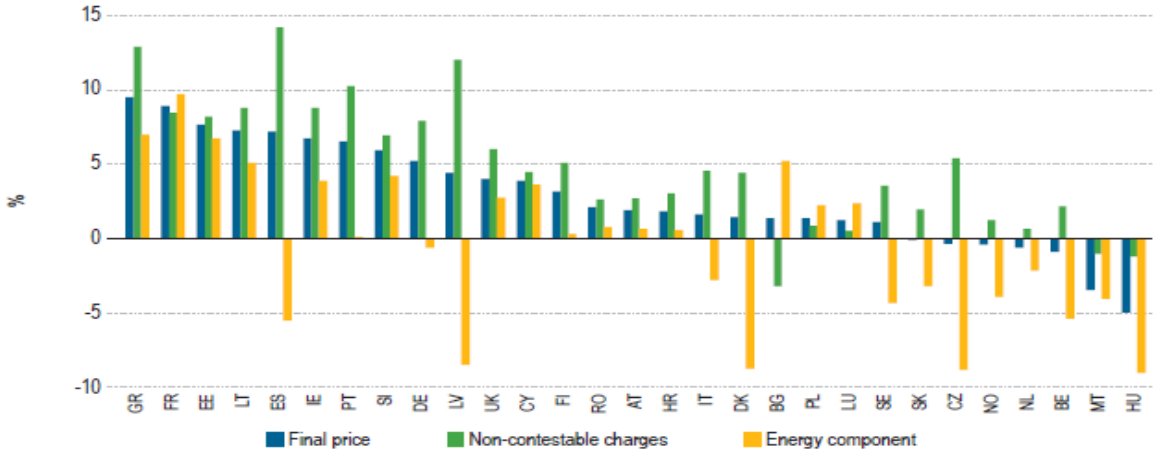
¹¹² Unless stated otherwise, the figures and analysis presented in the remainder of this section are drawn from the 2014 ACER Market Monitoring Report. ACER/CEER (2015), Market Monitoring Report 2014, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER_Market_Monitoring_Report_2015.pdf

Figure 8: Electricity and gas POTP trends for household and industrial consumers in Europe – 2008-2014 (euro cents/kWh)¹¹³



An analysis of the price components reveals the main drivers of rising household prices in the period 2008-2014. Figure 9 below shows that household electricity prices were greatly influenced by non-contestable charges (i.e. taxation and network charges) in most MS during this period. These currently make up, on average, 40% of the total bill in electricity and more than 50% in gas. Since 2008, and particularly over the last few years, non-contestable charges have significantly increased in many MSs, especially as a result of costs related to support schemes for renewable energy sources (RES). The fact that industrial electricity consumers are less burdened by non-contestable charges helps explain why their electricity POTPs decreased in a number of Member States during the period 2008-2014, albeit to a limited extent (Figure 10).

Figure 9: The compounded annual growth rate (CAGR)¹¹⁴ of the electricity POTP, energy component and non-contestable part of POTPs for households in Europe – 2008-2014 (%)¹¹⁵

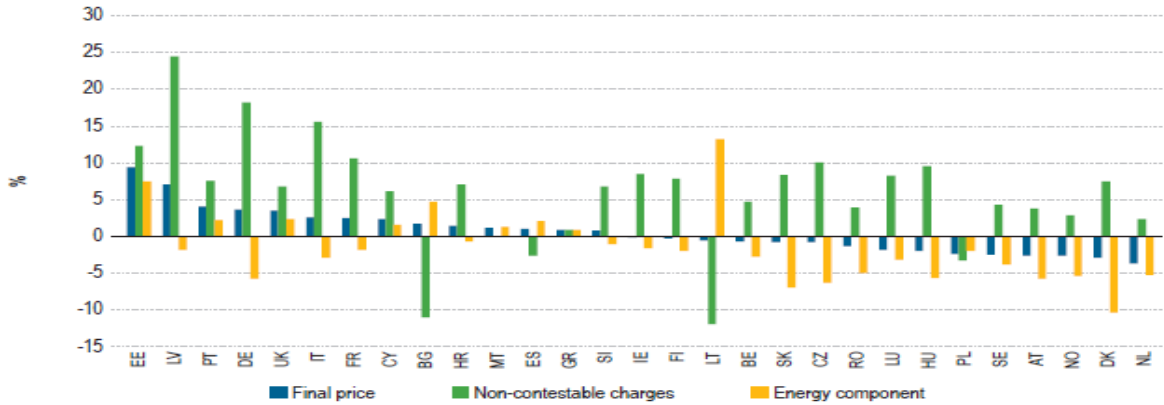


¹¹³ Source: Eurostat (29/08/2015) and ACER calculations. Note: The figure is based on bi-annual data provided by Eurostat for consumption bands: DC: 2,500 – 5,000 kWh (electricity households), D2: 20-200GJ (gas households), IE: 20,000-70,000 MWh (electricity industrial consumers) and I5: 1,000,000-4,000,000 GJ (gas industrial consumers).

¹¹⁴ CAGR is calculated by taking the n^{th} root of the percentage of the year-on-year demand growth rate for the period analysed, where n is the number of years in the period being considered (in this case, the sixth root).

¹¹⁵ Source: Eurostat (29/08/2015) and ACER calculations. Note: Consumption band: DC: 2,500-5,000 kWh (electricity households).

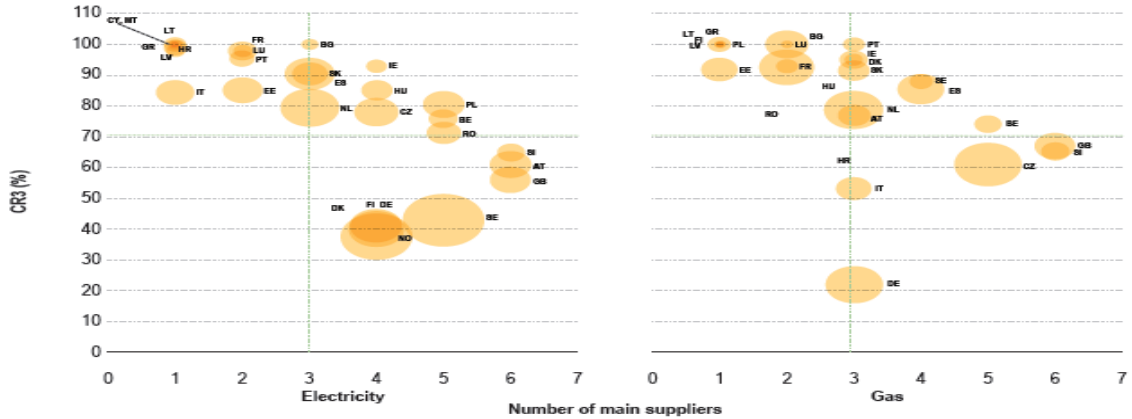
Figure 10: The CAGR of the electricity POTP, energy component and non-contestable part of POTPs for industry in Europe – 2008–2014 (%)¹¹⁶



Retail electricity and gas markets for households remain concentrated in most Member States

Figure 11 below shows a high concentration in retail electricity and gas markets for households at the national level in the majority of MS, measured by the concentration ratio CR3.¹¹⁷ The cumulative market shares of the three largest electricity and gas suppliers for households is more than 70% in the majority of countries, including those with a large number of nationwide suppliers (i.e. those with a bigger ‘bubble’). As a result, the retail household market for small competitors is above 30% in only 8 out of 29 countries in electricity and in 5 out of 25 countries in gas, while the rest of the market is held by three dominant suppliers. CR3 values above 70% and low numbers of main suppliers are indicative of possible competition problems.

Figure 11: Market share of three largest suppliers (CR3) and the number of main suppliers and number of nationwide suppliers in retail markets for households – 2014¹¹⁸



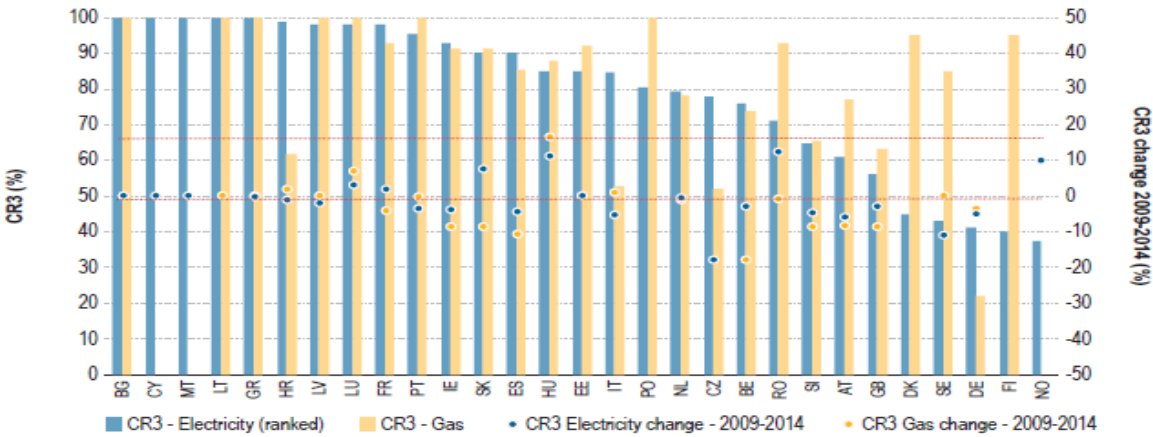
¹¹⁶ Source: Eurostat (29/08/2015) and ACER calculations. Note: Consumption band: IE: 20,000-70,000 MWh (electricity industrial consumers).

¹¹⁷ The sum of the market shares of the three largest suppliers in a market, and the number of main suppliers i.e. suppliers with market shares equal to or higher than 5%.

¹¹⁸ Source: CEER National Indicators Database (2015).

As regards the trend, Figure 12 below shows 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 electricity and gas household markets, the Swedish electricity and the Spanish gas market. The comparable CR3 data for retail markets for non-households show that non-household markets are much less concentrated than household markets in many MS.

Figure 12: CR3 in the retail electricity and gas markets for households in the EU MSs and Norway – 2014 and change from 2009–2014 (%)¹¹⁹



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

Retail margins seem to be increasing more than expected in some Member States

In contrast to non-contestable charges, wholesale electricity and gas prices, as demonstrated earlier in this section, generally decreased between 2008 and 2012 (Figure 3). Mark-ups determine the extent to which these falling wholesale prices were passed through to consumers. They help explain why the CAGR of the energy component of household consumer bills is positive in 15/28 MS (Figure 10), in spite of the general trend of falling wholesale prices.

¹¹⁹ Source: CEER National Indicators Database (2015).

Figure 13: Average annual mark-ups in electricity and gas retail markets for households from 2008 to 2014 for electricity and from 2012 to 2014 for gas – (euros/MWh)¹²⁰

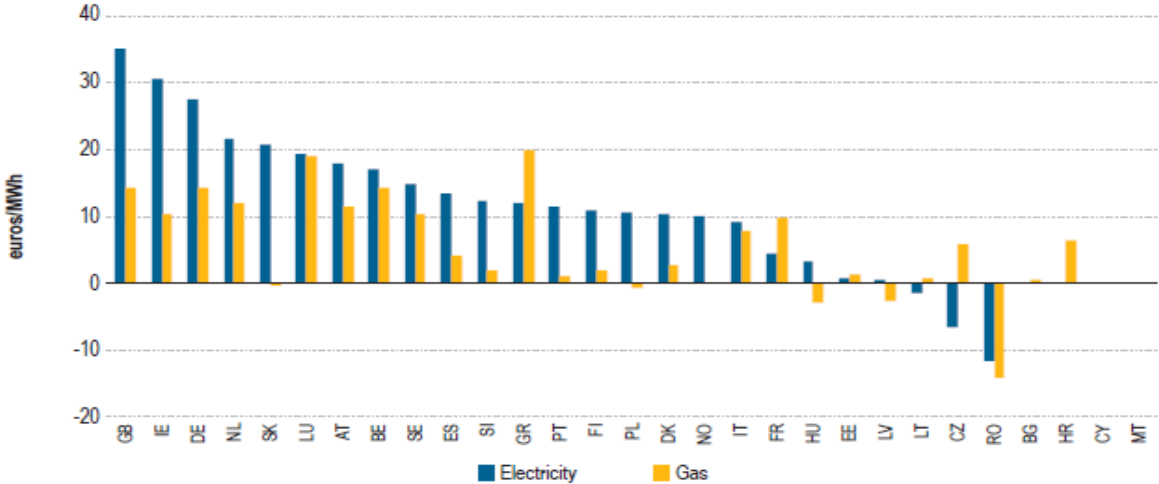
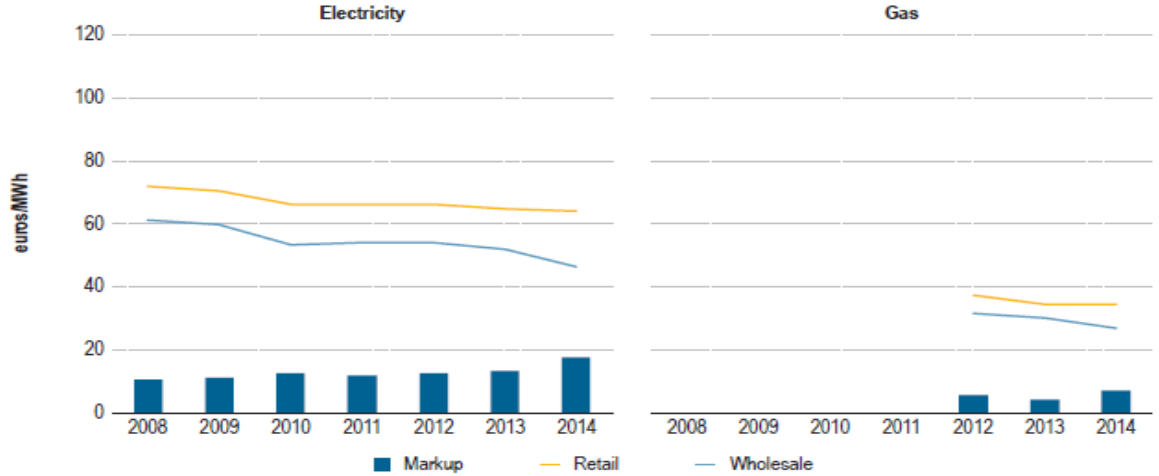


Figure 13 above shows that household mark-ups vary greatly between the MS. On the one hand, mark ups in Member States who practice price regulation (BG, HU and HR, for example) tend to show the lowest retail margins – as low as minus 10% in the case of RO. On the other hand, mark-ups in several MS seem to be higher that could in principle be expected, posing questions about the extent of real price competition. This observation is reinforced by the fact that mark-ups for both electricity and gas household prices in non-regulated markets have shown an increase over the last six and three years, respectively (Figure 14, below) – a trend that cannot be easily explained by other changes in the market during these periods.

Figure 14: Relationship between the wholesale price and the energy component of the retail price and evaluation of mark-up in household segments in countries with non-regulated retail prices from 2008 to 2014 for electricity and from 2012 to 2014 in gas (euros/MWh)¹²¹



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. These may include quality

¹²⁰ Source: ACER Database, Eurostat and European power exchanges data (2015) and ACER calculations.
¹²¹ Source: ACER Database, Eurostat, NRAs and European power exchanges data (2014) and ACER calculations. Note: Gas data are available only for the period 2012-2014.

of service, convenience, an environmentally sustainable product, or any other non-price aspect that adds value for consumer. The diversity of products available in a market is therefore also a good indication of the health of competition.

Although challenging to quantify precisely, the data suggest that 'choice' for consumers in European capitals widened between 2012 and 2014¹²², with a greater variety of offers available. The increasing diversity and variety of offers is a sign of more innovation in the sector, and helps raise consumer interest in the market.

Green electricity and gas offers continue to make strides in the market. By the end of 2014, in total, almost one third of all electricity offers and almost one quarter of gas offers were marketed as green. **Dual-fuel offers** (electricity and gas), comprised more than 35% of all offers on price comparison tools in Amsterdam, Brussels, Dublin, Lisbon, London and Paris – capitals with traditionally higher consumption of gas. And at the end of 2014, approximately 6% of all electricity and 12% of all gas offers presented in the price comparison tools across Europe included an **additional service**,¹²³ up from 4% and 7% respectively from just the previous year.¹²⁴

The type of **pricing** of the offer (i.e. fixed, spot-based or variable) remains one of the most visible features of energy products. Although there is diversity in this dimension, there is certainly scope for improvement. Fixed-price offers account for the majority of all electricity and gas offers in Europe, in spite of the fact that spot-based electricity offers – where available – were consistently found to be the cheaper. This point is developed further in this Section along with shortcomings in consumer access to companies offering demand response services.

Many Member States still practice some form of price regulation

The analysis in this section focuses solely on the regulation of the energy component of retail prices and excludes any discussion on the regulation of network prices¹²⁵.

The regulation of electricity and gas prices limits consumer choice, restricts competition, and discourages investment. 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). 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

¹²² ACER market monitoring report 2014 : <http://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Reports.aspx>

¹²³ 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.).

¹²⁴ Source: ACER Database.

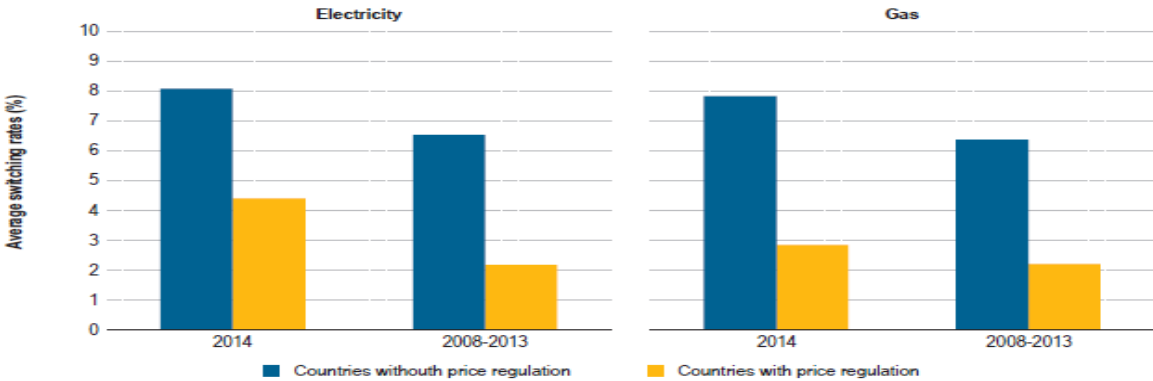
¹²⁵ Transmission and distribution tariffs are addressed in separate parts of this Evaluation and IA (annexes 2(1).3 and 1(c)3). Unlike distribution and transmission tariffs which are regulated according to the Third Energy package provisions, the energy component of end user prices shall be in principle set by supply and demand according to existing acquis, exceptions being allowed under certain conditions (article 3(2) of Electricity and Gas Directives).

cluster around and – at least in markets featuring strong consumer inertia – can also considerably dilute competition.

This policy choice has meant addressing through infringements the more important market distortion created by the regulation of prices for larger and potentially most active consumers who use most of the energy sold on the European market (more than 70% of total electricity consumption and close to 60% of the total gas consumption)¹²⁶. In addition, 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.

Cross-referencing the MS who practice price regulation against the indicators covered in this Section is suggestive of the gross distortions to the market that can result from this practice. Observable tendencies include lower consumer prices and mark-ups for household prices in MS that regulate prices, higher market concentration (Figures 11 and 12), lower switching and consumer satisfaction (Figures 15 and 16 below), and lower levels of retail competition performance overall.

Figure 15: Average switching rates in countries with and without regulated electricity and gas prices – 2008–2013 and 2014 (%)¹²⁷



¹²⁶ In 2014, non-residential customers consumed 1.921.153 out of the total 2.706.310 Gigawatt-hour electricity consumption and 1.506.185 Gigawatt-hour out of the total 2.578.779 Gigawatt-hour of gas consumption – Eurostat data, 2014.

¹²⁷ N.B. figure does not include IT. Source: CEER National Indicators Database.

Shortcomings of current demand response

The available evidence available generally suggests that the demand response provisions currently in place have been less effective than intended. The provisions have not been effective in removing the primary market barriers especially for independent demand response service-providers and creating a level playing field for them. Instead the heterogeneous development of demand response has led to fragmented markets across the EU. This is mainly due to the high degree of freedom the existing provisions leave to Member States. As such in many Member States, the roles and responsibilities for aggregators are not defined, suppliers are able to prevent independent DR service-providers from entering the market by not granting them access to their customers, and significant 'compensation' payments from aggregators to BRPS and/or suppliers risk to overcompensate those parties and diminish the business case for Demand Response. At the same time, rules and technical requirements at national balancing, wholesale and capacity markets often prevent flexibility products from entering those markets which forms another barrier for incentive based demand response. This seems to be slowly changing, in particular for the balancing markets where the TSOs have started to adapt the requirements. However, the design of more favourable requirements at national level will in the longer term not be sufficient from the perspective of an integrated energy market.

It can be concluded that the different treatment especially of independent DR service-providers in national energy markets as well as of flexibility products in electricity markets risk undermining the large-scale deployment of DR needed as well as the functioning of the internal energy market.

Slow and uneven deployment of smart metering

Commitment to smart metering is not uniform across the EU; the roll-out is overall progressing in a rather conservative manner, at different speeds and operational environments across the Member States.

The least ambitious deployment and slowest pace for rolling-out is noted in the gas sector. Seven Member States only intend to roll-out by 2020 in total 45 million gas smart meters, corresponding to 40% of EU consumers; so far as little as a 1.5% penetration rate has been achieved, as explained earlier. Moreover twelve Member States concluded in their CBAs that for now the costs outweigh the benefits; others intend to install smart metering systems only for selected groups of consumers or have reached no binding decisions yet¹²⁸. This is coherent with the observation that the business case for gas is more challenging given that the expected benefits are either less significant than for electricity, or do not apply¹²⁹.

For electricity, still a majority of Member States intend to proceed with large-scale deployment by 2020. So far, 19 Member States have committed to rolling out close to 200 million smart meters for electricity by 2020, to at least 80% of households in 17 of these nations, and close to 23% in 2 countries that are rolling out to a specific segment of consumers. But Member States are at different stages of the process when it comes to actual installations. Only four have completed so far the roll-out in electricity, while the target date of 2020 is approaching.

¹²⁸ SWD(2014) 189

¹²⁹ 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 – [SWD(2014) 189 and EP briefing (September 2015) on smart electricity grids and meters in the EU Member States

The current slow advancement (which is to peak much later than originally foreseen) , the low diffusion rates achieved to date (21% for electricity, and just 1.5% for gas in the EU-28), and the recurring delays in national roll-out programmes, further widen the gap to delivery.

The deployment of smart metering in Member States, which is not as ambitious as originally intended, can be credited to a certain extent to the legislation in place, even though it is difficult to quantify it. However it should not be forgotten that in a number of cases it has been influenced by other factors, e.g. market drivers, regulatory environments.

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 on. 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 with the increase of cross-border electricity trade. National markets have grown together since 2009 thanks notably to market coupling. However, obstacles to further integration still exist due to uncoordinated state interventions and inefficient use of interconnectors.**
- **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. 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.**

7.1.2. Consumer empowerment and protection

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

This evaluation addresses three aspects of the existing acquis that cover consumer engagement and protection: The measures on vulnerable and energy poor consumers; the measures on fees related to switching energy suppliers; and the measures on billing.

Consumer satisfaction and engagement in energy markets could be improved

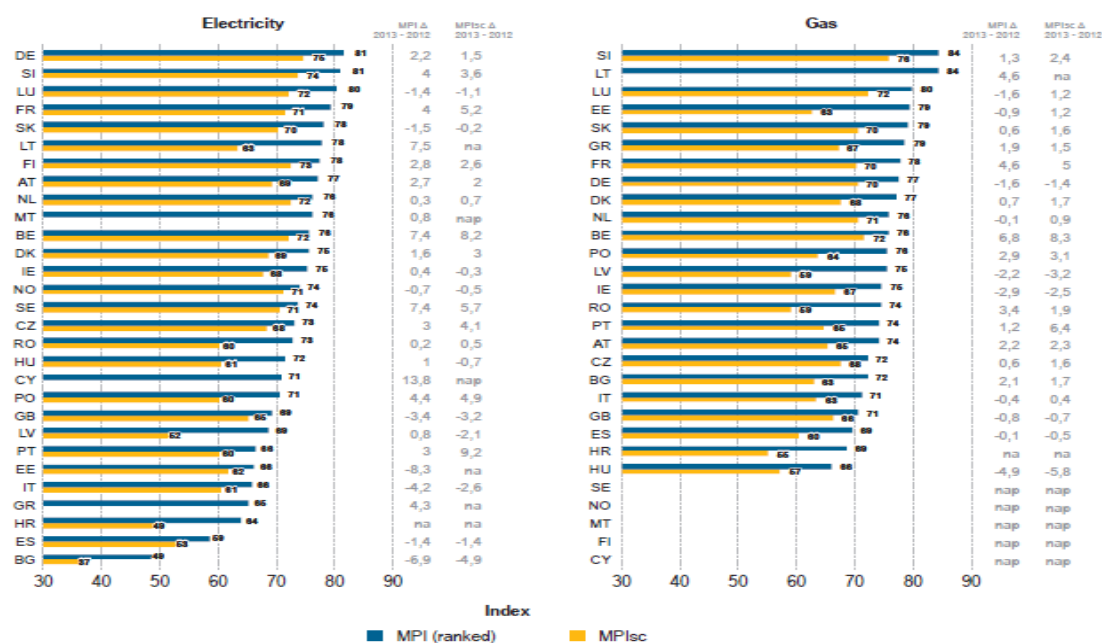
Although subjective, consumer satisfaction is a valuable indicator on the extent to which competition in the market is working for customers and whether suppliers are responding adequately to changing consumer preferences.

In terms of consumer satisfaction, the data indicate that there is clearly scope for improvement. According to the 10th edition of Consumer Scoreboard,¹³⁰ which is based on

¹³⁰ DG Justice and Consumers' 'Consumer Markets Scoreboard' provides at the EU-wide level a quantitative assessment of how different markets worked for consumers The 10th edition of Consumer Market Scoreboard published is available at: http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/10_edition/index_en.htm.

consumer survey¹³¹ and expressed in a composite Market Performance Index (MPI),¹³² electricity services rank 28th and gas services 22nd among the 31 markets for services across the EU. Therefore, both markets can be considered low performing from the consumer standpoint. The figure below illustrates the large differences between the top-ranking and bottom-ranking countries in the markets for electricity and gas services, measured by the composite indices MPI and MPIsc.¹³³ This variance is particularly marked for electricity markets.

Figure 16: Overall performance of markets for electricity and gas services by country – 2013 and change on 2012 (index)¹³⁴



The switching rate¹³⁵ is perhaps the most direct indicator of consumer engagement with the market and of the choice available on the retail market. Although switching is affected by a range of other factors (regulated prices, the difference in price between offers on the market and trust in new suppliers, for example), the switching rate provides an important quantitative measure of the effectiveness of the Articles in the Electricity and Gas Directives – albeit an indirect one. At the same time, other factors that may influence the switching rate besides

¹³¹ The 2013 edition of the Market Monitoring Survey is available at: http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/market_monitoring/index_en.htm. The ‘Market Monitoring Survey’ which has been used as the main statistical source for the Scoreboard has been produced annually from 2010 to 2013. However, from 2013, it will be available only every other year and therefore as data for 2014 are lacking and data for 2013 are used instead.

¹³² The MPI is a composite index based on the results of survey questions on four key aspects/components of consumer experience: (1) expectations (i.e. the extent to which the market lives up to what consumers expect); (2) the ease of comparing goods or services; (3) consumers’ trust in suppliers to comply with consumer protection rules; and (4) the experience of problems and the degree to which they have led to complaints. These four aspects of consumer experience are equally weighted when creating the overall score.

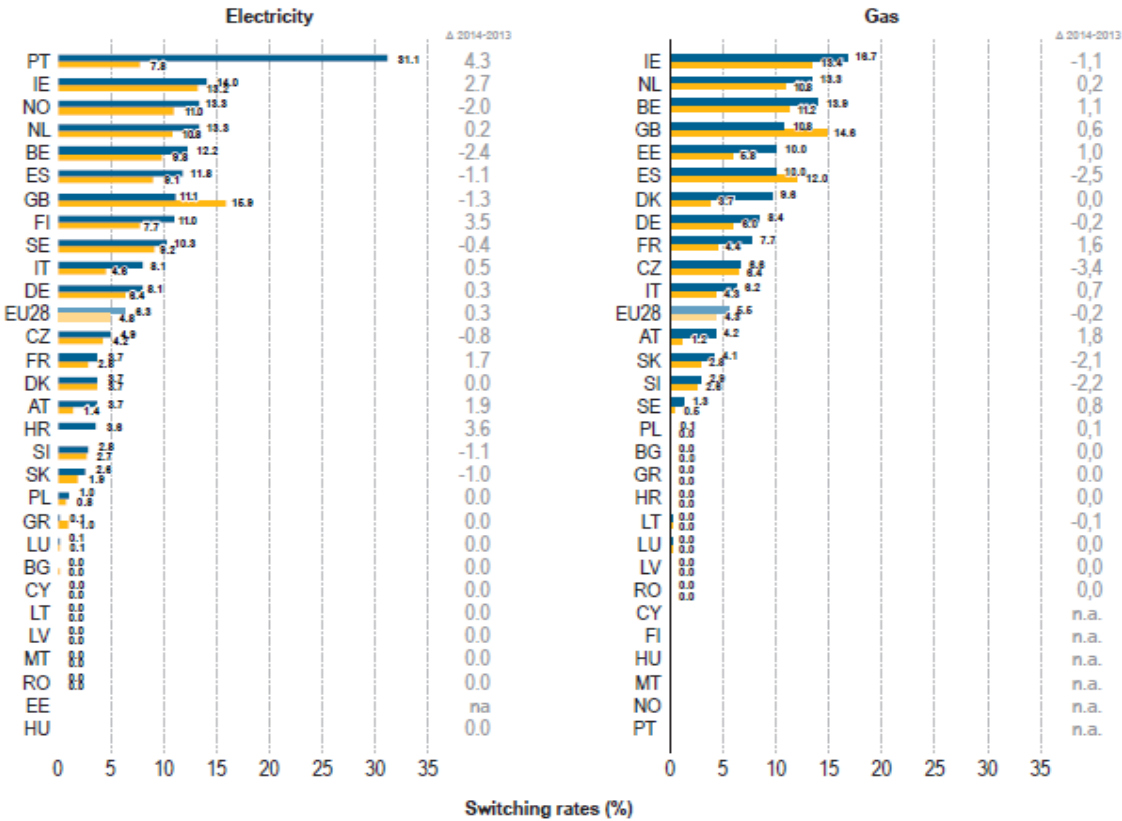
¹³³ MPIsc is the MPI supplemented with ‘choice’ and ‘switching’ components and is used only in markets where it is possible to switch services and providers.

¹³⁴ Source: DG Justice and Consumers (2014).

¹³⁵ The percentage of consumers who change suppliers in any given year.

status quo bias/inertia are – according to consumers surveyed – linked to the difficulty of finding out what the right tariff would be for them (21%) or the fact that they will have to manage their account online (3%) in order to get cheaper tariffs. Thus, removing certain market barriers could lead to more effective consumer choice. The following figure shows that while switching rates have generally increased since 2008, they remain relatively low in the EU-28 at around 6%.

Figure 17: Switching rates for electricity and gas household consumers in 2014, annual average 2008–2013¹³⁶



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. These are addressed in more detail in Annex 3 of this Evaluation.

Switching and exit fees

Thanks to these provisions on switching and exit fees, the switching process itself is mostly free for the consumer. However, contractual conditions may sometimes include additional charges related to switching. These include exit fees, administrative costs, start-up costs for a new or short-term service¹³⁷.

Exit (termination) fees are applied to cover, *inter alia*, the costs of leaving a fixed-term and/or fixed-price contract early (as sometimes occurs in MS including NL and UK), as well as to recoup the costs of administrative services, equipment, discounts and/or other incentives provided at the beginning of the contract. While exit fees provide suppliers more flexibility in

¹³⁶ Source: CEER National Indicators database

¹³⁷ Charges for short term contracts are justified often by need to cover administrative costs, while at the same time they encourage customers' loyalty.

the range of tariffs they are able to offer, they render comparisons and switching more difficult for consumers. Price comparison tools that do not cover exit and other fees associated with switching are therefore not complete.

In a recent survey of ten MS, 21% of suppliers responded that a customer would be charged a fee or similar other charge for cancelling his or her energy contract. Contractual obligations and administrative hurdles can disproportionately discourage consumers from switching because of a cognitive bias called 'loss aversion' – a tendency to strongly prefer avoiding losses to acquiring gains. This is exacerbated by the fact that incorrect assumptions also deter action. 56% of consumers in a recent electricity study survey responded that they could be charged a fee for switching or did not know whether or not they would be charged.

Given the persistently low levels of switching and consumer engagement in the energy sector (see sections above), there may therefore be scope to further restrict the use of switching and exit fees charged to consumers for changing suppliers. Any such fees should be proportionate to avoid consumer detriment and avoid lock in to a particular contract.

For a detailed analysis, see the accompanying Thematic Evaluation on Switching Fees in Annex.

Billing

In terms of effectiveness, it is impossible to quantify the extent to which the provisions in the Electricity, Gas and Energy Efficiency Directives have made positive contributions towards these objectives, given the multiple and complex other factors that also affect their achievement (the unbundling of network operations and introduction of energy efficiency targets, *inter alia*), the absence of precise indicators and the scarcity of data. It was, however, possible to identify certain gaps, problems and opportunities for potential improvement in the legislation – notably, the following.

The latest ACER Market Monitoring Report stated that the average electricity and gas consumer in their countries is only able to compare prices to a limited extent. The average score was 4.8 and 5.0 on a scale from 1 to 10 for electricity and gas respectively.¹³⁸ These poor figures are backed by a recent Commission survey that found that just 40% of EU respondents strongly agreed that the electricity bills of their electricity company were easy and clear to understand.¹³⁹ Correspondingly, the largest share of consumer complaints reported to the Commission between 2011 and 2014 were related to billing (30%).¹⁴⁰

With regard to comparability and clarity of billing information, the relatively low degree of satisfaction of electricity and gas customers and the high number of complaints related to billing suggests that there is still room for improvement and that further action might be required to this end either at national or EU level. There are several factors that could be contributing to this.

¹³⁸ ACER (2015) Market Monitoring report 2014, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER_Market_Monitoring_Report_2015.

¹³⁹ European Commission ([ongoing](#)), 'Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU', [link](#).

¹⁴⁰ Recommendation 2010/304/EU is addressed to all third-party complaint bodies (national authorities, consumer organisations, etc.) and calls on them to classify complaints according to a common taxonomy and to report the data to the Commission.

There is a widespread divergence in national practices with regards to some billing elements – in particular information on energy sources and consumer rights – that would appear to indicate a lack of implementation of certain billing requirements in the Electricity and Gas Directives. Some Member States have gone beyond EU legislation when setting out billing requirements in national legislation. This has in some cases caused additional confusion at the level of the consumer.

Finally, certain elements of the current legislative framework around metering are complex and open to interpretation with regard to the nature and scope of key obligations – for example, the precise meaning of phrases such as "information on actual time of use". This may be making it more difficult for consumers to gain access to information on their consumption levels. Many consumers continue to receive bills based on estimated consumption, either as a result of annual meter reading or because they do not have individual household meters. This does not enable consumers to manage their consumption effectively, for example, by reducing it, resulting in potentially higher bills than necessary.

For a detailed analysis, see the accompanying Thematic Evaluation on Billing and Metering in Annex 3.

Vulnerable and energy poor consumers

The measures were to some extent effective in getting Member States to define the concept of the vulnerable consumer and to adopt measures to protect those in this category. The measures have tended to be predominantly at the level of welfare provision and social policy, and not so much at the level of energy policy measures. They were also successful in bringing the issue of energy poverty to the attention of some Member States.

Given the absence of a common EU definition of consumer vulnerability, the implementation of the consumer protection provisions resulted in an uneven level of consumer protection across the EU Member States. This result is naturally more pronounced regarding energy poverty where obligations for measures in the Directives had some caveats and were not accompanied by any common definition or a requirement for defining the concept at national level. In addition, there have been shortcomings in the definition of the role of National Regulatory Authorities (NRAs) in the protection of vulnerable consumers and in monitoring of electricity and gas disconnections.

Finally, the provisions have not been effective in assisting Member States in addressing the problem of energy poverty. Even though, recent external research¹⁴¹ indicates that energy poverty and consumer vulnerability are two distinct issues, the provisions in the Electricity and Gas Directives refer to energy poverty as a type of consumer vulnerability. This categorisation leads to an incorrect expectation that a single set of policy measures from Member States can address both problems simultaneously.

Whilst precise data on the topic remains limited, rising levels of energy poverty as well as lack of clarity on the most appropriate means of tackling consumer vulnerability and energy poverty constitute a barrier to the further deepening of the internal energy market. 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, still exists in 17 MS, and levels of market concentration remain high in some liberalised markets.

¹⁴¹ *Energy poverty and vulnerable consumers in the energy sector across the EU: analysis of policies and measures*. 2015. [Insight_E](#)

For a detailed analysis, see the accompanying Thematic Evaluation on Consumer Vulnerability and Energy Poverty – Annex 3 of this document.

Conclusions

Switching rates have generally increased since 2008, they remain relatively low in the EU-28 at around 6%. However, the analysis demonstrates that exit fees and lack of information remain a problem. About 20 % of suppliers would charge a customer a fee or similar other charge for cancelling his or her energy contract. Furthermore, 56 % of consumers responded that they could be charged a fee for switching or did not know whether or not they would be charged. Comparison tools were used by 64% of EU consumers who had compared tariffs of different electricity companies.

Current provisions on consumer protection have proved to be a partial success as Member States have defined the notion of vulnerable consumers and adopted some measures to protect them. In general, this is a good direction for regulation with regard to consumers' benefits from the internal market. However, protection of vulnerable consumers in Member States is uneven. Moreover, energy poverty across the EU is growing while data on the scale and drivers of energy poverty is missing.

7.1.3. Security of Electricity Supply Directive

- To what extent have the objectives of Directive 2005/89 (i.e. a high level of security of supply, a better functioning of the internal market) been achieved?
- To what extent would these objectives have been achieved in the absence of Directive 2005/89?

The SoS Directive was proposed by the Commission in December 2003, where Member States were still working on the implementation of the Second Directive. Strong motivation for coming up with this proposal were blackouts in both the EU (especially the one in Italy) and US, which highlighted the need for clear operational standards for transmission networks and the need for correct maintenance and development of the network. Generation adequacy was also tested by both a cold winter in the Nordic region and a very hot summer all over Europe. Although the supply chain performed well, the evidence showed the need for a regulatory framework on investment in generation and demand management.

The SoS Directive was a good example of the Commission's swift reaction to a specific problem: while Italy's blackout intervened in the night of 27 to 28th September 2003, the Commission was able to table a legislative proposal by the end of the year.¹⁴² This proposal represented a big step forward, especially if one considers that it was made at a time where there was no recognised EU policy on energy.¹⁴³ This also explains why its provisions are not prescriptive enough and limit themselves to set objectives and enounce general principles.

The limitations of this Directive were soon highlighted by different stakeholders. The European Economic and Social Committee, in its opinion¹⁴⁴ on the Commission's proposal,

¹⁴² COM(2003) 740 final, of 10 December 2003.

¹⁴³ The Directive, indeed, was based on Article 95 of the EC Treaty, allowing the European Union to adopt measures for the approximation of national rules related to the establishment and functioning of the internal market.

¹⁴⁴ TEN/173 of 28 October 2004.

asked to be cautious before modifying the 2nd package rules (point 3.1) but also criticised that the proposed Directive did not really address the existing concerns regarding security of supply (point 3.2) and suggested that the general provisions in Article 3 were "*relevant features of any good national energy policy and widely implemented. Presenting them as provisions in a directive may lead to confusion of responsibilities*". MEP Chichester's report on the proposal very directly states that "*It is no secret that the original Commission proposal has not found favour with either the Parliament or the Council*".¹⁴⁵

Events such as those that were at the origin of the SoS Directive were certainly not the last ones,¹⁴⁶ and less than ten months after the publication of the SoS Directive in the Official Journal, Europe suffered, on 4th November 2006, a generalised blackout that affected 15 millions of European citizens. The disturbance, which started in North Germany, ended up affecting large parts of the European interconnected power systems. This blackout highlighted the existence of a series of regulatory gaps, as identified by the European Regulators Group for Electricity and Gas (ERGEG, ACER's predecessor).¹⁴⁷ On 8th of February 2007, the Commission's press release (IP/07/187) summarised the event as follows: "*Three main reasons appear to have caused the blackout. Firstly, E.ON Netz, the German electricity transmission system operator which was at the origin of the fault, was not able to monitor whether the grid was operating securely; secondly, other European transmission system operators did not receive information on the actions taken by the German transmission operator; and thirdly, insufficient investment both at the level of reliability and the operation of the grid.*" As a matter of consequence, the Commission announced that the necessary improvements of the regulatory framework would be put forward.

The SoS Directive was therefore quickly caught up by the discussions on internal market measures proposed by the Commission already in 2007 and that led to the adoption of the Third Package.

The SoS Directive, in its Article 9, asked the Commission to monitor and review the application of the Directive and to submit a progress report to the European Parliament and to the Council in 2010. In its progress report,¹⁴⁸ the Commission made an overview of ongoing activities on security of supply, referred to the benefits that the implementation of the Third Package would bring along and explained some of the future evolutions in the European electricity system, that would require massive investments and appropriate incentive schemes for delivering the necessary investments in generation and transmission in a timely manner. One should recognise that the progress report contained very little about the SoS Directive, as such, and a lot about the future regulatory changes.

¹⁴⁵ Report on the proposal for a directive of the European Parliament and of the Council concerning measures to safeguard security of electricity supply and infrastructure investment (FINAL-A6-0099/2005), Committee on Industry, Research and Energy, Rapporteur: Giles Chichester, p. 30

¹⁴⁶ For an overview of blackouts, their impacts and lessons learnt, see the 2011 Report on the analysis of historic outages, prepared under the SESAME project <https://www.sesame-project.eu/publications/deliverables/d1-1-report-on-the-analysis-of-historic-outages/view>

¹⁴⁷ ERGEG Final Report, The lessons to be learned from the large disturbance in the European power system on the 4th of November 2006 Ref: E06-BAG-01-06

¹⁴⁸ "Report on the progress concerning measures to safeguard security of electricity supply and infrastructure investment" COM (2010) 330 final.

This was not surprising, because the Third Package had in the meantime clarified the role of NRAs and TSOs, reinforced TSO co-operation by putting into place ENTSO-E (responsible, among other tasks, of adopting every 2 years a Community wide ten-year network development plan, including a generation adequacy outlook), and provided for the harmonization of the technical standards and operating procedures for the electricity system through the establishment of network codes and guidelines. Network codes and guidelines, once adopted, become an integral part of the Third Package. Network codes and guidelines are currently at different stages of the adoption procedure. From an electricity Security of Supply perspective, the most relevant are those related to the operation of the electricity system (System Operation Guidelines, expected to be adopted early 2017) and on Emergency and Restoration (currently under discussions in the committee of Member States representatives).

Work on infrastructure projects had also evolved since the adoption of the SoS Directive, mainly based on Regulation No 347/2013 on guidelines for trans-European energy infrastructure. In 2013, the European Union identified 248 energy infrastructure Projects of Common Interest (PCIs). This list was reviewed and up-dated in 2016 and will then be reviewed again every other year. An Energy Infrastructure Forum was set up and convened for the first time in 2015 in Copenhagen as a framework to discuss the major issues relating to infrastructure and EU energy policy.

Under these circumstances, and based on additional analysis and research made by the Commission's services, it is fair to conclude that the SoS Directive had only a limited impact on the electricity sector in general and on the security of electricity supply in particular. This statement is based on the following considerations:

- The Directive imposes Member States a series of open-ended obligations, which gave large freedom for implementation and are therefore hardly enforceable (e..g. Art. 5(1) *"Member States shall take appropriate measures to maintain a balance between the demand for electricity and the availability of generation capacity"*).
- The Directive was quickly (but only partially) superseded by further EU rules, which addressed in particular the role of TSOs in the area of security of supply and the need for infrastructure investments. The new rules do not address, however, the role governments have to play when it comes to setting standards, identifying risks, and taking the necessary measures to prevent & manage crisis situations.
- The Directive has received a limited treatment in the specialised literature. Thorough literature research shows that references to this Directive in articles and comments are marginal.¹⁴⁹
- The limited number of complaints received indicates the lack of awareness about the Directive and confirms that its content is not precise enough to support citizens/companies rights. According to the Commission's records (database CHAP), potential breaches to this Directive were claimed in only 5 complaints, always as ancillary claim to main breaches to other Directives of the second/third internal energy

¹⁴⁹ The consultation of the Commission's bibliographic database produced only 2 results for bibliography mentioning the Directive in their summary. Analysis of the Directive provisions were only found in Christopher Jones e.a. EU Energy Law. Volume I. Internal Energy Market, and in Henrik Bjørnebye, Investing in EU Energy Security, Kluwer Law International.

packages or, in one occasion, the RES Directive. None of these complaints led to the opening of an infringement procedure based on the SoS Directive.

- The SoS Directive did not give rise to any infringement procedure on the Commission's own initiative neither (other than the 17 cases for non-communication of the transposing measures referred to in point 6). The reason was the general nature of its obligations and the adoption of the Third Package, making more efficient to address issues of non-compliance under the new more precise rules.
- The limited European case-law interpreting its provisions: Only the "Castelnou case"¹⁵⁰, originated in a Commission's state aid decision challenged by a company, gave the Court of Justice the opportunity to construe some provisions of the SoS Directive, whereby it confirmed that "*Directive 2005/89 confines itself, in essence, to setting the objectives (Article 1) and the factors to take into consideration when drafting and implementing measures to safeguard security of supply (Article 3)*" (recital 206).
- Last, but not least, the SoS Directive has not been the subject of any parliamentary question. To our knowledge, it was mentioned in only one occasion.¹⁵¹

It can be concluded that the SoS Directive has not been effective in the achievement of the objective pursued. Indeed, the incident of November 2016, one year after its approval, highlighted the existence of a series of regulatory gaps on security of supply in terms of monitoring, information exchange and insufficient investments. Most of these gaps have been addressed by further EU rules.

7.2. 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 (the issue of streamlining planning and reporting will be dealt with elsewhere)?
- Are there areas where the current regulatory framework for the EU's electricity markets could be streamlined and optimised?

Undoubtedly, the detailed rules for TSOs, DSOs, generators 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 for regulators (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 National Regulatory Authorities ("NRAs"). Half of the 28 NRAs have less than 100 staff members¹⁵². Generally, the level of resources available to different NRAs varies

¹⁵⁰ Judgment of the General Court (Second Chamber) of 3 December 2014, Case T-57/11, Castelnou Energía, SL, vs European Commission

¹⁵¹ It was mentioned in the Commission's answer to the Written Question E-010039/13, by MEP Marc Tarabella on 10 September 2013.

¹⁵² 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

considerably. As underlined by the Court of Auditors¹⁵³, the number of people dealing with energy issues in NRAs visited during their audit ranged from 21 (Estonia) to more than 200.

However, given a value of the EU the electricity sector of more than € 1.000 billion in 2014¹⁵⁴ and the significant potential economic losses due to distortions of competition, the cost for monitoring are considered negligible by stakeholders who rather call for stronger regulatory oversight. This is made clear in the responses to the public consultation where there is notably significant support for increasing ACER's powers by many stakeholders¹⁵⁵ (e.g. oversight of ENTSO-E activities or decision powers for swifter alignment of NRA positions).

Certain regulatory measures contained in the Third Package, such as unbundling have had a cost for electricity 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 2014¹⁵⁶ 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.

ENTSO-E is financed almost exclusively by fees collected from its members i.e. the TSOs. In 2015, its budget was of 17 000 k€ to be divided by the 41 TSOs from 34 countries. ENTSO-E also holds as members TSOs from the Energy Community from countries which are not part of the EU. The public consultation¹⁵⁷ has not gathered any remarks on the cost or budget of ENTSO-E. The fees paid by the TSOs to ENTSO-E 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.

To the exception of the budget of ACER, no EU funds have been used to implement the measures of the Third Energy Package.

Regarding ACER, its budget is almost exclusively financed by an EU budget subsidy. While initially foreseen to be of approximately 6 to 7 million euros¹⁵⁸ ACER's annual budget in 2015, amounted to 10 513 574 euros. Similarly the staff of ACER was foreseen to be approximately 40-50 people while it is now 69 (ACER Establishment plan 2016). This increase, both is budget and staffing reflects the gradual increase in tasks and duties attributed to ACER, notably in consecutive legislation (e.g REMIT and TEN-E) ACER's financing has

¹⁵³ 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>

¹⁵⁴ The value is calculated using the turnover of the EU electricity sector which was estimated at 1.182 bn € in 2014 (based on Eurostat data), representing around 8% of the EU-28 GDP.

¹⁵⁵ See for example the answers to the public consultation on the Market Design Initiative from Europex, E-Control, IFIEC, IEA, Eurelectric, EFET, EUROPEX. <https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>

¹⁵⁶ https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex3.pdf

¹⁵⁷ <https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>

¹⁵⁸ Impact assessment for the Third Package (SEC(2007) 1179/2)
http://ec.europa.eu/smartregulation/impact/ia_carried_out/docs/ia_2007/sec_2007_1179_en.pdf.

been facing different challenges as the tasks of the Agency have grown over the years. While its budget has increased since its establishment, it is still seen as insufficient by ACER itself. The Director of ACER has been requesting additional staff over the years but these have not been granted in full by DG BUDG. In addition ACER has been given the possibility to collect fees under the Third Package. Article 22 of the ACER Regulation provides that fees shall be due to the Agency for requesting an exemption decision and the fees shall be set by the Commission. Since the establishment of ACER no such exemption decision was requested and until now, the Commission did not set such fees.

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.

Security of Electricity Supply Directive

- To what extent have the interventions been cost effective?
- Is the administrative burden imposed on Member States and economic operators (e.g., through the reporting obligation contained in Article 7) justified?
- Is there room for simplification?
- Could the legislation have been better enforced/implemented?

The SoS Directive limited itself, in essence, to setting the objectives and the factors to take into consideration when drafting and implementing measures to safeguard security of supply. That means that it set a general framework on security of supply, but left it by and large to Member States to define their own security of supply standards and policies within certain limits. Because of the general terms of its provisions, it is estimated that the cost of the intervention was a limited one, because it required limited legislative efforts (as confirmed by CEER 2009 report) and did not imply specific actions by Member States.

Concerning the additional requirements on reporting imposed by Article 7, in connection with the obligation to monitor security of supply imposed in Article 4 of Directive 2003/54/EC and in the Electricity Directive, the administrative burden of the reporting obligation set in Article 7 is negligible.

Therefore, it can conclude that due to the limited number of obligations, largely referring to mere reporting, the administrative burden remain limited.

7.3. 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 electricity 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.

7.3.1. The 2009 market design is not fully adapted to new market realities

- The 2030 targets imply that the share of electricity generated from RES is likely to reach up to 50% of electricity produced. **Under which conditions can the current electricity market facilitate the integration of such increasing levels of RES, also considering that it is primarily decentralised?**

Europe's power system is in the midst of profound changes. The European Union's policy to fight global warming requires the electricity systems to shift from a generation mix that is mostly based on nuclear and fossil fuels to a virtually decarbonised power sector by 2050¹⁵⁹. This shift in the means employed to generate electricity from wind and solar has already started to take place and is expected to become still more pronounced towards 2030.

On the political side, a renewed commitment at both European and global level to **decarbonize** the economy means that the uptake of generation from renewable energy sources (RES) has been on an upward trend ever since, and is promised to increase further.

The physical nature of renewable electricity generation – more variable, unpredictable and decentralized than traditional generation – has important practical consequences for the way electricity is traded, priced, and how grid operators can operate the electricity grid in a safe and efficient manner. While at the time of the Third Package electricity was mainly produced in central, large-scale fuel-based power plants, a market design with a large part of electricity produced from variable wind and solar sources **requires different rules. Effective short-term markets and prices that reflect actual scarcity played a minor role in the Third Package, but are now key for the functioning of the market.** The Third Package clearly **lacks rules for the development and functioning of short markets** as well as **rules that would enable the development of peak prices** reflecting actual scarcity in terms of time and location.

Despite the importance played by market coupling since 2009 in the further integration of European markets (leading to price convergence and increase of exchanges between Member States), the Third Package does not mention market coupling. Similarly, power exchanges which play a critical role in the energy market are not addressed by the Third Energy Package.

Since variable energy production needs significant backup energy for times without wind and sun, cooperation in organising this backup across member states is crucial to save unnecessary costs for consumers. Also the safe management of the EU-wide connected electricity grid **requires closer cooperation between grid operators.** While some progress has been made in the Third Package on cross-border cooperation, notably with the creation of ACER and the ENTSOs, close regional cooperation between TSOs and regulators is a key feature of a "decarbonised" electricity market, and the current do not reap the full benefits of cooperation.

Equally dramatic changes have taken place on the **technological** side. Digitalisation of energy markets increasingly allows the use of so-called '**demand response**' solutions, enabling industrial, business and household customers' demand to participate in electricity markets. However, the current legislation has not been effective in removing the primary market barriers especially for independent demand response service-providers and creating a level playing field for them. The same goes for insufficient EU-wide deployment of fit-for-purpose **smart metering** that can support novel energy services and products of value also to consumers as well as enable the consumers to take active participation in the market.

In addition, technological progress allows **distribution system operators** to reduce network investments by locally managing the challenges posed by increasing amounts of distributed RES E directly connected to distribution systems. However, outdated regulatory frameworks prevent them from operating more innovatively and efficiently.

¹⁵⁹ See table under paragraph 2.1

In parallel, we have seen a partial comeback of **state interventions** as Member States began introducing new types of national schemes aimed at protecting existing generation. The most important such examples are support schemes for electricity produced from renewable energy sources and so-called Capacity Mechanisms (CMs). Sub-optimal rules to support renewable generation had the unintended effect to deter price signals or limit cross-border trade. State interventions also translated into higher transmission tariffs, ultimately neutralising the positive developments on wholesale electricity markets and driving up prices for end customers at the retail level. The volumes of electricity trade affected by such state interventions contracted under such mechanisms have increase significantly in the last years, with increasing impacts on functioning of the internal electricity market. Further, whilst the Third Energy Package contains provision on transmission tariffs, their level and design still differ significantly between Member States. This has the potential to distort price signals.

In addition, the worldwide **financial and economic crisis** in 2008 has depressed economic output - and therefore energy demand - in a way that had not been foreseen. This decline in energy demand, in combination with the politically intended decarbonisation of the generation fleet, had a significant effect on the business case of fuel-based generators and raised the question whether market arrangements are fit to deliver needed investments to decarbonize the economy on the required scale.

Overall, the rules of the Third Energy Package appear to be insufficient to cope with such current levels of RES. Different rules appear needed to ensure in particular the development of short term markets and the emergence of prices that reflect actually scarcity. Rules to ensure closer cooperation of grid operators are also insufficient as they stand.

7.3.2. The Third Package does not provide regulatory solutions to address perceived lack of investment into generation

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| <ul style="list-style-type: none">- Does the market (still) provide a proper framework for investments in electricity assets? Are there barriers to investment, in particular in new technologies?- Does the EU electricity market constitute a favourable investment climate for electricity assets? To what extent does it create a level playing field for investments in the operation of RES, conventional generation, demand response or storage? |
|---|

Generation adequacy is not addressed in the Third Energy Package. Consequently, there are no common generation adequacy rules at EU level. However the Commission underlined in its Communication on public interventions that "*even if it might be legitimate for generation adequacy standards to be different against the background of differing circumstances in Member States, the system reliability in interconnected markets is interdependent*"¹⁶⁰. This is why the Commission has felt the need to develop some guidance form Member States wishing to put in place generation adequacy measures through a Communication on State Aid Guidelines¹⁶¹.

¹⁶⁰ C(2013) 724 Communication from the Commission, Delivering the internal market and making the most of public interventions, 5 November 2013;

¹⁶¹ SWD(2013) 438, Commission Staff Working Document, Generation Adequacy in the internal electricity market - guidance on public interventions, 5 November 2013

Communication from the Commission — Guidelines on State aid for environmental protection and energy 2014-2020, *OJ C 200*, 28.6.2014, p. 1–55

The Interim Report of the sector inquiry on capacity mechanisms¹⁶² conducted this year by DG Competition provides an analysis of the current investment climate in electricity generation. The increase in generation capacity coupled with decreasing demand have led to increasing gaps between peak demand and generation capacity, which points to overcapacity. This has in turn led to decreasing electricity wholesale prices since 2011.

"The generation capacity of new renewable energy usually has lower running costs than conventional coal- or gas-fired power plants. As a result the conventional power plants do not produce as often as they did in the past, especially in markets with a high proportion of renewable energy. The intermittent character of renewable sources of electricity creates uncertainty regarding the frequency of price spikes that help conventional technologies to recoup their investment costs."

In recent years, many unprofitable power plants plan to mothball and close. This is especially the case for flexible gas fired power plants that have become more expensive to run compared to less flexible lignite and coal.

Normally, well-functioning wholesale markets should provide price signals necessary to trigger the right investment. However, the ability of markets to do so is debated today because today's electricity markets are characterised by uncertainties as well as by a number of market and regulatory failures which affect price signals; These include low price caps, renewable support schemes, the lack of short term markets and lack of demand response operators.

Overall, the Third Energy Package does not ensure sufficient incentives for private investments in the new generation capacities and network because of the minor attention in it to effective short-term markets and prices which would reflect actual scarcity.

7.3.3. *The significant increase in uncoordinated state interventions*

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| <ul style="list-style-type: none">- To what extent can the current regulatory and governance framework respond to the risk that, in an increasingly integrated market, national policies create negative spill-over effects? |
|--|

State aid support in the field of energy has increased tremendously since the Third package was adopted. Indeed, EU Member States have primarily relied on dedicated policy instruments to support the deployment of renewables. These instruments take the form of operating aid or investment aid. In parallel, based on perceived or real generation adequacy concerns, several Member States have introduced generation adequacy measures. These measures often take the form of either dedicated generation assets kept in reserve or a system of market wide payments to generators for availability when needed, referred to as capacity mechanisms (CMs).

In 2009, state interventions concerning renewable energy support schemes or capacity mechanisms played a limited role in the market, as renewables accounted only for 19% of electricity produced in 2009¹⁶³ and CMs had been in place only in a limited number of countries. Since then this share has increased to 27.5% in 2014.

¹⁶² http://ec.europa.eu/competition/sectors/energy/state_aid_to_secure_electricity_supply_en.html

¹⁶³ Eurostat data : http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_from_renewable_sources

Today, renewable support schemes and capacity mechanisms disregard market rules (priority of dispatch, balancing exemptions, missing cross-border participation, etc.) leading to major malfunctions of the market.

On Capacity Mechanisms

Regarding capacity mechanisms, the Third package (Art 8 of the electricity directive) recognises the need for tendering of new capacity if markets are not able to deliver the right level of generation adequacy to safeguard security of supply. It provides a legislative framework for providing for new capacity or energy efficiency/demand-side management measures through a tendering procedure or any procedure equivalent in terms of transparency and non-discrimination.

Since variable energy production needs significant backup energy for times without wind and sun, cooperation in organising this backup across member states is crucial to save unnecessary costs for consumers.

As reflected in the Sector Inquiry on capacity mechanisms led by DG Competition, the heterogeneous development of capacity mechanisms has led to fragmented markets across the EU. This is mainly due to the high degree of freedom the existing provisions leave to Member States as they are neither detailed nor instructive. The Sector Enquiry highlights that "*The different types of capacity mechanisms are not equally well suited to address problems of security of supply in the most cost effective and least market distortive way.*"

In particular, these mechanisms may lead to distortions if their design affects natural price formation in the energy market (e.g. bids of energy) and therefore alter production decisions (operation of power generating plants) and cross-border competition¹⁶⁴. Capacity mechanisms may also influence investment decisions (investment in plants and their locations), with potential impacts in the long term¹⁶⁵..

CMs may also cause a number of competition concerns. In this respect, the DG Competition's Interim report on the Sector Inquiry identifies substantial issues in relation to the design of CMs in a number of Member States. First, many Capacity mechanisms do not allow all potential capacity providers or technologies to participate, which may unnecessarily limit competition among suppliers or raise the price paid for the capacity¹⁶⁶. Second, capacity mechanisms are also likely to lead to over-compensation of the capacity providers – often to the benefit of the incumbents – if they are badly designed and non-competitive. In many Member States the price paid for capacity is not determined through a competitive process but set by the Member State or negotiated bilaterally between the Member State and the capacity provider. This creates a serious risk of overpayment¹⁶⁷. Third, the inquiry revealed that

¹⁶⁴ For instance, a possible distortion is when generators in a CM market, receive (capacity) payments which are determined in a way that affects their electricity generation bids into the market, while in a neighbouring "energy-only" market generators do not. This may tilt the playing field for generators on either sides of the border.

¹⁶⁵ For instance, if contributions from cross-border capacity are not appropriately taken into account, they may lead to over-procurement of capacity in countries implementing CMs, with a detrimental impact on consumers

¹⁶⁶ In some cases, certain capacity providers are explicitly excluded from participating or the group of potential participants is explicitly limited to certain providers. In other cases, Member States set requirements that have the same effect, implicitly reducing the type or number of eligible capacity providers. Examples are size requirements, environmental standards, technical performance requirements, availability requirements, etc.

¹⁶⁷ In Spain for example, the price for an interruptibility service almost halved after a competitive auction was introduced.

capacity providers from other Member States (foreign capacity) are rarely allowed to directly or indirectly participate in national capacity mechanisms¹⁶⁸. This leads to market distortions as additional revenues from capacity mechanisms remain reserved to national companies. This is particularly problematic in case of dominant national incumbents whose dominant position may even be strengthened by a national capacity mechanism. Lastly, although there is a challenge to design penalties that avoid undermining electricity price signals which are important for demand response and imports, where obligations are weak and penalties for non-compliance are low, there are insufficient incentives for plants to be reliable.

All in all, as reflected in the Sector Inquiry, "*A patchwork of mechanisms across the EU risks affecting cross border trade and distorting investment signals in favour of countries with more 'generous' capacity mechanisms. Nationally determined generation adequacy targets risk resulting in the overprocurement of capacities unless imports are fully taken into account. Capacity mechanisms may strengthen market power if they, for instance, do not allow new or alternative providers to enter the market. Capacity mechanisms are also likely to lead to over-compensation of the capacity providers – often to the benefit of incumbents – if they are badly designed and non-competitive.*" All of these issues can undermine the functioning of the internal energy market and increase energy costs for consumers.

To conclude, given the widespread use of state aid in European electricity markets today and the potential for state aid measures to create market inefficiencies and distortions, the rules of the Third package remain important and relevant today; but to protect them and make them effective, new rules are necessary on market compatible RES support schemes and capacity mechanisms.

On RES support schemes and regulatory exemptions

In 2009, the majority of Member States were promoting renewable energy production either by green certificate regimes or quotas (23 Member States), or by feed-in-tariff system (21 Member States). Premiums were used in 7 Member States and tendering was not common practice at the time¹⁶⁹.

Member States retained full discretion over their use of support schemes, including their design, structure and the level of support. The EU legislative framework, including the 2009 RES Directive¹⁷⁰, provided no guidance on how or when using support schemes, nor even on their eventual revision or reform. As a result, each and every Member State provided its own support, used different models for support schemes and all Member States started off by excluding non-domestic renewables from access to the support schemes. Not all national support schemes were found to be equally efficient and responsive to market signals

¹⁶⁸ For example, Portugal, Spain and Sweden appear to take no account of imports when setting the amount of capacity to support domestically through their CMs. In Belgium, Denmark, France and Italy, expected imports are reflected in reduced domestic demand in the CMs. The only Member States that have allowed the direct participation of cross-border capacity in CMs are Belgium, Germany and Ireland. For more details, see annex 5.2.

¹⁶⁹ [Renewable Energy: Progressing towards the 2020 target, COM \(2011\) 31](#)

¹⁷⁰ Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and [subsequently](#) repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance)

When these limitations started to become apparent, the Commission issued Guidance on RES support schemes design and their reform in 2013¹⁷¹. The move towards more market-based support mechanisms was then further complemented by the Guidelines on State aid for Environmental Protection and Energy ('EEAG')¹⁷² and both paved the way for the design of future support schemes, which should be market-based and granted through a competitive process. For this, the EEAG set two major deadlines in 2016 and 2017, respectively for market-based support and competitive bidding, which is already in place in 13 Member States^{173, 174}.

7.3.4. *Increased interconnection and decarbonised market require closer TSO and NRA cooperation*

- Does the current **regulatory and governance framework** still provide sufficient scope for fostering necessary market integration, and effective prevention of distortions and secure operation of the integrated electricity system?

Since the adoption of the Third Package in 2009, the increasing share of variable renewable energy sources and decentralised generation in the electricity mix resulting from the implementation of the 2020 and 2030 targets, together with closer market integration, especially in shorter market time intervals, resulting from the implementation of network codes and guidelines, have made system operation much more interrelated than it was in the past. Indeed, interconnection flows can vary hugely from one hour to another depending on weather and market conditions, impacting security of supply.

TSOs play an increasingly important role in facilitating market integration with processes such as capacity calculation or balancing markets where coordination across borders is essential. As analysed in the ACER Market Monitoring Report¹⁷⁵, there is a high amount of cross-border capacities that remain unused even in case of significant price differences. The increasing volatility of flows might even deteriorate the situation if more efficient methods are not employed.

These evolutions require much deeper regional coordination of TSOs and NRAs.

As regards TSO regional coordination, driven by the lessons learnt from the serious electrical power disruption in Europe in 2006, European TSOs have pursued enhancing regional cooperation and coordination. To this end, TSOs have voluntarily launched Regional Security Coordination Initiatives in the recent years (the most prominent are Coreso and TSC, launched in 2008) covering a greater part of the European interconnected networks and aiming at improving TSO cooperation and maintaining or increasing security of operation of European interconnected networks. Moreover, in a multi-lateral agreement between all the European

¹⁷¹ ["European Commission guidance for the design of renewable energy support schemes", 2013, SWD \(2013\) 439 final](#)

¹⁷² ["Guidelines on State aid for environmental protection and energy 2014-2020", OJ 2014/C 200/01](#)

¹⁷³ DE, ES, ET, FR, HR, HU, IT, LT, LV, MT, PT, SL, SK

¹⁷⁴ [RES-Legal](#)

¹⁷⁵ ACER/CEER (2015), Market Monitoring Report 2014, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER_Market_Monitoring_Report_2015.pdf

TSOs signed in December 2015, nearly all have agreed to make participation in these RSCIs obligatory.

The RSCI approach is widely recognised as a positive step forward and has been further formalised in European legislation with the new Commission Regulation establishing a guideline on electricity transmission system operation. The Guideline mandates the creation of Regional Security Coordinators (RSCs) covering the whole of Europe to perform five relevant tasks at regional level as a service provider to national TSOs.

Even with the creation of RSCs, the current framework for system operation is largely based on the national approach, given that it follows the design established during the times of existence of vertically integrated utilities, based on a national power system. This is also reflected by the fact that typically the network of each Member State is managed by one TSO, regardless of the geographical size of the country, valid for e.g. France and Slovenia.

The challenges the EU power system will be facing in the medium to long term are pan-European and cannot be addressed and optimally managed by individual TSOs, rendering the current legal framework concerning system operation unsuitably adapted to the reality of the dynamic and intermittent nature of the future electricity system and putting to question whether the mandated regional cooperation of TSOs via RSCs is fit for purpose in the post 2020 context.

The institutional framework currently applicable to the internal energy market as set out in the Third Package is based on the complementarity of regulation at national and EU-wide level. In view of the developments since the adoption of the Third Package as described above, the institutional framework, especially as regards cooperation of NRAs at regional level, will need to be adapted to ensure the oversight of entities with regional relevance (e.g., RSCs). Moreover, as the European energy markets are more and more integrated, it is crucial to ensure that ACER can function as swiftly and as efficiently as possible. In addition, the implementation of the Third Package has highlighted areas with room for improvement concerning the framework applicable to ACER and the ENTSOs.

7.3.5. Consumers participation and protection

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| <ul style="list-style-type: none">- Does the current regulatory provide sufficient scope to ensure that final consumers can actively participate in the market, and are optimally protected? |
|---|

At the time of drafting both the Second and Third energy packages, consumer bills and pre-contractual information formed the basis of consumer comparability, as consumers would be given the possibility to measure up individual offers against their current supply contract. Since then, the use of online **comparison tools** has risen significantly across the EU. Over time the continuation of this trend might challenge the relevance of the EU intervention if it is not adapted to also reflect new ways of consumer-market interaction.

Well-designed, reliable and transparent online comparison tools do the number-crunching necessary to accurately compare the costs of each offer for individual consumers. 64% of EU consumers who had compared tariffs of different electricity companies now say they had used comparison tools to do so. Behavioural experiments show that comparison tools significantly increase the number of cheaper offers consumers are able to identify compared with contacting individual providers directly.

In addition, rising energy prices and stagnant wage growth mean that there are growing levels of **energy poverty** within the EU. 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 three percentage points¹⁷⁶.

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.

7.3.6. *Distribution and flexibility*

- Are the roles carried out by DSOs, and their incentives, still fit-for-purpose given the increased need to integrate variable distributed generation?
- Are the existing provisions for demand response ("demand-side management") sufficient for ensuring cost effective levels of flexibility?

DSOs

Developments in the retail market such as the deployment of smart metering systems and the increasing importance of data will call for a more active and neutral role of DSOs, and put into question the continued relevance of the existing legislation.

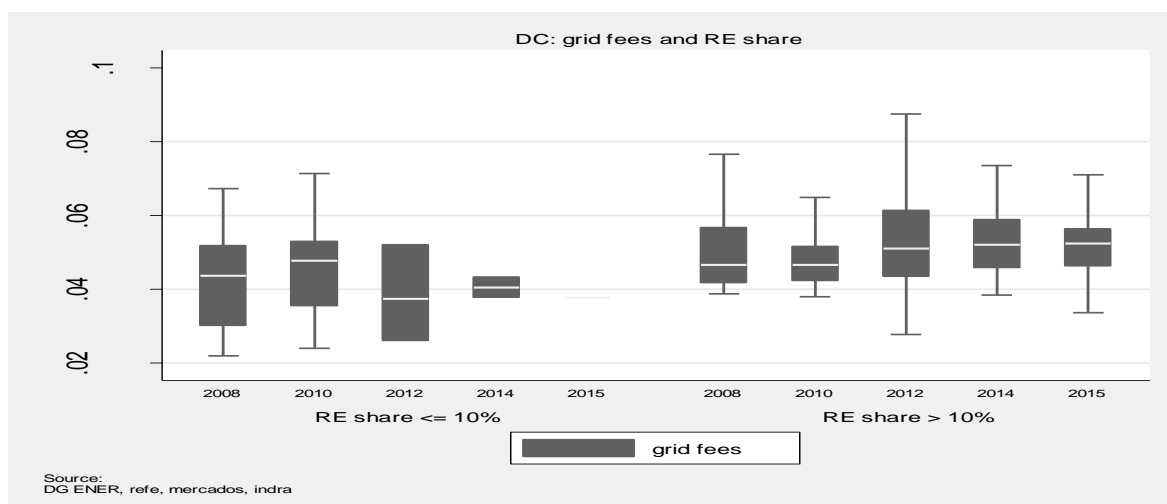
Whereas previously, larger-sized generation capacity was mainly connected to the transmission grid, RES-E is often smaller in scale and connected to the medium and low voltage grids. In meeting 2020 targets some Member States are already experiencing a high penetration of RES with an increasing number of the resources being variable (wind and solar). A large share of these resources in many cases is connected to distribution grids (low and medium voltage). According to available data this number is estimated to be as high as 90% (e.g. in Germany)¹⁷⁷.

Technological progress allows distribution system operators to reduce network investments by locally managing the challenges this presents. However, outdated regulatory frameworks prevent them from operating more innovatively and efficiently. For example, EU provisions which aimed to enhance the DSOs position in using demand side management and energy efficiency measures in planning their networks were not proved to be effective. Also DSOs should be in a position to use innovative tools in order to avoid costly investments and operate their networks more efficiently in only few Member States. The resulting inflexibility of distribution networks significantly increases the cost, in particular terms of investment needs, for integrating larger RES E.

¹⁷⁶ Working Paper on Energy Poverty, 2016. Vulnerable Consumer Working Group.

¹⁷⁷ Based on data from the EvolvDSO Project (FP7/2007-2013).

Figure 18: The level of electricity grid fees for households (DC band) in EU member states depending on the current share of RE electricity generation.



The increasing more decentralised connection of electricity production units will imply that distribution system operators will have to manage low and medium voltage grids more actively than previously, when such management was only required at the transmission system level.

There is a common view among DSOs and other stakeholders that in order for DSOs to cope with this increasing number of variable RES-E they should become more active in managing their networks. This would involve the use of flexible resources in order to alleviate short-term and long-term congestions. Moreover, it would require investments in smarter grid elements.

For more information see the Annex on DSOs.

The original objectives of current DSO unbundling requirements still correspond to the EU objective of a competitive internal energy market and given, the growing importance of DSOs, strong enforcement needs to continue.

The introduction of smart metering systems will generate more granular consumption data and new business opportunities in retail market. Moreover, the integration of more RES-E generation at distribution level will require a more active management of the network from DSOs. Even if current provisions partially cover those challenges, the circumstances have changed significantly since the adoption of the Third Package. Consequently, the upcoming market framework requires further definition of tasks for DSOs.

Demand-side response

The current EU legislation (Art 25.7 of the Electricity Directive together with Art. 15 of Energy Efficiency Directive) recognises the need to make electricity demand more flexible in order to enable the energy system to better cope with variable RES and new loads, as well as to reduce the need for related capacity investments. It provides a legislative framework for demand response, obliging Member States to ensure that demand response providers are treated in a non-discriminatory manner.

The evidence available generally suggests that these provisions have been less effective in achieving their stated objectives than intended. The provisions have not been effective in removing the primary market barriers especially for independent demand response service-

providers and creating a level playing field for them. Instead the heterogeneous development of demand response has led to fragmented markets across the EU. This is mainly due to the high degree of freedom the existing provisions leave to Member States. As such, a host of market barriers exist in many Member States: The roles and responsibilities for aggregators are not defined, suppliers are able to prevent independent demand response service-providers from entering the market by not granting them access to their customers, and significant 'compensation' payments from aggregators to Balance Responsible Parties and/or suppliers risk to overcompensate those parties and diminish the business case for Demand Response.

As for consumers reacting directly to changes in retail prices (also referred to as price based (or implicit) demand response) there is no binding EU legislation in place, and dynamic price contracts for residential consumers are currently only widely available in four Member States. In the absence of this, two major barriers to enabling price based demand response have emerged: low access to fit for purpose smart meters and (relatedly) the lack of supply contracts with dynamic prices linked e.g. to the spot market.

Under the Electricity (and Gas Directives), MS have some discretion on the extent to which they roll out smart meters based on national Cost Benefit Analyses (CBAs). They only have the obligation to roll out smart meters for electricity to at least 80% of consumers by 2020 if these national CBAs are positive. This has contributed to the partial deployment of smart metering systems. To date, 19 Member States have committed to rolling out close to 200 million smart meters for electricity by 2020, meaning that up to 72% of EU consumers should have a smart meter by this date¹⁷⁸. However, only 21% of consumers had smart meters as of 2014 (the latest reliable data we have from ACER), raising doubts over whether these national rollout plans are achievable.

Moreover, the legislative provisions in the aforementioned Electricity and Gas Directives are silent on the practicalities/specifications for reaching the ultimate requirement to roll-out systems that shall assist the consumers' *'active participation'* in the energy supply market. There is therefore a risk that the systems being rolled-out may not be fit for purpose and not bring all the desired benefits to consumers and the market as a whole – including facilitating price- and incentive-based demand response.

Partly as a result of these deficiencies, price signals in real time are currently not passed to final consumers, resulting in inflexible demand patterns. This is also reflected in the slow uptake of demand response in Europe. According to recent analyses, the current theoretical demand response (or flexibility) potential accounts for approx. 100GW of which up to 40GW could be economically activated. However, currently only approx. 21 GW (predominantly in the industrial sector) are activated indicating that the demand response potential is underutilised.

¹⁷⁸ The Commission Report COM(2014) 356 “*Benchmarking smart metering deployment in the EU-27 with a focus on electricity*”, as also recently updated in the Smart Grids Task Force EG1 Report: “*Status report based on a survey regarding Interoperability, Standards and Functionalities applied in the large scale roll-out of smart metering in EU Member States*”, October 2015. COM(2014) 356: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2014%3A356%3AFIN>; and accompanying (country fiches) SWD(2014) 188: <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52014SC0188>; (analysis of data) SWD(2014) 189: <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52014SC0189>; Smart Grids Task Force EG1 report: https://ec.europa.eu/energy/sites/ener/files/documents/EG1_Final%20Report_SM%20Interop%20Standards%20Function.pdf

In summary it can be concluded that the existing measures have been partly effective in removing barriers for the participation of industry in demand response but have not been effective in removing barriers for the participation of the residential and the commercial sector. This is of great concern as by 2030 demand response potential is expected to increase to approx. 160GW by 2030 with the increase mostly driven by the residential sector and the uptake of electric vehicles and heat pumps. As the existing provisions have not been efficient in removing barriers for the commercial and residential sector the gap between demand response potential and activated demand response is likely to further increase in the future unless those barriers are removed.

For a detailed analysis, see the Annex on Demand Response and Smart Metering Systems.

7.3.7. Security of Electricity Supply Directive

- To what extent is the intervention still relevant?
- Do the objectives of the Directive and related EU rules still correspond to the needs of security of electricity supply, taking into consideration the evolution of the electricity markets over the past 10 years?

The objectives that inspired the SoS Directive are still relevant for improving the security of electricity supply in Europe: (1) setting the conditions to facilitate a stable investment climate; (2) clarifying roles and responsibilities; (3) guaranteeing a safe and secure system operation; (4) maintaining the balance between supply and demand, and (5) appropriate regulatory framework for investments.

All these objectives also inspired the Third Package rules, which benefitted from the lessons learnt especially the 2006 blackout (that started in Germany and cascaded across Europe) and certainly improved Europe's preparedness to cope with crisis resulting from predictable events, such as those resulting from the unavailability of generation / transmission units or adverse weather conditions.

Since the 2006 blackout, Europe has luckily not experienced any widespread incident. The 2012 cold spell or the 2003 and 2015 heat waves had adverse impacts on the electricity sectors of some Member States (France, Poland), and those effects were sufficiently addressed at national level. In 2011, Cyprus suffered a serious emergency situation following an explosion in a military naval base which seriously damaged nearly all generation units of a nearby power station.

Well-functioning electricity markets offer the best guarantee for security of supply, both in the long term (by securing the necessary investments in networks and capacity) and in the medium and short-term (by securing an optimal matching of demand and supply). But the question arises: are internal market rules enough to guarantee the supply of citizens with electricity in any event and face to any risks?

The Third Package recognises that, in exceptional circumstances, market mechanisms and operational rules might not suffice, and therefore allows Member States to adopt safeguard measures "in the event of a sudden crisis in the energy market and where the physical safety or security of persons, apparatus or installations or system integrity is threatened". These safeguard measures need to be notified to the Commission, which may ask the MS to amend or withdraw the measures. Especially in case of simultaneous crisis, uncoordinated national safeguard measures can jeopardise the effectiveness of emergency and remedial actions taken at operational level, and the risk of cascading effect and a generalised black-out cannot be excluded.

The results of a recent study¹⁷⁹ show a fragmented and diverse framework in relation to obligations concerning security of supply. In particular, the existing practices differ across Europe regarding (a) monitoring and assessment of security of supply issues, (b) measures to deal with emergency situations and (c) definition of roles and responsibilities.

This patchwork of security of supply rules across Europe stands in stark contrast with the reality of today's interconnected electricity market. Whilst so far, electricity crises have been relatively limited, there is no guarantee that, where a cross-border incident occur, Member States will have to the tools to address it effectively and efficiently.

Whilst all Member States monitor and assess possible risks related to security of supply and take measures to prevent and mitigate such risks, national rules and practices turn out to be very different. First, Member States have different understandings of what constitutes a risk related to security of supply and methods for assessing and addressing such risks vary considerably. There is also no common agreement on what the desired level of security of supply should be. The study results indicate that 23 Member States describe and differentiate between various categories of risks, but the approach followed to assess them differs considerably across these states, and different actors are involved. Further, whilst most Member States have plans in place to prevent and deal with electricity crisis situations, the content and scope of these plans varies considerably. A majority of Member States provide a legal definition of emergency but with varying levels of detail. In addition, existing national plans tend to focus on the national situation only. Cross-border co-operation between Member States in the planning phase is scarce and where it takes place at all, it is often limited to co-operation at the level of TSOs.

The SoS Directive was conceived as a complement to the market rules, in the absence of a clear Treaty mandate on security of supply. Today, Article 194 of the Treaty on the Functioning of the European Union (TFEU) clearly states that the Union policy on energy shall aim, in the spirit of solidarity between Member States, to ensure security of energy supply in the Union. In practice, this means that Member States, system operators, the energy industry and all other stakeholders have the duty to work closely together to ensure a high-level of energy security for European citizens and companies, but also that Member States should be assured that in situations of tight supply, they can rely on their neighbours.

However, whilst electricity markets are increasingly intertwined within Europe, there is no common European framework on security of electricity supply. National authorities tend to decide, one-sidedly, on the degree of security they deem desirable, on how to assess risks and on what measures to take to prevent or mitigate them.

In their replies to the public consultation¹⁸⁰, most of the respondents acknowledged that security of supply should be considered as a matter of common concern, because countries are increasingly dependent on one another and measures taken in one country can have a

¹⁷⁹ Risk Preparedness Study - "Review of current national rules and practices relating to risk preparedness in the area of security of electricity supply" (2016), prepared for DG Energy of the EC. <https://ec.europa.eu/energy/sites/ener/files/documents/DG%20ENER%20Risk%20preparedness%20final%20report%20May2016.pdf>

¹⁸⁰ Consultation on risk preparedness in the area of security of electricity supply.

<https://ec.europa.eu/energy/en/consultations/public-consultation-risk-preparedness-area-security-electricity-supply>

profound effect on what happens in neighbouring states and in electricity markets in general. They acknowledged that the SoS Directive does not offer the right framework for addressing this inter-dependence.

In the absence of clear rules and procedures, agreed in advance, on issues such as how to prevent and mitigate cyber-attacks, how to communicate across Member States in crisis situations, what measures to take to prevent a further deterioration of a critical situation, actions taken within one Member State can have serious negative effects elsewhere.

Therefore, it can conclude that the SoS Directive intervention is not relevant today as it does not match the current needs on security of supply. The current needs result from the clear TFEU mandate and, in particular, concerning risk preparedness to make sure that Member States are aware and duly prepared to security of supply risks, clarify roles and responsibilities in case of emergency and provide clear rules on the conditions under which Member States may adopt safeguard measures.

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

- Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC ("RES Directive");
- 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 ("Energy Efficiency Directive");
- Directive 2005/89/EC of the European Parliament and of the Council of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment ("Electricity Security of Supply Directive").

7.4.1. Internal Coherence

- | |
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| <ul style="list-style-type: none">- 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 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.

More precisely, regarding ACER, the report prepared by ACER in 2014, "Energy Regulation: A Bridge to 2025 Conclusions Paper"¹⁸¹ recommends that the Agency be given adequate

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http://www.acer.europa.eu/official_documents/acts_of_the_agency/sd052005/supporting%20document%20t

powers to fulfil effectively the important monitoring responsibilities assigned to it in the ACER Regulation, in particular, in respect of information gathering. There seems to be a mismatch between the monitoring tasks and the powers of the Agency to request information from NRAs, TSOs, and ENTSOs.

Regarding ENTSO-E, some stakeholders who replied to the public consultation on the market design initiative mention a possible conflict of interest in ENTSO-E's role – being at the same time an association called to represent the public interest, involved e.g. in network code drafting, and a lobby organisation with own commercial interests – and ask for measures to address this conflict. This could be considered as incoherence within the Electricity Regulation which entrust, in its Article 6, ENTSO-E to play a key role in the elaboration of the network codes, ENTSO-E being at the same time a representation of national TSOs which represent their own interests. This issue has also been underlined in the report prepared by ACER in 2014, "Energy Regulation: A Bridge to 2025 Conclusions Paper"¹⁸².

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.

7.4.2. External Coherence

- | |
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| <p>- To what extent is the Third Package coherent with other measures affecting the electricity sector, such as the Renewable Energy (RES) Directive, the Energy Efficiency Directive and the Electricity Security of Supply Directive?</p> |
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Dispatch

The Third Package Electricity Directive sets out in its Article 32 the general principle of **non-discriminatory access to the network**. The system of access to the electricity network has to be based on tariffs which are applied without discrimination to all network users.

Similarly, the Electricity Directive of the Third Package contains in its Article 15 the general principle of **non discriminatory dispatching**. Dispatching of the electricity produced by the different generators within a Member State must be dispatched in the network by the TSO on the basis of criteria approved by the NRA. These criteria may take into account economic precedence of electricity and should be applied in a non-discriminatory manner.

In terms of access to and use of the electricity grid, the Renewable Energy Directive lays down that Member States shall ensure that, priority access or guaranteed access to the grid-system of electricity produced from renewable energy sources is safeguarded. In terms of

[o%20acer%20recommendation%2005-2014%20-%20energy%20regulation%20a%20bridge%20to%202025%20conclusions%20paper.pdf](#)

¹⁸² See footnote above

dispatching to the system, Member States must require system operators to ensure that when dispatching renewable energy electricity installation to the system, they have priority over other installations. Similarly, Member States may also require the system operator to give priority when dispatching generating installations producing combined heat and power (CHP). These measures – clearly aiming at encouraging within a Member State the development of renewable energy sources and CHP – is a positive discrimination in favour of renewable energy producers. Consequently, the general non-discriminatory access principle of the Third Package is contradicted by the priority access granted to renewables in the Renewable Energy Directive.

When the priority access provisions of the RES Directive were developed, renewables represented only a small proportion of installed generation capacity and these were a less mature technology. This special treatment was in a way justifiable and had a limited impact on the electricity system as a whole.

However, in view of the increasing share of RES E, this has resulted in a situation where in some Member States very high shares of power generation are coming from "prioritized" sources¹⁸³. In view of the EU target for at least 27 % of renewable energies in final energy

¹⁸³ The comparison of Germany and Denmark, two Member States with high shares both of RES-E and CHP, is helpful to assess the deficiencies of systems based on strong priority dispatch and priority access principles. Taking the example of Denmark, an average of 62 % of power demand in the month of January 2014 has come from wind generation alone (<http://www.martinot.info/renewables2050/how-is-denmark-integrating-and-balancing-renewable-energy-today>) and the share of annual demand covered by wind power has risen from 19 % in 2009 to 42 % in 2015 (<http://www.energinet.dk/EN/EI/Nyheder/Sider/Dansk-vindstroemslaar-igen-rekord-42-procent.aspx>). Adding to this the share of 50.6 % of CHP in total Danish power generation. (https://ec.europa.eu/energy/sites/ener/files/documents/PocketBook_ENERGY_2015%20PDF%20final.pdf, p. 183), which makes Denmark one of the Member States with the highest share of CHP (http://www.code2-project.eu/wp-content/uploads/Code-2-D5-1-Final-non-pilor-Roadmap-Denmark_f2.pdf), in many periods almost all generation would be subject to "priority dispatch". Finally, it may be necessary to add certain generation assets which are needed to operate for system security, e.g. because only they can provide certain system services (e.g. voltage control, spinning reserves), further limiting the scope for fully market based generation. However, in Denmark, market incentives on generators are set in a way that drastically reduces the impact of priority dispatch. Almost all decentralized CHP plants and a large number of wind turbines would be exposed to and are not willing to run at negative prices. As CHP are not shielded from market signals by national support systems, they have strong incentives to stop electricity generation in times of oversupply. The integration of a high share of RES-E and CHP in parallel has been successful to a significant extent because CHP are not built and operated on the basis of a "must run" model, where heat demand steers electricity generation. To the contrary, CHP plants have backup solutions (boilers, heat storage), and use these where this is more efficient for the electricity system as expressed by wholesale prices.

Taking the example of another "renewables front runner", Germany, "must run" conventional power plants have been found to contribute significantly to negative prices in hours of high renewable generation and low load, with at least 20 GW of conventional generation still active even at significantly negative prices (See: <http://www.netztransparenz.de/de/Studie-konventionelle-Mindesterzeugung.htm>). Financial incentives are so that many conventional plants generate even at significantly negative prices, with many power plants switching off electricity generation only at prices around minus 60 €/MWh. This increases the occurrence of negative prices, worsening the financial outlook for both renewable and conventional generators, and can increase system stress and costs of interventions by the system operator. This is not due to technical reasons – also in Germany, CHP plants generally have backup heat capacities, which are already necessary to address e.g. maintenance periods of the main plant, or could technically install these. While it may be economically and environmentally efficient to run through short periods of low prices (to avoid ramping up or down), this is no longer the case where the market is willing to pay a lot for electricity being not generated. Excess electricity is in these situations not very efficiently generated, but essentially a waste product. While there is a wide range of reasons for conventional generation to produce at hours of negative prices (e.g. very inflexible technologies such as nuclear or lignite which need a long time to reactivate), approximately 50 % of the plants in such a situation in Germany had at least the capability for parallel heat

consumption (which according to PRIMES EuCo27 projections would require 47 % of gross final electricity consumption to come from renewable energy), the high share of priority dispatch and priority access-technologies will increasingly occur in other Member States.

This can have very significant impact on the well-functioning of the electricity market. It affects the level playing field between technologies, renders assets non-responsive to price signals and undermines the market's price signals and flexibility and the efficiency of the market outcome. Moreover, where the majority of assets benefit from priority dispatch, the measure in effect becomes meaningless when viewed from the perspective of its initially intended objective and can have unintended negative effects, such as unnecessary curtailment of RES E.

Balancing

The principles applicable to balancing as set out in Article 15 of the Electricity Directive are similarly not in coherence with other existing rules and practices applicable in many Member States. Balancing responsibility refers to the obligation of market actors to deliver/consumer exactly as much power as the sum of what they have sold and/or purchased on the electricity market. Balancing responsibility implies that the costs of the balancing actions taken by the transmission system operator are generally to be compensated by the market parties which are in imbalance. Article 15 of the Electricity Directive requires that TSOs adopt rules on balancing which are non discriminatory. However, in some Member States, certain types of power generation (notably wind and solar, but possibly also other technologies) are excluded from this obligation or have a differentiated treatment. Whereas many Member States already foresee some balancing responsibility for RES generators (2013: 16 Member States) this is not yet the case for all Member States, and the degree of balancing responsibility differs considerably between Member States.

Demand response

The provisions of the Third Package on demand response are fully coherent with other legislative provisions within the electricity directive, the energy efficiency directive (EED), the renewable energy directive (RED) and the energy performance of buildings directive (EPBD). As all of those directives currently undergo revisions this coherence needs to be continuously ensured to allow demand response to a) enable the integrating of renewables efficiently into the electricity system in line with the RED, b) contribute to energy savings in line with the EED, c) participate as a resource in the electricity markets, d) be considered when capacity mechanisms are established, e) be supported under the distribution tariff design.

Smart metering

In terms of **coherence** – internally & with other EU actions – even though no clear contradictions could be pointed out, the evaluation has identified some room for improvement. Linking of the term 'actual time of use' in Article 9(2a) and Article 9(1) of the EED to smart metering provisions erroneously restricts the functional requirements of the targeted set-ups and raises questions about coherence with the framework for promoting smart

production, and approximately 8-10 % of conventional plants still producing at such moments were found to be heat-controlled CHP generation (Consentec, "Konventionelle Mindesterzeugung – Einordnung, aktueller Stand und perspektivische Behandlung", Abschlussbericht 25. Januar 2016, p. vii and 25).

meters. There is therefore a need to clarify that a wide range of functionalities is in fact promoted, as those recommended by the Commission, that go much beyond the capability of just 'actual time of use' information which usually refers to advanced, and not smart, metering. Moreover, to ensure coherence, avoid any further confusion and unnecessary administrative burden for updating the related provisions in different legislative documents, it is advised to consider that all existing requirements and any future legislative interventions on smart metering be consolidated/embedded in one single legal act.

Metering and billing

Whereas no direct contradictions with other provisions and actions have been identified, it may seem incoherent or at least confusing that, as explained above, the minimum frequency of billing is (qualitatively) regulated in the Electricity and Gas Directives and quantitatively regulated in the EED for all but smart electricity and gas meters. Most importantly, the latter (EED) results in what would seem to be an unjustified difference between those customers of electricity/gas and thermal energy forms, respectively, who have equipment allowing for automatic/remote readings: whereas customers with smart electricity or gas meters should expect to have at least monthly information (cf. the Commission's interpretation of the IEM provisions), consumers whose consumption is measured with "smart" heat meters or heat cost allocators are only entitled to information 2 or 4 times a year (assuming that the cost-effectiveness condition has not been used to deviate from it). It would seem more logical that where supplies are measured using remotely readable equipment, and where marginal costs of more frequent information are therefore very small, the minimum frequency would be the same regardless of the energy form, and that this be clearly spelled out.

7.4.3. Security of Electricity Supply Directive

- To what extent is this intervention coherent with other interventions which have similar objectives and with wider EU policy?
- In particular what is the coherence between this Directive and the provisions contained in the Third Package?

Many provisions of the SoS Directive have been superseded by more recent EU legislation, in particular the Third Package and the SoS Directive could therefore be considered as an intermediate step between the Second and the Third Package. The SoS Directive was not prescriptive, but rather set general principles that would inspire Member States' policies on SoS.

Its provisions represented a forerunner for some measures that were later on developed in successive EU rules, as illustrated by the following references:

- The need to define roles and responsibilities of competent authorities, NRAs, TSO and market actors (Article 3(1) SoS Directive), which is a basic requirement of the EU rules on the promotion of renewables, on energy efficiency and of the guidelines on energy infrastructures.
- The possibilities for cross-border cooperation (Art. 3(2)(c) SoS Directive) are an essential feature of the third package, and in particular of the Electricity Regulation. They are in the essence of the infrastructure guidelines and can also play a role in the promotion of renewables (e.g. in the form of joint support schemes foreseen in Directive 2009/28).
- The need for regular maintenance and, where necessary, renewal of the transmission and distribution networks, to maintain the performance of the network (Art. 3(2)(d))

SoS Directive), is further elaborated among the TSOs duties in the Electricity Directive (as complemented by the Network Codes and Guidelines).

- The importance of ensuring proper implementation of the EU rules on promotion of renewables and cogeneration (Art. 3(2)(e) SoS Directive).
- The importance of encouraging energy efficiency and the adoption of new technologies, in particular demand management technologies, renewable energy technologies and distributed generation (Art. 3(3)(c) SoS Directive).
- The importance of removing administrative barriers to investments in infrastructure and generation capacity.

Special attention deserves Article 4 of the SoS Directive, which deals with "Operational network security" and represents a truly "embryo" of what will become, more than a decade later, the EU Guidelines on System Operation and the Network Code on Electricity Emergency and Restoration.

The SoS Directive certainly anticipated later regulatory developments, without contradicting them, as shown by the fact that later rules did not require amending or repealing the Directive. To this extent, it can be considered as consistent with the remaining internal energy market rules, with the rules on energy efficiency and on promotion of renewables, as well as with the European guidelines on energy infrastructure.

However, a comparison of the SoS Directive with the equivalent rules existing in the gas sector raises strong coherence concerns.

In the gas sector, issues related to the security of supply "at broad" (understood as a natural consequence of a truly competitive energy market) are covered through the relevant internal market rules (Gas Directive and Gas Regulation). For its part, Regulation No 994/2010¹⁸⁴, and to some extent also its predecessor (Directive 2004/67)¹⁸⁵, directly addresses risk preparedness issues. In the terms of recital 3, *"this Regulation aims at demonstrating to gas customers that all the necessary measures are being taken to ensure their continuous supply, particularly in case of difficult climatic conditions and in the event of disruption"*. Regulation No 994/2010 created a transparent mechanism, in a spirit of solidarity, for a coordinated response to an emergency at national, regional and EU levels. To this end, it provides for a definition of protected customers, it sets up common infrastructure and supply standards, it introduces the requirement to prepare risk assessments, preventive action plans and emergency plans and defines different crisis levels, among other provisions. All these provisions aim at increasing the degree of emergency preparedness at national and EU level in the gas sector. Regulation No 994/2010 is currently in the process of being reviewed, based on the experience.¹⁸⁶

Contrary to the gas sector, the SoS Directive limits itself to anticipate future market related developments but does not address risk preparedness as such. The EU electricity sector therefore lacks a basic act that would enounce basic principles and

¹⁸⁴ 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 and repealing Council Directive 2004/67/EC (OJ L 295/1).

¹⁸⁵ Council Directive 2004/67/EC of 26 April 2004 concerning measures to safeguard security of natural gas supply (OJ L 127/92).

¹⁸⁶ Commission Proposal for a Regulation of the European Parliament and of the Council concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 (COM(2016) 52 final).

impose basic obligations and clear procedures aiming at guaranteeing coordinated response in case of emergency.

The absence of clear rules guaranteeing a coordinated action by all relevant players when it comes to preventing and managing crisis situations, seriously weakens the EU's ability to deal with large-scale electricity crisis situations. There is a stark contrast between the reality of today's electricity networks, which are increasingly integrated, and the fact that so far Member States identify risks and take action to manage and prevent them on a purely national basis, by reference to their own sets of rules and procedures.

While EU risk preparedness has evolved and improved over the past years in the gas sector, this has not been the case in the electricity sector.

This state of affairs can also lead to undue and unnecessary market interferences. In fact, Article 42 of Directive 2009/72/EC grants Member States wide powers to take safeguard measures in the event of a sudden crisis in the energy market. Such measures must cause the least possible disturbance in the functioning of the internal market and must not be wider in scope than is strictly necessary to remedy the difficulties. The provisions on safeguard measures were introduced in the internal energy market rules from the very beginning, but were never modified, and the current SoS Directive does not offer rules about the governance aspects linked to the safeguard measures and the necessary coordination in case of crisis.

As the SoS Directive was not prescriptive but rather set general principles on security of supply, it can be considered that the SoS Directive is consistent with other interventions which have similar objectives, in particular with the Third Package. However, the content and approach of the SoS Directive are not consistent with the EU rules on security of supply in the gas sector and therefore match only partially the current needs on security of supply in Europe, in particular concerning risk preparedness.

7.5. EU value added

This section aims to determine value resulting from the Third Package (as determined by 'Effectiveness and Efficiency' section) 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: ENTSO-E and ACER.

7.5.1. Value added of EU market framework

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| - 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? |
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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 grid could only be adopted at EU level. If fragmented national rules had been in place, distortions would have emerged in the synchronised electricity grid in a similar way as today's fragmented state interventions distort the market. 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 Electricity 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 and electricity network access. The fact that access to cross border interconnectors was often granted in a preferential manner showed that rules were insufficient. 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 electricity market and ensuring a more co-ordinated policy response to security of supply clearly required harmonised and coordinated approaches by all Member States.

The increase in cross-border trade (see subsection 7.1 on Effectiveness) 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.

Similarly, as Member States' networks became increasingly interconnected via infrastructure, there was a clear need for more cooperation between neighbouring TSOs. This could clearly 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 ENTSO-E and the establishment of a ten year network development plan. 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.

Metering and billing

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 as part of the Energy Union includes providing consumers with frequent access 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.

The provisions addressing consumer information in the Electricity and Gas Directives are essential for protecting consumers in the internal energy market at the retail level. 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.

Customer protection

In terms of the EU added value, while some Member States had already been protecting their vulnerable energy consumers prior to the EU intervention, others have taken action as a result of the EU intervention.

Conclusions

Overall, it can be concluded that the subjects covered by the examined legislation such as unbundling, cross-border cooperation, interconnectors, are topics which 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.

Harmonised approach to metering and billing as well as consumer protection provisions 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 ENTSO-E and ACER?

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

Both ACER and ENTSO-E 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 adoption process of the network codes. In its Communication *Delivering the internal electricity market and making the most of public intervention*, the Commission underlined that ACER and the ENTSOs have played a key role in the progress towards a functioning internal energy market. The Commission recently made an evaluation on the first years of 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 priorities¹⁸⁷.

An external evaluation of ACER was conducted in 2014¹⁸⁸. It concluded that ACER's governance and management structure is widely considered to be appropriate for the Agency's current role. It 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. The report also concluded that deliverables produced by ACER bring value to all stakeholders by informing them of key market and regulatory developments.

As regards ENTSO-E, 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 ENTSO-E, 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

¹⁸⁷ https://ec.europa.eu/energy/sites/ener/files/documents/20140122_acer_com_evaluation.pdf

¹⁸⁸ 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.

section 7.1.1 on the need to reinforce the independence and transparency requirements applicable to this ENTSO-E and the possible conflict of interest in ENTSO-E's role.

Also, it is important to note that ACER acts primarily through recommendations and opinions. As pointed out above, the agency has limited decision-making powers. However, in some instances, fragmented national regulatory oversight has proved to be inefficient for cross-border issues related to the electricity and gas system (e.g. market coupling). The lack of a stronger governance and regulatory framework for cross-border issues constitutes a barrier for the integration of the energy markets.¹⁸⁹ In this regard, there is 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.

The 29th meeting of the European Electricity Regulatory Forum of 9 October 2015 underlined, as a conclusion, *"the need for analysing and further elaborating the roles, tasks, responsibilities and consider possible governance structures of ACER and ENTSO-E"* and stressed *"the need to observe and consider possible governance structures for other bodies, including DSOs and power exchanges, and for NEMO cooperation."*

Overall, ACER and ENTSO-E 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.

7.5.2. Security of Electricity Supply Directive

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| <ul style="list-style-type: none">- What is the additional value resulting from the EU intervention compared to what could have been achieved by Member States at national and/or regional levels in the absence of the Directive? |
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As already explained (mainly under the effectiveness criterion), the provisions of the SoS Directive, as such, were quickly superseded by successive EU rules and they therefore had a limited impact on Member States policies. One can therefore argue that, to the extent that the SoS Directive anticipated what would become the Third Package, the added value resulting from this intervention is close to zero (as the relevant Member States policies were based on the Third Package provisions and would have been the same in the absence of the SoS Directive).

Beyond those rules which were already overtaken by the Third Package, the SoS Directive limited itself to providing a very general framework on security of electricity supply, and left it by and large to Member States to define their own security of supply standards. This has resulted in a patchwork of security of supply rules across Europe which make difficult to

¹⁸⁹ 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.*

compare the situation in the different Member States, limit cooperation and imperil trust and confidence in neighbouring Member States. Unco-ordinated approaches to security of supply may also distort the internal electricity market (e.g premature market intervention) and put at risk the security of supply of neighbouring Member States (e.g. export bans).

As mentioned when assessing the coherence criterion, the SoS Directive failed to address risk preparedness issues. The conclusions of the fact finding Study carried out to analyse risk preparedness rules and practices in the EU describe the constellation of national approaches in this area:

- Although all twenty-eight Member States have a general obligation to monitor the security of electricity supply, only nine countries have an explicit legal obligation to carry out a risk assessment. National entities responsible for risk assessment and role allocation vary across the Member States.
- Not all Member States define the types of risks or they do so in a (very) general manner. There exists a patchwork of types of risks covered under the assessments in the Member States, and they are described in various levels of detail.
- Research shows a fragmented and diverse framework on security of electricity supply. While all Member States take into account risk preparedness considerations to some extent, the fact is that only ten Member States set clear obligations to draw up risk preparedness plans.
- While TSOs have, in general, a central role in the adoption of risk preparedness plans or measures, the responsible national entities and TSOs' exact role varies significantly.
- The type of preventive measures envisaged varies significantly across Member States. The large majority of countries focus on the adoption of market measures in their preventive framework (primarily measures directed at supply / demand, operational security and energy efficiency). In seven other countries, the information available does not allow for a categorisation of measures.
- The time horizons covered by the different measures vary significantly across the Member States and no overall trend can be identified; they can vary from one year to fifteen years. Some Member States set no limits of validity for their measures, others have a system of continuous updates while at least eleven countries do not specify time horizons.
- The study could not identify any formal bilateral agreements at Ministerial level (only at TSO level).
- There is no common definition of "emergency". This could potentially lead to disparate reactions of Member States in various emergency events.
- Market suspension measures are foreseen in all Member States by national legislation or operational plans but to different extents. This could potentially lead to dissimilar responses between Member States, which could potentially have consequences for neighbouring countries. In some countries, limitations to cross-border trading capacities are foreseen. Two Member States specifically include explicit legal provisions (law or regulation) on export bans.

The results of this Study are conclusive about the lack of a coordinated approach in the Union on security of supply and risk preparedness, as well as about the heavy consequences that differing rules and practices may have in case of emergency. The SoS Directive did not contain any specific rule on risk preparedness and coordination; as for the monitoring and reporting obligations, they were understood by Member States in such a narrow way that the Commission lacked the relevant information and had to contract an *ad hoc* fact finding study in order to get the right picture on the risk preparedness policies in the 28 Member States.

The results of the public consultation confirmed the need for further action at EU level to harmonise Member States approaches possibly through the preparation of risk preparedness plans based on common templates, to make sure that each Member State takes appropriate security of supply measures and cooperates with and takes account of others, in line with the Energy Union objectives.

It can be concluded that the added value of the SoS Directive has been very limited as it created a general framework but left it by and large to Member States to define their own security of supply standards. This has resulted in a patchwork of security of supply rules across Europe. Having the SoS Directive in place has no added value, both from the perspective of the internal market rules and from the perspective of the risk preparedness..

7.5.3. Assessing the case for continuing EU-intervention

- <i>To what extent do the objectives addressed by the Third Package and the SoS Directive continue to require EU-intervention?</i>

Despite the positive developments generated by the examined legislation, there is still very limited coordination between national TSOs, often restricted to very specific subjects or situations. Similarly, there is still very limited use of cross-border capacity in increasingly important areas such as RES aggregation and generation adequacy.

Indeed, the recent increase of decentralised electricity generation and RES calls for continued EU action to improve the functioning of the internal electricity market and enable maximum cross-border trading to happen. Further EU-action is also necessary in order to enhance the transparency in the functioning of the electricity markets and avoid discrimination between market parties.

Today's uncertainty about future investments in generation capacity and uncoordinated government interventions also calls for continued EU action.

In relation to SoS, the necessity of EU action is based on the evidence that uncoordinated national approaches not only lead to the adoption of suboptimal measures but that they also make the impacts of a crisis more acute. Given the interdependency between the electricity systems of Member States, the risk of a blackout is not confined to national boundaries and could directly or indirectly affect several Member States. Therefore, the actions SoS and crisis situations cannot be defined only nationally, given the potential impact on the level of security of supply of a neighboring Member State and/or on the availability of measures to tackle scarcity situations.

National policy interventions in the electricity 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 spill-over 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 and of the SoS Directive.

8. CONCLUSIONS

In this evaluation the Commission services have assessed if the Third Energy Package and the Security of Electricity Supply Directive are fit for purpose by examining their 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 electricity market design rules, including the creation of a new framework on security of electricity supply (the Market Design Initiative).

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 electricity 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. However, uncoordinated state interventions and inefficient use of interconnectors still constitute obstacles to further integration. Cooperation between TSOs and regulators through ENTSO-E and ACER respectively has improved, but remains insufficient.

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. Consumer protection provisions in the analysed legislation prove to 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. On this point, it appears that data is lacking in order to fully analyse the scale and the drivers of energy poverty.

The evaluation also concludes in the ineffectiveness of the SoS Directive in achieving the objectives pursued. Regulatory gaps exist as regards monitoring, exchange of information and insufficient investment. However, most of these gaps have already been address in subsequent EU regulatory measures.

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.

On security of electricity supply, the evaluation also concludes that due to the limited number of obligations of the SoS Directive, largely referring to mere reporting, the administrative burden remain limited.

Relevance

Electricity markets have changed significantly in the last five years, with variable renewable energy production becoming increasingly important. 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 and response and cross-border trade are even more crucial than in 2009. However, the existing rules are not sufficient to cope with the increasing levels of variable renewable generation. Different rules are needed to ensure in particular the development of short term markets and the emergence of prices that reflect actual scarcity. The market design of the Third Energy Package does also not ensure sufficient incentives for private investments in new generation capacities. Regarding the institutional framework, it appears that the challenges the EU power system will be facing in the medium to long term are regional or pan-European and cannot be addressed and optimally managed by individual TSOs, rendering the current legal framework concerning system operation unsuitable. The institutional framework, especially as regards cooperation of NRAs at regional level, will need to be adapted to ensure the oversight of entities with regional relevance (e.g., RSCs). Moreover, as the European energy markets are more and more integrated, it is crucial to ensure that ACER can function as swiftly and as efficiently as possible.

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, with regard to ability to react to price signals, existing measures have been partly effective in removing market barriers for the participation of industry in balancing and flexibility services, including demand response; but have not been effective in removing barriers for the participation of the residential and the commercial sector. Secondly, further progress is needed in the area of billing information, comparison tools and consumers' ability to easily switch suppliers. In consequence smart metering deployment – a key development facilitating consumer empowerment in the above-mentioned areas – remains a very relevant policy area. Also, the functions of DSOs need further definition and enhanced regulatory oversight in order to deploy inter alia local flexibility markets and 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.

The SoS Directive intervention is no longer relevant today as it does not match the current needs on security of supply. The current needs result from the clear TFEU mandate and, in particular, concerning risk preparedness to make sure that Member States are aware and duly prepared to security of supply risks, clarify roles and responsibilities in case of emergency and provide clear rules on the conditions under which Member States may adopt safeguard measures.

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.

The general non-discriminatory access principle and non discriminatory dispatching of the Third Package is contradicted by the priority access granted to renewables in the Renewable Energy Directive.

Regarding the SoS Directive, it was not prescriptive but rather set general principles on security of supply. It can be considered that the SoS Directive is consistent with other interventions which have similar objectives, in particular with the Third Package. However, the content and approach of the SoS Directive are not consistent with the EU rules on security of supply in the gas sector, and therefore match only partially the current needs on security of supply in Europe, in particular concerning risk preparedness.

EU-added value

Overall, the needs and rationale for EU level action through the electricity 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 needed to avoid fragmented uncoordinated decisions.

ACER and ENTSO-E 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.

EU-wide framework for introducing competition on retail markets and enabling consumers' choice is beneficial for providing level playing field for energy generators and suppliers as well as to benefit the consumers. It also facilitates providing cross-border services.

Regarding the SoS Directive, its added value has been very limited as it was quickly superseded by the Third Package and only created a general framework but left it by and large to Member States to define their own security of supply standard. Whilst electricity markets are increasingly intertwined within Europe, there is still no common European framework governing the prevention and mitigation of electricity crisis situations. National authorities tend to decide, one-sidedly, on the degree of security they deem desirable, on how to assess risks (including emerging ones, such as cyber-security) and on what measures to take to prevent or mitigate them. Having the SoS Directive in place has no added value, both from the internal market perspective and from the perspective of the risk preparedness.

ANNEX I – PROCEDURAL INFORMATION

DG ENER is leading this evaluation.

Reference to Evaluation Roadmaps: AP 2015/ENER/061¹⁹⁰ and AP 2016/ENER/032¹⁹¹.

The Commission has conducted a number of wide public consultations on the different policy areas covered by the present evaluation which took place between 2014 and 2016. In addition to the public consultations, it has organised a number of targeted consultations and workshops with stakeholders throughout 2015 and 2016¹⁹².

A wide public consultation¹⁹³ on a **new energy market design** (COM(2015)340) was conducted from 15 July 2015 to 9 October 2015. It was open to EU and Member States' authorities, energy market participants and their associations, SMEs, energy consumers, NGOs, other relevant stakeholders and Citizens. This public consultation aimed at obtaining stakeholder's views on: on the issues that may need to be addressed in a redesign of the European electricity market. These issues include: (i) improvements to market functioning and investment signals; (ii) market integration of renewables; (iii) linking retail and wholesale markets (iv); reinforcing regional coordination of policy making, between system operators and of infrastructure investments; (v) the governance of the internal electricity market; and, (vi) an European dimension to security of supply. A summary of the responses is available on the Commission's website¹⁹⁴. This public consultation served as a basis for this evaluation as it put into light the shortcomings of the current legislative framework.

A public consultation on **risk preparedness in the area of security of electricity supply** was organized between July 15th and October 9th 2015 and resulted in 75 responses including public authorities, international organizations (IEA), European bodies (ACER, ENTSO-E) and most relevant stakeholders – companies and associations. This public consultation aimed at obtaining stakeholder's views in particular on how Member States should prepare themselves and co-operate with others, with a view to identify and manage risks relating to security of electricity supply. A summary of the responses is available on the Commission website.¹⁹⁵ This consultation helped to identify the current shortcoming of the Electricity Security of Supply Directive.

Generation adequacy related issues were also the subject of a public consultation conducted from 15 July 2015 to 9 October 2015. 15 November 2012 to 7 February 2013 through the "*Consultation on generation adequacy, capacity mechanisms, and the internal market in electricity*". It was open to EU and Member States' authorities, energy market participants and their associations, and any other relevant stakeholders, including SMEs and energy consumers, and citizens. It aimed at obtaining stakeholder's views on ensuring generation

¹⁹⁰ http://ec.europa.eu/smart-regulation/roadmaps/docs/2015_ener_061_evaluation_eu_electricity_market_en.pdf

¹⁹¹ http://ec.europa.eu/smart-regulation/roadmaps/docs/2016_ener_032_evaluation_elec_supply_investment_en.pdf

¹⁹² For more information on the consultation process, please refer to Annex 2

¹⁹³ <https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>

¹⁹⁴ <https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>

¹⁹⁵ <https://ec.europa.eu/energy/en/consultations/public-consultation-risk-preparedness-area-security-electricity-supply>

adequacy and security of electricity supply in the internal market. A summary of the responses is available on the Commission's website.¹⁹⁶

A public consultation dedicated to **retail energy markets**¹⁹⁷ was conducted from 22 January 2014 to 17 April 2014. It was open to all EU citizens and organizations including public authorities, as well as relevant actors from outside the EU. This public consultation aimed at obtaining stakeholder's views on the functioning of retail electricity and gas markets with focus on market functioning, design and consumer participation (demand response, self consumption). A summary of the responses is available on the Commission's website.¹⁹⁸

Several reports and Communications have been used the draft the present evaluation, inter alia:

- *"Delivering the internal electricity market and making the most of public interventions"* (C(2013) 7243). This Communication was accompanied inter alia by a Commission Staff working document (SWD(2013) 438) entitled "Generation Adequacy in the internal electricity market – guidance on public intervention";
- Communication on the *"Progress towards completing the Internal Energy Market"* COM(2014) 634 final. This Communication emphasized that energy market integration has delivered many positive results but that, at the same time, further steps are needed to complete the internal market.
- Special Report by the European Court of Auditors *"Improving the security of energy supply by developing the internal energy market: more efforts needed"*. This special report made nine recommendations to reap the benefits of market integration¹⁹⁹;
- Interim report of the sector inquiry on capacity mechanisms, accompanied by a Commission Staff working document (SWD(2016) 119 final). The interim report points out that there is a lack of proper and consistent analysis of the actual need for capacity mechanisms. It also appears that some capacity mechanisms in place could be better targeted and more cost effective. It emphasizes the need to design capacity mechanisms with transparent and open rules of participation and a capacity product that does not undermine the functioning of the electricity market.

No external expertise was used except for the external studies mentioned in footnotes in the text.

ANNEX 2: STAKEHOLDER CONSULTATION

For the a detailed description and summary of the stakeholder consultations used for this evaluation, please refer to Annex 2 of the Impact Assessment on the Market Design Initiative.

¹⁹⁶ <https://ec.europa.eu/energy/en/consultations/consultation-generation-adequacy-capacity-mechanisms-and-internal-market-electricity>

¹⁹⁷ <https://ec.europa.eu/energy/en/consultations/consultation-retail-energy-market>

¹⁹⁸ https://ec.europa.eu/energy/sites/ener/files/documents/Charts_Public%20Consultation%20Retail%20Energy%20Market.pdf

¹⁹⁹ <http://www.eca.europa.eu/en/Pages/DocItem.aspx?did=34751>