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EVALUATION
of the
EU Framework for Metering and Billing of Energy Consumption

Accompanying the document

Proposal for a Directive of the European Parliament and of the Council amending Directive 2012/27/EU on Energy Efficiency

{COM(2016) 761 final}
{COM(2016) 401 final}

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1. INTRODUCTION

1.1. Purpose of this evaluation

The purpose of this evaluation is to **take stock of the current performance and continued relevance of existing EU legal provisions on metering and billing** so as to evaluate what is working, what is not, and why. This is done in the context of the follow-up on the communications on a new energy market design[1] and on *Delivering a New Deal for Energy Consumers*[2] (hereinafter referred to jointly as the *Market Design Initiative* - "MDI") and as part of the parallel review of the Energy Efficiency Directive (EED). At the same time the evaluation presents an opportunity to look critically at provisions where problems have already been identified in the course of the ongoing work with transposition and implementation of the EED.

1.2. Purpose of this evaluation

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1.3. Overview of EU acquis related to metering and billing

The **Electricity and Gas Directives**[5] contains the following key provisions related to metering and billing:

- Article 3 Billing and promotional material
  - 3(3) Access to comparable and transparent supply options (Electricity only!)
  - 3(5)/3(6) Access to consumption data
  - 3(9) Disclosure of the overall fuel mix and environmental impact of the supplier (Electricity only!)
- Annex I Consumer protection
  - 1.c) The transparency of applicable prices and tariffs
  - 1.d) Consumer payment methods

[1] COM(2015) 340 final

[2] COM(2015) 339 final

[3] COM(2015) 340 final

[4] COM(2015) 339 final

[5] Directive 2009/72/EC 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, http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0072

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, http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0073

- 1.i) Frequency of information on consumption and costs
- 2. Intelligent metering systems (smart meter roll-out)

The **Energy Efficiency Directive (EED)**[6] contains the following key provisions:

- Article 9 Metering
  - 9(1) Individual metering generally
  - 9(2) Requirements related to smart metering
  - 9(3) Metering of thermal energy in multi-apartment/purpose buildings
- Article10 Billing information (in conjunction with Annex VII)
  - 10(1) Consumption based billing (information) requirement in general (incl. as regards minimum frequency)
  - 10(2) Requirements on consumption information from smart meters
  - 10(3) General information and billing requirements pertinent to costs, consumption and payment
- Article 11 Cost of metering and billing information
  - 11(1) Metering and billing generally free of charges
  - 11(2) Conditions for pass-through of cost of sub-metering/-billing

In addition the following provisions are of relevance when considering **disclosure of energy sources** in bills:

The **Renewable Energy Directive (RED)**[7] contains the following key provision:

- Article 15 Guarantees of Origin (GO)
  - 15(1-12) A comprehensive framework for the issuance, transfer, and cancellation of guarantees of origin for electricity produced from renewable electricity sources for the sole purpose of disclosure.

The **EED** contains similar provisions for guaranteeing the origin of electricity produced from a high-efficiency cogeneration process:

- Article14(10)

1.4. Scope of this evaluation

This evaluation is based on the five Better Regulation criteria (relevance, effectiveness, efficiency, coherence and EU-added value) in a proportionate way and considers simplification, burden reduction potential, SMEs and quantification of costs and cost benefit only implicitly or to a limited extent, given its partial scope, the multiple and complex other factors affecting the objectives studied and the limited data available.

[6] 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, http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32012L0027

[7] 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, http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0028

The scope of the evaluation covers the following elements:

Electricity and Gas Directives

- **General evaluation** of the performance/continued relevance of **Article 3(3) of the Electricity Directive**: This covers access to comparable and transparent supply options, implicitly addressing the information presented in bills, comparison tools, metering information and pre-contractual information.
- **General evaluation** of the performance/continued relevance of **Article 3(9) of the Electricity Directive**: This addresses the disclosure of the overall fuel mix and environmental impact of the supplier. The evaluation of the legal text will therefore be performed together with Article 15 of the RED, which cross references it (see below).
- **General evaluation** of the performance/continued relevance of Articles **1.c) and 1.i) of Annex 1 of the Electricity and Gas Directives**: These cover key information presented in consumer bills.

Energy Efficiency Directive

- **General evaluation** of the performance/continued relevance of **Article 9(1)**: Substantial experience with implementing this article already exists since it has been in force longer than the remaining provisions (it was transferred virtually unchanged into the EED from the 2006 Energy Services Directive).
- **EED Article 10(1) and the related annex VII** in particular in so far is concerned **minimum billing frequency** (identified as possible area for development in MDI) and comparability of information.

EED Articles 9(2) and 10(2) and Annex I point 2 of both the Electricity and Gas Directives concern requirements specifically for smart electricity and gas meters and will be considered as part of a separate thematic evaluation on smart meters.

Remaining provisions in Articles 9-11 are not within the scope of the evaluation, except to the extent justified by:

- Early indications of a need for **technical clarifications** already emerging from the ongoing implementation work;
- The need to **address overlap/coherence** with MDI actions on consumer empowerment/information/transparency.

The **RED** has already been subject to a REFIT review, so th**is evaluation contains the conclusions from that report for issues related to the GO system**. The relevant parts of the REFIT review are in Annex 2. The REFIT evaluation of the legal text will therefore be considered together with the evaluation of Article 3(3) of the Electricity Directive, which it cross references (see above), as will the EED provisions on GOs for high-efficiency cogeneration.

2. BACKGROUND TO THE INITIATIVE

This section identifies the objectives behind the existing provisions on metering and billing in the IEM legislation and in the EED based on the legislative texts (including their recitals) and

on the related Commission proposals and preparatory documents accompanying the latter (impact assessments). At the end of the section the intervention logic behind the legislative provisions on metering and billing is depicted.

2.1. Description of the initiative and its objectives

The Electricity and Gas Directives as adopted by the co-legislator

The recitals of the 2003 **Electricity[8] and Gas Directives[9] as adopted by the co-legislators** following the co-decision process reinforce the objectives identified by the Commission[10] to a large extent. The **co-legislators**

- Inserted a recital stating that the ability of electricity and gas customers to choose their supplier freely was **fundamental to the freedoms which the Treaty guarantees European citizens** (Recital 4) – a point reiterated elsewhere in the recitals[11].
- Reinforced a recital on standards of public service to include the right for household customers and, where Member States deem it appropriate, small enterprises "*to be supplied with electricity of a specified quality at **clearly comparable, transparent and reasonable prices***" (Recital 24).
- Added to the Electricity Directive a recital acknowledging the Commission's intention to ensure that **reliable information on the environmental impact of electricity from different sources** could be made available in a transparent, easily accessible and comparable manner (Recital 25).

The provisions and recitals on the freedom to choose suppliers and the right to clear, comparable information remained largely unchanged by the **co-legislators** in the 2007 Directives. Although the original recital on disclosure was removed in the 2007 Electricity Directive, the co-legislators reinforced the provisions in the Directive to specify that information on fuel sources should be clear and, at the national level, comparable.

To summarize, the metering and billing provisions in the electricity and gas markets Directives have remained largely unchanged since they were first proposed/adopted in 2001/2003. Legislative texts and supporting documents reveal that the major objectives of the Commission and co-legislators were to:

- Enable easier and more effective consumer choice;
- Boost competition in retail markets;
- Create consumer incentives to save energy.

The Commission's proposal for the EED

The 2011 Commission proposal for an Energy Efficiency Directive[12] included a comprehensive and ambitious set of provisions on metering and billing representing very

[8] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32003L0054

[9] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003L0055

[10] For details on the Commission proposals see Annex 4.

[11] Recitals 20 and 18 of the Electricity and gas Directives respectively.

[12] http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011PC0370

significant changes compared to the already existing provisions in the field, namely Article 13 of the Energy Services Directive[13] (ESD).

The Commission's proposal was accompanied by detailed analysis of options on metering & billing[14]. The stated specific **objective** of the proposal as regards the metering and billing provisions was to "*[e]nsure that consumers are empowered with correct, understandable and regular information on their energy use*".

More particularly, there was a clear aim to address **problems identified with the application of Art 13 of the ESD**: As the Impact Assessment summarized it: "*Because of the vague wording the provisions did not lead to improvements*" with respect to the aim that was to "*ensure understandable and accurate information is provided for consumers via individual meters and energy bills on a frequent basis*."[15].

Key **changes proposed** included:

- **minimum frequency** of consumption based billing of **every 1-2 months** in most cases, and
- clarification that **individual metering in each flat in multi- apartment buildings** was also required for heating, cooling and hot water.

The EED as adopted by the co-legislator

The recitals of the **EED as adopted by the co-legislators** following the co-decision process to a large extent mirror the *objectives* identified by the Commission despite the operative provisions being very different. Notably, the co-legislators:

- Retained a recital emphasizing the need to take account of the benefits of cost-effective technological innovations such as smart meters, albeit without stressing the need for visualization of cost and consumption indicators (Recital 26).
- Included new recitals with cross-references to the provisions on smart meters in Directives 2009/72/EC and 2009/73/EC (Recitals 27& 31), and on the appropriate conditions for using heat cost allocators and sub-metering of heating, cooling and hot water more generally in multi-apartment buildings (Recitals 28-29).
- Added two recitals expressly acknowledging the insufficient progress and clarity of the existing provisions and the need for clearer rules:

> *"(32) The impact of the provisions on metering and billing in Directives 2006/32/EC, 2009/72/EC and 2009/73/EC on energy saving has been limited. In many parts of the Union, these* ***provisions have not led to customers receiving up-to-date information about their energy consumption, or billing based on actual consumption at a frequency which studies show is needed*** *to enable customers to regulate their energy use. In the sectors of space heating and hot water in multi-apartment buildings the* ***insufficient clarity*** *of these provisions has also led to numerous complaints from citizens."*

[13] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32006L0032

[14] http://ec.europa.eu/energy/sites/ener/files/documents/sec_2011_0779_ia_annexes.pdf, p.52

[15] http://ec.europa.eu/energy/sites/ener/files/documents/sec_2011_0779_impact_assessment.pdf, p.12

> *(33) In order to **strengthen the empowerment of final customers as regards access to information from the metering and billing of their individual energy consumption**, bearing in mind the opportunities associated with the process of the implementation of intelligent metering systems and the roll out of smart meters in the Member States, it is **important that the requirements of Union law in this area be made clearer**. This should help reduce the costs of the implementation of intelligent metering systems equipped with functions enhancing energy saving and support the development of markets for energy services and demand management. Implementation of intelligent metering systems enables frequent billing based on actual consumption. However, there is also a need to **clarify the requirements for access to information and fair and accurate billing based on actual consumption in cases where smart meters will not be available by 2020**, including in relation to metering and billing of individual consumption of heating, cooling and hot water in multi-unit buildings supplied by district heating/ cooling or own common heating system installed in such buildings.*

As regards the possibility to guarantee the origin of electricity from high-efficiency cogeneration the EED essentially incorporated and updated provisions from Directive 2004/8/EC:

- "*(39) To increase transparency for the final customer to be able to choose between electricity from cogeneration and electricity produced by other techniques, the origin of high-efficiency cogeneration should be guaranteed on the basis of harmonised efficiency reference values…."*

In short, based on the EED recitals the **objective** of Articles 9-11 as identified by the co-legislators was to **strengthen the empowerment of final customers as regards access to up-to-date information** on their actual, individual energy consumption at a frequency enabling them to regulate their energy use, **bearing in mind the opportunities associated with intelligent metering systems** as well as the situations where smart meters will not be available by 2020. There was a clear aim to **clarify existing provisions** that were considered unclear and ineffective. The GO provisions in Article14 and the related Annex expressly aimed at **increasing transparency** for the final customer **to be able to choose** between electricity from cogeneration and electricity produced by other techniques

As adopted, the EED's operational provisions in essence:

- Carried forward without changes the ESD provisions on individual metering (in EED Article 9(1));
- Added requirements for smart electricity and gas meters (Article 9(2));
- Added new provisions expressly requiring metering of heating/cooling/hot water in multi-apartment/purpose buildings, and on cost allocation (Article 9(3)), subject to technical feasibility and cost-effectiveness condition;
- Extended provisions on billing and billing information to include a specified minimum frequency, and elaborated on billing information requirements (Article10(1), 10(3) and Annex VII);
- Added new provisions on historical information for customers with electricity or gas smart meters (Article 10(2));

- Carried forward provisions on guaranteeing the origin of electricity produced through high-efficiency cogeneration from Dir. 2004/08/EC.

2.2. Baseline

The 2003 and 2009 Electricity and Gas Directives were fundamental to the liberalisation of the EU's gas and electricity sectors and the completion of the internal market. In their absence, it is not likely that many Member States would have proceeded with liberalising their energy markets at the same speed and to the same extent. Therefore, it is likely that significantly fewer EU energy consumers would have been able to benefit from market competition in terms of:

- increased efficiency and competitiveness;
- lower energy supply costs;
- higher standards of service.

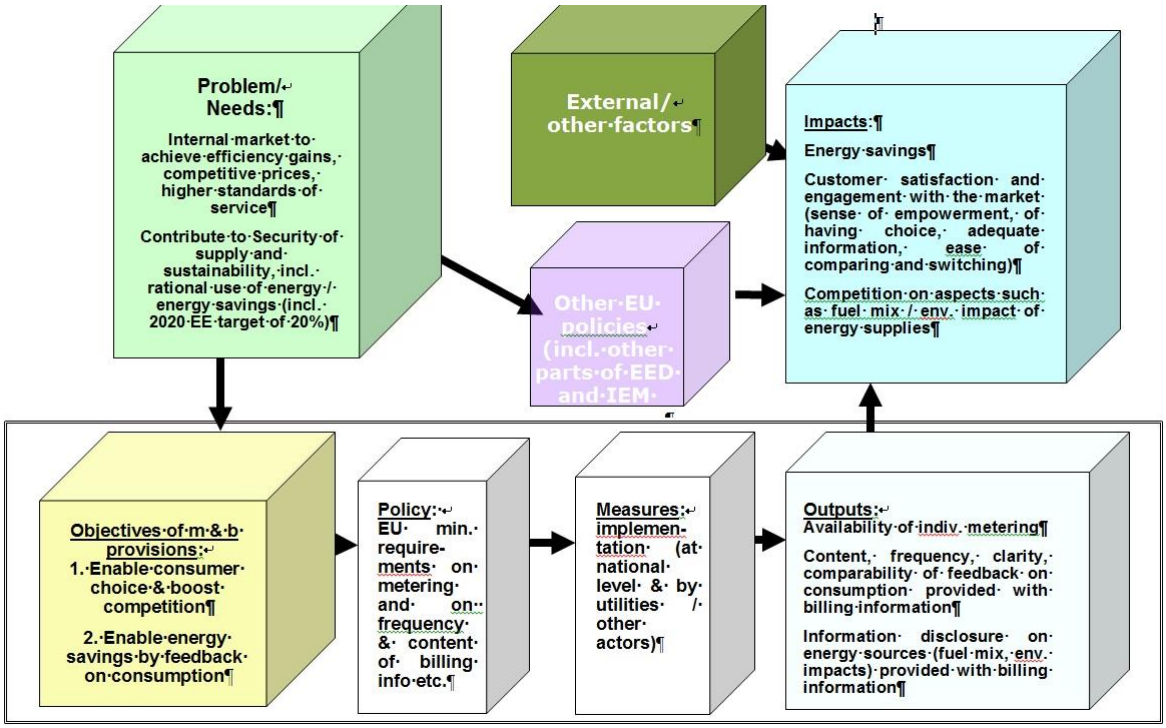
In absence of the EED, ESD provisions from 2006 would have continued to apply. As mentioned above, these had not proven to consistently lead to the expected improvements. The detailed issues with the ESD provisions will be further explored below.

As regards guarantees of origin, such were already introduced for electricity from renewables and from high-efficiency cogeneration in Directives 2004/8/EC and 2001/77/EC, respectively.

The purpose of this evaluation is somewhat atypical in that it has not aimed to evaluate a single, specific intervention. Rather, it seeks to take stock of the current situation which is the cumulative outcome of several, past policy developments/legislative processes with different timing. It does so only in so far as regards metering and billing is concerned and with a particular focus on coherence and relevance. Consequently, it has been considered less important to identify a clear baseline, but in the analysis only interventions over the last 1-2 decades have been considered (although there are examples of EU action on metering and billing even before that[16]).

[16] Cf. eg. Council Directive 93/76/EEC of 13 September 1993 to limit carbon dioxide emissions by improving energy efficiency (SAVE)

Figure 1: Intervention Logic Diagram illustrating the subject of this Annex



3. EVALUATION QUESTIONS

This evaluation aims, for each of the sub-themes within the scope, to answer the following questions:

1. What is the **current situation**?

2. How **effective** has the EU intervention been?

3. How **efficient** has the EU intervention been?

4. How **relevant** is the EU intervention?

5. How **coherent** is the EU intervention internally and with other (EU) actions?

6. What is the **EU added value** of the intervention?

4. METHOD

This evaluation has been carried out in-house by the Commission services. No analytical models have been applied. The main activities and processes which have provided the key inputs are listed in Annex 3.

5. IMPLEMENTATION STATE OF PLAY (RESULTS)

5.1. State of play as regards implementation

Electricity and Gas Directives

Enforcement action undertaken by the Commission in relation to the Internal Energy Market legislation is ongoing. Procedures are set out in detail in "Enforcement of the Third Internal Energy Market Package (SWD(2014) 315 final)".[17] As of 20 January 2016, all of the infringement proceedings for partial transposition of the Electricity Directive have been closed. The focus is now on addressing the incorrect transposition or bad application of the Third Energy Package, with priority being given to violations which have the highest impact on the functioning of the internal market, including unbundling, independence, powers and duties of the national regulatory authorities and consumer protection. On this basis, the Commission has opened structured dialogues ("EU Pilot[18]") with a number of Member States. As of 20 January 2016, 8 of these dialogues have been followed by infringement procedures (see further details below).

Energy Efficiency Directive

As the deadline for transposing the EED was relatively recent (5/6-/2014), the enforcement action undertaken by the Commission in relation to the EED at this stage mainly concerns incomplete transposition. As of 20 January 2016 there were still 23 infringement procedures pending for incomplete transposition of the EED. In addition, the Commission is yet to verify the conformity of the transposed national measures with the requirements of the Directive.

Importantly, two of the key provisions in Article 9 and 10 of relevance to this evaluation have later application deadlines than the general transposition deadline as regards certain aspects of heating, cooling and hot water metering and billing in multi-apartment buildings. Although certain metering and billing requirements already existed under Article 13 of the Energy Services Directive, they were further developed in the EED which clarified the difference between heat cost allocators and individual heat meters and imposed additional metering obligation for buildings with central heating system, in addition to buildings with district heating. The obligation for frequent billing in accordance with Article 10(1) only became mandatory as of 31/12/2014, and the deadline for introducing metering of heating, cooling and hot water in individual units in multi-apartment/purpose buildings is 31/12/2016. This provision, of particular importance to owners and tenants in Member States in which large apartment blocks make up a significant percentage of the residential housing stock, obviously cannot yet be evaluated fully as the application deadline has not yet passed and it is therefore impossible to check how the legal obligation has been put into practice.

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

[18] Structured dialogue between the Commission and the Member State concerned is carried out via 'EU Pilot'. EU Pilot" This is a scheme designed to quickly resolve compliance problems without having to resort to infringement procedures for the benefit of citizen and business

5.2. Problems and issues identified

In September 2011 the Commission opened 38 infringement proceedings against 19 Member States to ensure full transposition of the **Electricity and Gas Directives.** Non-resolved cases were followed up in 2012 by sending reasoned opinions and referrals to Court.

The two Directives have been now transposed by all Member States. The Commission closed all the non-communication cases.

Structured dialogues with Member States as well as infringements on incorrect transposition or bad application are currently ongoing. As of 20 January 2016, 8 of the structured dialogues have resulted in infringement procedures where, *inter alia*, violation of the EU electricity and gas consumer provisions is at stake.

So far, Annex I(1)(d) on **consumer choice of payment methods and** Annex I(1)(i) on **frequency of information on consumption and costs** of both Directive 2009/72/EC and Directive 2009/73/EC seem to be the most problematic of the articles relevant here. Issues as regards the non-conforming transposition of Annex I(1)(d) have been raised in structured dialogues with 5 Member States and 1 Member State has received a Letter of Formal Notice regarding the transposition of the same provision. As for the Annex I(1)(i) of Directive 2009/72/EC and Directive 2009/73/EC, structured dialogues raising issues as regards the non-conforming transposition of this provision are currently pending for 5 MS and for one Member State the procedure is currently at the stage of Letter of Formal Notice.

Findings of a mystery shopping exercise[19] carried out between 11 December 2014 and 18 March 2015 suggest that the implementation and/or enforcement of some measures addressed in this evaluation may be an issue in certain Member States.

Only 28% of mystery shoppers (including experts) were able to find a contact point where they could obtain information about their energy rights, as required under Article 3(9)(c) of the **Electricity and Gas Directives**[20]. In addition, Article 3(9)(a) of the Electricity Directive requires suppliers to specify the contribution of each energy source to the overall fuel mix of the supplier over the preceding year in or with consumer bills[21]. However, more than a third (35%) of mystery shoppers in the same study disagreed that their electricity company informed them about how the electricity they used was produced (scores 0 to 4 on a scale to 10)[22]. As transposition checks for the directives do not indicate particular irregularities around

[19] Mystery shopping or a mystery consumer or secret shopper, is a tool used externally by market research companies, watchdog organizations, or internally by companies themselves to measure quality of service, or compliance with regulation, or to gather specific information about products and services. Mystery shoppers were instructed to analyse one of their own monthly, bi-monthly or quarterly electricity bills.

[20] 'Member States shall ensure that electricity suppliers specify in or with the bills and in promotional materials made available to final customers… the contribution of each energy source to the overall fuel mix of the supplier over the preceding year in a comprehensible and, at a national level, clearly comparable manner…'

[21] 'Member States shall ensure that electricity suppliers specify in or with the bills and in promotional materials made available to final customers… information concerning their rights as regards the means of dispute settlement available to them in the event of a dispute.'

[22] This was the case for a majority of respondents in nine EU-28 countries, with the highest level of disagreement observed in Bulgaria (78%). On the other end of the scale, the proportion of respondents who "strongly agreed" (scores 8 to 10) that their electricity company informed them about how the electricity they used was produced

these articles, this points to possible interpretation issues or the bad application of the relevant measures by national authorities.

As regards the EED, only 44% of mystery shoppers were able to find a comparison of the current energy consumption with consumption for the same period in the previous year, preferably in graphic form (EED Annex VII 1,2 b)), and only 26% were able to find tips on saving energy or contact information (e.g. link to a website) (EED Annex VII 1.2 c) / 1.3).[23] However, the transposition of the Directive is still incomplete in several Member States and even where transposition has been completed, further implementation activities are still ongoing. A preliminary analysis of notified transposition measures carried out for the Commission indicates that transposition of Articles 9-11 remains very patchy at this stage[24]. On average across all Member States, it seems that only some 44% of the mandatory provisions of these articles have been fully transposed so far (it is emphasised that this is based on preliminary analysis).

Several complaints from citizens have also been received by the Commission concerning implementation of Article 13 of the ESD (which pre-ceded the EED provisions) in multi-apartment buildings, leading to infringement procedures against a number of Member States.

The responses to the Commission's Consultation on the retail energy market[25] conducted in spring 2014 generally confirm the impression that there's much room for improvement in the retail market, including when it comes to metering and billing issues. Of a total of 237 responses, 160 didn't consider that consumers have the information they need to use energy more efficiently, and of those 160 more than half (125) considered that the availability of such information could be improved "a little" or "a lot" by more frequent and informative billing.

In terms of stakeholder views on the overall adequacy of the current EED provisions on metering and billing, roughly 3 out of 5 of respondents to the public consultation on the EED review who had an opinion on this question were satisfied. About 2 out of 5 expressed the opposite view. Unsurprisingly, **utilities were most likely to find the current provisions sufficient, with 92% of all utility respondents being of this view**. In contrast, **2 of every 3 NGOs or consumer organisations expressing an opinion considered the current provisions to be inadequate** to guarantee all consumers easily accessible, sufficiently frequent, detailed and understandable information on their own consumption of energy.

6. ANSWERS TO THE EVALUATION QUESTIONS

Below the evaluation questions are addressed for each of the key provisions within the scope of the evaluation.

varied between 5% in Bulgaria and 46% in Austria. Germany joined Austria at the higher end of the country ranking with 45% of respondents who “strongly agreed”.

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

[24] Data reflecting November 2015 status.

[25] https://ec.europa.eu/energy/en/consultations/consultation-retail-energy-market

6.1. Electricity and Gas Directives

What is the current situation?

The evidence presented in this section draws extensively on survey data, as well as data from a mystery shopping exercise. The aim of the mystery shopping exercise was to replicate, as closely as possible, real consumers' experiences across 10 Member States[26] selected to cover North, West, South and East Europe countries. A total of 4,000 evaluations were completed between 11 December 2014 and 18 March 2015[27]. Whilst data from the mystery shopping exercise is non-exhaustive, the methodology enables the controlled sampling of a very large topic area[28], as well as providing insights that would not be apparent in a desktop evaluation of legislation and bills. Using a behavioural research approach rather than a traditional survey allowed us to identify what people actually do, rather than what they say they do.

Whereas this evaluation describes the relatively small number of non-prescriptive measures on energy billing contained in the EU *acquis*, all Member States have legislation with further billing requirements (see Annex 5 or an overview of billing practices and regulation per country). For example, UK electricity and gas suppliers must follow over 70 pages of rules on the information in bills as part of their current licensing requirements.

In addition to legislative requirements, suppliers communicate and present information in different ways as a part of their non-price competition with other suppliers. For example, information may be presented in a certain format for branding purposes, or to target different customers with different kinds and levels of information to increase consumer satisfaction. There is therefore currently a broad divergence in Member States with regards to the individual elements in electricity and gas consumer bills and the total amount of information in these bills.

[26] The Czech Republic, France, Germany, Italy, Lithuania, Poland, Slovenia, Spain, Sweden and the UK.

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

[28] For example, there were over 400 electricity and gas supply offers in Berlin alone in 2014 (source: ACER Database), making a comprehensive examination of all supply offers in the EU28 impracticable.

Text Box 1: Select requirements for UK domestic energy bills[29]

The following information must be grouped together, in a box, distinct from other information and included on page one of the Bill:

- The standardised title "Could you pay less?"
- Information on cheaper tariffs offered by the supplier and the savings available if the consumer were to switch.
- A Personal Projection* for the consumer's current tariff.
- A signpost to further tariff information.
- A standardised switching reminder "Remember – it might be worth thinking about switching your tariff or supplier".

The following information must be grouped together and included on page two of the Bill, in a box, distinct from other information, in the following order:

- The standardised title "About Your Tariff".
- The name of the customer's fuel, current tariff, payment method, any applicable tariff end date, exit fees and the customer's personalised usage in the last 12 months.

The following information must be provided anywhere on a bill:

- The standardised title "About Your TCR"**.
- The TCR for the customer's current tariff.
- A signpost to where to find independent advice on switching supplier.

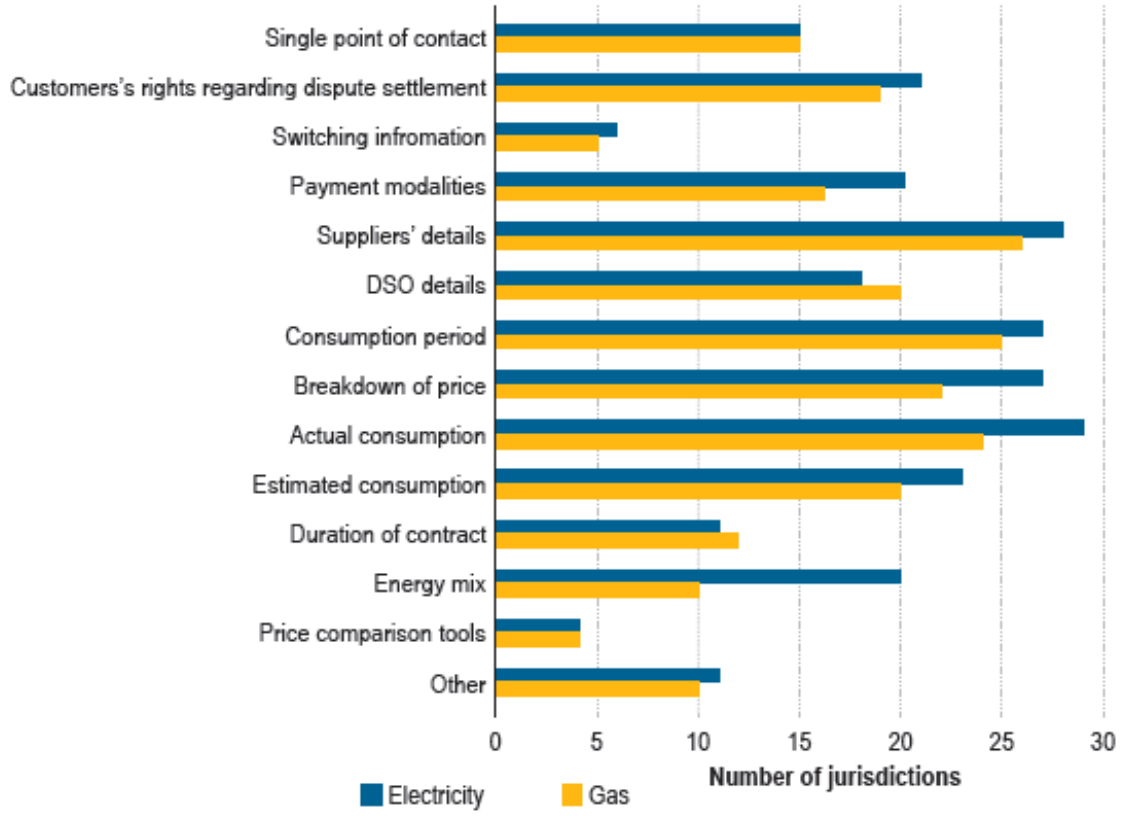
* The Personal Projection is a standardised methodology that uses a consumer's actual or estimated consumption to estimate their projected cost for a particular tariff for the next year.

** The TCR or 'Tariff Comparison Rate' is used to assist consumers to make an initial comparison of alternative tariffs. It is similar in nature to the Annual Percentage Rate used to describe savings, loan and credit agreements.

Figure 2 below from ACER summarizes the information provided to household customers on their bills. It includes general billing requirements put forward in Article 3 and Annex I of the Electricity and Gas Directives (for example, information on the single point of contact), as well as items not covered by EU law (price comparison tools). Whereas customers in the majority of MSs are currently provided with information on the consumption period, actual and/or estimated consumption, and a breakdown of the price, there is a greater diversity of national practices with regards to other potentially beneficial information, such as switching information, information about price comparison tools, and the duration of the contract.

[29] Ofgem (2013) 'The Retail Market Review – Final domestic proposals Consultation on policy effect and draft licence conditions', pp. 71-108, 130-163 https://www.ofgem.gov.uk/sites/default/files/docs/2013/03/the-retail-market-review---final-domestic-proposals.pdf

Figure 2: Information on household customer bills in MSs – 2014[30]



The results of a mystery shopping exercise on the information in energy bills covering ten representative Member States[31] provide a more detailed impression of the differences in billing practices within the EU. Mystery shoppers were instructed to analyse one of their own monthly, bi-monthly or quarterly electricity bills for a number of information elements identified as best practices by the Citizens' Energy Forum's Working Group on e-Billing and Personal Energy Data Management as well as a number of information elements addressed (although not always required) by the current Electricity Directive[32].

[30] Source: CEER Database, National Indicators (2014-2015)

[31] The Czech Republic, France, Germany, Italy, Lithuania, Poland, Slovenia, Spain, Sweden and the UK.

[32] https://ec.europa.eu/energy/sites/ener/files/documents/20131219-e-billing_energy_data.pdf

Table 1: Information included on an electricity bill in a sample of ten Member States - I[33]

			Country									
Item	*Item in "billing" evaluation sheet*	% who found item on their bill (total)	CZ	DE	ES	FR	IT	LT [34]	PL	SE	SI	UK
Supplier's name	Provider's name	99%	96 %	100 %	100 %	100 %	100 %	88 %	100 %	100 %	100 %	100 %
Contact details (including their helpline and emergency number)	Telephone number of customer service/helpline	96%	92 %	100 %	100 %	100 %	100 %	80 %	93 %	100 %	100 %	97 %
	Postal address of provider	94%	92 %	100 %	97 %	100 %	100 %	60 %	100 %	96 %	100 %	83 %
	Email address of provider	69%	92 %	95 %	80 %	27 %	37 %	40 %	75 %	84 %	96 %	60 %
	Emergency number (e.g. to call in the event of an electrical emergency or power outage)	59%	68 %	8%	97 %	87 %	93 %	28 %	35 %	64 %	40 %	87 %
The duration of the contract	Duration of the contract (e.g. 24 months)	22%	8%	50 %	27 %	17 %	10 %	0%	5%	40 %	4%	50 %
The deadline for informing the supplier about switching to another supplier	The period of notice to terminate your electricity contract (e.g. 30 days before the intended termination date)	19%	4%	50 %	0%	57 %	0%	12 %	0%	28 %	0%	27 %

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

[34] Lithuania stands out as the country where mystery shoppers were the least likely to find each of the items on their bill. Mystery shoppers in Lithuania (note: all shoppers were clients of Lesto) reported that they do not receive an electricity bill; they declare usage themselves online (via www.manoelektra.lt - a site dedicated to Lesto customers) or by means of a paper bill book.

The tariff name	Tariff name/plan (e.g. '*Day & Night Fix*')	80 %	84%	65%	57%	87 %	93%	60 %	93%	80%	76%	100 %
(A reference to) a clear price breakdown for the tariff (the base price plus all other charges and taxes)	A detailed price breakdown for your tariff (e.g. division of total price in base price, network charge, etc.)	79 %	92%	65%	100 %	83 %	93%	8%	88%	92%	96%	73%
The base price of one energy unit (in kilowatt hours or kWh) for the selected tariff	Base price per kWh of your tariff	82 %	68%	65%	87%	93 %	83%	68 %	83%	92%	88%	93%
The switching code	Switching code/meter identification (EAN or MPAN code; a unique code for your electricity meter)	73 %	96%	58%	87%	87 %	67%	44 %	78%	76%	72%	67%
The amount to be paid, for which billing period, by when and how	Amount to be paid	97 %	100 %	100 %	97%	97 %	100 %	72 %	100 %	100 %	100 %	97%
	Billing period (e.g. 15 November – 14 December 2014)	95 %	96%	90%	100 %	97 %	100 %	80 %	93%	100 %	100 %	97%
	Payment method (e.g. direct deposit, cheque, bank transfer)	84 %	88%	100 %	87%	87 %	87%	64 %	65%	92%	64%	100 %

Clear information on how this amount has been calculated: is it based on an actual meter reading or estimated only?	% of shoppers stating that it not clear how the billing amount was calculated	5%	4%	18%	3%	0%	0%	8%	3%	4%	4%	3%
For calculations based on actual consumption: meter readings and consumption during the billing period (measured in kilowatt hours or kWh)	Details about consumption during billing period (in kWh)	89%	95%	67%	96%	100%	100%	73%	95%	87%	91%	95%
	Value of the meter reading at the end of the billing period	89%	90%	93%	96%	86%	88%	73%	95%	87%	82%	95%
	Value of the meter reading at the beginning of the billing period	88%	95%	93%	96%	86%	88%	73%	86%	83%	91%	90%
Where does the energy come from, how is it generated, how environment friendly is it ("the fuel mix")	Fuel mix/energy sources (e.g. wind power, biomass)	32%	48%	45%	20%	47%	43%	0%	18%	52%	40%	13%
Information on how to get tips on saving energy (e.g. a link to a website)	Tips on saving energy (e.g. link to a website)	26%	8%	48%	17%	23%	20%	36%	8%	24%	20%	57%
Information on how to obtain the bill in alternative formats (e.g. in large print) for consumers with disabilities	Information on how to obtain your bill in alternative format (e.g. paper/online, large print)	24%	16%	8%	23%	27%	53%	28%	5%	20%	16%	50%
Base *(note: figures in grey are based on a smaller sample):*		300	25	40	30	30	30	25	40	25	25	30

Table 2: Information included on an electricity bill in a sample of ten Member States - II[35]

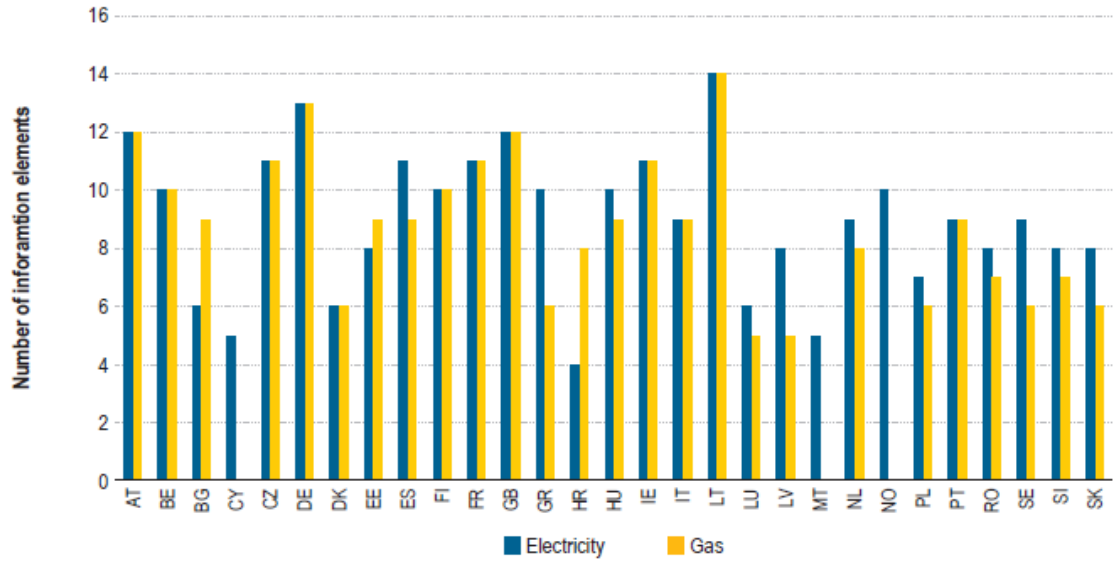
			Country									
Information	Item in "billing" evaluation sheet	% who found item on their bill (total)	CZ	DE	ES	FR	IT	LT	PL	SE	SI	UK
The contribution of each energy source to the overall fuel mix of the supplier over the preceding year	13a. Fuel mix/energy sources (e.g. wind power, biomass)	32%	48%	45%	20%	47%	43%	0%	18%	52%	40%	13%
Information concerning the consumer's rights as regards the means of dispute settlement available to them in the event of a dispute	8b. National contact information point (or single point of contact where you can obtain information about your energy rights)	28%	44%	43%	33%	43%	30%	4%	3%	16%	12%	53%
	8c. An energy mediator or third-party assistance	23%	36%	45%	23%	57%	0%	0%	3%	12%	0%	50%
Base:		300	25	40	30	30	30	25	40	25	25	30

The results show a large variation across countries for selected items; for example, information about the period of notice to terminate a contract was not found on bills in Italy, Poland, Slovenia and Spain, while in Germany and France, at least half of shoppers had found such information on their bill (50% and 57%, respectively). These variations may reflect national differences in consumer preferences and the characteristics of local markets, as reflected in Member State rules and discretionary billing practices by suppliers. In addition, the figure illustrates the possible bad application issues.

To illustrate another dimension of divergence, the following figure shows information load in consumer bills in different Member States. This can have a significant impact on consumers' ability to comprehend their bills.

[35] Shoppers were instructed to analyse a monthly or quarterly bill. In the Czech Republic and Germany, a considerable number of shoppers reported that they only receive an annual bill from their electricity company. In these countries, 88% (n=22) and 50% (n=20), respectively, of shoppers analysed an annual bill. European Commission (2016), ' Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU.

Figure 3: Information on household customer bills in MSs – 2014 (number of information elements)[36]



To summarize, there is currently a broad divergence in Member States, both with regards to the individual elements in consumer bills and the total amount of information in these bills. The widespread divergence in national practices reflects differences in national legislation and marketing by suppliers, which are themselves a function of consumer preferences and the characteristics of local markets. To a more limited extent, the divergence may also reflect the bad application of certain requirements of the Electricity and Gas Directives identified earlier in the Annex, particularly EU requirements on information on consumer rights and energy sources.

How effective has the EU intervention been?

To recap, the major objectives of the Articles in the Electricity and Gas Directives relevant to billing and metering were:

- To boost competition in retail markets;
- To create consumer incentives to save energy;
- To enable easier and more effective consumer choice.

With regards to the first of the three objectives – boosting competition in retail markets – retail market competition has clearly increased in the EU since the articles relevant to billing and metering were introduced in the Second Energy Package. However, there have also been a great number of other relevant measures put in place at the same time as part of the broader effort to liberalise EU energy markets. These include unbundling rules and limits on price regulation[37]. This makes it impossible to quantitatively gauge the competition gains brought about by the articles on billing and metering.

There is a similar situation for the second of the three objectives – creating consumer incentives to save energy. There is evidence to show that there has been progress in recent

[36] Source: ACER

[37] See the Evaluation on the Electricity Directive.

years[38]. However, as numerous EU energy efficiency policy measures have been put in place in parallel during the period in question, it is again impossible to quantitatively disambiguate the individual contribution to these gains by the measures introduced in the Second Energy Package. Qualitatively, however, we can estimate these gains to be relatively minor as also acknowledged in the Energy Efficiency Directive, where Recital 32 expressly states that the "*impact of the provisions on metering and billing in Directives 2006/32/EC, 2009/72/EC and 2009/73/EC on energy saving has been limited. In many parts of the Union, these provisions have not led to customers receiving up-to-date information about their energy consumption, or billing based on actual consumption at a frequency which studies show is needed to enable customers to regulate their energy use*".

In terms of the third of the three objectives – enabling easier and more effective consumer choice – there exist various data that help us understand how EU consumers perceive their energy bills and the extent to which their bills are building awareness about energy use. These data are summarised in the remainder of this section.

Consumer organisations responding to 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[39].

These mediocre figures are backed by the 2016 Electricity Study that found that one in five consumers surveyed still disagree that the electricity bills of their electricity company were easy and clear to understand (note the disparity in individual Member States concerning the level of understanding with Bulgaria performing worst and Cyprus performing best). This effect was even more pronounced among mystery shoppers from ten Member States who were quizzed with their current bills to hand. Here, between 20 and 54% of respondents disagreed with the statement "My bill is easy to understand". Correspondingly, 8% of all consumers who had reported having a problem with their electricity supplier in the past three years identified problems with billing[40].

[38] See f.ex. COM(2015) 574 final "Assessment of the progress made by Member States towards the national energy efficiency targets for 2020 and towards the implementation of the Energy Efficiency Directive 2012/27/EU as required by Article 24 (3) of Energy Efficiency Directive 2012/27/EU"

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

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

Figure 4: Agreement with statement: "bills of my electrify company are easy and clear to understand", by country[41]

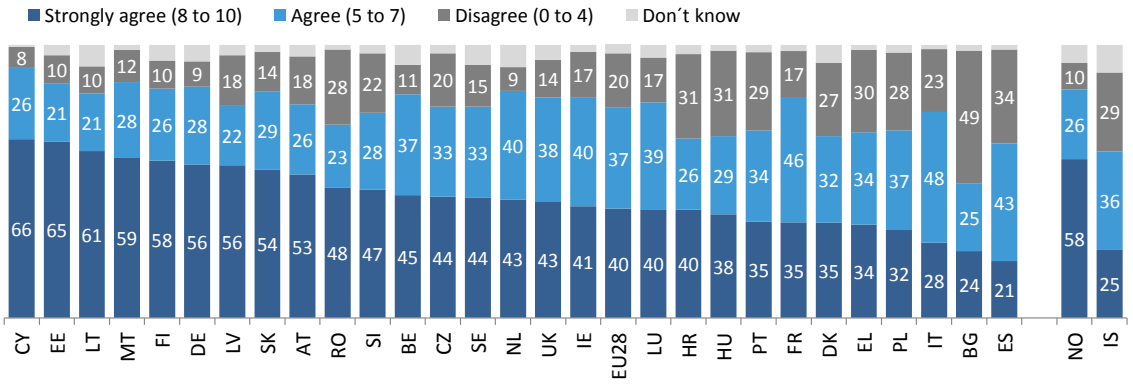
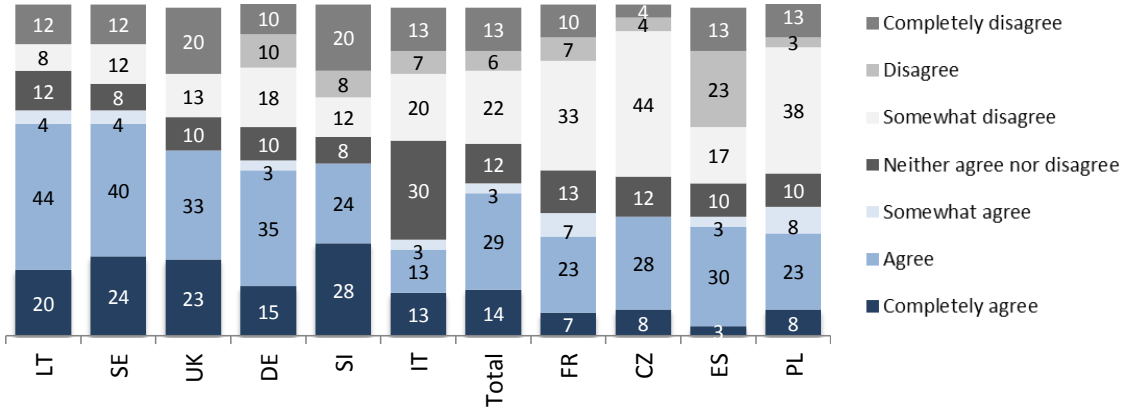


Figure 5: Agreement with the statement: "My bill is easy to understand"[42]



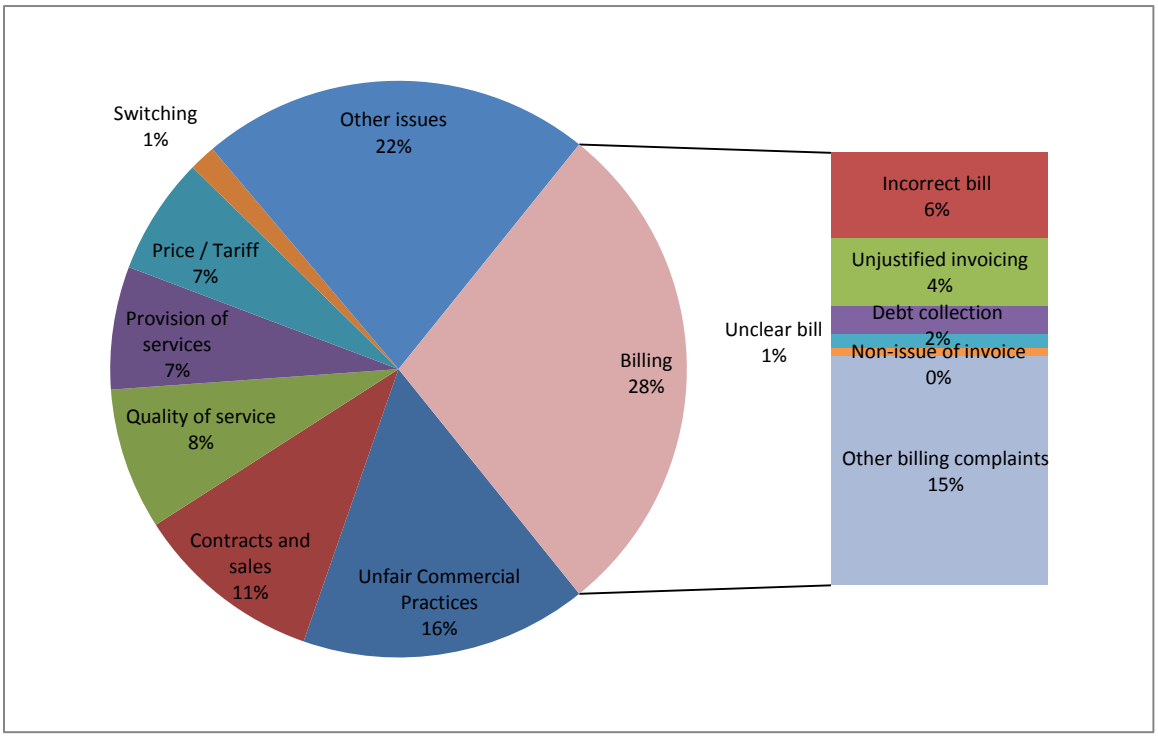
The complaints data collected through the European Consumer Complaints Registration System indicates the largest share (28%) of consumer complaints reported to the Commission between 2011 and 2016 were related to billing. Whilst the complaints classified as relating to "unjustified" or "incorrect" invoicing/billing (10% of all electricity and gas complaints) are most likely related to billing on estimated rather than actual consumption[43], complaints about unclear invoices or bills make up around 1% of all electricity and gas complaints in the system. The category 'other billing complaints' relates to cases where users of the European Consumer Complaints Registration System did not encode a sub-category, or where their specific complaint could not be categorised according to the options presented below.

[41] Question: "The following question deals with the quality of services offered in the electricity retail market. Please indicate how much you agree or disagree with each of the following statements, using a scale from 0 to 10, where 0 means that you "totally disagree" and 10 means that you "totally agree": Bills of [PROVIDER] are clear and easy to understand." European Commission (2016), 'Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU '.

[42] Agreement with the statement: "My bill is easy to understand" European Commission (2016), 'Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU '.

[43] See Thematic Evaluation on Smart Metering.

Figure 6: Electricity and gas consumer complaints, 2011-2016[44]



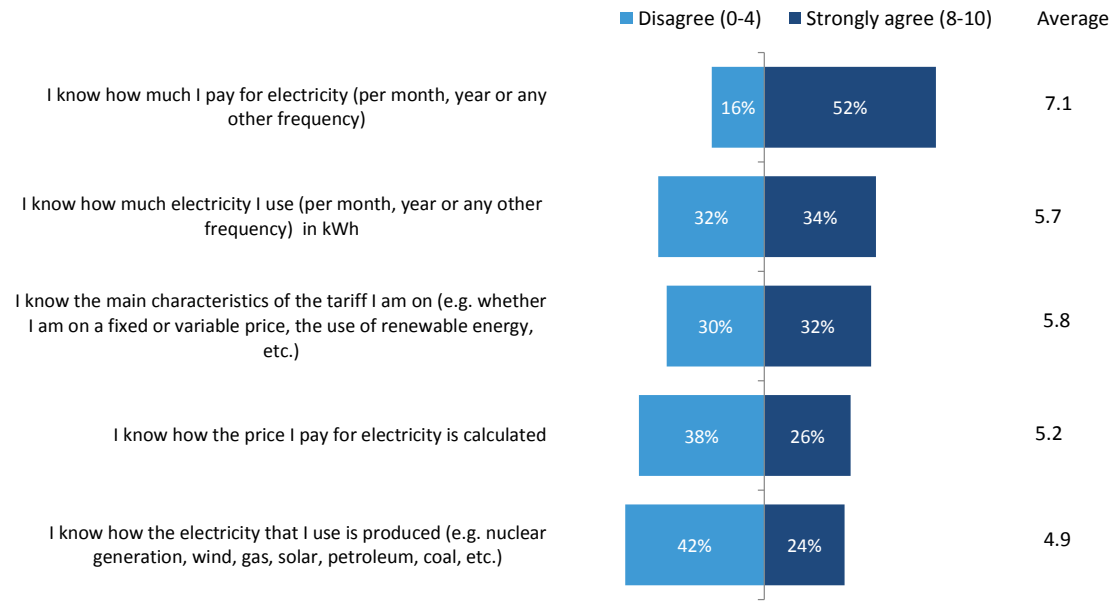
It therefore appears that whereas a significant percentage of EU consumers have difficulties understanding their energy bill, problems directly related to bill clarity have not led to a large number of consumer complaints compared with other issues such as back-billing, unfair commercial practices, and contractual clauses.

Energy bills are the foremost means through which suppliers communicate with their customers. As such, consumers' ability to correctly answer simple questions about their own electricity use indirectly reveals the extent to which bills have been effective in providing information that could facilitate effective consumer choice. The figures show that whereas the majority of EU consumers report that they know how much they pay for electricity, fewer were aware of their consumption in terms of kWh, what type of tariff they have, or their sources of electricity.

Whilst this finding may certainly reflect a lack of consumer interest in this information, the information facilitates effective consumer choice by helping consumers identify the best offer in the market and weigh the benefits of switching. Their omission from many bills, as proven by data, may therefore be impeding the achievement of one of the stated objectives of the billing provisions in the Electricity and Gas Directives.

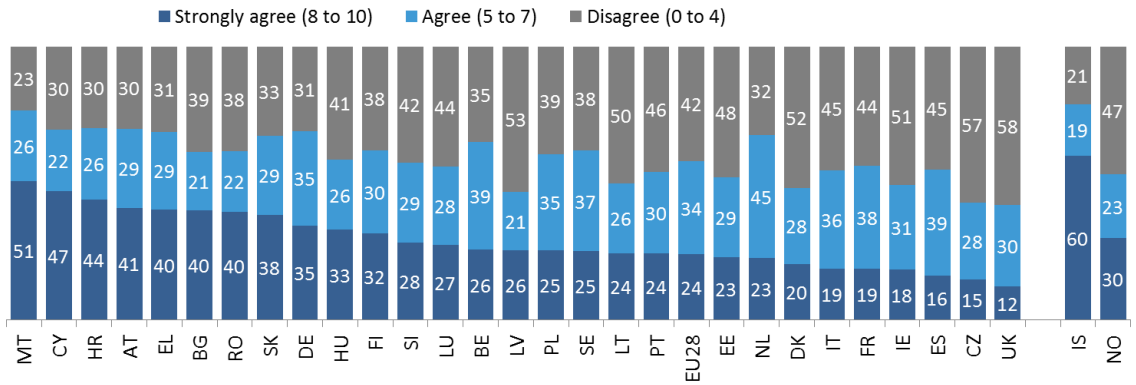
[44] Source: DG JUST, European Consumer Complaints Registration System.

Figure 7: Self-reported awareness of electricity use[45]



Looking deeper into consumer awareness of energy sources, across the EU28, just 24% of respondents "strongly agreed" (scores 8 to 10) that they knew how the electricity they used was produced. The proportion expressing strong agreement varied between 12% in the UK and 51% in Malta. This low level of awareness corresponds with the fact that just 32% of sampled bills contain this information.

Figure 8: Agreement with statement: "I know how the electricity that I use is produced (e.g. nuclear generation, wind, gas, solar, petroleum, coal, etc.)", by country[46]



[45] Question: "Please indicate how much you agree or disagree with each of the following statements, using a scale from 0 to 10, where 0 means that you "totally disagree" and 10 means that you "totally agree"." European Commission (2016), 'Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU '

[46] Question: "Please indicate how much you agree or disagree with each of the following statements, using a scale from 0 to 10, where 0 means that you "totally disagree" and 10 means that you "totally agree". "I know how the electricity that I use is produced (e.g. nuclear generation, wind, gas, solar, petroleum, coal, etc.)." European Commission (2016), 'Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU '.

Notwithstanding these low consumer awareness figures, data from the 2016 Electricity Study indicate that consumer demand for information on energy sources is nevertheless high. A behavioural experiment involving 10,056 consumers from 10 EU Member States (CZ, DE, ES, FR, IT, LT, PL, SE, SI and the UK) tested consumer willingness to switch to a green offer for extra-costs. 42% of consumers chose a green offer when the premium was low (€1.5/kWh) and another 37% of consumers when the premium was high (€3/kWh)[47].

The increasing proportion of green tariffs currently on offer in the EU also shows that suppliers are responding to this demand: by the end of 2014, almost one third (697) of all electricity offers and almost one quarter (178) of gas offers in the EU were labelled as 'green'[48].

However, there may be scope to facilitate growth in this area. Improving the provision (availability, ease of access and use) and quality (clarity and comparability) of information on energy sources in bills may therefore lead not only to enhanced non-price competition and support the further development of renewable energy capacity, but also to greater overall consumer engagement and satisfaction with the market. In this respect, expert bodies such as ACER and CEER have specifically highlighted "the lack of standardisation of how Guarantees of Origin are used to prove green credentials in different Member states" as an important issue[49].

To summarize, it is difficult to say how much the billing articles in the Electricity and Gas Directives have contributed to their stated objectives, because of other significant policy interventions aimed at fulfilling these same objectives, and because these objectives were not accompanied by specific indicators that would allow us to disentangle causal relationships. Nevertheless, the analysis presented in this section indicates that there is scope to improve the extent to which the billing provisions in the Electricity and Gas Directives facilitate consumer choice.

How efficient has the EU intervention been?

There are no data available to assess this question quantitatively, but given the narrow scope and low level of prescription of the billing provisions in the Electricity and Gas Directives, the costs are likely to have been limited. Consumer bills are currently heavily regulated

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

[48] 100% of the electricity production coming from green sources or – in the absence of information on the input of green sources – if it is labelled as such by the price comparison tool. ACER (2015) Market Monitoring report 2014, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER_Market_Monitoring_Report_2015, pp. 42-43. CEER (2015).

[49] ACER (2015) Market Monitoring report 2014, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER_Market_Monitoring_Report_2015, pp. 42-43. CEER (2015) Advice on customer information on sources of

Electricity, http://www.ceer.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/Tab5/C14-CEM-70-08_CustomerInfo-Sources%20of%20Electricity_Advice_March%202015_0.pdf

beyond the requirements imposed by the Electricity and Gas Directives in most Member States[50].

How relevant is the EU intervention?

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. In the future it will be increasingly important to ensure that bills enable or even facilitate consumers' use of these online tools to compare their individual consumption or current tariff to other available offers (e.g. by providing a code that the consumer can input in the tool to customize the comparison).

The 2016 Electricity Study found that 64% of EU consumers who had compared tariffs of different electricity companies said they had used comparison tools to do so. It also showed that comparison tools – which grants access to the offers of a larger number of providers- significantly increased the number of cheaper offers consumers were able to identify compared with contacting individual providers directly[51].

Comparison tools are likely to become even more important as the retail market for energy matures. Between 2012 and 2014, 'choice' for consumers in European capitals widened, with a greater variety of offers being available. However, the ability of consumers to compare prices can be hampered by the complexity of pricing and the range of energy products, as well as by an increasing number of offers and their bundling with additional free or payable services[52].

ACER has therefore recommended that: "*To improve consumer switching behaviour and awareness further, National Regulatory Authorities (NRAs) could become more actively involved in ensuring that the prerequisites for switching, such as transparent and reliable online price comparison tools and transparent energy invoices, are properly implemented.*"[53]

It is important to emphasise that in the context of the general efforts to move energy markets from simple commodity markets (for kWhs) towards an energy services market, "transparent and reliable price comparison tools" need to be able to assess contracts from a holistic

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

[51] From twice to twenty times, depending on the Member State. European Commission (2016), ' Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU '.

[52] ACER (2015) Market Monitoring report 2014, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER_Market_Monitoring_Report_2015 p.40, 100.

[53] ACER (2015) Market Monitoring report 2014, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER_Market_Monitoring_Report_2015 p.10.

perspective that integrates broader aspects including energy efficiency improvement actions or services, differences in energy sourcing qualities (greenness) etc.

How coherent is the EU intervention internally and with other (EU) actions?

Whilst the provisions on billing in the Electricity and Gas Directives are not contradicted elsewhere in the EU *acquis*, they are complemented and reinforced by various Articles in the EED and RED, also addressed in the present document. Consolidating, streamlining or clarifying the respective scope of these articles would make the legislation as a whole easier to understand and reduce the scope for unintended interactions resulting from subsequent legislative revisions. This concerns for example the issue of billing frequency (see further discussion below) but also smart metering requirements (addressed in a separate evaluation paper).

With regard to disclosure, it is notable that gas deliveries are not subject to disclosure although this could stimulate consumer demand for green gas supplies (such as biogas injected in the gas grids) or allow some consumers to choose certain sources over others (if for example shale gas or LNG was identified separately). Equally it is notable that while the EED provides a means for guaranteeing the origin of electricity from high-efficiency cogeneration, there is no disclosure obligation to stimulate the use of that tool.

What is the EU added value of the intervention?

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.

6.2. EED

Article 9(1)

What is the current situation?

Article 9(1) of the EED is, apart from some very minor editorial changes, identical to Article 13(1) of the ESD. Member States have generally transposed and implemented Article 9(1), which should not be surprising given that they have effectively been under the obligation to do so since the 2006 adoption of the identical provisions in the ESD.

However, the absence of substantial changes is somewhat paradoxical given that ESD Article 13(1) contained several elements known to be the subject of different interpretations and that a key objective of the EED, as discussed above in Section 3, was to clarify existing provisions on metering and billing. In the context of the Concerted Action on the Energy Services Directive the Member States themselves reported that there is a "*large variance in the*

interpretation of Article 13 of the ESD" and that the Article had "*….only limited causal influence on changes in metering & billing policies*"[54].

The areas where particular ambiguities persist are:

- The **definition of "*final customer***";
- Meaning of "***competitively priced individual** meters that accurately reflect the final customer's actual energy consumption and that **provide information on actual time of use***".

The definition of "final customer"

A '*final customer'* means according to EED Article 2 (23) "*a natural or legal person who purchases energy for own end use*". This definition has given rise to different interpretations notably in cases where heating and cooling or hot water is purchased collectively by or on behalf of an association of end-users (for example a group of households responsible for energy consumption in each of the individual apartments in a multi-apartment building). Although it is often a housing cooperative that purchases the energy, it is arguably the individual households who are the end-user (except, perhaps, of energy used for heating stairwells and similar collective uses). The Commission services have taken the view that the definition of final customer should be understood as covering those end-users (i.e. households/tenants) as well as the entity purchasing heating/cooling/hot water on behalf of the end-users (e.g. a housing cooperative/building owner). However, some Member States (FI, FR, DE, UK,…) seem to interpret the provisions differently, taking the view that the individual households in such buildings are not to be considered as final customers if they do not have a contractual relationship with the energy supply company . This question has important implications for the effective scope of the obligations in the EED, incl. Article 9(1), 10(1), Article 10(3) and Annex VII. In principle this problem applies to all energy forms, in practice it is most relevant for thermal energy forms (electricity and gas more rarely, not being subject to individual supply contracts even in multi-apartment buildings). It is particularly problematic when it comes to new buildings or major renovations, for which the obligation in the EED Article 9(1) to fit individual meters is absolute (i.e. technical and economic conditionalities do not apply), but where the applicability of this absolute obligation is undermined by the uncertainty about the meaning of the definition of "final customers".

Meaning of "competitively priced individual meters that accurately reflect the final customer's actual energy consumption and that provide information on actual time of use".

EED Article 9(1) (and before that ESD Article 13) refers to "*competitively priced individual meters that accurately reflect the final customer's actual energy consumption and that provide information on actual time of use*." This obligation is challenging to implement/enforce for a number of reasons:

1. It is not clear what "*competitively priced*" means. The term "*competitively priced*" was presumably used to protect consumers from overly costly solutions imposed by

[54] Renner / Martins (2010). Technical Summary Report TSR03 on Informative metering and informative billing, Concerted Action ESD, http://www.esd-ca.eu/reports/outcomes-2008-2011/technical-summary-reports/tsr03-individual-metering-and-informative-billing

monopolistic utilities. In practice it is unclear precisely how this is to be interpreted/implemented.

2. It is not clear precisely how/with what time resolution "*information on actual time of use*" must be provided. Dating back to the 2006 ESD, it is arguably a reference to one of the functionalities of what is now commonly referred to as smart meters. However, firstly the provision of actual time of use data is but one of the recommended/desirable features of smart meters. Secondly, time of use is typically mostly of relevance for electricity, and less so for other energy forms[55]. Recital 28 to the ESD stated that " *[i]n the context of this Directive, competitively priced individual meters include accurate calorimeters*". Calorimeters are devices to measure thermal energy flows.
3. Thirdly, it is not entirely clear what "*individual*" meters mean (c.f. the point on the controversy around the definition of final customers above).

In short, where the provisions aimed to advance the use of sophisticated meters (with time of use capabilities), the ambiguous wording has meant that few if any Member States have interpreted it to require smart meters. Where it sought to advance the provision of meters to end-consumers, many of which are individual households in multi-flat buildings, the ambiguous definition of final customers has prevented it from doing so consistently. Eventually this issue may have to be resolved legally, either through an interpretation by the Court or through legislative changes.

How effective has the EU intervention been?

With respect to the intervention logic, there is a wealth of scientific and technical literature published over the last 40 years on the influence energy consumption feedback can have on consumers' decisions and behaviour and the resulting energy savings. By way of example the following three recent literature review papers/reports provide a useful overview:

Karlin, B., Zinger, J. F., & Ford, R. (2015, September 21). "The Effects of Feedback on Energy Conservation: A Meta-Analysis". Psychological Bulletin. Advance online publication. http://dx.doi.org/10.1037/a0039650;

Zvingilaite E. and Togeby M. (2015). Impact of Feedback about energy consumption. Ea Energy Analyses, 15-05-2015. http://www.ea-energianalyse.dk/reports/1517_impact_of_feedback_about_energy_consumption.pdf;

EEA Technical report No 5/2013 – "Achieving energy efficiency through behaviour change: what does it take?", http://www.eea.europa.eu/publications/achieving-energy-efficiency-through-behaviour .

Individual metering is a necessary precondition for providing any feedback to consumers on their actual consumption. Billing, on the other hand, is but one way of conveying consumption feedback. Since utilities anyways bill customers for purely commercial reasons it is however a low-cost and widely used approach to providing feedback.

The literature mentioned above is generally reporting findings from specific, concrete studies, programmes and pilot projects. It establishes beyond doubt that feedback on individual actual

[55] Admittedly this could change e.g. in the context of increasingly smart and optimised, integrated systems with electricity and heat storage. At present this is however of very limited practical relevance.

consumption, including via billing, tends to trigger enduring savings. The precise impact depends a lot on the precise modalities, the situation before, the frequency etc.

No evidence is available as regards the total impact of applying the EU *acquis* on metering and billing, because there has been no systematic monitoring or reporting of the implementation of individual metering and consumption based billing, or the extent to which such practices have been furthered by EU legislation. It is safe to say, however, that *to the extent/where* the EU provisions have triggered the installation of individual meters, and consumption based (frequent) billing, this will have led to savings: this causal link is well established in the scientific literature.

There is evidence from the work and discussions on implementation in (and between) Members States to suggest that Article 9(1) of the EED has been less effective than intended because:

a) Key concepts or terms used remain either ambiguously defined or undefined, and are interpreted differently by different parties.

b) In addition, Member States in many instances have made use of the caveats regarding technical feasibility and financial reasonableness / proportionality to make broad exceptions. These conditions may of course be subject to review and possible infringement action from the Commission as part of its enforcement role.

c) Other provisions meanwhile provide more impetus to reach at least some of its intended objectives (cf. e.g. Article 9(3)).

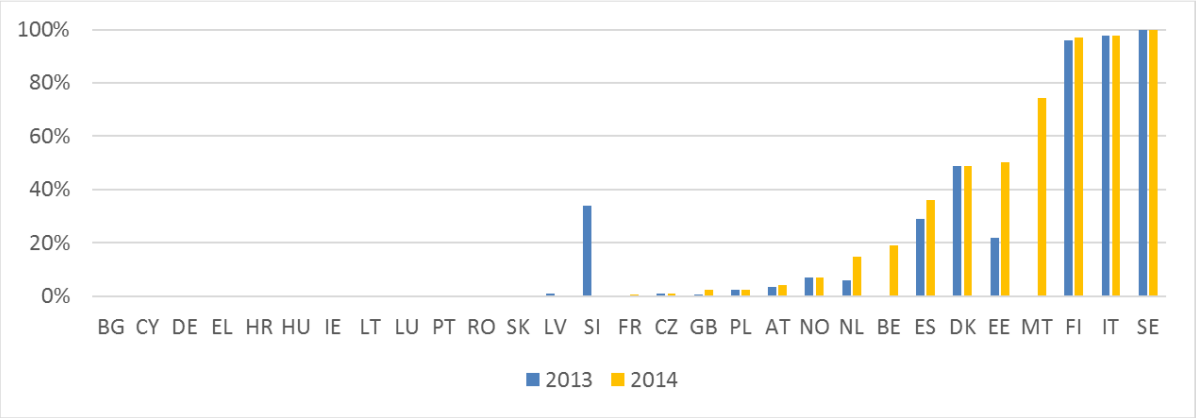
This is in line with an assessment of the effectiveness of Art. 13 ESD where the Member States argued that changes in metering and billing were mainly due to factors other than the ESD and that the causal influence of Article 13 ESD on the practice of metering and billing in the Member States was weak[56]. The relatively low penetration rate of smart electricity meters throughout most EU Member States gives an indication of the limited effectiveness of Article 9(1). Whilst time-of-use information can be provided by other types of meters (e.g. dual-tariff (night/day) meters), and while such meters may not be uncommon in some countries (e.g. FR), the fact is that most electricity meters throughout the EU remain conventional ones, despite this provision being in force since 2008 (as part of the ESD).

For gas, even fewer MS have rolled out smart meters, and gas remains dominated by conventional metering with no time-of-use capabilities. For thermal energy, time-of-use capable meters are rather the exception than the rule[57], and many individual dwellings/consumers are still not equipped with individual meters for hot water and heat consumption.

[56] Renner / Martins (2010). Technical Summary Report TSR03 on Informative metering and informative billing, Concerted Action ESD, http://www.ca-eed.eu/outcomes/outcomes-2008-2011/technical-summary-reports

[57] Applications exist e.g. in Finland and Denmark.

Figure 9: Share of household customers equipped with smart meters for electricity - 2014



Source: CEER Database, National Indicators (2014-2015)[58].

In terms of heat metering, it has been estimated that there is a theoretical potential of some 20 million permanently occupied dwellings in multi-unit buildings that are not individually sub-metered yet[59].

How efficient has the EU intervention been?

As a preface to answering this question it is worth recalling that utilities for commercial reasons in any case send bills to their customers, and requirements for feedback delivered via bills therefore entail very marginal or no additional costs except where the additional information is of a nature that is costly to collect or where the billing process is frequently repeated. They also in most cases install meters to justify such billing, although there have historically been exceptions, especially in multi-unit buildings and/or district heating networks.

Secondly, it is worth recalling that the *acquis* under consideration in this evaluation does not require the installation of smart meters (or was at least not interpreted to that effect). The additional costs of "smart" meters over conventional ones is therefore less relevant here, but it is central to the evaluation of smart metering provisions that has been conducted and will be reported elsewhere as part of the forthcoming Market Design Initiative.

There are no data available to assess the cost or efficiency of the EU intervention here considered quantitatively, but given that most of the key obligations as regards metering and billing in the current *acquis* are either expressly subject to cost-effectiveness conditions OR softly/ /ambiguously worded, Member States have typically integrated efficiency/proportionality considerations when transposing and implementing the provisions nationally. It is therefore safe to assume that obligations for enhanced metering and billing measures generally have only been introduced where there was a sound economic case, and , it is therefore very unlikely that the rules have imposed any disproportionate costs.

[58] 2014 ACER/CEER annual report on the results of monitoring the internal electricity and natural gas markets

[59] Cf. p. 8 of http://iet.jrc.ec.europa.eu/energyefficiency/sites/energyefficiency/files/files/documents/events/2-castellazzi_heat_metering_setting_the_scene.pdf

How relevant is the EU intervention?

For the purpose of strengthening consumer empowerment, Art 9(1) is very relevant and would be even more so if it were to be clarified. The fundamental notion that individual consumers (incl. households) should have the right at reasonable costs ("competitively priced") to accurate metering of their own consumption ("individual meters"), and have access to information on when their actual consumption takes place (i.e. "time of use") remains highly relevant.

However, in so far as thermal energy supplies are concerned the practical relevance of EED Article 9(1) has been diminished by the addition of the more precise Article 9(3). As regards electricity and gas the smartness/capabilities of the meters have since been addressed in more detail in the context of the smart meter roll out provisions under the IEM legislation (adopted years after the original ESD provisions) and in a subsequent Commission Recommendation[60]. At least for electricity and gas it would therefore seem appropriate to update these requirements in the light of these developments to reflect that "time of use" is but one of several important features of modern meters. For thermal energy, the emergence and increasingly common market development of remotely readable heat meters and heat cost allocators should similarly be reflected in order to remain fully relevance.

As regards the lack of individual meters the Commission services are not aware of any evidence that this is a significant issue for electricity and gas. This said, the presence of even a simple conventional meter within reasonable reach allowing at least self-checks cannot still be taken for granted even for electricity, as is evident from a case recently having been the subject of a ruling by the Court[61]. This could suggest that a clearer right without any conditions or caveats but for something more basic, namely the right to a meter allowing self-checks, might be at least as relevant going forward.

As regards billing, it should be noted that even where other forms and means of providing energy feedback (e.g. smart phone apps etc.), consumption information delivered with bills remains relevant since the various forms of feedback generally are complementary and reinforce each other. By way of example, research has shown that real-time feedback (possible only with smart equipment) tends to impact more on behaviour, whereas more indirect feedback (e.g. with monthly, quarterly or annual bills) tends to impact more on investment decisions.

How coherent is the EU intervention internally and with other (EU) actions?

The ambiguities in the wording of Article 9(1) raise questions of coherence with other EED provisions: For example,

- Are "*meters …that provide information on actual time of use*" to be considered to mean smart meters of the kind referred to in Article 9(2) (and in the IEM legislation), or another intermediate category (between smart and simple, conventional meters)?

[60] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012H0148&from=EN

[61] Judgment in Case C‑83/14 of 16 July 2015: http://curia.europa.eu/juris/document/document_print.jsf?doclang=EN&text=&pageIndex=0&part=1&mode=lst&docid=165912&occ=first&dir=&cid=400263

- Are "*Individual consumption meters*" for thermal energy referred to in Article 9(3) also supposed to be "*meters …that provide information on actual time of use*"?

What is the EU added value of the intervention?

Rules to empower consumers and provide adequate consumer protection remain absolutely critical for the well-functioning and the legitimacy of the EU's internal energy market. The provisions now contained in Article 9(1) of the EED did, when first adopted as part of the ESD in 2006, push forward the agenda of individual metering and smart metering at least in some EU Member States. This said, the current added value has been diminished because of the various ambiguities and the subsequent developments elsewhere on smart meters. By being made more precise, it could (re)gain added-value.

EED Article 9(3) Thermal energy in multi-unit buildings: Possible clarifications

Article 9(3) being new (compared to the ESD) and the deadline for achieving its effective outcome (installation of meters or heat cost allocators in individual units in multi-unit buildings) only being by 31/12/2016, it is at this stage **premature to evaluate Article9(3) as a whole**.

Nevertheless, during the Commission's work overseeing Member States' implementation, a few areas where technical clarifications could be welcome have emerged and merit attention. These concern:

- The meaning of "*multi-apartment/purpose buildings";*
- Technical feasibility and cost-effectiveness criteria for meters and heat cost allocators;
- Availability of transparent cost allocation rules.

The meaning of "multi-apartment/purpose buildings"

Whereas the Commission services have taken the view that a "*multi-purpose building could be understood as a building occupied by at least two entities that need to share between themselves the bill for the energy purchased*", a different reading is possible. For example, the French authorities read the (French version of) the provision as referring to buildings with both dwellings and non-dwelling uses ("*immeubles mixtes*"). The first reading implies a broader scope in that buildings containing no dwellings but more than one commercial or industrial entity (e.g. a shopping mall) would be covered.

It could be considered to clarify this aspect next time the Directive is amended anyways or through further guidance). From a coherence perspective, and given that the EPBD for the purpose of building Energy Performance Certificates (EPC) uses the notion of "building units"[62], it could be considered to align with this so that Article 9(3) metering would be

[62] In the EPBD "building unit" is defined as "*a section, floor or apartment within a building which is designed or altered to be used separately*" - in this regard, 'separate use' could be understood as separate use of energy (i.e. individual energy metering and billing…) and/or having separate users. "*To be used separately*" would therefore mean that different building units have, or are capable of having, different tenants or different owners and may be billed separately as compared to the building as a whole. In any case, a "*building unit*" requires an energy performance certificate of its own, independently from the building as a whole, in accordance with

required wherever EPCs are required, in order to facilitate implementation in Member States by avoiding the need to use two similar but not identical distinctions. It could also be left to MS discretion to interpret the precise boundaries in their specific national contexts.

Technical feasibility and cost-effectiveness criteria for meters and heat cost allocators

The first part of Article 9(3) is relatively clear, except that the conditionality can be interpreted/applied in widely differing ways. DG ENER's ongoing contract with "empirica"[63] aimed at formulating best practice guidelines for application of these criteria and analyzing Member States' application of these criteria has revealed that many Member States literally transpose the criteria into national law without giving further guidance on how to apply them. In addition, some Member States apply general or broad exemptions based on cost-benefit analysis carried out on a single average building or a limited range of typical/example buildings. Very few Member States have adopted specific measures to ensure a building-by-building assessment of the fulfilment of the criteria, with most leaving it to local actors (heat suppliers, building managers etc) to assess if the criteria require the provision of individual meters. This situation could potentially affect the achievement of the policy objective of ensuring that individual metering and billing is implemented at least where it is cost-effective and feasible. Depending on the outcome of the ongoing transposition and implementation process, it could be considered at a later stage to "codify" (some elements of) best practice approaches in any further, future review of the EED provisions. Doing so now however seems premature given that the deadline has not even passed yet, which is why progress at this stage should better focus on encouraging MS to follow best practice based on guidance from the Commission and through the work on enforcement.

It is noteworthy that respondents to the public consultation on the EED review widely agreed that it is appropriate for the requirements to be subject to technical feasibility and/or cost effectiveness conditions – this view was not only shared by 5 of every 6 respondent expressing an opinion, but also by a majority in each category of stakeholders, including NGOs who were otherwise most critical as regards the overall adequacy of Articles 9-11. There was similarly broad agreement that conditions should not be harmonized at EU level, although NGOs and private respondents were slightly more favorable to this idea.

Availability of transparent cost allocation rules

The last sub-para of Article 9(3) provides that "…*Member States may introduce transparent rules on the allocation of the cost of thermal or hot water consumption in [multi-apartment/purpose] buildings to ensure transparency and accuracy of accounting for individual consumption.*". Although it is optional ("may") it is nevertheless of some use because it implicitly recognises that despite the right to be billed based on individual consumption (Article 10), occupants of multi-unit buildings may not be billed exclusively on that basis but also on other factors. This is also significant in the context of the many complaints from occupants in multi-apartment buildings who, unhappy with the collective

Article 12(1) and 11(6). For example, if a building were sub divided into self-contained flats, each flat should have an EPC.

[63] Analysis of good practices and development of guidelines for accurate and fair allocation of costs for individual consumption of heating, cooling and domestic hot water in multi-apartment and multi-purpose buildings to support the implementation of relevant provisions of the Articles 9-11 of the Directive 2012/27/EU on energy efficiency – Tender **ENER/C3/2013-977**

solutions, wish (and sometimes decide) to use individual solutions, and thus do not wish to pay for the collective solutions.

This topic is also the subject of work under the contract referred to above. Depending on the outcome produced by *empirica*, it could be considered to "codify" (some elements of) best practice approaches in the review of the EED provisions, or simply to encourage MS to follow best practice based on guidance adopted or published by the Commission. In any case there is a link with the application of Article 10(3) and Annex VII in so far as heating, cooling and hot water in multi-unit buildings is concerned.

6.3. Billing (information) and frequency

What is the current situation?

The **EED** provisions on billing contained in Article 10 essentially

1) Define the **basic right for customers without smart electricity and gas meters to accurate billing information based on actual consumption with a certain minimum frequency** (Article 10(1) & Point 1.1. of Annex VII).
2) Define certain **minimum information to be provided** with billing information, namely
   a) Current actual prices and actual consumption of energy (A.VII point 1.1 a);
   b) Comparisons with previous years (A.VII point 1.1 b);
   c) Contact information to locate further energy information information/resources/advice (A.VII points 1.1 c and 1.3);
   d) Comparisons with average customers in the same user category (A.VII point 1.1 c).
3) Define **certain other rights to request**
   a) That billing and consumption information to the extent it exists be made available to a third party energy service provider (Article 10(3) a);
   b) Electronic billing (Article 10(3) b);
   c) Clear, understandable explanations of how bills are derived (Article 10(3) b);
   d) Information/estimates on energy costs in an easily understandable format allowing to compare deals on a like-for-like basis (Article 10(3)e).

The EED does not specify a minimum billing frequency for supplies metered with smart electricity and gas meters. Where a smart metering system is available to final customers, the general provisions of the **IEM legislation** continue to apply. According to Annex I point 1 i) of the IED and IEG Directives it is to be ensured that customers "*are properly informed of actual electricity consumption and costs frequently enough to enable them to regulate their own electricity consumption. That information shall be given by using a sufficient time frame, which takes account of the capability of customer's metering equipment and the electricity product in question*". According to an interpretative note published by the Commission on 22 January 2010, **the Commission's services consider that where smart meters are installed, receiving actual consumption based information on a monthly basis would be sufficient to allow a consumer to regulate his consumption**[64].

It should be stressed that the right/obligation referred to in point 1 above applies only "where this is technically possible and economically justified". Similarly, the minimum information

[64] http://ec.europa.eu/energy/sites/ener/files/documents/2010_01_21_retail_markets.pdf

referred to under point 2 above is to be provided "where appropriate" according to Annex VII. The rights listed under point 3 are not subject to such caveats.

How effective has the EU intervention been?

The Commission does not yet have comprehensive data on the detailed implementation of EED Article 10. Initial high-level analysis of the current state of transposition suggests that it is still very incomplete and patchy, although this remains to be confirmed by more in-depth analysis at country level. In the latest annual report from ACER on the results of monitoring the internal electricity and natural gas markets[65] information on the billing frequency is available for a range of Member States for 2014, but the new requirements as regards minimum frequency under the EED took effect only as of 31/12/2014.

Table 3: Frequency of billing information based on actual consumption – 2014 Source: CEER Database, National Indicators (2014-2015) . Note: * Electricity, ** Gas.

	Without smart meters		With smart meters	
	Legal	In practice	Legal	In practice
Daily			FI*	
Monthly	BG, EE, LT, SE*	BG*, EE, HR**, LV*, LT	AT, EE*, ES*, PT*, SE*	FR, ES*, PT*, SE*
Bimonthly	CY*, PT**	CY*, ES*, FR, PT**	NL	NL**
Quarterly	AT, IE, NO*, PT*, RO**	DK, IE, PT*, RO	NO*	DK*, EE*, NO*
Triannually	FI	EL		
Biannually	HR, RO*, SI	HR*, MT*		
Annually	CZ, DK, EL, ES*, FR, HU, NL, PL*, SE**, SK	LU, NL, SI, SK	DK, FR, SE**	

As discussed earlier, data collected and reported by ACER shows that a high share of registered complaints about electricity and gas retail markets are related to billing issues. But the **data are neither specific nor recent enough** to reveal if the reasons are related to issued that were (to be) addressed as part of the EED implementation as of 2015. Whereas the mystery shopping study referred did contain data from 2015 and suggested that problems exist, that is also not surprising given the less that complete situation as regards both transposition and actual implementation.

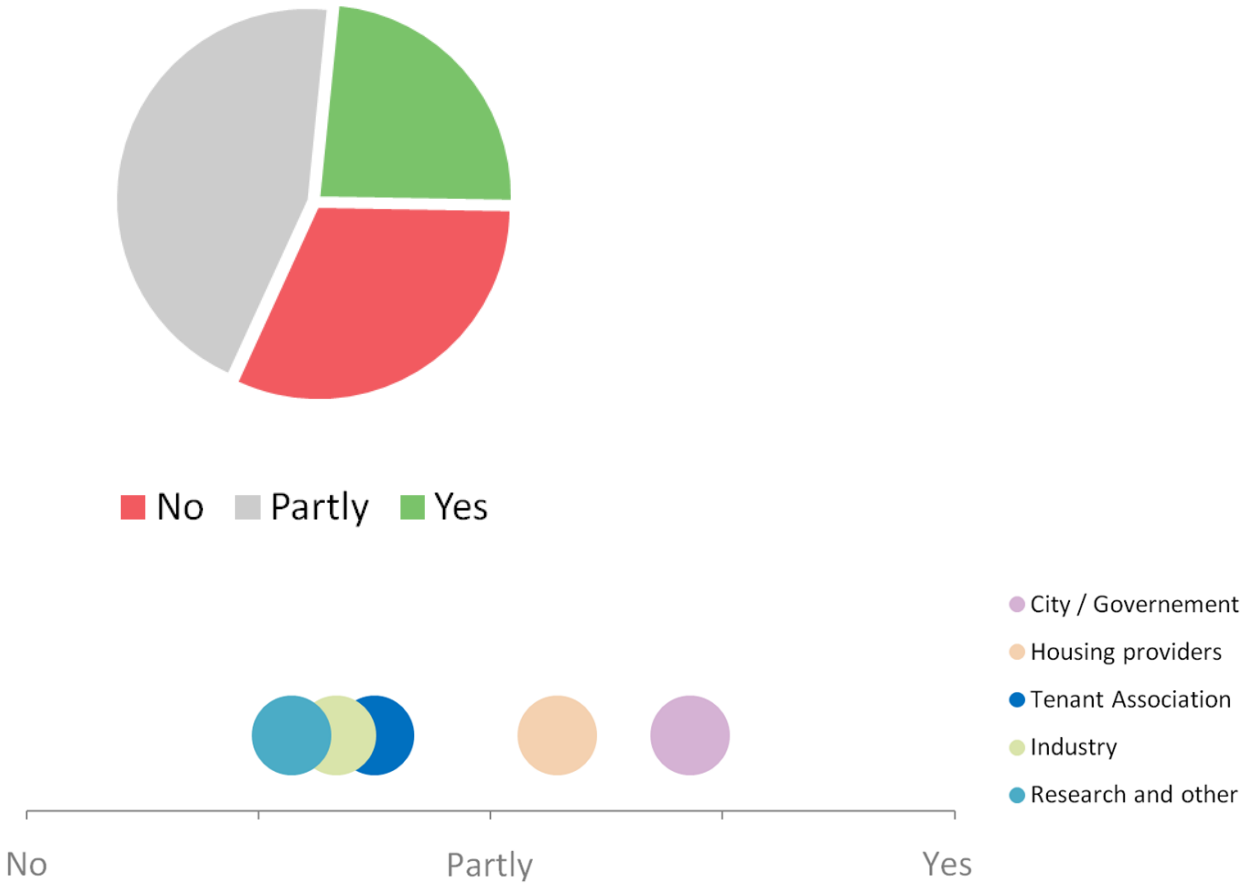
As regards **heating, cooling and hot water**, no evidence is available as regards the extent to which the various information elements are made available to final customers or at what frequency.

For consumers in **multi-unit buildings** supplied from central heating, cooling or hot water systems, these challenges ares compounded by lack of clarity as to whether the requirements

[65] 2014 ACER/CEER annual report on the results of monitoring the internal electricity and natural gas markets

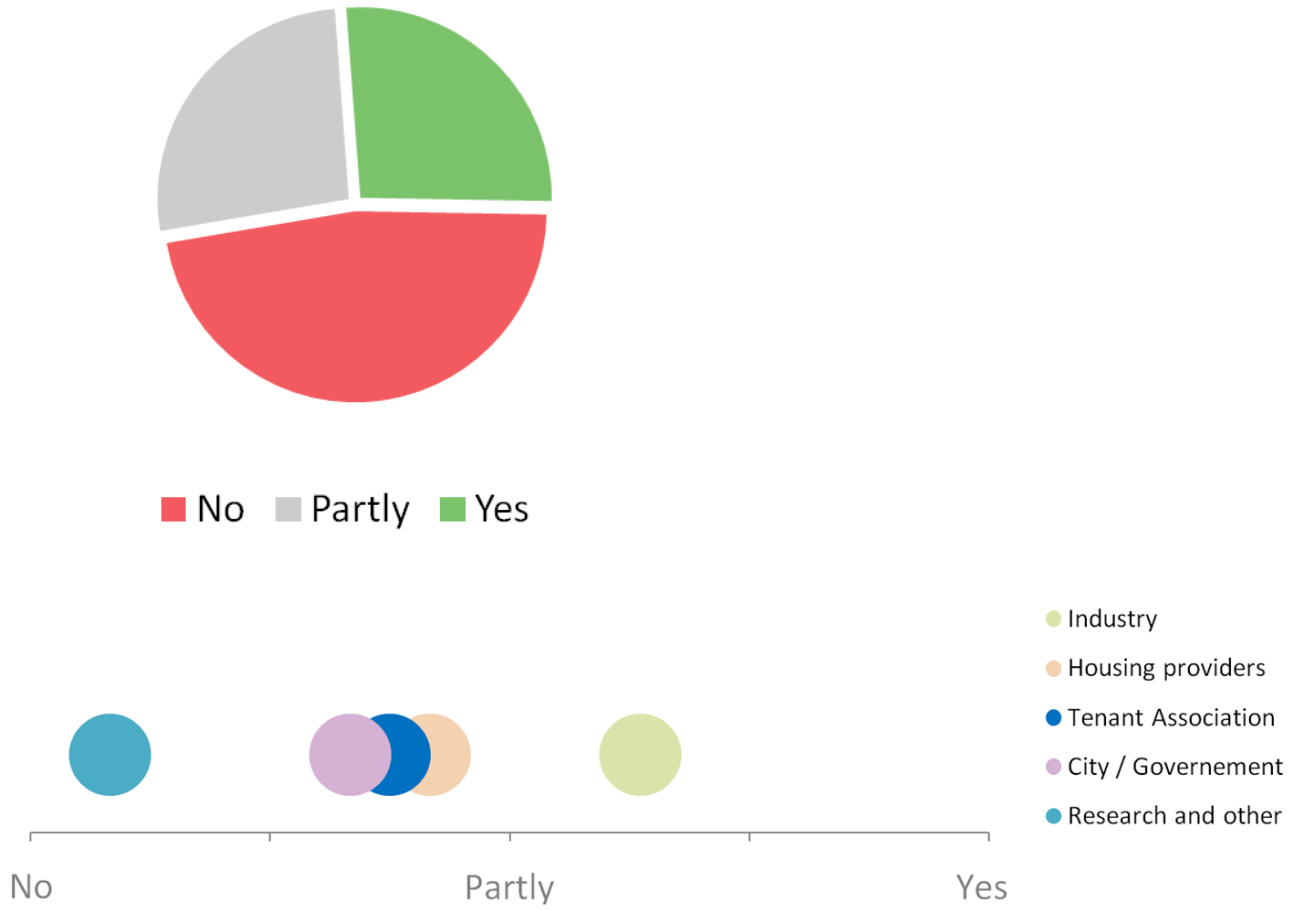
are actually applicable to them at all or not (cf. the discussion in section 6.2) Where the consumers/occupants of individual units do not have a direct contract or commercial relationship with the energy utility. A specific stakeholder consultation carried out as part of the contract referred to in Footnote 64 confirmed that the Annex VII requirements are only considered fully applied by less than 75% of the respondents (cf. Figure 10).

Figure 10: Expert stakeholder responses on the question: "Today in your country, does invoicing of heating, cooling and hot water, and information provided to tenants on their consumption pattern, generally conform to the requirements of Annex VII?"



Not surprisingly, a similar proportion of the same stakeholders did not consider that - where heating and/or hot water is sub-metered - invoices sufficiently transparent and clear, and cost allocation regarded as fair (cf. Figure 11).

Figure 11: Expert stakeholder responses to the question: "Where data from heat meters or heat cost allocators are used to calculate the amount of energy invoiced to residents, are invoices sufficiently transparent and clear, and cost allocation regarded as fair?"



How efficient has the EU intervention been?

There are no data available to assess this question quantitatively yet, but given that the provision themselves (in EED Article 10(1)) contain "caveats" regarding cost-effectiveness, it is unlikely that the rules have imposed any disproportionate costs.

Even where meters or heat cost allocators are in place, the "cost plus" regulation that is typical of district heating networks, or internal heating accounts of sub-metered multi-unit buildings supplied e.g. from a central fuel oil boiler, is often operating on an annual basis. It may thus be costly or impossible to produce the cost figures that would in principle be required to produce sub-annual billing information including current energy costs. For this reason focus on consumption information (in terms of energy) rather than billing information (including also cost/price data) might be a more realistic option for sub-annual information in these cases. Depending on how MS have applied the "caveat" in Article 10(1) in this case, this may have resulted in more or less efficient outcomes.

How relevant is the EU intervention?

With EED Article 10 and Annex VII having been adopted rather recently and aiming to address some of the problems identified, it clearly remains highly relevant.

How coherent is the EU intervention internally and with other (EU) actions?

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.

Moreover, the wording of Annex VII in some cases can be considered ambiguous. The use of the word "should" in Annex VII point 1.1. has led some Member States to consider the minimum requirements optional/non-binding, although the word "shall" is used in the operative Article itself (Article 10(1)). In the same vein, there seems to be some overlaps between the requirements listed in point 1.2 c) and point 1.3 of Annex VII, which both refer to contact information for external resources that the customer can refer to.

What is the EU added value of the intervention?

Delivering a New Deal for energy consumers as part of an Enery Union with consumers at its heart means inter alia providing consumers with frequent access to partially standardised, meaningful, accurate and understandable information on consumption and related costs[66]. Guaranteeing certain minimum standards in terms of the frequency and content of billing and billing information therefore contributes to realising the Energy Union and meet EU goals on energy efficiency and greenhouse gas reductions.

7. CONCLUSIONS

The legislators' **original objectives** behind the provisions can be summarised as follows:

- 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 supplies;
- to **enable/incentivize energy savings** through sufficiently frequent feedback about (the cost of) their energy consumption.

[66] Cf. conclusions in COM(2015) 339 final

Effectiveness

The evidence available and considered in this evaluation suggests that the provisions in the **IEM and EED together are likely to have made some contributions towards the achievement of both of these objectives**, although it is impossible to quantify this given the multiple and complex other factors that also affect these objectives' achievement, the absence of precise indicators and the scarcity of data.

The EED generally contains the most specific and detailed provisions in the area of metering and billing, and not just as regards energy savings but also as regards the clarity and comparability of energy bills. The deadline for its transposition is relatively recent (mid 2014) and some of the key obligations therein have later deadlines for actual application. Until the national transposition measures are in place, have been verified to be in conformity with the requirements of the Directive and have been applied by market players on the ground it might be **too early to draw many firm conclusions as regards the effectiveness of the current legislative framework**.

It is nevertheless already possible to identify certain gaps and areas of potential improvements.

With regard to **comparability and clarity of billing information**, the relatively low degree of satisfaction of electricity and gas customers compared to other services markets and the high share of complaints related to billing suggests that there is **still room for improvement and that further action might well be required** to this end, at national or EU level. This conclusion is corroborated by the findings of the 2016 Electricity Study and the responses to the Commission's Consultation on the retail energy market conducted in spring 2014. A specific expert stakeholder consultation confirmed similar issues for centrally supplied thermal energy in multi-unit buildings: only 1 out of 4 consider that invoices are sufficiently transparent and clear, and cost allocation regarded as fair by consumers in such sub-metered buildings.

With respect to **energy savings** there was a clearly stated intention with the EED to clarify the pre-existing requirements contained in the IEM and in the 2006 Energy Services Directive (ESD) as their effect on this objective was considered to have been too limited. This intention has only partially been met given that the **current framework remains complex and open to interpretation** with regard to the nature and scope of certain key obligations. From this perspective, there is a case already for revisiting certain aspects of EED Articles 9-11 and of Annex VII, in particular those related to the minimum frequency of provision of information, the precise nature of that information and the situations in which the requirements are applicable.

With regard to **disclosure of energy sources**, the evidence available suggests that the way the current requirements are implemented is not sufficient to match the intentions: a **rather high share of citizens seem to either not find or not notice disclosure information with their billing information**. Others have doubts about the credibility or added-value of green claims made. While these problems in some instances may be due to bad application/non-enforcement, it also points to a potential for making such information more trustworthy, accessible, visible and easy to understand and compare. Moreover, the fact that a high share of gas offers carry "green" labels or claims despite biogas injection still being very limited also puts a question mark over the effectiveness of what is in fact amounts to a voluntary/unregulated regime, given there is no disclosure obligation for gas as there is for

electricity. Finally, there is increasing demand from energy consumers, particularly the corporate sector, but also from organisations representing general consumers, for robust information on the emissions associated with the energy use. This has resulted in a number of organisations proposing that the Guarantees of Origin system is extended to cover emissions such as CO_2.

Efficiency

There is **little if any evidence but good reason to assume that the intervention has been efficient** in terms of the proportionality between impacts and resources/means deployed. The major reason for this is that certain obligations are either modest in ambition, unclear in scope (and therefore not implemented) or qualified with conditions allowing Member States to make implementation subject to cost-effectiveness/proportionality criteria. A **possible exception is the rules on disclosure** where resources have been committed to establish systems allowing the issuance of guarantees of origin of electricity from renewable energy sources and from high-efficiency cogeneration under the RES and EED, respectively, but where the disclosure obligation in the IED does not require their use, thereby missing an obvious opportunity to use common EU tools that anyways exist.

Relevance

Overall the **key provisions remain highly relevant**, not least those of the EED which is not surprising given its relatively recent adoption. **This said, parts of both the IEM and the EED itself have to some extent been surpassed by developments** in the market as well as in the regulation (EED). This concerns notably **EED Article 9(1)** which carried forward provisions from the former Energy Services Directive without addressing certain ambiguities, and without reflecting recent technological and market developments as regards the availability of remotely readable heat cost allocators and meters. As regards the IEM, the **increasing use of online price comparison tools challenges the relevance, or at least the completeness, of certain provisions if they are not adapted** to also reflect and support new ways of consumer-market interaction.

Coherence

In terms of coherence, the evaluation has pointed to a number of issues where improvements seem possible.

Firstly, it must be noted that **smart metering is addressed by provisions in both the Electricity and Gas Directives, in the EED and in the EPBD, as well as by a non-binding Commission Recommendation**. These provisions are the subject of a separate thematic evaluation reported as part of the Market Design Initiative and not discussed in depth here. It suffices to say here that whereas no direct contradictions have been identified, **this situation is at the very least confusing** and renders it more complex to understand the applicable requirements. An **example is the minimum frequency of billing** which is regulated by the IEM Directives in a qualitative way (not making references to quantified frequencies), and by more specific quantified provision in the EED but only in so far as non-smart meters are concerned. This results in what appears to be an unjustified difference in the guaranteed minimum frequency of provision of information between those customers of respectively electricity/gas and heat that have remotely readable/"smart" equipment installed: the latter are not currently sure to fully benefit from the capabilities of the smart equipment (be it heat meters or heat cost allocators).

Secondly, the **continued use in the EED (Article 9(1)) of the term "*meter…. that provide information on actual time of use*", originating from the 2006 Energy Services Directive, raises questions about the coherence with the framework for promoting smart meters**. The latter generally aims to promote the roll-out, where cost-effective, of meters with a wider range of functionalities of which capability to provide time-of-use information is just one.

Thirdly, in so far as billing and billing information are concerned, **the way Annex VII of the EED is drafted and referenced could be improved to address certain internal overlaps or ambiguities** as regards the nature and scope of its applicability. Notably it might be worth clarifying beyond doubt that the annex is applicable to consumers of thermal energy in multi-flat/purpose buildings even where they're not directly or individually parties to an energy supply contract. The precise nature of some of the information elements (comparisons) could also be clarified.

Finally, two observations can be made as regards **disclosure of energy sources**:

Firstly, the **current disclosure regime is not technology-neutral.** Electricity supplies are subject to disclosure whereas network supplies of gas and thermal energy forms are not. It might be argued that historically this was justified a) because "gas is just gas" and b) because thermal energy supplies were not regulated by an internal market directive. However, as gas supplies are increasingly being diversified to include biogas, gas customers arguably might also start having an interest in knowing where their gas comes from and use this information as active consumers. As regards heat, switching supplier is typically not an option in the short term. Nevertheless, heat consumers – whether supplied from a central boiler in a multi-flat building or from a district heating network – arguably also could have a legitimate interest in knowing the source of their energy: at building level this could inform collective decisions to change energy source when installations have to be renovated. At the level of district heating networks, this could increase awareness and political pressure over time to transition to using more efficient and low-carbon sources or upgrading infrastructures in the network.

Secondly, **whereas EU legislation establishes tools to facilitate electricity-related disclosure for both renewables and high-efficiency cogeneration, it only stimulates a demand for the former**. The obligation to disclose the fuel mix, enshrined in the Electricity Directive, does not require or stimulate disclosure of the share of cogeneration. **Moreover, even for renewables, the disclosure obligation is not systematically/exclusively met using guarantees of** origin, despite them being available, as their use is not mandatory.

EU added-value

Delivering a New Deal for energy consumers as part of an Energy Union with consumers at its heart means *inter alia* providing consumers with frequent access to partially standardised, meaningful, accurate and understandable information on consumption and related costs. **Healthy levels of consumer engagement and retail competition are key to ensuring the rollout of new products and services that will help the energy system become more flexible, and build demand for innovative energy products.** Guaranteeing certain minimum standards in terms of the frequency and content of billing and billing information therefore contributes to realising the Energy Union and meeting EU goals on energy efficiency and greenhouse gas reductions.

In addition, 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 very few, if any, examples of cross-border supply in the retail market, a common base of energy consumer rights that helps national rules converge over time is a precondition for that to develop**. With the perspective of developing an internal retail market where customers one day might even shop cross-border, the common definition of minimum requirements for information for consumers creates added value. But even in absence of cross-border supplies at retail level, **common minimum requirements allow service providers and equipment manufacturers to develop standard solutions and create economies of scale**, leveraging the internal market of 500 million consumers.

Simplification, burden reduction potential, SMEs, and quantification of costs and benefits

From the evaluation it appears very likely that it should be possible to clarify the current legislative provisions which are somewhat complex and open to interpretations on important points. This in turn should simplify the task for the public authorities whose task it is to transpose the rules in national law and ensure their actual implementation and enforcement. However, also other market players and not least citizens would benefit from clearer and more coherent rules at the EU level. In terms of burdens for citizens economic operators, including on SMEs, the existing rules create a net benefit as they are not requiring action where it is not cost-effective, and are therefore not imposing significant burdens.

ANNEX 1 - STAKEHOLDER CONSULTATION

This evaluation has benefitted from input from the following processes involving stakeholders:

1. Consultation on the retail energy market http://ec.europa.eu/energy/en/consultations/consultation-retail-energy-market;

2. Consultation on the Review of Directive 2012/27/EU on Energy Efficiency http://ec.europa.eu/energy/en/consultations/consultation-review-directive-201227eu-energy-efficiency;

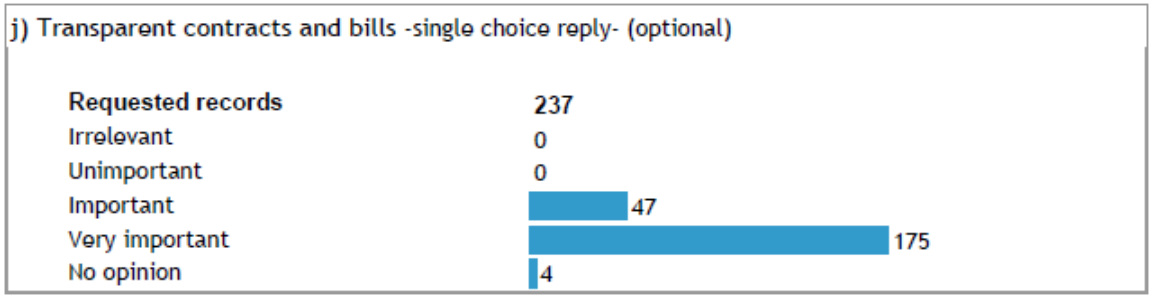
3. Three stakeholder workshops on metering and billing of thermal supplies organised by "empirica" for the Commission http://www.empirica.biz/projects/energy/details/?projectid=182;

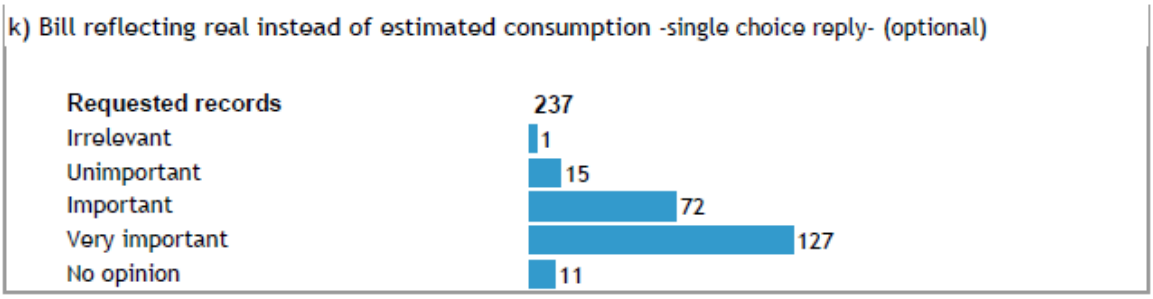
4. Three range of workshops organised by the JRC on metering and billing of heat http://iet.jrc.ec.europa.eu/energyefficiency/tags/heat-metering-and-billing.

Retail market public consultation - results

Below are summarised in graphic form a quantitative summary of the relevant feedback from the consultation referred to in point 1 above.

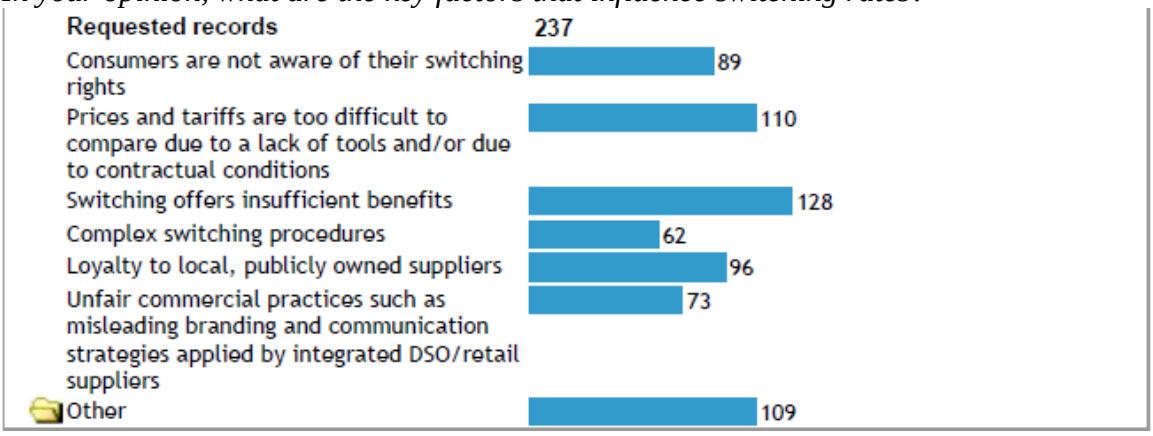
Please give your opinion on the relative importance of the following factors in helping residential consumers and SMEs better control their energy consumption and costs.





ACER/CEER Annual Report concludes that consumers are dissatisfied with the information they receive in their contract and in their billing information. The report also shows the frequency with which consumers switch from one energy supplier to another. This varies between 0% to 14,8% in the EU Member States.

In your opinion, what are the key factors that influence switching rates?



Please indicate if you agree or disagree with the following statements concerning ways to increase consumers' interest in comparing offers and switching to a different energy supplier.

a) Include standardised minimum information in commercial offers for easier comparison -single choice reply- (optional)

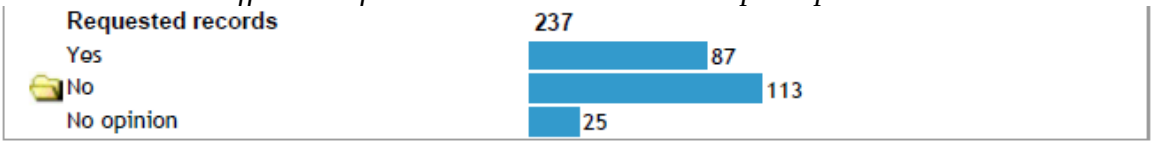
b) Ensure the availability of web-based price comparison tools -single choice reply- (optional)

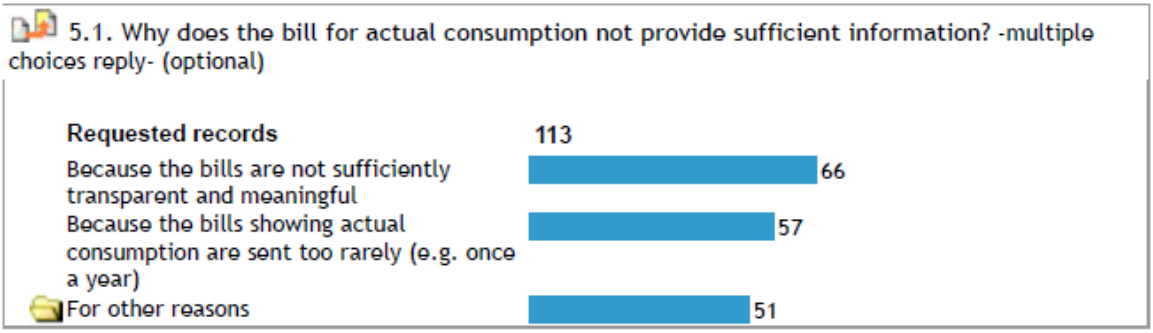
c) Ensure consumers are aware of their rights -single choice reply- (optional)

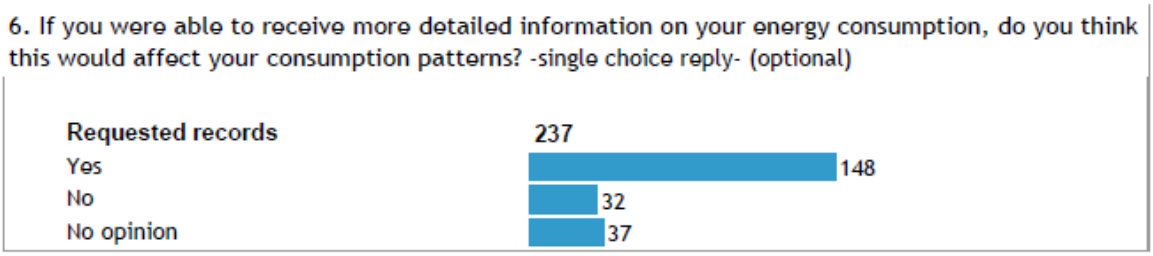
d) Develop further rights for consumers -single choice reply- (optional)

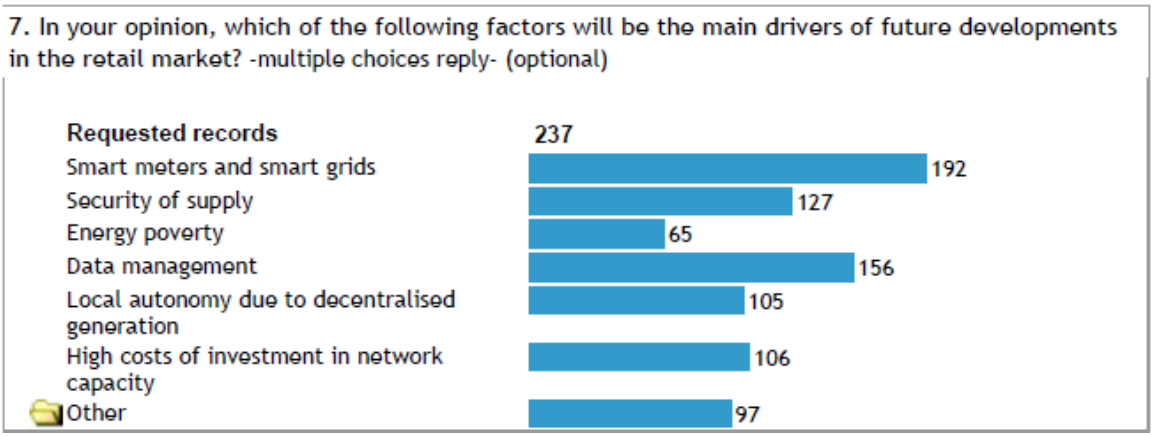
e) There is no need to encourage switching -single choice reply- (optional)

With the implementation of related provisions in the Energy Efficiency Directive by December 2014, consumers can be billed on the basis of their actual energy consumption and have the right to access their actual and historical consumption data. Do you think that bills provide consumers with sufficient information about their consumption patterns?







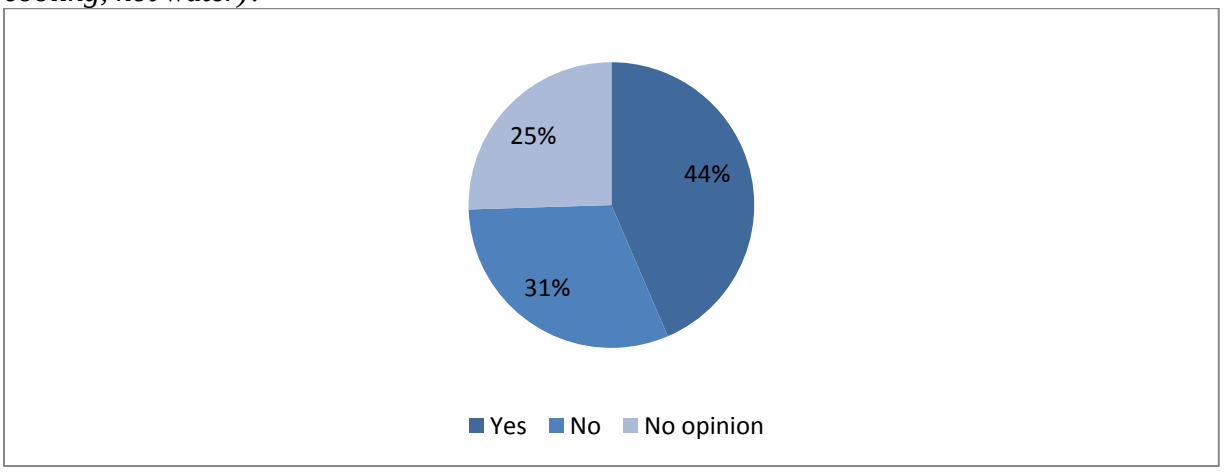


EED review - results

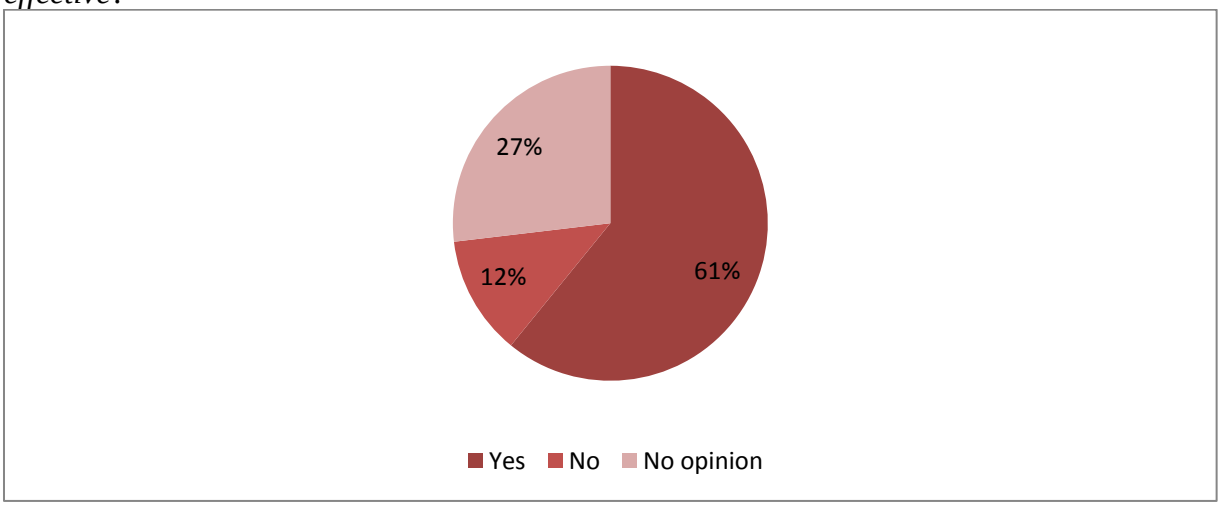
Below are summarised in graphic form a quantitative summary of the feedback from the consultation referred to in point 2 above in so far as EED Articles 9-11 are concerned, on the basis of 326 responses. Further details have been published online in a full synthesis report[67].

[67] https://ec.europa.eu/energy/sites/ener/files/documents/Public%20Consultation%20Report%20on%20the%20EED%20Review.pdf

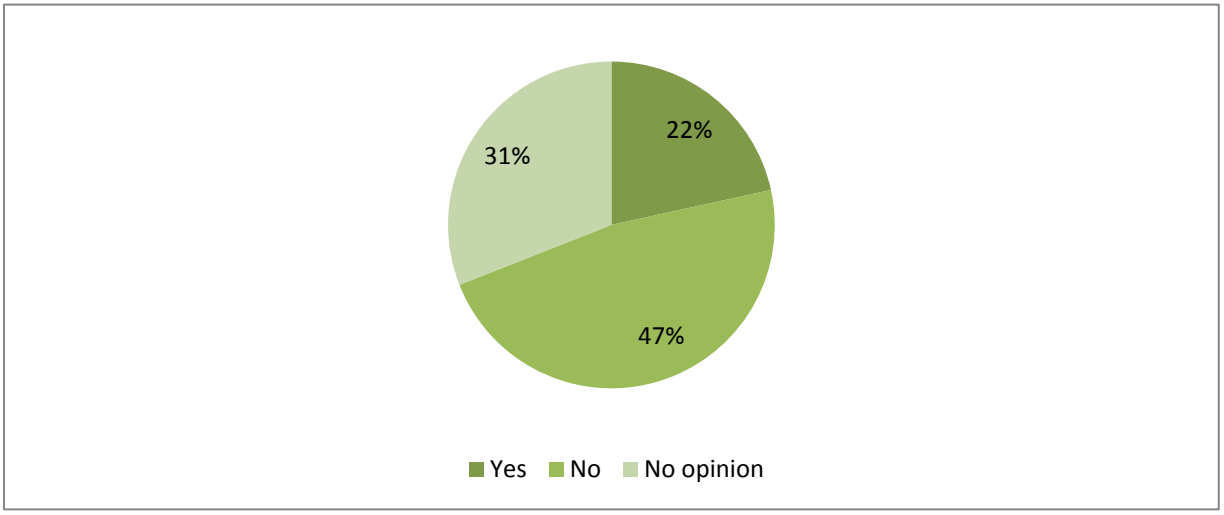
*Overall adequacy**:** Do you think the EED provisions on metering and billing (Articles 9-11) are sufficient to guarantee all consumers easily accessible, sufficiently frequent, detailed and understandable information on their own consumption of energy (electricity, gas, heating, cooling, hot water)?*



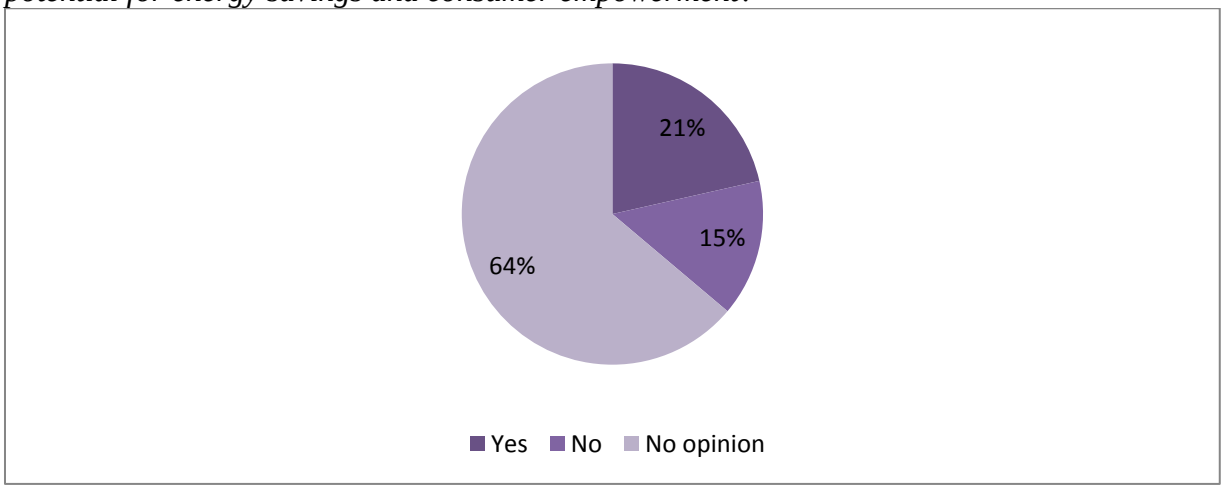
Do you think it appropriate that the requirement to provide individual metering and frequent billing (Articles 9(1), 9(3) and 10(1)) is subject to it being technically feasible and/or cost effective?



Should such conditions of being technically feasible and/or cost effective be harmonised across the EU?



How would these conditions of being technically feasible and/or cost effective affect the potential for energy savings and consumer empowerment?



ANNEX 2 - REFIT ASSESSMENT OF THE RENEWABLE ENERGY DIRECTIVE – PROVISIONS RELATED TO GUARANTEES OF ORIGIN (GOS)

This section summarises the evaluation work that has been carried out in relation to Article 15 of the Renewable Energy Directive (Directive 2009/28/EC). This Article relates to the Guarantees of Origin (GO) system which tracks the origin of renewable electricity and can be used for disclosure purposes.

Conclusions and recommendations for GOs

The REFIT assessment concluded the following actions:

- Continue to stress the importance of MS to move towards a GO system based on the European Energy Certificate System (EECS) operated by the Association of Issuing Bodies (AIB). Also, continue to monitor progress, to ensure full implementation of this article throughout the EU.
- Assess the option to link GOs to the actual energy stream, after 2020.
- Assess the benefits of following the Best Practice Recommendations formulated by RE-DISS I and any further recommendations from RE-DISS II22. These include: extending the use of GOs for all types of power generation; streamlining the use of tracking mechanisms at MS level; clarifying the relation between support schemes and the tracking systems used for purposes of disclosure.
- Investigate the possible extension of the use of GOs beyond RES-E and high-efficient cogeneration to all types of power generation i.e. including electricity from fossil and nuclear generation.

REFIT assessment

What is the current situation?

The REFIT analysis of the RED summarised the situation with the GO system.

Article 15: Guarantees of origin (GOs)	**Key issues and barriers**
Positive contributions	
Transparency on RES generation has increased and GOs proved to be a useful tool to reduce fraud and inaccuracies. Systems throughout the EU have become more standardised.	There are still barriers to the trade and transfer of GOs; differences in the comprehensiveness of procedures and the use of GOs remain. The administrative burden seems reasonable but data are lacking and likely to depend on MS implementation and starting point

How effective has the EU intervention been?

The REFIT analysis showed:

- All MS now have some sort of RES GO system in place with competent bodies assigned for issuing, transferring and cancelling GOs. The use of GOs for heating and

cooling remains limited as RED does not set a mandatory requirement regarding their issuance.

- Guarantees of Origin are used for three main purposes: fuel mix disclosure i.e. to prove how the energy was produced and ensure transparency of the energy data produced and of the information provided to final consumers; to determine eligibility for national support schemes - it is up to Member States to decide whether they want to combine GOs and support schemes; as a traded commodity between MS.
- Almost all countries use GOs for consumer disclosure purposes and most recognize GOs from other countries and allow trade, albeit with different conditions.
- The number of GOs issued, traded and transferred has been increasing sharply between 2010 and 2013 but the trade in GOs remains limited due to barriers to the trade and transfer of GOs based on the fact that not all Member States are members of the Association of Issuing Bodies (AIB) and use a system compliant with the European Energy Certificate System (EECS), which means that GOs from some Member States are refused by others.
- At this stage there is no specific research which isolates and quantifies the impact that GOs have had on the level of investment in renewable energy at EU or MS level.
- GOs have proved to be useful tools to reduce fraud and inaccuracies. The effectiveness of the systems in place to avoid inaccuracy and double-counting has clearly improved significantly since the first version of the Directive (2001) and even since 2009. The majority of countries are now compliant with the EECS and have systems in place to check the validity of the information supplied by GOs. However, there still remain differences in the comprehensiveness of these procedures and therefore their likely effectiveness.
- The effectiveness of GOs as a tradable commodity which can support investment in RES across Europe is less clear. The exclusion of GO use as a compliance means for meeting national targets reduces their effectiveness in supporting investment across the EU, because it places the emphasis on domestic (national) measures irrespective of the opportunity for cheaper investment elsewhere.

How efficient has the EU intervention been?

Efficiency was examined by the REFIT analysis:

- The costs of a Guarantee of Origin regime include the development and operation costs of a registry as well as costs of plant registration and audits and transaction costs for participants.
- Implementing article 15 of the 2009 Directive will have involved additional costs for public authorities in order to meet the new mandatory requirements it included. However, in most countries the system will build on: the existing GO system if one was implemented in response to the 2001 Directive; or using an existing body as the responsible authority and allocating it these additional responsibilities in order to limit additional costs.
- Overall the administrative burden does seem reasonable, although in practice it will depend on how MS implement the system. The system costs associated with fraud and double-counting avoidance also need to be viewed in the context of the risks and costs of fraud and double-counting itself. These costs can be minimised through a standardisation of GOs across Europe.
- Ultimately the cost efficiency of the system will not only depend on the implementation and operation costs but also on the volume of GOs issued and traded:

the more GOs are issued the higher the economies of scale achieved and therefore the efficiency of the system.

- There is no available overview of the costs placed on producers by the various MS systems at this point.
- The continued standardisation of the GO system at EU level – following the Best Practice Recommendations formulated by RE-DISS I and any further recommendations from RE-DISS II - seems to be the best way to maximise the potential benefits from this Article.

What is the EU added value of the intervention?

The REFIT analysis summarised added value as:

- The article is not directly related to other EU initiatives but GOs might be considered useful tools as part of the objective for a single internal energy market set out in the 2009 Energy Market Directives. Specifically, the role of GOs in supporting fuel mix disclosure helps facilitate consumer choice and supplier competition, both of which are encouraged by the 2009 Energy Market Directives.
- The 2009 RED introduced improvements in the minimum requirements originally set out in the 2001 Directive. Without further intervention at EU level the situation would likely have remained unchanged since 2001 with a fragmented system as opposed to the more standardised (although still not unified) process currently in place.
- The added value of this article in terms of cost-efficiency is limited by the need for individual MS to meet their renewable targets and the separation between GOs and the underlying commodity they related to (i.e. energy).
- It is also limited by the presence of other tracking systems in some MS along with GOs which can create confusion and duplication.

Conclusions

The main conclusions with regards to GOs from the REFIT review are that:

- They represent a generally effective tool for auditing purposes and that there is value in having a consistent approach at EU level. This consistency reduces barriers to investment (because the market has confidence in the integrity of the GOs across a standardised system) and transaction costs (because of the efficiency of common rules). The role of the Association of Issuing Bodies (AIB) and use of a system compliant with the European Energy Certificate System (EECS) is important in underpinning the integrity of GOs as internationally traded commodities.
- They could also be a useful tool for creating a voluntary, consumer-driven market for renewables. The consumer buying a green tariff supply backed up by GOs can be confident that the corresponding renewable electricity has only been accounted for once in green supply agreements. However, the decoupling of the electricity and GOs weakens this benefits since a consumer cannot directly attribute his or her electricity to a particular renewable source (or indeed any renewable source).
- Despite progress in implementation, improvements are still needed in order to achieve a consistent system across Europe.
- GO trade is still in its infancy and it is as yet unclear whether it will have net positive impacts on RES deployment at EU level and, consequently on MS ability of reaching their targets. There is a potential for conflict between EU level and country level

benefits from the mainstream use of GOs should it happen. This is because the exclusion of GO use as a compliance means for meeting national targets places the emphasis on domestic (national) measures irrespective of the opportunity for cheaper investment elsewhere.

- It is important that all MS continue to move towards a GO system based on the European Energy Certificate System (EECS) operated by the Association of Issuing Bodies (AIB). Joining AIB and the EECS can provide guidance for MSs on developing a system which is compliant with others across Europe, and will facilitate trade.
- Separating GOs from the energy system itself decreases transparency since the consumer cannot associate their electricity with a renewable source. This can reduce the effectiveness of this article as a means to encourage the voluntary market in green electricity supplies.
- It is worth investigating the possible extension of the use of GOs beyond RES-E and high-efficient cogeneration (HE cogeneration) to all types of power generation i.e. including electricity from fossil and nuclear generation. This would help support the tracking and auditing on non-renewable supplies and underpin the integrity of the supply mix disclosure statements that inform consumer choices concerning these generation types.

Finally, the overall future effectiveness of GOs will be improved by continuity of the RED beyond 2020 (and communicating that continuity), especially to avoid uncertainty in the GO market as we approach 2020.

ANNEX 3 - MAIN SOURCES USED FOR THE ANALYSIS

Electricity and Gas Directives

- **ACER** is an agency created by the ACER Regulation. ACER's duties include monitoring and reporting on the internal electricity and gas markets. By the end of 2015, ACER will have published four annual **Market Monitoring Reports**[68] that provide in-depth coverage of relevant issues such as consumer empowerment and protection, supplier switching and consumer information.[69]
- DG JUST published in 2010 (2009 data) a **study on the functioning of retail electricity markets for consumers in the EU** ("the 2010 electricity study").[70] This major study examined whether a well-functioning electricity market was in place for consumers in the EU. It also examined the extent to which consumers were able to make informed and empowered choices and what motivates behaviour in the electricity market. The study provided evidence pertinent to evaluating the billing and metering measures put in place by the Electricity Directive.
- DG JUST commissioned a follow-up study on the functioning of retail electricity markets for consumers in the EU ("the 2016 Electricity Study"[71]) to assess the development of consumer conditions across the EU28 Member States' (and Norway, Iceland) electricity markets following the implementation of the Third Energy Package. The 2016 Electricity Study assesses the extent to which the electricity market benefits consumers and what is still missing for better consumer outcomes. It also examines the extent to which consumers are able to make informed and rational choices corresponding to their energy consumption needs, whether they possess the necessary tools to compare prices and offers, and what motivates consumer behaviour in the energy market. The study makes comparisons with the findings of the 2010 electricity study. The findings provide evidence for future policy initiatives and identify actions needed for further integration of the EU Internal Energy Market. Initial findings from the 2016 Electricity Study were published in November 2015 together with the State of the Energy Union 2015 Communication.[72] The final report will be published in summer 2016.
- DG JUST published a **study on the coverage, functioning and consumer use of comparison tools and third-party verification schemes**,[73] which addresses the possible improvements that can be made to ensure comparison tools are reliable, transparent and user-friendly and that they benefit consumers given that consumers are increasingly using such tools to compare offers on the market.

[68] http://www.acer.europa.eu/electricity/market 20monitoring/Pages/default.aspx

[69] The data used for compiling ACER's annual report is provided by national regulatory authorities for energy (NRAs), the European Commission and the European Networks of Transmission System Operators (ENTSOs). The members of the Administrative Board of ACER (Article 12(7) of the ACER Regulation) and ACER's Director (Article 16(1) of the ACER Regulation) act independently of the Commission and other interests. For sector-specific consumer issues, ACER also draws on data from the Commission's Consumer Scoreboard. http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/10_edition/index_en.htm

[70] http://ec.europa.eu/consumers/consumer_evidence/market_studies/retail_energy/index_en.htm

[71] 2nd Consumer market study on the functioning of retail electricity markets for consumers in the EU, EC, 2016

[72] http://ec.europa.eu/priorities/energy-union/state-energy-union/index_en.htm; see in particular "Energy Consumer Trends 2010 – 2015", SWD(2015) 249 final, 18.11.2015, http://ec.europa.eu/priorities/energy-union/state-energy-union/docs/swd-energy_consumer_trends_en.pdf

[73] http://ec.europa.eu/consumers/consumer_evidence/market_studies/comparison_tools/index_en.htm

- In addition, DG JUST's (and formerly DG SANCO's) **consumer scoreboards**[74] are an important source of information on how the single market is performing for EU consumers.
- The **Council of European Energy Regulators (CEER)** is a not-for-profit association through which Europe's national energy regulators cooperate and exchange best practice. It has recently produced advice on **customer information on sources of electricity**,[75] presenting recommendations on how to make the system for disclosing how electricity has been produced more comprehensive, coherent and reliable.
- The **European Consumer Complaints Registration System** - ECCRS (DG JUST). In May 2010 the Commission adopted the "Recommendation on the use of a harmonised methodology for classifying and reporting consumer complaints and enquiries". The Recommendation is addressed to any body who is responsible for collecting consumer complaints, or attempting to resolve complaints, or giving advice, or providing information to consumers about complaints or enquiries, that is a third party to a complaint or enquiry by a consumer about a trader[76]. Consumer complaints collected by consumer complaint handling bodies are a key source of information on the functioning of consumer markets across the EU, in particular on problems faced by consumers. As the data is directly comparable across the EU, this should allow for a faster, better targeted, evidence-based policy response at the EU or the national level to real problems experienced by consumers.

EED

- In so far as metering and billing of thermal supplies is concerned, the work performed under a **service contract**[77] **with the consultants empirica** has provided input. Under this contract two **workshops** with Member States and stakeholders have been organised to exchange views on existing and best practices focusing on Member States' interpretation of "technical feasibility and cost-effectiveness" for the purpose of the application of Article 9(3) and 10(1).
- Another **workshop on heat metering and billing more generally** was held with the assistance of the JRC[78].
- DG ENER's general **analysis of Member States' transposition and implementation**, assisted by external consultants.
- Reports from the **Concerted Actions** on the Energy Services Directive and the Energy Efficiency Directive[79].

[74] http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/index_en.htm

[75] http://www.ceer.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/Tab5/C14-CEM-70-08_CustomerInfo-Sources%20of%20Electricity_Advice_March%202015_0.pdf

[76] http://ec.europa.eu/consumers/consumer_evidence/data_consumer_complaints/docs/consumer-complaint-recommendation_en.pdf

[77] Analysis of good practices and development of guidelines for accurate and fair allocation of costs for individual consumption of heating, cooling and domestic hot water in multi-apartment and multi-purpose buildings to support the implementation of relevant provisions of the Articles 9-11 of the Directive 2012/27/EU on energy efficiency – Tender **ENER/C3/2013-977**

[78] Full documentation available here: http://iet.jrc.ec.europa.eu/energyefficiency/node/9072

[79] http://www.esd-ca.eu/reports

ANNEX 4 - DETAILS ON COMMISSION PROPOSALS

The Commission's proposal for the Electricity and Gas Directives

The metering and billing provisions in the current Electricity and Gas Directives were introduced in the Second Energy Package in 2003 as an integral part of measures making all consumers free to choose their supplier. The 2001 proposal for these directives[80] cited "*transparency of information*" as **a basic right for consumers**. A subsequent amended proposal[81] added that "*disclosure is important in **enabling effective choice***".

Although the 2007 Commission proposals for the **Electricity[82] and Gas Directives**[83] did not include new provisions on metering or billing, they reiterated that the existing universal public service[84] requirements in Article 3 of the legislative texts were there "*to make sure that all consumers can benefit from **competition***." As for the provisions on the frequency of information on energy costs, these were intended to "*create incentives for **energy savings***". The Commission's Impact Assessment accompanying the 2007 proposals[85] stated that one of the specific **objectives** of the broader effort to improve consumer protection was "*[e]nabling easier **price comparisons***".

The Commission's proposal for the EED

The 2011 Commission proposal for an Energy Efficiency Directive[86] included a comprehensive and ambitious set of provisions on metering and billing representing very significant changes compared to the already existing provisions in the field, namely Article 13 of the Energy Services Directive[87] (ESD).

The Commission's proposal was accompanied by detailed analysis of options on metering & billing[88]. The stated specific **objective** of the proposal as regards the metering and billing provisions was to "*[e]nsure that consumers are empowered with correct, understandable and regular information on their energy use*".

More particularly, there was a clear aim to address **problems identified with the application of Art 13 of the ESD**: As the Impact Assessment summarized it: "*Because of the vague wording the provisions did not lead to improvements*" with respect to the aim that was to

[80] http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1447663534789&uri=CELEX:52001PC0125(01).

[81] http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1447663534789&uri=CELEX:52002PC0304(01)

[82] http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1447425243567&uri=CELEX:52007PC0528

[83] http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1447425326195&uri=CELEX:52007PC0529

[84] Sometimes known as 'universal service' - the practice of providing a baseline level of services to every resident, most commonly through a regulated industry.

[85] http://ec.europa.eu/smart-regulation/impact/ia_carried_out/docs/ia_2007/sec_2007_1179_en.pdf

[86] http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011PC0370

[87] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32006L0032

[88] http://ec.europa.eu/energy/sites/ener/files/documents/sec_2011_0779_ia_annexes.pdf, p.52

"*ensure understandable and accurate information is provided for consumers via individual meters and energy bills on a frequent basis*."[89]

Key **changes proposed** included:

- **minimum frequency** of consumption based billing of **every 1-2 months** in most cases, and
- clarification that **individual metering in each flat in multi- apartment buildings** was also required for heating, cooling and hot water.

[89] http://ec.europa.eu/energy/sites/ener/files/documents/sec_2011_0779_impact_assessment.pdf, p.12

ANNEX 5 - BILLING PRACTICES AND REGULATION PER COUNTRY[90]

The regulatory environment in relation to billing is well elaborated across the EU28, Norway and Iceland. Nonetheless, there is a large variation in how countries choose to approach the subject, in particular with regards to the extent they are willing to define the content of electricity bills specifically in the national legislation. Three broad approaches were identified:

Highly prescriptive (HP) approaches relying on legal instruments or resolutions, which request a large amount of detail and/or give very specific instructions on what information to provide in electricity bills.

Legislation which specifies the main information (MI) that must be included in bills, which is subsequently reinforced by guidance from the regulator (in terms of mandatory information and format, or best practice guidance).

Legislation that specifies the main information, but leaves electricity providers broad freedom (BF) to communicate this within their own format.

In the following table, billing practices in each country are described, noting what are considered to be a highly prescriptive approach (HP), an approach enforcing communication of main information (MI) and, finally, an approach that allows broad freedom (BF).

Table 4: Billing practices and regulation per country

Austria (MI)	Article 81 of EIWOG specifies which information should be presented on the electricity bill. This provision is further detailed by ordinances from the regulator, in which suggestions are given as to how to present the mandatory information, including the energy sources breakdown and the price components. The contents of the documents (e.g. electricity bill, contract, etc.) are detailed not only in the Electricity Act, but also in the Renewable Energy Act, the System Charges Order, the Electricity Duty Act, as well as in individual Federal states legislation. The 'DAVID-VO' Ordinance (Articles 1-5) specifies the information that electricity suppliers must give to customers.

[90] Source for this annex: European Commission (2016), ' Second Consumer Market Study on the functioning of retail electricity markets for consumers in the EU.

Belgium (HP)	Law April, 29th 1999 'Loi relative à l'organisation du marché de l'électricite' details the mandatory information to be present in a consumer's bill. The information to be presented in the bill is highly regulated, with 10 mandatory headings and many mandatory sub-headings which detail the information to be provided.
Bulgaria (BF)	The Bulgarian Consumer Protection Act (Art. 4, Par. 1) outlines a minimum set of requirements for information to be provided to the customer such as: (1) information on the composition, (2) the supplier's contact details, (3) the trader's complaint handling process, and 4) arrangements for payment.
Croatia (MI)	Articles 49 and 63 of the Act on Electricity Market (Official Gazette, no. 22/13, 95/15 and 102/15) regulate billing. In Croatia, regulations specify that the supplier needs to deliver an electricity bill that contains the following elements: the share of the price that is freely negotiated, the share that is regulated and fees and other charges prescribed by special regulations.
Cyprus (MI)	Article 91 (1)(d)(iv) and Article 93 (1)(j) of the Electricity Law 206(I)/2015 regulate how the consumption of electricity should be communicated to consumers. The tariffs of the main energy provider are regulated by the Cyprus Energy Regulatory Authority (CERA) and they can be found on the website of the Electricity Authority of Cyprus (EAC).
Czech Republic (DF)	Bills for electricity, gas, heat supply and related services are governed by Act nr. 458/2000 Coll. in articles 11a and 98a. Electricity suppliers are to publish the conditions and price of electricity supply for households and residential customers in a way that can be accessed remotely. If increasing the prices for the supply of electricity, the supplier is obliged to notify the consumer in advance. In the case of electricity and gas, outstanding charges are billed at least once a year.
Denmark (MI)	Regulation of billing information is implemented in Executive Order no.486 of 2007 on electricity billing. However, the Danish Energy Regulatory Authority has presented an executive order which gives consumers the possibility to receive a simplified bill. The purpose of this order is to give consumers a better understanding of the price elements and an incentive to be active on the energy market. This order was implemented in Danish law in October 2015.
Estonia (MI)	Electricity Market Act §75 stipulates the following: "the seller shall submit an invoice for the electricity consumed to the customer once a month, unless agreed otherwise with the customer". It is mandatory for suppliers to include information not just on consumption but also on emissions and waste (nuclear and oil shale) as well as dispute resolution options.
Finland (MI)	Part III, Ch. 9, 69 § of the Electricity Market Act (588/2013) outlines the legal requirements with regards to billing imposed by the electricity provider. In the bill, the provider is to include details on how the price is broken down, information on the contract's duration and which dispute-solving tools consumers have at their disposal.
France (HP)	Article 4 of the Regulation 18 April 2012 covers electricity or natural gas bills, their payment modalities and reimbursement of overpayment (i.e. bill based on an estimation of the consumption). The bill must include information on over 16 different headings. The website 'Energie info', made available by the National Energy Ombudsman, illustrates and explains this mandatory content to consumers.

Germany (MI)	The right to receive clear information on one's energy contract before signing, and to be informed in advance if any changes are made to the contract, are provided for within German law (article 41 EnWG). The EnWG (section IV art. 40) specifies the content that should be provided to consumers on their electricity bills. The German Institute for Transparency on Energy (DIFET) produces certificates for those suppliers that provide consumer-friendly bills.
Greece (BF)	The new Code of Electricity Supply regulates the tariffs of electricity suppliers. Specifically, this code describes what must be included in the bill and how the bill must be broken down into three different elements: (1) regulated charges; (2) competitive charges or supply charges; and (2) other charges.
Hungary (HP)	*Law 2013. évi CLXXXVIII. törvény az egységes közszolgáltatói számlaképről* regulates the content of bills. The law gives actual examples of the minimal information necessary on each bill and also gives examples as to which elements may be changed or added without infraction. The law also imposes such details as fonts and font sizes and provides in its annexes a detailed example of the respective bill in its actual detail. Additionally to the law, the electricity suppliers also regularly provide a dedicated section on how to read the electricity bill.
Iceland (BF)	Regulation 1050/2004, Art. 42 (referred to in Act 65/2003, Art. 20) lists the information that must be shown in the invoice sent to customers. Bills shall show unit prices used for basic account types and quantities of electricity. Charges levied for the transportation, distribution services and electricity must be clearly seperated.
Ireland (MI)	Statutory instruments S.I. No. 426/2014 Part 4, Art. 6, Art. 7 and S.I. No. 463/2011, Art. 9, regulate the communication of charges and consumption information to electricity consumers in Ireland. Under Irish law, suppliers must also inform customers of upcoming price changes at least one month before a price change comes into effect.
Italy (MI)	D.Lgs 93/11 Art. 43(2); L 125/07 Art. 1(6) and Art. 1(5) legislate the communication of charges and consumption information. Consumers should be informed of the components relating to supply cost (*servizi di vendita*), network cost (*servizi di rete*), general system charges (*oneri generali di sistema*), and taxes (VAT and consumption tax). The regulator has set up several tools in order to help the consumer understand his bill, most notably a dedicated webpage "Your Bill Explained" (*la bolletta spiegata*) and a consumer help-desk (*lo Sportello per il Consumatore*).
Latvia (MI)	According to Art. 31 3° of Electricity Market Law, the Public Utilities Commission (PUC) shall determine what kind of information and to what extent electricity supplier shall include in their bills and informative materials that are issued to the consumer. The regulations of the PUC determines that a bill shall include at least the electricity amount in kWh supplied in billing period, the amount charged for consumed electricity in euros and the average electricity price in euro per kWh during the billing period and fees for electricity distribution system services, other additional services and the mandatory procurements components and total fees for the billing period for consumers and other end-users to whom shall be issued invoices regarding electricity service supply.

Lithuania (BF)	Law on Energy of the Republic of Lithuania No. IX-884 and Law on Electricity of the Republic of Lithuania No VIII-1881. Article 31 regulate the communication of charges and consumption information to electricity consumers in Lithuania, as well as contractual conditions and changes to contracts. The consumer is entitled to receive information on conditions of service and electricity prices and tariffs, reports on prices, contract terms, conclusion and termination conditions.
Luxembourg (BF)	Article 2(5) of the Law of 1 August 2007 regulates the communication of charges and consumption information to electricity consumers in Luxembourg, as well as contractual terms. With respect to billing, the law states that electricity providers must transmit to residential customers transparent information on tariffs and prices.
Malta (MI)	Electricity Market Regulations (S.L. 545.16), Art. 8(3) regulates billing. Bills issued by Enemalta Corporation, Malta's electricity supplier, must include contact details of its subcontractor, ARMS Ltd, which is the company responsible for meter reading, billing, debt collections and customer care services. Households should receive bills calculated on actual consumption at least every six months. For households with a smart meter, these bills based on actual readings are more frequent. All bills show a breakdown of the price calculation, the total electricity consumption for that period as well as the average daily energy consumption, relevant tariffs and CO_2 emissions.
Netherlands (MI)	The Electricity Act, article 95, details the mandatory information to be provided on an energy bill and some associations provide recommendations for data presentation. The breakdown of an energy bill concerns supply costs ("*leveringskosten*"), network costs and metering costs, and then taxes ("*Belasting*"). While using green energy, some taxes are refunded ("*Belastingvermindering*").
Norway (MI)	FOR-1999-03-11-301, chapter 7 §7-2 regulates the communication of charges and consumption information to electricity consumers in Norway. The regulation is detailed, and lays down stipulations for frequency of billing. For Internet billing, the bill shall contain a graphical comparison of the annual consumption of each settlement period with the corresponding period during the previous year. For paper invoicing, the company's logo and contact information must appear on the top of the first page. In both cases, "the invoice must be clear and easy to understand".
Poland (MI)	The Energy Law, Art. 5. 6a - 6c. regulates the communication of charges and consumption information to electricity consumers in Poland. Electricity suppliers are to inform consumers about the fuel supply mix used in the previous calendar year and about a place where information is available about the impact of the production of energy on the environment (at a minimum in terms of carbon dioxide emissions and radioactive waste created). Electricity suppliers must also inform consumers about the amount consumed in the previous year and the place where information is available about the average electricity consumption for each connection group of recipients, energy efficiency improvement measures and the technical characteristics of energy-efficient appliances.

Portugal (BF)	Art. 54 d) and Art.55 c) and d) of Decree Law of 15 February 2006 regulate the communication of charges and consumption information to electricity consumers in Portugal. Under the law, consumers are entitled full and adequate information to enable their participation in the electricity market, access information in a transparent and non-discriminatory manner on applicable prices and tariffs, as well as complete and adequate information in order to promote energy efficiency and the rational use of resources.
Romania (HP)	Law 123/2012 (modified in 2014) ART.62 (1) h[9]) and art. 145 (4) p) and Law 123/2012 (modified in 2014) ART. 66 (1),(2) regulate the content of bills. The Energy Authority ANRE has made available to the consumer an explanatory sample of the components that have to be included in the bill. This model has been adopted by electricity suppliers, who can also opt to display the same document at their websites, in order to inform consumers about the contents of their bill.
Slovakia (MI)	The supplier of electricity and gas is, according to the § 17 article 14 of the Law 251/2012, obliged to inform the customer on the invoice or attached material about the particular components of the energy supply including the unit price. Information about the composition of the price component has to include the unit price especially for electricity purchase including the commercial activity of the supplier, distribution, losses during distribution, system services, system operation and taxes.
Slovenia (MI)	Beside standard items that must be included in every invoice issued in Slovenia that are stipulated by the Value Added Tax Act (invoice date, number, invoice issuer's contact details, amounts billed, VAT rate,…), consumers also have to receive certain information in their electricity bills, stipulated within Article 42 of the Energy Act, including the proportion of energy source that supplier used in preceding year in a way comparison between different suppliers can be made, the reference source where publicly available data on environmental impacts, expressed in CO_2 emissions and amounts of radioactive waste resulting from the electricity production in the preceding year, and consumers' rights related to dispute resolution.
Spain (HP)	Law 24/2013 establishes the type of information that should be included in an electricity bill. This format is mandatory for the suppliers of last resort. The details of the information are formally listed in the resolution N.5655 of 23 May 2014 of the Ministry for the Industry, Energy and Tourism. The resolution illustrates in its annex a template to be followed when producing electricity bills, showing in explanatory graphs and in detailed tables the mandatory information and its granularity.
Sweden (BF)	The Electricity Act chapter 8, §14-16 specifies that an electricity supplier's billing shall be clear. It shall contain information on the measured consumption and current electricity prices that the billing shall be based on. The Swedish Energy Markets Inspectorate specifies in detail what shall be contained in electricity bills. The electricity cost consists of two parts: (1) a payment to the grid operator to stay connected and (2) payment for the actual electricity consumption and the electricity cost.

UK (BF)	The consumers' right to accurate consumption information is captured in Condition 31A of the Standard Licence which makes it incumbent on suppliers to provide customers with electricity consumption information in each bill (or, within the space of 30 days from a notice of increase in charges in cases where the latter is issued). In addition, suppliers must send an annual statement to all customers in a pre-defined format. Schedule 2ZB to the Electricity Act stipulates that licence-exempt suppliers must also provide consumption data to customers on an annual basis. Under Condition 12 of the Standard Licence, suppliers must take meter readings at least once every two years. Condition 21B of the Standard Licence allows customers to read their own meters as often as they choose. Suppliers are to reflect that reading in the subsequent bill. The structure of the bill is not fixed by any legislation.