RE-DISS Guidelines for the Regulation of the Front-Side Disclosure of Electricity

Version 1.0, 22nd July 2015

1 Background

The opening of the electricity market in the European Union for retail competition has given the consumers a choice of supplier. This choice can be based on price, on quality and reliability of service, but can also relate to the generation characteristics of the electricity supplied.

The Internal Electricity Market Directive 2009/72/EC (in the following: IEM Directive) therefore contains the obligation on suppliers to specify the fuel mix and its related environmental impact of the electricity they sell to final consumers.

The objectives of this specification are fourfold:

- increase market transparency by providing open and easy access to relevant information,
- comply with the consumers right to information regarding purchased products,
- enable consumers to make informed choices about suppliers and their electricity products based on the generation characteristics of the electricity they supply,
- educate consumers and stimulate electricity generation that contributes to a secure and sustainable electricity system.

Article 3 (9) of Directive 2009/72/EC establishes four main obligations for Member States (see also Annex I: Quotations from the relevant EU Directives):

I. Ensuring that suppliers provide fuel mix information on or with the bill and environmental information on the fuel mix at least in the form of information on reference sources, such as web-pages.
II. Ensuring that the information provided by suppliers is presented in a comprehensible and, at a national level, clearly comparable manner.
III. Ensuring that the information provided by suppliers is reliable.
IV. Nominating the regulatory authority or another competent national authority to supervise the reliability and comparability of this information.

Implementation of disclosure differs strongly between EU MS, from basic implementation by straightforward adoption of the wording of the Directive to highly sophisticated and clearly specified approaches. There are also MS which have not implemented disclosure (either legally or operationally) at all so far.[1] These different stages of disclosure to some extent also reflects the different development of liberalised electricity markets in different European MS.

The provision to specify the fuel mix and its related environmental impact obliges Member States to achieve a certain result and leaves to them the choice of form and methods. While the IEM Directive focuses on the provision of information towards end consumers (the “front side” of disclosure), there is

[1] For an overview over the status of implementation of disclosure systems in European countries see the country profiles as published on the project website www.reliable-disclosure.org, or the summarising report published by the RE-DISS II project “Qualitative Assessment of Disclosure and GO systems” (August 2014).

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further regulation on how the accounting of disclosure attributes can be regulated (the "back side" of disclosure, also called "tracking" of attributes[2]).

- (Directive 2009/28/EC on the promotion of the use of energy from renewable sources (in the following: RES Directive) defines the Guarantee of Origin (GO), which can be considered the major accounting instrument in order to create a link from electricity production (more specifically: renewable electricity) towards specific end consumers. Such tracking of electricity attributes is essential in order to define the values of a specific fuel mix which can then be disclosed towards an end consumer. Article 15 of the RES Directive requires each Member State to provide a system for Guarantees of Origin for electricity produced from renewable energy sources which have to be issued, transferred and cancelled in an electronic registry under supervision of a single appointed national Competent Body. The only purpose of these GOs is their use for electricity disclosure. Member States have to ensure that these GOs are accurate, reliable and fraud-resistant, and that double-counting is avoided.
- Directive 2004/8/EC on the promotion of cogeneration (in the following: CHP Directive) has introduced also GO for high-efficient cogeneration of heat and electricity. However, it has to be stated that the use of such CHP GO for disclosure purpose has only gained very limited practical relevance since then.
- 19 European countries[3] have organised their GO systems within the European Energy Certificate System (EECS) provided by the Association of Issuing Bodies (AIB). This includes not only a common technical standard, but particularly operates a central registry communication interface for international transactions of GOs between the different registries, the "AIB Hub". It is worth highlighting that EECS does not only facilitate handling of RES GOs and CHP GOs, but also generally allows for issuing, transfer and cancellation of GOs for other fuel sources like fossil and nuclear. In the year 2014, EECS GOs representing some 328 TWh of RES production have been cancelled and therefore used as compared to an overall RES production in Europe of some 1070 TWh.[4]

In 2012, in its Council conclusions on Renewable Energy, the European Council has defined it as priority that "*In relation to guarantees of origin, to further empower consumers, clarifications by the Commission would be welcomed on the best way to achieve consistent application of fuel mix disclosure at EU level which ensures that consumers are provided with accurate and complete information on all fuel mix consumption within each Member State.*[5]*;* However, no such clarification has been provided by the European Commission so far. Just recently, CEER has published an "Advice on customer information on sources of electricity"[6] providing recommendations addressed to various target groups in the general context of green electricity offers.

2 General principles

These guidelines address national Competent Bodies for electricity disclosure and responsible ministries in implementing a national framework on ensuring that relevant disclosure information is provided to end consumers, and that this is done in an understandable, comparable and clear way. This does not only consider the minimum requirements of Article 3 (9) of the IEM Directive, but also addresses a broader range of aspects which are considered to make disclosure information more valuable for end consumers. The following principles should be highlighted:

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2 Tracking can be defined as follows: "A methodology for the accounting of generation attributes in the electricity market and their allocation to final consumption of electricity, mostly for purposes of electricity disclosure. There are explicit and implicit tracking mechanisms." (see the RE-DISS I Final Report, 2013)

3 Information relating to March 2015 (www.aib-net.org). These countries include Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Iceland, Italy, Luxembourg, The Netherlands, Norway, Portugal, Slovenia, Sweden and Switzerland.

4 RES-E production 2014 in EU28+CH+IS+NO according to RE-DISS II residual mix calculations, based on ENTSO-E production statistics.

5 Council of the European Union: Council conclusions on Renewable Energy from the 3204th Transport, Telecommunications and Energy Council meeting, Brussels, 3 December 2012

6 CEER: CEER Advice on customer information on sources of electricity, Ref: C14-CEM-70-08, Status 4 March 2015

- These guidelines should have the following character:
  - They are non-binding for Competent Bodies, and can be considered for national implementation on a purely voluntary level.
  - They should support Competent Bodies in establishing sound disclosure systems.
  - They focus on "front-side aspects" (which sort of information is disclosed, and how is this done)
  - The aspects covered by these guidelines are particularly relevant for coordination on a national level in order to assure comparability for end-consumers which are active on the national market; they are less relevant for international coordination.
- In contrast, the RE-DISS Best Practice Recommendations (BPR) v2.3 cover particularly all issues which have to be coordinated in order to avoid negative international impacts on consistency of disclosure systems ("back-side aspects", i.e. the tracking principles of disclosure system), and some further recommendations.
- In many cases, national framework conditions will determine which information is relevant and of interest for consumers. Therefore, these Disclosure Guidelines have to some extent the nature of a "tool box", from which individual elements can be used or also neglected in individual countries rather than of step-by-step guidelines. Particularly with respect to selection of different parameters to be disclosed, Competent Bodies will have to weigh between provision of useful information and information overload. Still, it should be generally seen as good practice not to only show information in case this is probably preferred by the consumers, but particularly also to show information which may point out less preferred attributes. A suitable means of providing also detailed and complex information to end-consumers might be to offer two levels of information: a basic set of information directly on or with the bill, and more detailed information and explanations e.g. on a website to which the bill can refer.
- The requirements as defined by Article 3 (9) of Directive 2009/72/EC of course act as an obligatory baseline for all recommendations (see Annex I on page 14).
- The following recommendations are based on:
  - RE-DISS I Proposal for disclosure guidelines[7]
  - Stakeholder Consultation as conducted in April and May 2014
  - Comments received during the 8th Domain Workshop with Competent Bodies (24-25/09/14)
  - Further desktop research and previous projects
- For background information, general discussion and real-case examples with respect to the individual aspects outlined below, pls. see the RE-DISS II background document "Selected options for implementation of "front side" disclosure aspects" as provided together with the consultation package. This is supposed to be attached to the final Disclosure Guidelines as an Annex in order to provide illustrative examples.

For background information and real-case examples with respect to the individual aspects on front-side disclosure which are outlined below, pls. see the RE-DISS II background document "Real-case examples and selected options for implementation of "front side" disclosure aspects". This is available as a separate Annex II to these Disclosure Guidelines in order to provide illustrative examples.[8]

The original background document which had been provided in the stage of public consultation for these Disclosure Guidelines in April and May 2014 is available as Annex III[9], while an overview over the responses which have been provided in the public consultation is given in the separate document as Annex IV to these Disclosure Guidelines.[10]

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7 RE-DISS: Proposal for electricity disclosure guidelines for Member States, Version 4, December 2012

8 RE-DISS II: Real-case examples and selected options for implementation of "front side" disclosure aspects"; Based on the RE-DISS II consultation document dated 8 April 2014

9 RE-DISS II. Selected options for implementation of "front side" disclosure aspects – Background information and consultation; Dominik Seebach, Diane Lescot, Angela Puchbauer-Schnabel, April 2014

10 RE-DISS II: Consultation on options for implementation of front side disclosure aspects Summary of formal responses, August 2014

More information on the general framework and an analysis of tracking systems can be found in the Final Report to the RE-DISS I Project.[11]

3 Overview over core recommendations

In order to provide an overview over the given recommendations, and to highlight the most essential ones, these are shortly summarised in this section. Chapters **Fehler! Verweisquelle konnte nicht gefunden werden.** and 6 below explain these recommendations in more detail, and also provide additional recommendations which can be followed in order to further improve the information of electricity consumers relating to the fuel mix and environmental impacts of their electricity supply. The recommendations can be summarised as follows:

Presentation of information:

- The information on the fuel mix and on the environmental impact must be provided directly on or with the bill to consumers.
- Domains should ensure that disclosure information is provided to consumers in an understandable and comparable way. Therefore, they should ideally define a standard format. This display format should in any case include a graph for all key parameters, preferably a pie or a bar chart.
- The information on the fuel mix and the environmental impact should be provided with reference to the overall fuel mix of the supply company. If a supplier differentiates different products for his customers, he shall be obliged to disclose the information relating to the specific product to ALL his customers in addition to the information on the supplier's overall fuel mix.
- In order to allow consumers to better understand the provided information, the disclosure statement should allow for a comparison of the supplier and the product specific information with the national average production mix, or alternatively with the average mix of all information which is disclosed to consumers in a given country.
- Countries should require to suppliers to present information on environmental indicators (CO_2, radioactive waste) in a form which easily allows consumers to understand the level of environmental indicators in the relation to reference mixes. This should not only include graphical charts comparing the supplier mix, product mix and national mix, but also further instruments like intuitive colour coding.
- Countries should ensure that central information for all electricity products is available to consumers within a certain area, e.g. through a website.

Parameters to be disclosed:

- The information on the fuel mix and the environmental impact (as indicated by CO_2 emissions and by radioactive waste) is clearly required by the European IEM Directive.
- Countries should develop a standard list of fuel categories to be used by all suppliers. This should be consistent with the fuel categories as defined for calculation of the RE-DISS residual mix in order to achieve international data consistency, particularly for application of residual mix information (see Table 1 below).
- Countries should require that suppliers indicate the country of origin of the underlying attributes as far as this information is available based on reliable tracking information. This should be the case at least for products with ex-ante claims, which should be tracked with GOs.
- All countries should clarify the relation between their support schemes for RES-E & cogeneration on the one side and GOs and disclosure schemes on the other side.
- Domains should decide whether suppliers of specific RES or other "green" products should be required to provide to consumers the rating of each product based on these rules.

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11 Christof Timpe, Dominik Seebach, Markus Klimscheffskij, Marko Lehtovaara, Claudia Raimundo, Diane Lescot, Angela Puchbauer-Schnabel, Thierry Van Craenenbroeck: Reliable Disclosure Information for European Electricity Consumers - Final Report from the project "Reliable Disclosure Systems for Europe (RE-DISS)"; 2012

- In principle, countries should weight the value of comprehensive consumer information against the reduction of complexity for consumers, particularly for those who are not highly interested anyway in the provided disclosure information. Thus, for some further detailed parameters it should be considered if such information is not to be provided directly in or with the bill in order not to reduce comprehensibility of disclosure information for the majority of consumers by information overload. In these cases, such information should be provided transparently on a website, to which the physically provided disclosure statement clearly refers. Such parameters include:
    - Additional environmental indicators besides CO_2 and radioactive waste, if available;
    - Possibly information on the shares of supported electricity particularly with respect to a disclosed product mix with ex-ante claims (e.g. as specifically “green” or “RES” product). Such information on support will probably be only consistently available for volumes which are tracked by means of RES GOs, as the level of support is a mandatory information item on RES GOs according to the RES Directive;
    - Depending on the level of knowledge of the respective end consumers possibly information on the specific tracking instrument (e.g. GO, national residual mix, and indication of own production). Such information could come once end consumers are quite familiar with the principles of disclosure, or when the role of individual tracking instruments is under public debate.

Other aspects and general recommendations

- Domains should commission the regulatory authority or another competent national authority to supervise the actual operation of the disclosure scheme. Assigned tasks could not only include supervision of the disclosed data, but also appropriate format and means of presentation. This could be supported by a national monitoring report.
- The reference period should be calendar year, and this information should be provided to final consumers as early as possible in the following year.

4 Specific recommendations with respect to the presentation of disclosure information

4.1 Standard format for disclosure statement

The IEM Directive requires Member States to ensure provision of disclosure information in a comparable way. Member States vary largely in the level of detail how provision of information is regulated in order to ensure such comparability between different suppliers and products. Different real-case examples on existing national templates are shown in section 2.1 of the RE-DISS II document ”Real-case examples and selected options for implementation of "front side" disclosure aspects” (see Annex II). The following recommendations are given:

- Competent Bodies should ensure that the disclosure information is easily comprehensible for consumers and can be compared at least on a national level. This can be done by specifying a harmonised display format for use by suppliers. It is recommended that a minimum size of the disclosure statement is defined together with the format requirements.
- In order to make comparisons between suppliers easily possible and to reduce the effort particularly for small suppliers, domains should develop a harmonised ready-to-use display format template.
- This display format should in any case include a graph, preferably a pie or a bar chart. It is also recommended that this is supplemented by a table.
- It is recommended that one or several pie charts are used to illustrate the supplier’s overall mix, product-specific information and national generation averages (see also the following Chapter 4.2). An additional table can provide more detailed figures for the shares of the energy sources, e.g. a higher disaggregation of renewable energy sources than displayed in the pie charts, and the environmental indicators.
- Numbers in the table should be provided with no more than three valid digits.

- With respect to parameters to be disclosed, see Chapter 5.
- Some detailed parameters can be expected only to be of interest for a limited consumer group. Here it should be considered that such information is not provided directly in or with the bill in order not to reduce comprehensibility of disclosure information for the majority of consumers by information overload. In these cases, such information should be provided transparently on a website, to which the physically provided disclosure statement clearly refers.
- For an example on such a disclosure format, see Figure 1/Figure 2.

4.2 Distinction of supplier and product mixes, and provision of comparison values

The IEM Directive requires that the contribution of each energy source to the overall fuel mix of the supplier is disclosed to end-consumers. Such information relating to the overall supplier mix can be considered relevant to consumers as an indicator of the overall company strategy. Still, suppliers often distinguish various products to their end-consumers which differ in their respective fuel mix. In that case, the electricity which is provided towards an individual end-consumer does not have the same fuel mix as the overall supplier mix. On top of that, it is not really easy to assess for end-consumers based on information of the fuel mix and the environmental indicators whether this value is a comparably good or comparably bad value, compared to branch average. Different real-case examples on how to show various comparative values are shown in section 2.2 of the RE-DISS II document ”Real-case examples and selected options for implementation of "front side" disclosure aspects” (see Annex II), and also included in Figure 1/Figure 2. The following recommendations are given:

- The information on fuel mix and environmental impact must be provided on the supplier’s overall fuel mix as a minimum information according to the IEM Directive.
- The overall fuel mix should refer to all the electricity sold to final consumers in a given country, both domestic and non-domestic, by the supply company that is named on the bill. Thus it should comprise all electricity products of that company, regardless whether these are differentiated in terms of energy mix or not.
- If a supplier differentiates products with regard to disclosure-related information, Member States should require that this supplier provides product specific information in addition to his overall disclosure information. In this case, the supplier should be required to give product and total supplier information to all customers, including those who are consuming a product without specific claims (e.g. a “default” product, which might be the supplier’s “company residual mix”). This is crucial in order to avoid double counting inside a suppliers’ disclosure portfolio through the perception of the information by consumers.
- Furthermore, a national reference mix relating to the country of the end-consumer should be provided on the disclosure statement.
    - The domain should decide whether this national reference mix refers either to the national production mix or alternatively to the national average consumption mix[12]. It is however recommended that a comparison with the production mix is made, as this is the more obvious and continuous reference parameter for consumers.
    - The domain should clearly specify this exact mix and ideally either publish information on this mix itself or refer to specific published data in order to ensure a level playing field for all suppliers.
- See also Chapter 5.2 with respect to environmental indicators for the different mixes, Chapter 4.3 for further recommendations on evaluative presentation and Chapter 4.1 for format of presentation of the different mixes.

4.3 Evaluative presentation

Particularly with respect to environmental indicators, which are provided as absolute values rather than as relative share (like it is the case for fuel mix information), it is difficult for household consumers

[12] National average consumption mix here means the weighted average of all disclosure information which is provided to end consumers within a given country.

to assess the meaning of such values and therefore the environmental quality of underlying production based on this information. Different real-case examples on how to show various comparative values are shown in section 2.3 of the RE-DISS II document ”Real-case examples and selected options for implementation of "front side" disclosure aspects” (see Annex II), and also included in Figure 1/Figure 2. The following recommendations are given:

- Domains should specify within their disclosure format specifications that the information on environmental indicators is to be presented in a form which easily allows consumers to understand the level of environmental indicators in the relation to reference mixes. This should not only include graphical charts comparing the supplier mix, product mix and national mix (c.f. Chapter 4.2), but also further instruments like intuitive colour coding.
- Such provision of information should also be taken into account in the layout of a standard disclosure format as specified in Chapter 4.1.

Figure 1: Example for a disclosure statement which accords to the basic recommendations as given by this document, including a detailed table.

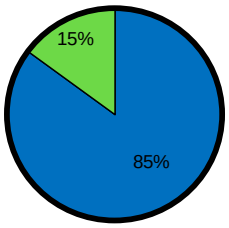
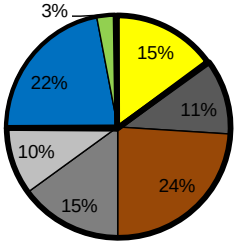
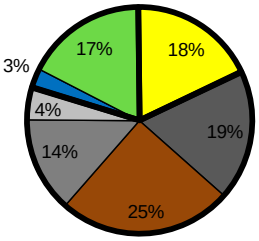
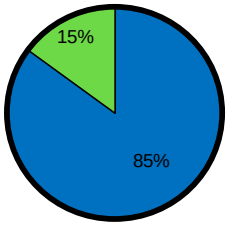
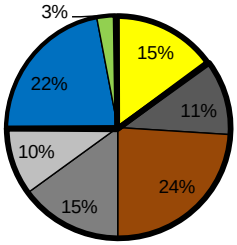
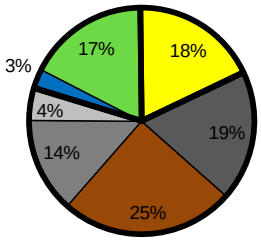
	Your Product "Green"	**Average of your "Sample Supplier"**	**For comparison: [National] production mix**
Nuclear Hard Coal Lignite Natural gas Other fossil Hydro power Other renewable			
Nuclear	0,0%	15,0%	17,9%
Hard Coal	0,0%	11,0%	18,6%
Lignite	0,0%	24,0%	24,9%
Natural gas	0,0%	15,0%	13,7%
Other fossil	0,0%	10,0%	4,5%
of which oil	0,0%	0,0%	1,1%
of which unspecified & other	0,0%	0,0%	3,3%
Hydro power	85,0%	22,0%	3,0%
Other renewable	15,0%	3,0%	17,4%
of which wind	5,0%	1,0%	8,1%
of which biomass	10,0%	2,0%	5,0%
of which photovoltaic	0,0%	0,0%	3,2%
of which geothermal	0,0%	0,0%	0,5%
of which unspecified & other	0,0%	0,0%	0,6%
High-efficient cogeneration of electricity and heat	5,0%	7,0%	8,5%
CO_2 emissions	0 g/kWh	494 g/kWh	529 g/kWh
Radioactive waste	0 µg/kWh	450 µg/kWh	537 µg/kWh
The mark (◆) indicates the level of emissions of CO_2 and radioactive waste related to the fuel mix of your product and of the average fuel mix of your supplier compared to national average.			
Additional information with respect to your product **"Green"**	100% of this electricity production has been documented based on Guarantees of Origin.		
	85% of these Guarantees of Origin represent electricity production in [Country A]. 15% of these Guarantees of Origin represent electricity production in [Country B].		
	0% of this electricity production has received public support.		

Figure 2: Example for a disclosure statement which accords to the basic recommendations as given by this document, without a detailed table.

	Your Product "Green"	**Average of your "Sample Supplier"**	**For comparison: [National] production mix**
Nuclear Hard Coal Lignite Natural gas Other fossil Hydro power Other renewable			
High-efficient cogeneration of electricity and heat	5,0%	7,0%	8,5%
CO_2 emissions	0 g/kWh	494 g/kWh	529 g/kWh
Radioactive waste	0 µg/kWh	450 µg/kWh	537 µg/kWh
The mark (◆) indicates the level of emissions of CO_2 and radioactive waste related to the fuel mix of your product and of the average fuel mix of your supplier compared to national average.			
Additional information with respect to your product **"Green"**	100% of this electricity production has been documented based on Guarantees of Origin.		
	85% of these Guarantees of Origin represent electricity production in [Country A]. 15% of these Guarantees of Origin represent electricity production in [Country B].		
	0% of this electricity production has received public support.		

4.4 Presentation of disclosure information on a national platform

As already stated earlier, the IEM Directive requires Member States to ensure the provision of disclosure in a comparable way. One instrument in order to support such comparability is the central provision of disclosure information for all available electricity products. The following recommendations are given:

- Domains should facilitate the provision of information for all electricity products available to consumers within a certain area, e.g. through a website.
  - The provided information should at least contain the fuel mix information and environmental indicators of the products offered and the overall information on the supplier portfolios.
  - If standardised means for comparison of additionality aspects of products are defined within a domain, those should also be indicated. In the absence of such definitions, it is recommended that at least information on quality labels (which usually refer to a specific level of additionality) is provided.
  - It is also recommended that on this platform a clear explanation of the mandatory contents of disclosure is given to consumers. If there is a mandatory graphical format, provision of an example disclosure statement with legends pointing at the different elements would be good practice.
  - Competent authorities should consider to combine such a comparison of products with price comparison tools on national level.
- Countries should ensure independent third-party verification of the disclosure information provided by suppliers. This could be done by the national competent body as central institution, or by independent auditors with verification at least of sold electricity volumes, sound documentation of attributes (e.g. by GOs) which are assigned to them and the disclosure information which then is given towards end consumers.
- As required by the Directive, Countries shall ensure that suppliers display the fuel mix information on the electricity bill sent to consumers, or on a separate insert which is sent out with the bill, and in promotional materials.
  - If an insert is chosen, there should be a clear link on the bill to the insert provided with the bill.

- Furthermore, the fuel mix information must become part of any promotional materials made available to final customers, e.g. printed brochures, leaflets and websites. On websites, the fuel mix information must be easy to find and clearly marked, so that consumers are encouraged to view this information.

5 Specific recommendations with respect to the parameters to be disclosed

5.1 Detailed categorisation of fuels and technologies

The IEM Directive does not make any specification on how different fuel categories should be defined for disclosure of the respective shares, and not all national regulation clearly provides guidance for this. While a common minimum approach has been the distinction between renewable, fossil and nuclear, it is also common to make a more detailed distinction. In order to support the comparability of disclosure information, it is desirable that a standard list of energy sources to be used by all suppliers is developed on national level. RE-DISS does calculate Residual Mix information for fuel categories as shown in Table 1, and recommends to Competent Bodies to define national fuel categories consistent with this list.

Table 1: Hierarchy for energy sources in the calculation of Residual Mix and European Attribute Mix by RE-DISS II as of disclosure year 2013.

Renewable	Solar
	Wind
	Hydro
	Geothermal
	Biomass
	Unspecified & Other
Nuclear	
Fossil	Hard Coal
	Lignite (or Brown Coal)
	Natural Gas
	Oil
	Unspecified & Other

This definition takes into account relevant differences in terms of environmental indicators, relevance in terms of electricity production volumes, expected interest from end-consumers and data availability particularly with reference to ENTSO-E production statistics and EECS statistics for use of GOs. The following recommendations are given:

- In order to support the comparability of disclosure information, each country should develop a standard list of energy sources to be used by all suppliers in or with the bills and in promotional material.
- This list should be consistent with the categories as defined for calculation of the RE-DISS residual mix (see Table 1) in order to achieve international data consistency, particularly for application of residual mix information. For the final step of disclosing fuel mix information towards end consumers (i.e., after all attributes have been allocated to individual end-suppliers based on eligible tracking instruments), domains can consider to regulate that suppliers aggregate information from different categories on a voluntary level. This should only apply in case a differentiated information on either fossil or renewables is not relevant due to only small shares of the respective fuels in the respective domain.

- For sub-categories, listing of specific categories seems only to be helpful for consumers in case those are larger than 0%.
- Countries should promote the additional disclosure of the shares of electricity from high-efficient cogeneration and from bioliquids which fulfil the sustainability criteria of Directive 2009/28/EC, to the disclosure data used by suppliers as a separate item.

5.2 Environmental Indicators

In addition to the information on the breakdown of energy sources used to generate the electricity supplied, the IEM Directive requires that suppliers provide information on the environmental impact, in terms of at least CO_2 emissions and radioactive waste resulting from the electricity produced by the overall fuel mix of the supplier. Real-case examples on how to disclose environmental indicators are shown in section 1.4 of the RE-DISS II document " Real-case examples and selected options for implementation of "front side" disclosure aspects" (see Annex II), and are also included in Figure 1. The following recommendations are given:

- Countries should ensure that suppliers provide this information on CO_2 and radioactive waste directly on the bill and with promotional material together with the fuel mix disclosure statement (as shown in Figure 1).
- Countries may also require suppliers to inform consumers about additional environmental indicators. It seems appropriate that such additional information is not necessarily to be provided with the bill due to the increase of complexity, but on an internet website. In this case, a prominent link to this website should be placed on the bill or on the separate insert and also on the promotional material.
- The provided information on environmental impact should relate to all fuel mix statements which are to be disclosed by the supplier. This should include the overall mix of the supplier, the specific product mix and also a (national) reference mix (see also Chapter 4.2 of this document).
- The figures on environmental indicators should relate to the same reference period as the fuel mix information.
- Information about environmental indicators for the Residual Mixes can be found in the results of RE-DISS Residual Mix Calculations as published on the project website www.reliable-disclosure.org; as of the disclosure year 2015, the respective information will be provided under the responsibility of the AIB.[13] Information on environmental indicators for specific electricity generation options can be provided by specific plant or case studies related to energy source and technology as well as relevant generic databases (country and/or technology specific). For an overview over country-specific and technology-specific emission factors and more background information, please see the reports as provided by Work Package 5 of the RE-DISS II project.[14]

5.3 Information on geographic origin

The RES Directive clarifies that GOs have no role in terms of target accounting on the level of EU Member States. Still, expectation of consumers often includes that supplied electricity comes from regional or at least national production, which is not in line with the pan-European markets for electricity and particularly for GOs. Information on the geographical origin of the disclosed electricity production attributes would provide transparency for an informed consumer choice. Such information is available from the information given on RES GOs (and most probably also for any other GOs which are available), but probably also for any other Reliable Tracking Instrument which may be applied (as these usually are defined on a national level only anyway and therefore relate to national production). However, such information is not available for the calculated Residual Mix shares, at least for the time being. Different real-case examples on how to give information on the geographic origin are shown in section 1.2 of the RE-DISS II document " Real-case examples and selected options for implementa-

13 See www.aib-net.org.

14 See www.reliable-disclosure.org/documents.

tion of "front side" disclosure aspects" (see Annex II), and is also included in Figure 1. The following recommendations are given:

- It is recommended that countries should require a distinction between the country of origin of the underlying attributes as far as this information is available based on reliable tracking information. This should be the case at least for products with ex-ante claims, which should be tracked with GOs. Such information might not be available e.g. for a supplier mix (unless this is fully based on explicit tracking instruments which contain such information).
- It can be considered that such information on the geographic origin is being provided on a website to which the disclosure statement refers rather than on the disclosure statement itself. Thus, more explanations can be provided and complexity of the disclosure statement itself is reduced.

5.4 Shares of supported electricity

RE-DISS BPR [36] recommends that competent bodies should clarify the relation between their support schemes for RES & cogeneration on the one side and GOs and disclosure schemes on the other side. Possibilities for such national regulation are manifold. For example, attributes of nationally supported RES-E production may be allocated on a pro-rata basis towards end-consumers with or without the formal usage of GOs, or the respective volumes are fully eligible for issuing of freely tradable GOs (which of course would have to indicate the level of received support).

At the same time, the level of received support is probably of interest for end consumers who might prefer requesting and financially supporting RES-E (or also other) electricity which is not already paid for by national support schemes. The RES Directive ensures that information on the level of received support is available at least for RES-E production volumes which are tracked by RES GOs. Different real-case examples on specific disclosure of supported electricity are shown in section 1.1 of the RE-DISS II document " Real-case examples and selected options for implementation of "front side" disclosure aspects" (see Annex II). The following recommendations are given:

- As stated by BPR [36], all countries should clarify the relation between their support schemes for RES-E & cogeneration on the one side and GOs and disclosure schemes on the other side.
- Domains can consider to require that supported RES are disclosed separately as compared to other RES-E.
    - In order to address this aspect generally and also to take international GOs (either being supported or not) into account, supported RES-GO can be disclosed in a "supported RES-E" category, while all unsupported RES-GO can be disclosed in a "Other RES" category. One should note that residual mix information currently does not distinguish those categories, so any RES-E deriving from the residual mix would therefore probably have to be disclosed in either one of both categories, irrespective of the actual level of support. Alternatively, information on the level of support could also be provided by separate indication in the way of "X % of the RES volumes supplied with this product have benefitted from public support".
    - Taking also the availability of support information into account, the disclosure of this information might also be required specifically for product with ex-ante claims on the product mix (e.g. as specifically "green" or "RES" product), which should be tracked by GOs anyways.
    - In case that the domestically supported RES is allocated with a specific allocation mechanism to consumers (e.g. on a pro-rata basis), this can be done by disclosing two discrete categories (e.g. "Renewable, supported by #name of the national support system#" and "Other Renewable").
    - If a domain implements such rule, it makes sense to apply it on a mandatory level, so that all suppliers apply this rule in a consistent and comparable manner.
    - It can be considered that such information on the level of support is being provided on a website to which the disclosure statement refers rather than on the disclosure statement itself. Thus, more explanations can be provided and complexity of the disclosure statement itself is reduced.

- Besides RES-E, also other electricity production might have received public support, covering not only CHP, but also other fossil and even nuclear. However, current tracking systems do not support transparency about the level of support for these fuel types. In order to be as transparent as possible, countries can consider to require a note giving the following information: "*Other sources of energy than renewables may have also been supported by public funds, but the amounts and technologies involved are not monitored (yet) through tracking systems currently in place, so that no detailed information can be provided*".

5.5 Additionality

It is a repeated criticism towards green electricity offers that the mere fact of being 100% RES does not necessarily correlate to any additional environmental improvement (i.e. "additionality"), but is based on allocation mechanisms in the market without actively having influence on changing the overall production mix.

Attempts to provide transparency on the level of additionality usually strive to measure the influence for increasing RES production shares, e.g. by special monetary funds or by minimum shares of RES supply from explicitly new plants. In most cases, such information is defined and verified by voluntary premium labels. In the UK, NRA Ofgem has implemented the mandatory provision of information on additionality for all products with ex-ante claims. Such approach is also recommended by the RE-DISS Best Practice Recommendation [40] which asks for clear rules how the "additionality" of products can be communicated to end consumers as basis for informed consumer choices.

- Domains should decide whether suppliers of specific RES or other "green" products should be required to provide to consumers the rating of each product based on these rules.
- Such a requirement could apply at least for all products which include specific claims (e.g. "100% RES", "low carbon power" or "green electricity").
- If this is not available, such information based on neutral explanations could be given by suppliers on voluntary basis, ideally backed by an independent label or at least third-party verification.
- It is recommended that such reference is given together with the bill in order to provide clarity particularly to those consumers who are not actively aware of the distinction between additionality and fuel mix disclosure. In case comprehensive information or comprehensive neutral information on the level of additionality is provided, this can be given on a website to which the disclosure statement refers rather than on the disclosure statement itself. Thus, more explanations can be provided and complexity of the disclosure statement itself is reduced.

5.6 Tracking Mechanism

As has been described already further above, different (explicit and implicit) tracking mechanisms are possible to be applied by electricity suppliers. Amongst others, actual usage of the individual instruments depends on whether the supplier is actively managing its disclosure portfolio thus creating specific demand, or whether it is passively using attributes which are assigned to it, particularly by relying on Residual Mix information. In order to distinguish between different suppliers, one option to accentuate actual market behaviour would be to distinguish which part of a disclosed fuel share derives from the actual active market behaviour and which part is just passively "inherited" from a residual mix. Furthermore, at least in some countries NGOs have expressed their clear preference for tracking along the electricity contracts rather than by using GOs which are not linked to the electricity contract. This raises the question about the relevance of disclosing not only the fuel shares, but also indicating the respective means of tracking. Different real-case examples on how to show information on underlying tracking mechanisms are shown in section 1.6 of the RE-DISS II document " Real-case examples and selected options for implementation of "front side" disclosure aspects" (see Annex II). The following recommendations are given:

- Domains should consider the level of knowledge of their end consumers before deciding on this issue. Such information could come once end consumers are quite familiar with the principles of disclosure, or the role of individual tracking instruments is under public debate.

- It is recommended that disclosure of such details at least takes place on a website, to which a clear reference on the bill or the disclosure statement in promotional material is given.
- Options to disclose tracking mechanisms can for example include the following elements:
    - Indication of share of residual mix information, either as separate additional information, or disclosure of each fuel category distinguished between "explicitly tracked" and "residual mix".
    - Indication of share of GOs, possibly distinguished between "GOs which correspond to the electricity production from plants which is contractually provided via the grid" and "Other GOs".
    - Indication of own production.

6 Other aspects and general recommendations

6.1 Regulatory oversight and verification

The following recommendations are given:

- Domains should commission the regulatory authority or another competent national authority to supervise the actual operation of the disclosure scheme with regard to the reliability of the information provided to consumers and the comparability of the information and its display format, at least on a national level.
- The tasks which should be assigned to the supervising body can comprise:
    - the definition of detailed rules for suppliers how disclosure should be implemented, including the regulation of acceptable tracking mechanisms and display formats to be used for fuel mix data and environmental indicators;
    - the annual calculation of the Residual Mix, including the related coordination with supervising bodies in other countries;
    - the verification of the information provided to consumers (e.g. plausibility checks with the Guarantees of Origin cancelled and random checks of a certain number of disclosure statements and of the claims made by suppliers regarding environmental impacts of electricity products purchased by its customers); and
    - supervision of the actual operations of suppliers, including the frequency and methods for supplying disclosure information to consumers and the display formats used.
- Ideally, the supervising body should also be the competent body for the operation of Guarantees of Origin. If this is not the case, the respective bodies should work together closely in order to ensure the accuracy and reliability of the disclosure information provided to consumers.
- In order to enable the supervision of the disclosure data, domains should require all suppliers to provide all data disclosed to consumers to the supervising body, including an indication, for which volume of electricity a certain set of attributes were used (i.e. the total energy supplied by a supply company plus the energy supplied under individual products, if these are differentiated with regard to the origin of electricity).

6.2 Reference Period and Frequency

The following recommendations are given:

- The disclosed information (fuel mix and its related environmental impact) should relate to the preceding calendar year.
- The frequency at which the information is sent out should at least be once a year. However, it would be beneficial to send out disclosure information to end consumers more regularly than once a year, in order to raise awareness among consumers.
- Timing of disclosure should be as early as possible after the end of the calendar year. Usually, it can be assumed that this is the case shortly after the publication of the RE-DISS Residual Mix calculations, and subsequent publication of national Residual Mixes by Competent Bodies. The RE-DISS Best Practice Recommendation [35] for Competent Bodies suggests the 1 July of year X+1 as deadline for disclosure by suppliers for year X.

Annex I: Quotations from the relevant EU Directives

Directive 2009/72/EC concerning common rules for the internal market in electricity (IEM Directive)

Recital 45

Member States should ensure that household customers and, where Member States deem it appropriate, small enterprises, enjoy the right to be supplied with electricity of a specified quality at clearly comparable, transparent and reasonable prices.

Article 3 (9)

Member States shall ensure that electricity suppliers specify in or with the bills and in promotional materials made available to final customers:

a) 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;
b) at least the reference to existing reference sources, such as web pages, where information on the environmental impact ,in terms of at least CO_2 emissions and the radioactive waste resulting from the electricity produced by the overall fuel mix of the supplier over the preceding year is publicly available;
c) information concerning their rights as regards the means of dispute settlement available to them in the event of a dispute.

Directive 2009/28/EC on the promotion of the use of energy from renewable sources (RES Directive)

Recital 52

Guarantees of origin issued for the purpose of this Directive have the sole function of proving to a final customer that a given share or quantity of energy was produced from renewable sources. A guarantee of origin can be transferred, independently of the energy to which it relates, from one holder to another. However, with a view to ensuring that a unit of electricity from renewable energy sources is disclosed to a customer only once, double counting and double disclosure of guarantees of origin should be avoided. Energy from renewable sources in relation to which the accompanying guarantee of origin has been sold separately by the producer should not be disclosed or sold to the final customer as energy from renewable sources. It is important to distinguish between green certificates used for support schemes and guarantees of origin.

Recital 53

It is appropriate to allow the emerging consumer market for electricity from renewable energy sources to contribute to the construction of new installations for energy from renewable sources. Member States should therefore be able to require electricity suppliers who disclose their energy mix to final customers in accordance with Article 3(6) of Directive 2003/54/EC, to include a minimum percentage of guarantees of origin from recently constructed installations producing energy from renewable sources, provided that such a requirement is in conformity with Community law.

Recital 54

It is important to provide information on how the supported electricity is allocated to final customers in accordance with Article 3(6) of Directive 2003/54/EC. In order to improve the quality of that information to consumers, in particular as regards the amount of energy from renewable sources produced by new installations, the Commission should assess the effectiveness of the measures taken by Member States.

Recital 55

Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market provides for guarantees of origin for proving the origin of electricity produced from high-efficiency cogeneration plants. Such guarantees of origin cannot be used when disclosing the use of energy from renewable sources in accordance with Article 3(6) of Directive 2003/54/EC as this might result in double counting and double disclosure.

Recital 56

Guarantees of origin do not by themselves confer a right to benefit from national support schemes.

Article 2 (Definitions)

(*j) 'guarantee of origin' means an electronic document which has the sole function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources as required by Article 3(6) of Directive 2003/54/EC;*

Provisions by Article 15 with direct relevance for electricity suppliers in the context of provision of fuel mix disclosure

[…]

3. Any use of a guarantee of origin shall take place within 12 months of production of the corresponding energy unit. A guarantee of origin shall be cancelled once it has been used.

[…]

6. A guarantee of origin shall specify at least:

(a) the energy source from which the energy was produced and the start and end dates of production;

(b) whether it relates to:

(i) electricity; or

(ii) heating or cooling;

(c) the identity, location, type and capacity of the installation where the energy was produced;

(d) whether and to what extent the installation has benefited from investment support, whether and to what extent the unit of energy has benefited in any other way from a national support scheme, and the type of support scheme;

(e) the date on which the installation became operational; and

(f) the date and country of issue and a unique identification number.

7. Where an electricity supplier is required to prove the share or quantity of energy from renewable sources in its energy mix for the purposes of Article 3(6) of Directive 2003/54/EC, it may do so by using its guarantees of origin.

8. The amount of energy from renewable sources corresponding to guarantees of origin transferred by an electricity supplier to a third party shall be deducted from the share of energy from renewable sources in its energy mix for the purposes of Article 3(6) of Directive 2003/54/EC.

9. Member States shall recognise guarantees of origin issued by other Member States in accordance with this Directive exclusively as proof of the elements referred to in paragraph 1 and paragraph 6(a) to (f). A Member State may refuse to recognise a guarantee of origin only when it has well-founded doubts about its accuracy, reliability or veracity. The Member State shall notify the Commission of such a refusal and its justification.

[…]

11. A Member State may introduce, in conformity with Community law, objective, transparent and non-discriminatory criteria for the use of guarantees of origin in complying with the obligations laid down in Article 3(6) of Directive 2003/54/EC.

12. Where energy suppliers market energy from renewable sources to consumers with a reference to environmental or other benefits of energy from renewable sources, Member States may require those energy suppliers to make available, in summary form, information on the amount or share of energy from renewable sources that comes from installations or increased capacity that became operational after 25 June 2009.

Annex II: Real case examples and selected options for implementations of "front-side" disclosure aspects (Annex for RE-DISS Disclosure Guidelines)

The RE-DISS II document "Real case examples and selected options for implementations of "front-side" disclosure aspects" summarises the show-cases of front-side disclosure which had been originally compiled for the stakeholder consultation on these guidelines in 2014. This particularly includes examples of elements of electricity disclosure which go over and above the minimum requirements as imposed by the IEM Directive. They should be now presented here in order to illustrate and provide background to the recommendations which are given. The document is available as separate document on the project website www.reliable-disclosure.org.

Annex III: Consultation Background Document

The RE-DISS II document "Selected options for implementation of "front side" disclosure aspects - Background information and consultation" (April 2014) had been provided for the stakeholder consultation on disclosure guidelines which has been conducted in April and May 2014 in order to provide background information to the questions raised. This particularly includes examples of elements of electricity disclosure which goes over and above the minimum requirements as imposed by the IEM Directive. It is available as separate document on the project website www.reliable-disclosure.org.

Annex VI: Summary of Responses to Consultation

The RE-DISS II document "Consultation on options for implementation of front side disclosure aspects Summary of formal responses" (August 2014) gives an overview over the formal responses which have been received during the stakeholder consultation on disclosure guidelines which has been conducted in April and May 2014. It is available as separate document on the project website www.reliable-disclosure.org.

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