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1 Implementation of Tracking Systems

1.1 Electricity Disclosure

The Energy Industry Act (*Energiewirtschaftsgesetz*, latest version 2013) has implemented electricity disclosure in Germany in § 42. Within this regulation the competent body appointed for disclosure is the German regulator *Bundesnetzagentur* (BNetzA). Besides implementing the requirements from the Directive 2009/72/EC, the law also regulates several details of how disclosure shall be implemented. As major revision as compared to former versions, the use of GO is required as of disclosure year 2013 for disclosure of unsupported RES-E. With respect to other fuels, the law does not clarify the role and eligibility of GO and other tracking mechanisms in detail. The law specifies six fuel categories to be displayed (nuclear, coal, methane gas, other fossil, RES-E supported according to the German Feed-In Law, other RES-E). In case the origin of energy is unknown, a “reasonably” corrected ENTSO-E mix has to be used. The law foresees the option of a secondary regulation, which has not been used so far. The following elements go beyond the requirements of the Directive:

- Information on the environmental indicators CO₂ emissions and radioactive waste must be disclosed with the fuel mix (a reference to e.g. a company website is not sufficient);
- National average values for the fuel mix and the environmental indicators must be given in addition to the supplier company mix;
- If a supplier differentiates products in terms of the origin of the electricity, then he must disclose the abovementioned information for the product, for the “company residual” (the supplier company mix minus the product) and for the supplier company mix;
- For disclosure of unsupported RES-E, GO have to be used in the GO registry of the German Competent Body for RES GO (Federal Environment Agency – *Umweltbundesamt*)¹.

Details of how disclosure should be implemented are only given in non-binding guidelines, which have been issued by the electricity branch organisation BDEW (latest version 2013).

1.1.1 Disclosure Figures

No official disclosure figures are calculated and provided for Germany. However, BDEW has published figures for a German reference mix (see Table 1) and a “corrected” ENTSO-E mix (all RES-E has been deducted, see Table 2) for 2012 production in coordination with the German regulator Bundesnetzagentur, which is the Competent Body for electricity disclosure.

¹ This regulation does not apply for RES-E supported by the German feed-in and premium mechanism, and for RES as share of the corrected ENTSO-E mix



Table 1: German Reference Fuel Mix information for use in electricity disclosure for 2012 as published by BDEW (BDEW 2013: Datenerhebung 2012 – Bundesmix 2012 (Stand 21.08.2013))

Fuel	Share [%]	CO ₂ Emissions [g/kWh]	Radioactive Waste [g/kWh]	Net Generation [TWh]
Nuclear	17,1			94,2
Coal	45,6			250,5
Methane Gas	9,8			54,0
Other Fossil	3,2			17,5
RES-E (Total), thereof:	(24,2)			(133,1)
RES-E supported according to the Renewables Law*	20,8			114,3
Other RES-E	3,5			19,0
Total Mix Germany	100	522	0,0005	549,5

*including mine gas

Table 2: Corrected ENTSO-E Fuel Mix information for Germany for use in electricity disclosure for unknown shares for 2012 as published by BDEW (BDEW 2013: Datenbestimmung 2012 für den ENTSO-E-Energeträgermix für Deutschland gemäß § 42 EnWG Abs. 4 (Stand 8. August 2013))

Fuel	Share [%]	CO ₂ Emissions [g/kWh]	Radioactive Waste [g/kWh]	Net Generation [TWh]
Nuclear	21,44	---	0,0027	94,6
Coal	57,53	1.024	---	253,9
Methane Gas	14,55	368	---	64,2
Other Fossil	6,48	701	---	28,6
RES-E supported according to the Renewables Law*	---	---	---	---
Other RES-E*	---	---	---	---
Total Mix Germany	100	688	0,0006	441,3

*not to be disclosed with the ENTSO-E-Mix according to § 42 (5) Nr. 1 and Nr. 2

1.1.2 Environmental Information

In Germany, information on CO₂ emissions and radioactive waste has to be provided with electricity disclosure. For information on average emissions for the Total Mix Germany, see Table 1 above.

1.1.3 Suppliers Fuel-Mix Calculations

For disclosure of RES-E (besides the RES-E shares as supported according to the German Renewables Act, and RES-E as possible element of the Residual Mix), RES-GO have to be used by suppliers. The RES-GO have to be cancelled in the GO registry of German Federal Environment Agency (Umweltbundesamt – UBA), which is competent body for RES-GO. Further detailed specifications on electricity disclosure are laid out in the voluntary disclosure guidelines provided by the energy branch association BDEW, which implement an iterative ex-post allocation mechanism as the default tracking option for other fuels besides RES. This mechanism reflects the net balances of bilateral trading of

electricity between all market participants and as it is ex-post, it allows using electricity trades as the method of allocation of attributes while not interfering with the trading process itself. The procedure is performed in three iterations. It requires the cooperation of market participants, which need to enter data into a joint online spreadsheet which is provided by BDEW. This default tracking option allows minimising the volume of energy with unknown origin. While use of GO is mandatory for RES-E products, the BDEW guidelines ask that explicit tracking for other fuel types should be linked to electricity supply contracts (i.e. contract based tracking). There are no specific requirements about these explicit mechanisms for prevention of double counting (e.g. like provision of respective information to a central authority). For all iteration steps, the BDEW guidelines require to cover volumes of unknown origin by a corrected ENTSO-E mix as published by BDEW (see Table 2).

1.1.4 Recognition of GOs

The Competent Body UBA refers to the general GO recognition criteria as elaborated by the CA-RES initiative. UBA has commissioned the execution of a research project for general assessment of the GO and disclosure systems of potential exporting domains. Summaries of the findings of the project team are to be published on the UBA website during 2014.² Still, UBA stresses that recognition decisions are in principle taken with respect to individual GO.

Since the start of operation of the GO registry at UBA beginning of 2013, all RES-GO which had been transferred via the AIB Hub to UBA's GO registry and which had not exceeded the maximum lifetime as defined by German expiry regulation have been actually imported and thus been recognised.

1.2 Guarantees of Origin for Electricity from Renewable Energy Sources and High-Efficient Cogeneration

1.2.1 RES-GO System

Regulations for RES-GO in Germany are laid out in the German Renewable Energy Sources Act (*Erneuerbare-Energien-Gesetz*, EEG) and the Energy Industry Act (*Energiewirtschaftsgesetz* § 42, EnWG). The revision of the law in 2012 has legally implemented the respective requirements of the Renewables Directive 2009/28/EC, together with secondary regulations (GO Ordinance - HkNV, GO Implementing Ordinance – HkNDV, GO Fee Ordinance – HkNGebV and Terms of use). The Federal Environment Agency (Umweltbundesamt – UBA) has been appointed as competent body. The GO registry went live in January 2013.

With the new GO registry at UBA, RES-GO are issued on a monthly basis for net production, and only for volumes which do not benefit from public support (being either a feed-in tariff or a market premium). The UBA GO registry provides for electronic transfer and cancellation, and RES-GO expire 12 months after the end of the production period. Optionally, the registry can indicate whether a GO has been transferred linked with a physical contract from the RES-E producer if independent auditors verify this.³ It is also worth mentioning that the use of GO is limited to electricity disclosure in the sense of the Internal Energy Market Directive (i.e., it is not possible for an end consumer to cancel GO independently from his electricity supplier). Furthermore, cancellation has to take place in the own account of each single supplier, but not on a third account by a service provider. International transfers are generally subject to the availability of an electronic interface to the other registry, which currently is only implemented with the AIB Hub.

The registration details of some production devices have to be performed by environmental auditors, which are qualified for electricity production under the EMAS scheme.

² See www.umweltbundesamt.de.

³ As such information is not part of the data transfer protocol as defined by AIB, such information can only be provided in the national system, meaning that this functionality only applies for German GO.

1.2.2 CHP-GO System

CHP-GO are implemented in Germany by the CHP law (latest version 2013). Competent Body for CHP-GO is the Federal Office of Economics and Export Control (*Bundesamt für Wirtschaft und Ausfuhrkontrolle* – BAFA). Small volumes of CHP-GO have been issued in the meantime, but there is no possibility for electronic transfer, and the potential use of CHP-GO remains unclear. According to the BAFA, the system for CHP-GO has no practical relevance in Germany for the time being.

1.2.3 EECS

UBA is connected to the AIB Hub as a non-member to AIB. The German RES-GO system has been implemented in line with the EECS Rules.

1.2.4 GO Statistics

GO statistics for 2013 are as follows:

- Issuing: 14,1 TWh
- Import: 68,8 TWh
- Export: 4,3 TWh
- Cancellation: 49,9 TWh

1.3 RES-E Support Schemes

The German Renewable Energy Sources Act (*Erneuerbare-Energien-Gesetz*, EEG) so far offered fixed feed-in tariffs and a market premium for most RES-E production (excluding old hydro and co-firing of biomass). The EEG which has just undergone revision and has been approved by the Cabinet in April 2014 now focusses on market premium schemes as standard support system. Plant operators can decide on a monthly basis which support scheme they would like to make use of, or if they want to opt out of the support scheme and market the RES-E volumes on voluntary green markets. The cost of the support schemes is allocated on a pro-rata basis to all consumers (with exceptions for many industrial and commercial consumers). Accordingly, the supported volumes in terms of RES attributes are allocated on a pro-rata basis to the electricity disclosure for these consumers, and no GO can be issued for such volumes in order not to enhance double marketing.

2 Proposals for Improvement of the Tracking System

The following proposals are made in accordance with the RE-DISS Best Practice Recommendations,⁴ which have been agreed by the Participating Domains of the RE-DISS Project.

2.1 Proposals regarding Disclosure

- BPR [3b]: Currently, calculation of the Residual Mix is not clearly regulated yet. It shall be assured that GO which have reached their maximum lifetime and expire should be collected into the Residual Mix
- BPR [5]: Amongst the European countries which are of high relevance for international trade of electricity and GO, Germany applies the latest deadline for disclosure. In order to allow for a coordinated European approach, cancellations of GO relating to production periods in a given year X which take place until 31 March of year X+1 should count for disclosure in year X. Later cancellations should count for disclosure in year X+1. It is generally possible to combine this with the existing requirement, that GO for production in year X has to be used for disclosure of year X.

⁴ Version 2.1, December 2012

- BPR [17]; [23]; [24]; [29], [32]: Besides GO, only Reliable Tracking Systems and the Residual Mix should be available for usage for disclosure. No other tracking mechanisms should be accepted. Reliable Tracking Systems (RTS) should be defined where appropriate based on criteria of added value, reliability and transparency. For Germany, this particularly aims at assuring transparency of volumes of attributes which are tracked by the ex-post mechanism, and at exclusion or clear regulation of CBT.
- BPR [30]: More specifically, regulations on contract-based tracking shall ensure that
 - a. The rules of the tracking system are transparent and comprehensive and are clearly understood by all participants in the system.
 - b. Double counting of attributes and loss of disclosure information is minimised within the contract based tracking scheme and also in the interaction of the contract based tracking scheme to GO and other RTS (if applicable). As a precondition for this, the contract based tracking scheme should be able to provide comprehensive statistics about the volumes and types of electricity attributes which are tracked through it.
 - c. The relevant information for disclosure purposes should be available in time to meet the timing requirements for calculation of a residual mix according to the RE-DISS Best Practice Recommendations.
- BPR [26]: The calculation of the Residual Mix should follow the methodology developed in the RE DISS project. As part of this methodology, competent bodies should ensure that double counting between GO, other Reliable Tracking Systems in use in their country and the Residual Mix is excluded.
- BPR [27]: Competent bodies from all countries in Europe should cooperate in order to adjust their Residual Mixes in reflection of cross border transfers of physical energy, GO and RTS. For this purpose, competent bodies should use data provided by RE-DISS. They should also support the collection of input data for the related calculations by the RE-DISS project team.
- BPR [31]; [38]: In cases that suppliers of electricity intend to use contract based tracking in order to fulfil claims made towards consumers regarding the origin of a certain electricity product (e.g. a green energy product), GO should be used in addition to the contract. For Germany, this recommendation remains relevant for claims on non-RES electricity, and basically requires implementation of a GO system which also covers other fuels than RES (see BPR [11]).
- BPR [35]: Germany should support a coordination of the timing of the calculation of the Residual Mix across Europe:
 - d. By 30 April X+1 all countries should determine their preliminary domestic Residual Mix and whether they have a surplus or deficit of attributes.
 - e. By 15 May X+1, the European Attribute Mix should be determined.
 - f. By 31 May X+1, the final national Residual Mixes should be published.
 - g. As of 1 July X+1 the disclosure figures relating to year X can be published by suppliers.

2.2 Proposals regarding GO

- BPR [11]: The GO system should be extended beyond RES & cogeneration to all types of electricity generation. This now could be more realistic, after political responsibility for RES GO, CHP GO and disclosure has been assigned to one single ministry, the Federal Ministry for Economic Affairs and Energy.
- BPR [12]: All types of GO should be handled in one comprehensive registry system per country (this particularly includes RES GO and CHP GO). This now could be more realistic, after political responsibility both for RES GO and CHP GO has been assigned to one single ministry, the Federal Ministry for Economic Affairs and Energy.
- BPR [15b]: For the case of CHP plants which are using RES as the energy source it is recommended that only one GO should be issued per unit of electricity, which should combine the functionalities of a RES-GO and a cogeneration GO.

- BPR [34]: The deadline for cancelling GO for purposes of disclosure in a given year X should be 31 March of year X+1.

2.3 Proposals regarding Recognition of GO

- BPR [20]: Any rejection of GO should only relate to the actual use of cancelled GO for disclosure purposes in the respective country and should not restrict the transfers of GO between the registries of different countries. This means that the decision about the recognition of a GO should not hinder its import into a specific country.
- BPR [21]: Germany should cooperate with other European countries to establish a register of their decisions taken regarding the acceptance of imported GO, which gives guidance to other competent bodies and also provides transparency for market actors.

2.4 Further proposals regarding Disclosure

- BPR [40]: There should be clear rules for the claims which suppliers of e.g. green power can make towards their consumers. There should be rules how the “additionality” of such products can be measured (the effect which the product has on actually reducing the environmental impact of power generation), and suppliers should be required to provide to consumers the rating of each product based on these rules.
- BPR [41]: Claims made by suppliers and consumers of green or other low-carbon energy relating to carbon emissions or carbon reductions should also be regulated clearly. These regulations should avoid double counting of low-carbon energy in such claims. A decision needs to be taken whether such claims should adequately reflect whether the energy purchased was “additional” or not.
- BPR [42]: In case that suppliers are serving final consumers in several countries rules must be developed and implemented consistently in the countries involved on whether the company disclosure mix of these suppliers should relate to all consumers or only to those in a single country.

2.5 Matrix of disclosure related problems and country-specific proposals

The following proposals refer to the RE-DISS Best Practice Recommendations which apply to Germany, based on the RE-DISS Best Practice Recommendations V2.1.

Problem	Country-specific proposal
Possible double counting in different explicit tracking instruments	BPRs [11], [12], [13], [14], [17], [23], [24], [29], [30], [31], [32], [38]
Double counting of attributes in implicit tracking mechanisms	BPRs [5], [11], [12], [21], [23], [24], [26], [29], [30], [32]
Double counting within individual supplier's portfolio	BPRs: [40], [41], [42]
Loss of disclosure information	BPRs: [3b], [11], [15b]
Intransparency for consumers	BPRs: [11], [23], [24], [26], [29], [30], [31], [32], [34], [35], [38], [40], [41], [42]
Leakage of attributes and/or arbitrage	BPRs: [5b], [34], [35]
Unintended market barriers	BPRs: [20]

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