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## 1 Implementation of Tracking Systems

### 1.1 Electricity Disclosure

Electricity disclosure in Finland is implemented by the law “Laki sähkön alkuperän varmentamisesta ja ilmoittamisesta - Act on Verification and Notification of Origin of Electricity” (1129/2003) and by secondary legislation, the government decree “Valtioneuvoston asetus sähkön alkuperän ilmoittamisesta - Government Decree on Notification of Origin of Electricity” (233/2005). Preparation for an amendment to the current law was started in the summer 2011 and has already been commented by key stakeholders. The amendment addresses legislation of both electricity disclosure and guarantees of origin. The lawdraft and governmental decree as well as the official comments from stakeholders can be found (only in Finnish) at <http://www.tem.fi/index.phtml?s=4606>. The law is expected to come into force in the fall of 2012.

#### New Law Amendment

The current form of the amended law would clearly set guarantees of origin as the sole mechanism to sell electricity from renewable energy sources to consumers. Electricity from unknown origin would have to be disclosed with the Residual Mix, calculated by the Energy Market Authority according to the RE-DISS methodology. In the amendment, the residual mix will be the Finnish national residual mix instead of the presently used Nordic residual mix. The disclosure of nuclear and fossil based electricity on the other hand, would still be largely based on contracts, though all electricity products are to be based on cancelled guarantees of origin.

It is seen very positive that, based on the law amendment, residual mix of Finland will be based on the national mix instead of the Nordic one, since no common decision between Nordic countries has been made about the usage of Nordic residual mix.

#### Present Law

The original law entered into force on 1st January 2004 and the government decree on 1st July 2005. The monitoring authority for electricity disclosure in Finland is the regulator, Energiamarkkinavirasto - Energy Market Authority ([www.emvi.fi](http://www.emvi.fi)). According to the law the electricity vendors have to disclose the energy sources distinguishing at least:

- fossil;
- renewable; and
- nuclear sources

In addition they have to disclose the information on

- produced carbon dioxide in g/kWh and
- radioactive waste in mg/kWh.

According to the original law, if an electricity vendor has purchased the sold electricity from an exchange or from a producer outside the EEA, they also have to disclose the proportion of that electricity. The disclosure period is calendar year and the new information should be published “as soon as practically possible”. No other timings of disclosure are regulated.

The original law and the decree do not recognize separately sold electricity production attributes, such as guarantees of origin or RECS certificates. Also the concept of default or residual mix does not exist in the legislative framework. The traditional bilateral physical electricity trades are well supported. In the wholesale market the producers have to inform the fuel mix of sold electricity and the retail market suppliers have to use this information to determine their previous calendar years’ fuel mix.

Neither the old law or the draft for the new law regulate explicitly how the fuel mix should be disclosed in the situation where a supplier acts as an electricity vendor in several countries.

## Current Situation in Practice

In practice the regulatory framework of disclosure has been completed with a recommendation issued by Finnish Energy Industries (an association of energy producers in Finland) already well before the future coming into force of the new law. The recommendation was first given in 2004 and it was later amended in 2007, 2008, 2010 and 2011. The versions starting from 2008 include centrally calculated residual mix for electricity purchased from the exchange or outside the EEA (European Economic Area). The residual mix was calculated and published by the energy industry association and it takes into account guarantees of origin and the main Nordic labels, Bra Miljöval and Ekoenergia (formerly known as Norppa). The residual mix has always been based on Nordic, rather than Finnish domain. The residual mix used in 2010 and 2011 recommendation was calculated by RE-DISS. The recommendation also gives general guidance on the use of separately sold attributes, such as guarantees of origin mostly along the lines of E-Track, EPED, and RE-DISS recommendations.

According to the recommendation, the attributes used for green electricity products should be deducted from the general supplier mix. Also, the recommendation advises that if guarantees of origin or other electricity certificates are used to modify the fuel mix, the share of used GOs/certificates of the total disclosed volume should be included.

### 1.1.1 Disclosure Figures

**Table 1: Nordic production and residual mixes**

	Renewable %	Nuclear %	Fossil %
<b>Nordic production mix 2006</b>	53,4 %	22,1 %	24,5 %
<b>Nordic residual mix 2006</b>	47,3 %	26,8 %	26,0 %
<b>Nordic production mix 2007</b>	62,3 %	21,8 %	15,8 %
<b>Nordic residual mix 2007</b>	38,6 %	31,6 %	29,8 %
<b>Nordic production mix 2008</b>	65,6 %	21,0 %	13,5 %
<b>Nordic residual mix 2008</b>	38,4 %	31,4 %	30,2 %
<b>Nordic production mix 2009</b>	62,6 %	19,6 %	17,8 %
<b>Nordic residual mix 2009</b>	40,9 %	20,5 %	38,6 %
<b>Nordic production mix 2010</b>	61,5 %	20,4 %	18,1 %
<b>Nordic residual mix 2010</b>	25,3 %	30,9 %	43,8 %
<b>(Finnish Residual mix 2010)</b>	21,8 %	29,5 %	48,7 %
<b>Nordic production mix 2011</b>	63,4 %	21,4 %	15,2 %
<b>Nordic residual mix 2011</b>	22,4 %	34,6 %	43,1 %
<b>(Finnish Residual mix 2011)</b>	23,7 %	32,9 %	43,4 %

### 1.1.2 Environmental Information

According to the present and new law, the electricity vendors have to disclose the energy sources itemising at least fossil, renewable and nuclear sources, produced carbon dioxide in g/kWh. However, where the present law requires suppliers to disclose resulted radioactive waste (mg/kWh), the new draft of the new law addresses used radioactive fuel in mg/kWh. The industry recommendation advises to use the “best available data” and publishes yearly:

- Reference values for CO<sub>2</sub> figures per fossil fuel when fossil fuels are used
- Nordic residual CO<sub>2</sub> figure (from RE-DISS project)
- Amounts of nuclear waste produced per produced energy unit in different Nordic reactors
- Nordic residual radioactive waste figure (from RE-DISS project)

### 1.1.3 Suppliers Fuel-Mix Calculations

The current legislation gives electricity vendors a lot of moving space in how and when they perform the fuel mix calculation. The industry recommendation gives more guidelines but still there are many possible ways to do it. In theory, power companies disclose the energy source distribution of their previous calendar years' electricity purchases from the wholesale market. In practice this is not possible because of a vast majority of electricity is purchased from an exchange or from Russia where the producers are not bound by similar regulation to disclose the production attribute information, and also because of rapid growth of guarantee of origin issuance and trade in the Nordic area. The industry recommendation tries to tackle these by:

- Giving guidance how to handle electricity without production attributes: use residual mix published along with the recommendation.
- How to disclose information on separate electricity products: deduct the production attributes used for disclosure from the general supplier mix.

The coming into force of the new law amendment will make supplier fuel-mix calculations significantly clearer. Renewable attributes can only be disclosed to consumers by cancelling guarantees of origin or by using the residual mix. However contract-based tracking of nuclear and fossil attributes is still allowed for supplier mix. The new law is in line with the second internal energy market directive 2009/72/EC article 3.

### 1.1.4 RE-GO and CHP-GO System

The guarantee of Origin system in Finland according to the directive 2001/77/EC is set forth by primary law “Laki sähköön alkuperän varmentamisesta ja ilmoittamisesta - Act on Verification and Notification of Origin of Electricity” (1129/2003) and in secondary legislation by the government decree “Valtioneuvoston asetus sähköön alkuperän varmentamisesta - Government Decree on Verification of Origin of Electricity” (1357/2003) and a change decree (97/2010) to enable cogeneration guarantees of origin. The original regulation entered into force 1st January 2004 and the updated decree 1st March 2010. The already discussed new law amendment, which is expected to come in to force in fall 2012, is fully in line with Directive 2009/28/EC article 15. Guarantees of origin can be issued in Finland for RES and efficient co-generation of power and heat.

In the new law amendment, the competent body for GOs is the transmission system operator, Fingrid ([www.fingrid.fi](http://www.fingrid.fi)) and the monitoring authority is the regulator – Energy Market Authority.

The system has been fully operational since 2004 and is based on EECS electronic certificates. The detailed rules and procedures for guarantee of origin can be found in the Finnish domain protocol. The current version of the domain protocol can be found at AIB web page ([http://www.aibnet.org/portal/page/portal/AIB\\_HOME/AIB\\_OPE/DP](http://www.aibnet.org/portal/page/portal/AIB_HOME/AIB_OPE/DP)). GOs from production devices that have received public support get an earmark according to EECS but they can be freely traded and used for disclosure purposes.

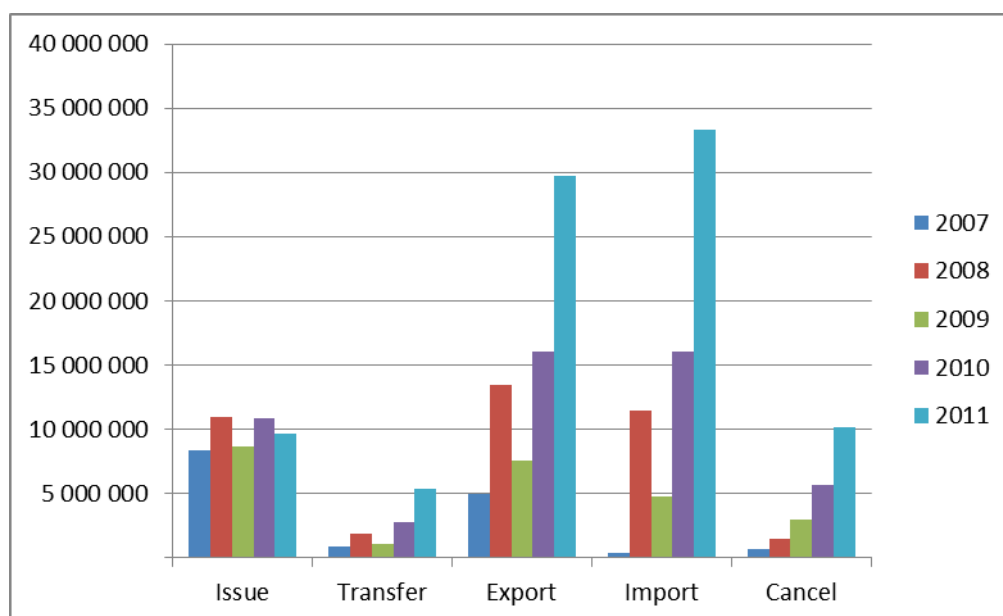
The central registry for Finnish guarantees of origin can be found at: <http://cmo.grexel.com/>. Finnish GOs are widely traded and used.

### 1.1.5 GO Statistics

**Table 1: GO statistics 2007-2011**

	Issue	Transfer	Export	Import	Cancel
<b>2007</b>	8 298 621	869 127	4 917 854	315 010	682 821
<b>2008</b>	10 928 537	1 813 069	13 448 873	11 427 659	1 421 081
<b>2009</b>	8 652 903	1 078 556	7 498 399	4 725 289	3 000 576
<b>2010</b>	10 876 863	2 772 021	16 082 485	16 072 143	5 612 628
<b>2011</b>	9 610 272	5 335 664	29 765 082	33 349 087	10 161 513

**Figure 1: GO statistics 2007-2011**



The figures show that more than 30% of the total RES generation is issued a guarantee of origin. The usage of GOs has also been growing, with the volume nearly doubling in 2011 (10.2 TWh) compared to 2010 (5.6 TWh). Finnish trading is mostly international (92 % of all transfers). Traditionally Finland has been a net exporter of GOs, but in 2011 imports exceeded exports by 3.6 TWh. Both imports and exports roughly doubled during 2011 compared to 2010.

## 1.2 Other RES-E Relevant Support Schemes

In the beginning of 2011, the law, which enables feed-in tariff for wind energy, biogas and wood energy, came into force (1396/2010) (<http://www.finlex.fi/fi/laki/alkup/2010/20101396>). The FIT guarantees a price of 83.50 €/MWh for electricity for 12 years. The windmills will get an elevated price of 105.30 €/ during the first 3 years of operation until the end of 2015. The feed-in tariff system functions like a premium system, in which producers sell the electricity on the market and receive a bonus for each MWh, which equals the difference between the target price and average price of electricity during the previous three months at the location of the generator. All production devices, which use the abovementioned energy sources and which were installed after the beginning of 2009, are eligible for the FIT system.

For plants using forest residuals the support is determined by the average price of CO<sub>2</sub> allowances in the Emission Trading System. If the average price of past three months in the three largest CO<sub>2</sub> allowance exchanges has been lower than 10€, the support is 18€/MWh. If the average price is above 10€, the support decreases linearly towards zero (zero is reached at the average price of 23€). Small CHP plants (capacity between 100 kW and 8 MW) using 100 % forest residuals as fuel source are eligible for the feed-in tariff instead of the forest residual support scheme.

For new technologies (e.g. wood gasifiers) an investment support scheme exists, in which the support decision is taken individually for each plant. A plant can be eligible for both the forest residual support scheme and investment support scheme, but not both for the feed-in tariff and another support scheme.

No relation exists between renewable energy support and electricity disclosure. FIT is the financial support and GO is the proof of ownership of generation attributes. The legislation does not set any restrictions for issuing and cancelling guarantees of origin from supported electricity generation.

### 1.3 Other RES Scheme

## 2 Proposals for Improvement of the Tracking System

### 2.1 Proposals regarding general regulation on tracking systems

### 2.2 Proposals regarding Disclosure

The coming into force of the new law amendment will set the tracking scheme of Finland mostly in line with RE-DISS Best Practices. However it allows for contract-based tracking of nuclear and fossil attributes for influencing the general supplier mix (but all electricity products must be based on GOs). Although this doesn't cause double counting of RES, the recommendation of RE-DISS is to consider all electricity, for which a guarantee of origin is not cancelled, as unknown and disclose it with the residual mix. Since no official data is currently collected for contract-based tracking, it is not considered in the residual mix calculation.

1. *If contract based tracking is allowed in a country, it should be regulated clearly (BPR [29]).*
2. *Such regulations should ensure that (BPR [30])*
  - *The rules of the tracking system are transparent and comprehensive and are clearly understood by all participants in the system.*
  - *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.*
  - *The relevant information for disclosure purposes should be available in time to meet the timing requirements set out in chapter 7.*

It is not completely clear whether the new legislation requires suppliers to disclose product-related mixes. If not, suppliers could use their total mix for default disclosure, which leads to double counting within the suppliers' portfolio. Energy Market Authority of Finland should make sure that suppliers disclose product related mixes when fulfilling the legislation.

3. *Suppliers offering two or more products which are differentiated regarding the origin of the energy should be required to give product-related disclosure information to all their customers, including those which are buying the default "residual" product of the supplier (BPR [39]).*

Claims of additionality and low-carbon content of electricity should be regulated. Furthermore, especially in the Nordic market, the competent body should develop and publish harmonized rules for suppliers that sell electricity in several countries.

4. *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 [40]).*
5. *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 [41]).*

6. *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 (BPR [42]).*

In the first version of the amendment, it was stated that disclosure of electricity from outside the EEA should be based on the announcement of the vendor. It was unclear whether this also applied renewable electricity, but in any case this should not be allowed. Instead, this electricity should be considered as unknown and disclosed with the residual mix, unless a GO is cancelled.

## 2.3 Proposals regarding GO

### 2.3.1 Proposals regarding the RE-GO System

The new law amendment will set the legislation of Finland fully compliant with Article 15 of Directive 2009/28/EC. One further recommendation of RE-DISS is to enable issuance of GOs for all energy sources, and not just for renewables. This way, also domestic nuclear and fossil GOs would be available for suppliers to affect their fuel mix, and it would be very straightforward that all electricity for which a GO is not cancelled is unknown and should be disclosed with the residual mix.

7. *The GO system should be extended beyond RES & cogeneration to all types of electricity generation (BPR [11]).*

The new law amendment sets no possible extension for GO lifetime in case of errors in issuing.

8. *“An extension to this lifetime can be granted if a GO could not be issued for more than [six] months after the end of the production period for reasons which were not fully under the control of the plant operator. In this case, the lifetime of the GO might be extended to [six] months after issuing of the GO.” (BPR [4]).*

### 2.3.2 Proposals regarding the CHP-GO System

CHP-GO system is not yet implemented in practice in Finland.

## 2.4 Matrix of disclosure related problems and country-specific proposals

Problem	Country-specific proposal
Possible double counting in different explicit tracking instruments	1,2,7
Double counting of attributes in explicit and implicit tracking mechanisms	1,2,7
Double counting within individual supplier's portfolio	3,6
Loss of disclosure information	-
Intransparency for consumers	4,5
Leakage of attributes and/or arbitrage	8
Unintended market barriers	-