

## Report of the project

# Deriving Optimal Promotion Strategies for Increasing the Share of RES-E in a Dynamic European Electricity Market

## *Green-X*



# Review of existing electricity quality label systems in the European Union

Report within Work Package 3

within the 5<sup>th</sup> framework programme of the European Commission  
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## 1 EXECUTIVE SUMMARY

Green electricity quality labels have been utilised in the European Union since 1990. Of the seventeen European countries analysed here<sup>1</sup>, at the time of writing nine had no country-specific quality label, although all electricity tariffs within Europe were able to apply for accreditation under the EUGENE labelling scheme. Germany had several quality labels, each with slightly different criteria.

All of the eighteen labels identified in the report applied to electricity from renewable sources. Of these, seven also allowed co-generation to be a part of the fuel mix and one had a requirement for eligible companies to fulfil some demand side management activities. No existing labelling scheme set an overall requirement for CO<sub>2</sub> emissions, although some did set emissions limits for co-generation components.

Seven labels required some contribution from new renewable energy plant<sup>2</sup>. Only three of the labels did not allow publicly funded plant to contribute to a labelled green tariff.

A review of labels clearly indicates that:

- there are several schemes with varying levels of "greenness", operating in some countries, which may be confusing for customers;
- very few labels are clearly requiring some additionality for the products.

It is therefore recommended that the European Union and member states continue to use other support mechanisms to increase the generation of electricity from renewable sources.

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<sup>1</sup> The EU15, plus Switzerland and Norway.

<sup>2</sup> The most stringent requirement being for 33% of supply from new plant for the OK Power label.

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## 2 INTRODUCTION

GREEN-X is a project part funded by the European Commission, involving nine European partners. The full project title is "*Deriving optimal promotion strategies for increasing the share of RES-E in a dynamic European electricity market*". The project was launched in October 2002 and runs for 2 years.

The core objective of the project is to facilitate a significant increase in the generation of electricity from renewable energy sources (RES-E) in a liberalised electricity market with minimal costs to European citizens. To identify the most important strategies to deliver electricity from renewable energy sources at minimal cost, a dynamic toolbox, *GREEN-X*, will be developed. Related objectives are:

- to find a set of efficient and sustainable dynamic instruments integrating strategies for RES-E, electricity generated from combined heat and power (CHP) plant, demand side management (DSM) activities and greenhouse gas (GHG) reduction;
- to address/include major stakeholders and decision makers in the development process of the toolbox GREEN-X;
- to disseminate the toolbox and the results to key stakeholders and policymakers.

This report has been produced under the requirements of the Green-X project work package 3, subtask 2: *A review of existing label systems in Europe*. Within this report is a review of quality labels, disclosure labels, certificates as labels, and a discussion of the interactions between labelling approaches and support mechanisms. Recommendations are then made as to the use of labels as a policy tool to increase RES-E generation at minimal cost.

### 3 BACKGROUND

#### 3.1 Definition of green electricity

There is a wide range of 'environmentally friendly' technologies that can be used to generate electricity. However, there is no widely accepted single definition as to which of these technologies should be classed as 'green' or indeed 'renewable'.

Renewable energy can be defined as:

*'energy obtained from the continuous or repetitive currents of energy recurring in the natural environment' (Boyle<sup>3</sup>).*

Sources such as wind and solar are clearly renewable, but others such as peat may not always be considered to be renewable if the resource is used at a faster rate than it is replenished.

While the definition of 'renewable' can be formulated objectively, the definition of 'green' generally involves a qualitative assessment of whether an energy source has a 'low environmental impact'. A source which is renewable may not always be green. For example, hydro systems make use of natural energy flows, but they often involve significant environmental impacts. Conversely, some sources may be considered to be 'green' even though they are not renewable, such as the efficient use of fossil fuel in a Combined Heat and Power (CHP) plant. Some companies advertise nuclear and gas fired electricity as being green, but the criteria set by independent green electricity labels would not allow tariff incorporating electricity generated by these technologies to be accredited.

Given the differences in the development of energy resources and public perception in EU countries it is unsurprising that different definitions have been used for both 'green' and 'renewable' energy. At the time of writing, the common position adopted by the European Council is that<sup>4</sup>:

- (a) *"renewable energy sources" shall mean renewable non-fossil energy sources (wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases);*
- (b) *"biomass" shall mean the biodegradable fraction of products, waste and residues from agriculture (including vegetal and animal substances), forestry and related industries, as well as the biodegradable fraction of industrial and municipal waste;*
- (c) *"electricity produced from renewable energy sources" shall mean electricity produced by plants using only renewable energy sources, as well as the proportion of electricity produced from renewable energy sources in hybrid plants also using conventional energy sources and including renewable electricity used for filling storage systems, and excluding electricity produced as a result of storage systems.*

It is possible that this definition, or one close to it, will prevail as an EU-wide consensus.

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<sup>3</sup> Boyle, G (1996). *Renewable Energy: Power for a sustainable Future*. Oxford University Press.

<sup>4</sup> European Council, Common position adopted by the Council on 23 March 2001 with a view to the adoption of Directive of the European Parliament and of the Council on the promotion of electricity produced from renewable energy sources in the internal electricity market, Interinstitutional File: 2000/0116 (COD), Brussels, 2001.



It has been argued that medium and large scale hydroelectric plant (eg above 10MW) should be excluded from any support scheme for renewables, as existing plant are already economic, and the small number of new plant that are expected to be built are likely to be cost effective without additional financial support. Additionally, the environmental impacts from flooding any new large-scale reservoirs are likely to be severe. However, the current position within the European Commission is that all hydropower is included in the definition of renewable energy, with the clarification that support schemes should focus public support on renewable sources and technologies which are not yet competitive. This implies that hydroelectric plant above 10 MW should also be excluded from voluntary support schemes, i.e. green tariffs.

## **3.2 Green electricity tariffs**

As a result of liberalisation of the electricity markets, many consumers are now able to choose their electricity supplier. Some electricity suppliers have seen green tariffs as a tool to attract new customers in these liberalised markets, and differentiate products from those of their competitors. Electricity consumers in the majority of EU countries now have the option of purchasing green electricity. Many electricity suppliers are offering a green option and well over 2 million<sup>5</sup> consumers in Europe have switched to a green electricity tariff. In order to provide consumers with assurances concerning the value of these tariffs, several organisations have established award labels, which are granted to those tariffs which meet certain environmental criteria.

This report analyses the available green electricity labels, which differentiate green electricity tariffs as a result of their renewable energy content, CHP (or co-generation) content, demand side management criteria (DSM) and associated CO<sub>2</sub> emissions. Many green tariff options exist in the European electricity market. Generally, these tariffs are priced at levels which are higher than those for conventional electricity but this is not always the case. These tariffs can be characterised by the following features.

### **3.2.1 Consumption based or contribution based tariff**

Where the product matches the energy which has been supplied to customers with energy generated from green electricity sources, the tariff is called a consumption tariff. For every one kWh used by a green tariff customer, one kWh of green electricity is supplied onto the electricity grid. Other green electricity tariffs charge a premium on their standard electricity tariff, and allocate these extra funds for investment in green energy projects. Tariffs of this type are called contribution tariffs.

### **3.2.2 Environmental characteristics**

Most tariffs specify the environmental characteristics of the product. This may involve a list of renewable energy sources or CHP used to generate electricity, or may specify the CO<sub>2</sub> saving over the standard tariff. Suppliers often take different approaches to the definition of green or renewable electricity.

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<sup>5</sup> In October 2003 Green Prices (see web site [www.greenprices.com](http://www.greenprices.com)) estimated the total number of green tariff customers in the Netherlands alone to be about 2.2 million.

### **3.2.3 Energy balancing period**

Where the product is a consumption based tariff, the amount of energy used by the customer is matched by green electricity supply. This is not usually matched in real time, and for many tariffs the energy is balanced over a year.

### **3.2.4 Additionality**

Many consumers expect their decision to switch to green electricity to have a positive effect on the environment. In effect, they are paying a premium for green electricity which acts as a voluntary support mechanism for renewable energy. If their green supply comes from existing plant, then the effect of the green customer is simply to make supply to all other customers somewhat 'brownier'. Therefore many consider it important that new plant is introduced as a result of the green tariff.

Most consumers would not be happy to pay a premium for electricity generated from projects which have received public funding in the past, since they have effectively funded such projects through their taxes. Additionality will be ensured for consumption based tariffs if the electricity generated is over and above that required to meet existing legal obligations or that which benefits from a state-funded initiative. For contribution based tariffs additionality will result if the electricity generated from the new plant built does not contribute to the existing commitments nor benefit from a state-funded initiative.

### **3.2.5 Inclusion of other supply services**

A green electricity product may include extra services such as energy efficiency advice, a newsletter, loyalty bonuses or donation to affiliated environmental charities.

## **3.3 Green electricity labels**

Green electricity labels provide consumers with a guarantee of quality for green tariff products, based on published criteria and auditing procedures. The criteria and procedures vary across the EU. The drivers for labels tend to determine the criteria. For example, some of the labels in Germany are driven by NGO (non-governmental organisation) concerns that green tariffs ensure additionality, whereas TÜV quality labels are driven by energy utilities and have less strict requirements regarding the amount of energy from new plant for labelled products.

## 4 LABELLING SCHEMES

### 4.1 Quality labels

The existing quality labels in the EU, Norway and Switzerland are described in detail in section 5.

### 4.2 Disclosure labels

#### 4.2.1 *What is disclosure labelling?*

Electricity disclosure is the process of providing objective, standardised information about electricity supply to electricity consumers in order to provide market transparency. In liberalised electricity markets, as exists in several European countries, although consumers have a choice to support the type of resources that are used to generate electricity, they are not necessarily given adequate information on which to base their decisions.

Electricity disclosure is based on the premise that in order for open markets to operate effectively, consumers need adequate information about the product they are buying. For instance, if consumers are made aware of the environmental implications of their electricity consumption, through an electricity label, they could be encouraged to choose a cleaner option or to use electricity more efficiently<sup>6</sup>. In the same way as food items are labelled for ingredients and nutritional content, so too can electricity be labelled to show the supply mix and its corresponding attributes. These can include environmental indicators, price, origin, etc.

#### 4.2.2 *Latest legislative requirements from the EU*

In the course of revising the Directive for the internal electricity market, the European Commission emphasised the importance of facilitating effective choice among electricity products and suppliers by increasing market transparency. Therefore the Commission incorporated electricity disclosure into the draft Directive, which was published in March 2001.<sup>7</sup> Subsequently there was much debate between the European Commission (EC), European Parliament and the European Council, and frequent amendments to the text of the Directive. A common position was finally reached, and in June 2003 electricity disclosure was formally adopted as EU legislation under Directive 03/54/EC<sup>8</sup>. The Directive requires that all Member States adopt the necessary legislation by July 2004 to enforce disclosure. Article 4 of the Directive reads:

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

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<sup>6</sup> Lipp. J., Green J. (2003). "Electricity Disclosure in Great Britain". A report prepared for Ofgem, IT Power, UK.

<sup>7</sup> European Commission (2001), "Proposal for a Directive of the European Parliament and of the Council amending Directives 96/92/EC and 98/30/EC concerning common rules for the internal market in electricity and natural gas". COM (2001) 125 final.

<sup>8</sup> European Commission (2003), "Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC".

(a) the contribution of each energy source to the overall fuel mix of the supplier over the preceding year;

(b) at least the reference to existing reference sources, such as web-pages, where information on the environmental impact, in terms of at least emissions of CO<sub>2</sub> and the radioactive waste resulting from the electricity produced by the overall fuel mix of the supplier over the preceding year is publicly available.

With respect to electricity obtained via an electricity exchange or imported from an undertaking situated outside the Community, aggregate figures provided by the exchange or the undertaking in question over the preceding year may be used.

Member States shall take the necessary measures to ensure that the information provided by suppliers to their customers pursuant to this Article is reliable.

Beyond some basic minimum guidelines given by the EC, implementation will be left to individual Member States to define.

#### 4.2.3 Existing disclosure labels

Several countries, as well as nearly half of the States in the USA, have already implemented electricity disclosure systems. Electricity disclosure started in the State of California. Called the Power Content Label (Figure 4.2.1), it was the first mandatory label in the world and has been used since 1998. Today 22 States in the USA (all those that have liberalised their electricity markets plus three that are not liberalised) have similar legislation, although each State may have its own label design and information requirements. There is no standard disclosure system in the USA as each State has jurisdiction over its electricity industry.

Figure 4.2.1: California's electricity disclosure label

POWER CONTENT LABEL		
ENERGY RESOURCES	PRODUCT NAME <sup>*</sup> (projected)	2000 CA POWER MIX <sup>**</sup> (for comparison)
Eligible Renewable	56%	12%
- Biomass & waste	-	2%
- Geothermal	-	5%
- Small hydroelectric	-	3%
- Solar	-	<1%
- Wind	-	2%
Coal	8%	16%
Large Hydroelectric	9%	19%
Natural Gas	18%	35%
Nuclear	9%	17%
Other	<1%	1%
TOTAL	100%	100%

<sup>\*</sup> 50% of (Product Name) is specifically purchased from individual suppliers.


<sup>\*\*</sup> Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the previous year.

For specific information about this electricity product, contact (Company Name). For general information about the Power Content Label, contact the California Energy Commission at 1-800-555-7134 or www.energy.ca.gov/oc/energy/energy.htm

A few other individual countries have also implemented Disclosure. In October 2001, Austria became the first European country to implement a disclosure system (see the Austrian label in Figure 4.2.2). Other EU Member States such as the Netherlands and Belgium are preparing to implement disclosure rules which will be adapted to fulfill the EU requirements. Elsewhere, the government of New South Wales, Australia was reviewing a possible law on

disclosure but at this stage has decided not to proceed. And in Canada's Ontario province, electricity retailers must meet the Ministry of Energy's environmental labelling regulation in order to be licensed by the Ontario Energy Board. More information on these experiences and developments is available through the 4CE website ([www.electricitylabels.com](http://www.electricitylabels.com)).

**Figure 4.2.2: An Austrian label**

Berechnungsnachweis zur  
 Stromrechnung Nr.: 8848458
 
 Seite 2  
 Kundennummer: 21  
 Datum: 26.11.2001

Stromkennzeichnung	
Ihr Strom wurde erzeugt aus	Energieträger
0,4 %	Ökoenergie
61,2 %	Wasserkraft
—	Gas
—	Erdölprodukte
—	Kohle
—	Atomenergie
—	Sonstige
88,4 % *)	Europ. Gesamtzeugungsmix nach UCTE, davon:
	14,1 % Wasserkraft
	34,6 % Atomenergie
	51,3 % Konventionelle Wärmekraft
Gesamt 100 %	

\*) Wenn die 4CE keine Möglichkeit hat, die Quelle zu ermitteln, wird die Energie als "Sonstige" bezeichnet. Die 4CE verwendet das aktuelle europäische Gesamtzeugungsmix nach UCTE. Um die für die Kunden und die Energieerzeuger relevanten Energieerzeugnisse zu identifizieren.

#### 4.2.4 Customer preference for label information

A three-part investigation<sup>9</sup> conducted into the attitudes and knowledge of electricity consumers across Europe shows that consumers are generally very much in favour of electricity disclosure. The investigation, carried out under Phase II of the 4C Electricity project ([www.electricitylabels.com](http://www.electricitylabels.com)), included domestic consumers, small and medium enterprises (SMEs) and representatives of large electricity consumers. This section summarises the results of this study, exploring information needs and attitudes towards electricity disclosure amongst consumers in Europe. The results are based on:

- Twenty focus groups held during September to December 2002 in Austria, Hungary, Germany, Sweden and the United Kingdom. Fourteen of the focus groups were held with domestic consumers and six with representatives of small and medium sized enterprises (SMEs).
- A telephone survey conducted in January and February 2003 that covered 1,000 small and medium sized enterprises (SMEs) and 2,000 domestic consumers in Austria, France, Germany, Greece, Hungary, Italy, Poland, Spain, Sweden and the United Kingdom.
- Key informant interviews held between October 2002 and March 2003 with representatives of 26 large electricity users in Austria, Germany, Hungary, Sweden and the United Kingdom.
- A literature review of studies on electricity markets and consumer behaviour in some of the European countries where electricity markets have been liberalised.

<sup>9</sup> Arvidson, A. (2003), "Consumer Attitudes to Electricity Disclosure in Europe", Stockholm Environment Institute, Sweden.

Electricity consumers in Europe are generally interested in considering information other than price when making decisions about electricity supply. Overall the reaction to a label was positive amongst both domestic customers and SMEs in all countries. A label showing environmental impacts in addition to fuel mix was favoured.

With respect to the fuel mix, domestic and SME consumers gave high priority to a listing of renewable energy sources, specification of the percentages of different fuel sources used, share and origin of imported electricity, and comparison of the fuel mix with the national or EU average.

- Respondents want to be informed about the origin and proportion of any imported electricity.
- The majority of respondents indicated that they would find comparative information on their fuel mix useful, but there was no strong opinion as to whether this should be company portfolio, country average or European average.
- The majority of households and SMEs would prefer to buy electricity generated from renewable sources rather than from coal, gas or nuclear.
- With respect to information concerning environmental impacts, participants felt that carbon dioxide emissions and radioactive waste were among the most important categories.
- The majority of respondents would like to receive information on the environmental impacts of their electricity with their bill and would like to be able to compare the range of different electricity products on the market through an independent catalogue.
- The effectiveness of including environmental impact information about electricity on a website is limited. Information is unlikely to reach more than half the population, either because they do not have access to the Internet, or would be unlikely to visit such a web site.
- Almost 50% of households and SMEs state that they would be willing to pay up to 5% more on their electricity bill for electricity associated with a low impact on climate change and no nuclear waste. Less than 30% of respondents were unwilling to pay any extra at all.

Some consumers who had not switched electricity supplier felt that there were market barriers, such as the inaccessibility of information and the heterogeneous nature of information from suppliers that made it difficult to make comparisons. Those who did switch electricity suppliers or contracts, or otherwise took an active role, did so mainly to reduce their electricity costs, although some were also motivated by the desire to obtain improved services, such as accurate and timely bills or to purchase electricity generated from renewables. Most participants thought that accessible and comparable information would help them to become more active consumers while also educating society on the relation between electricity and the environment.

Consumers thought the information should be presented in a simple and standardised manner to facilitate comparisons, and there was a preference for graphical information wherever feasible and appropriate. Most participants were accustomed to the use of labels for environmental or other characteristics and felt somewhat overwhelmed by having to consider so many different characteristics. Some were unsure about the reliability of labels on the market today and pointed out the importance of independent verification and avoiding perceptions of any political motivations. SME representatives felt that the labels could provide a cost-effective and timesaving way of making purchase decisions aimed at improving their company's environmental performance.

- Large electricity users rely overwhelmingly on price in their purchase decisions and tend to buy a relatively small amount of electricity from abroad. Where markets are liberalised, companies generally have procurement procedures based on competitive bidding. In most cases, a purchase unit of the company manages the whole procurement procedure. In many countries and sectors, a niche market for electricity procurement advising and co-ordination services has developed.

Most of the interviewees representing large electricity users were positive regarding a standardised information system that would simplify the electricity procurement process and give the purchaser a standardised formula for comparing different electricity products offered by suppliers.

### 4.3 Certificates as labels

With the introduction of tradable renewable energy certificates in a number of countries, these certificates are increasingly fulfilling the role that quality labels had previously. The credibility of such an approach is based on redemption of certificates for green products and independent auditing of such redemption.

RECS International<sup>10</sup> is producing a Code of Conduct for all of its members, which outlines the RECS approach to quality assurance for RECS based green power products. The Code of Conduct requires that a supplier opens a redemption account for each green product they supply. Suppliers must guarantee that the green product sales are covered by redemption of the same volume of RECS certificates.

The Code of Conduct specifies that, during the contract period with any customer for a RECS-based green product, the supplier shall transfer to the redemption account for the green product in question a volume of certificates (with a composition as defined in the green product) corresponding to the actual volumes delivered of the green product. An accredited third party shall audit the Supplier's redemption of RECS certificates related to each green product. Any discrepancies between the number and the composition of certificates, and the actual volume and composition of the green product delivered shall be reported to the relevant customer<sup>11</sup>.

### 4.4 Guarantees of origin as labels

European Union legislation on electricity from renewable sources<sup>12</sup> requires all Member States to put in place, by 27<sup>th</sup> October 2003, a system to guarantee the origin of electricity from renewable sources. The issuing of a guarantee of origin, on request, which specifies the energy source, date and place of production, and (for hydro) the capacity, has the purpose of enabling producers of RES-E to demonstrate that the electricity they sell is from

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<sup>10</sup> RECS International advocates a standard certificate as evidence of the production of renewable energy and provides a methodology for trading or otherwise using it separate to the associated physical energy. This enables a market for renewable energy to be created, so prompting the development of new renewable energy capacity in Europe. RECS (Renewable Energy Certificate System) has produced a set of system rules which can be applied to individual systems in order to harmonise and thereby facilitate trade between systems. More information can be found at [www.recs.org](http://www.recs.org)

<sup>11</sup> Secretariat RECS International (2003). Code of Conduct (version 3).

<sup>12</sup> Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market.

renewable sources. Implementation of the Directive is devolved to Member States. In theory, the information contained within a guarantee of origin could be used as a label for green power products. In practice, it is too early at this time to evaluate the robustness of the various guarantee of origin systems being implemented by Member States in order to determine their effectiveness in tracking and verifying green power supply.

#### **4.5 Summary**

Disclosure labels will gradually be introduced within Europe to meet the requirements of Directive 2003/54/EC, and research on disclosure has shown a general preference for power from renewable sources. Disclosure labels for fuel mix should not be seen as a replacement for quality labels, however. Guarantees of origin may prove to be a useful tool for verifying green supply, but at present the variety of proposals and late implementation of schemes makes it impossible to determine their usefulness as a tracking tool. Certificates have been used for some time and have proved to be a reliable tracking and verification tool. The RECS Code of Conduct outlines procedures for redemption of certificates which are utilised to provide a green power product. If adhered to, this Code of Conduct would provide greater customer assurance of the credentials of a green supplier or product, which may be similar to the assurance given by a quality label.



## 5 EXISTING ELECTRICITY LABELS AVAILABLE IN THE EU, NORWAY AND SWITZERLAND

This Chapter documents the current European quality labels for green electricity, covering electricity from renewables, CHP, demand side management and CO<sub>2</sub><sup>13</sup>. As well as the labels mentioned in this Chapter, suppliers throughout Europe can apply for the EUGENE label, as described in section 5.18.

### 5.1 Austria

#### 5.1.1 Issuing body: *Lebensministerium*

##### Label name: Umweltzeichen

Figure 5.1.1: Umweltzeichen label



The Umweltzeichen ('environment sign') was introduced in 1990 by the Austrian Environment Ministry (Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, BMLFUW, or 'Lebensministerium' in short). The label was set up to motivate manufacturers and suppliers to develop and sell products that were less demanding on the environment. Through the introduction of such labelling, the market would push towards more environmental friendly products and services.

The label is awarded to the tourism industry, schools and products in a number of categories: building and interior; office and printing; household; garden; and renewable energy.

Products with the Umweltzeichen have to comply with a number of environmental criteria, including raw materials, energy use, emissions, waste and toxicity of the materials. Products are also screened on their usefulness and quality before being awarded the Umweltzeichen. These criteria are applied to the product itself, packaging, manufacture and delivery. Independent verification of the product's or service's compliance with these criteria is required.

At the time of writing, the Umweltzeichen is only given to one brand of green electricity: oekostrom.

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<sup>13</sup> This section updates the 2001 ELGREEN labelling report: Green J., Plastow J., (2001), "Options for labelling green electricity in Europe", Report of the project EIGreen co-financed under the 5<sup>th</sup> Framework programme of the European Commission, IT Power, UK.

**Table 5.1.1: Umweltzeichen criteria for renewable energy<sup>14</sup>**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope	Green power supplied by an electricity supplier.						
Renewable Energy Sources	At least 1% from photovoltaics. At least 20% from one other renewable energy source: wind, hydro (up to 10MWe), solid biomass, liquid biomass, biogas, or geothermal energy. Primary biomass, and biomass waste streams are allowed. The remaining 79% can be from any mix of renewable energy sources.						
New plant	No requirements.						
Imports	No.						
Co-generation (CHP)	No.						
Contribution / Consumption	Consumption.						
Publicly funded plant	No requirements.						
CO <sub>2</sub> reduction	The CO <sub>2</sub> reduction achieved needs to be reported in the annual summary bill.						
Energy balancing period	Annual.						
Company Assessment	Green power needs to be at least 30% of the supplier's portfolio. Also, the company is obliged to stimulate DSM among its customers.						
Further information	Web <a href="http://www.umweltzeichen.at/pdf/uz46r.pdf">http://www.umweltzeichen.at/pdf/uz46r.pdf</a>						

## 5.2 Belgium

No quality labels for renewable energy were found in Belgium.

## 5.3 Denmark

The 'Bra Miljøval' label, described in greater detail in the Sweden section, is also used in Denmark.

<sup>14</sup> Umweltzeichen-Richtlinie: UZ 46 – Grüner Strom, see <http://www.umweltzeichen.at/pdf/uz46r.pdf>.

## 5.4 Finland

### 5.4.1 Issuing body: Finnish Association for Nature Conservation (FANC)

**Label name: Norppa recommends eco-energy (Norppa suosittelee ekoenergiaa)**

Figure 5.4.1: Ekoenergiaa label



The Ekoenergiaa label was introduced in 1998 by the Finnish Association for Nature Conservation (FANC, a nature conservation NGO). The label was set up to stimulate investments in renewable energy other than new hydroelectric plants, and to improve public awareness of the environmental impacts associated with electricity generation. There was close co-operation with the Norwegian and Swedish labels during the set up period. An eco-energy label means that the supplier can provide energy and services satisfying the Finnish Association for Nature Conservation's (FANC) recommendations. It therefore can be awarded to renewable electricity products/suppliers, renewable heat products/suppliers and demand side management energy services.

At the time of writing, 21 companies were listed as offering Ekoenergiaa-labelled products, the vast majority being electricity products, as well as three heat products and one services product. In 2001 the annual production of Ekoenergiaa certified electricity was around 1.2 TWh, of which about 100 GWh was sold as "Norppa recommends eco-energy" and the rest sold as normal electricity, to around 5,500 customers. Table 5.4.1 outlines the label criteria.

In October 2003, the Swedish and Finnish issuing bodies tightened their co-operation on ecolabelling of electricity by introducing mutual recognition of the criteria of ecolabelled electricity. They are now working towards having the ecolabelled electricity approved and quoted on the Nord Pool electricity exchange.

**Table 5.4.1: Ekoenergiaa criteria**

RES-E	✓	CHP	✓	DSM	✓	CO <sub>2</sub>	✗
Scope	Electricity tariffs and contracts, electricity suppliers, heat tariffs and contracts, heat suppliers, energy service products and electricity system service products.						
Renewable Energy Sources	Photovoltaics, wind, hydro (only facilities that were built before 1996 and have an action plan in place to improve its environmental impact), biomass (energy used in handling the biofuels must not exceed 10% of biomass energy content) including co-generation (CHP), co-firing (only biomass proportion eligible for label), biogas from biomass, and biogas from sewage works and waste treatment (including landfill gas), solar thermal.  N.B. Finland currently has no wave, tidal or geothermal energy capacity, but these technologies are eligible.						
New plant	Utilities are expected to make further investment in renewables in the future.						
Imports	From Norway and Sweden, for electricity.						
Co-generation (CHP)	Yes. Heat and power output eligible if from renewable fuel.						
Contribution / Consumption	100% consumption only for electricity and heat.						
Publicly funded plant	No requirements.						
CO <sub>2</sub> reduction	Multi-fuel plants must make efforts to reduce CO <sub>2</sub> emissions.						
Energy balancing period	Annual.						
Company Assessment	Information on environmental policy is required, including environmental reports, information given to customers, and the explanation of the grounds for higher prices (if charged). The company must sign a national energy conservation agreement with the government.						
Further information	Web <a href="http://www.ekoenergia.info/english/">http://www.ekoenergia.info/english/</a>						

## 5.5 France

No quality labels for renewable energy were found in France.

## 5.6 Germany

Germany has one of the most well developed green electricity markets in Europe. Green tariffs have been offered since market liberalisation in 1998, and labelling activities are equally well advanced. There are four different labelling bodies in Germany involved in accrediting green electricity; TÜV, Grüner Strom, Energie Vision and LGA. Each body takes a

somewhat different approach, due to the views of the different stakeholders involved in the set up and the different aims of each label. Labels for generators, traders and consumers exist. The large number of labels indicates the level of debate in Germany over what constitutes genuine green electricity.

### 5.6.1 Issuing body: TÜV

The Technical Inspection Association TÜV is a worldwide organisation, responsible for certifying a large range of products to ensure standards relating to safety, quality and environmental impact. They were the first organisation to label green electricity in Germany, introducing 3 labels in 1998 (EE01, EE02 and VdTÜV1303), and a further 2 in 1999 (UE01 and UE02), following utility requests for certification. These labels are not restricted geographically, and the Austrian utility Verbund, for example, has TÜV certification.

Figure 5.6.1: TÜV logo



### Label name: Renewable Energy EE01

The following table summarises the criteria of the renewable energy EE01 label.

Table 5.6.1: Renewable Energy EE01 criteria

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope		Facilities, tariffs and suppliers.					
Renewable Energy Sources		Photovoltaics, wind, hydro (only run of the river and pumped storage using electricity from RES), biomass, biogas and geothermal.					
New plant		Minimum of 25% of production to come from new plant					
Imports		Yes.					
Co-generation		No.					
Contribution / Consumption		100% consumption only.					
Publicly funded plant		No requirements.					
CO <sub>2</sub> reduction		No requirements.					
Energy balancing period		Biannual.					
Company Assessment		The company's general policy must support renewables. Information must be provided to consumers periodically.					
Further information		Web <a href="http://www.tuev-">http://www.tuev-</a>					

	<a href="http://sued.de/industrieleistungen/umweltservice/gprtnkgolycf.asp">sued.de/industrieleistungen/umweltservice/gprtnkgolycf.asp</a>
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**Label name: Hydro Energy EE02**

The Hydro Energy EE02 label was set up alongside EE01, but, as the name suggests, it only includes electricity generated from hydro plants. As with EE01, these must be run of the river or pumped storage using electricity from RES. Another difference between EE01 and EE02 is that energy use must be balanced on an hourly basis for accreditation under Hydro Energy EE02. Also, there is no requirement for new plant to be built with EE02.

**Table 5.6.2: Renewable Energy EE02 criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope	Facilities, tariffs and suppliers.						
Renewable Energy Sources	Hydro (only run of the river and pumped storage using electricity from RES).						
New plant	No requirements.						
Imports	Yes.						
Co-generation	No.						
Contribution / Consumption	100% consumption only.						
Publicly funded plant	No requirements.						
CO <sub>2</sub> reduction	No requirements.						
Energy balancing period	Hourly.						
Company Assessment	The company's general policy must support renewables. Information must be provided to consumers periodically.						
Further information	Web <a href="http://www.tuev-sued.de/industrieleistungen/umweltservice/gprtnkgolycf.asp">http://www.tuev-sued.de/industrieleistungen/umweltservice/gprtnkgolycf.asp</a>						

**Label name: Renewable Energy VdTÜV1303**

The Renewable Energy VdTÜV1303 label is very similar to the EE01 label. In addition to requiring a minimum of 25% of production coming from new plant, feed-in tariff facilities are eligible for contributing to that 25%. Also, a "significant" share of profits must be reinvested in new plants.

**Table 5.6.3: Renewable Energy VdTÜV1303 criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope		Facilities, tariffs and suppliers.					
Renewable Energy Sources		Photovoltaics, wind, hydro (only run of the river and pumped storage using electricity from RES), biomass, biogas and geothermal.					
New plant		Minimum of 25% of production to come from new or feed-in tariff facilities. A "significant" share of profits must be reinvested in new plants.					
Imports		Yes.					
Co-generation		No.					
Contribution / Consumption		100% consumption only.					
Publicly funded plant		No requirements.					
CO <sub>2</sub> reduction		No requirements.					
Energy balancing period		Biannual.					
Company Assessment		The company's general policy must support renewables. Information must be provided to consumers periodically.					
Further information		Web <a href="http://www.tuev-sued.de/industrieleistungen/umweltservice/gprtnkgolycf.asp">http://www.tuev-sued.de/industrieleistungen/umweltservice/gprtnkgolycf.asp</a>					

**Label name: Environmentally Friendly Energy UE01**

The Environmentally Friendly Energy UE01 label differs from EE01 in that only 50% of energy needs to be from eligible renewables. The other 50% can be supplied from co-generation, provided that the co-generation plant achieves at least 70% efficiency. This gives utilities the option of developing cheaper green tariffs for customers who would like a greener supply, but are not prepared to pay a large premium. With this label, supply must match demand on an hourly basis. A minimum of 25% of production has to come from new facilities.



**Table 5.6.4: Environmentally Friendly Energy UE01 criteria**

RES-E	✓	CHP	✓	DSM	✗	CO <sub>2</sub>	✗
Scope	Facilities, tariffs and suppliers.						
Renewable Energy Sources	Photovoltaics, wind, hydro (only run of the river and pumped storage using electricity from RES), biomass, biogas and geothermal.						
New plant	Minimum of 25% of production to come from new plant.						
Imports	Yes.						
Co-generation	Yes. Maximum 50% of supply, must have efficiency above 70%.						
Contribution / Consumption	100% consumption only.						
Publicly funded plant	No requirements.						
CO <sub>2</sub> reduction	No requirements.						
Energy balancing period	Hourly.						
Company Assessment	The company's general policy must support renewables. Information must be provided to consumers periodically.						
Further information	Web <a href="http://www.tuev-sued.de/industrielleistungen/umweltservice/gprtnkgolycf.asp">http://www.tuev-sued.de/industrielleistungen/umweltservice/gprtnkgolycf.asp</a>						

**Label name: Environmentally Friendly Energy UE02**

The Environmentally Friendly Energy UE02 label is similar to UE01 except that electricity is only balanced biannually and there is no requirement for new plant to be built. In addition, a minimum of 1% must come from PV.

**Table 5.6.5: Environmentally Friendly Energy UE02 criteria**

RES-E	✓	CHP	✓	DSM	✗	CO <sub>2</sub>	✗
Scope		Facilities, tariffs and suppliers.					
Renewable Energy Sources		Photovoltaics (minimum 1%), wind, hydro (only run of the river and pumped storage using electricity from RES), biomass, biogas and geothermal.					
New plant		No requirements.					
Imports		Yes.					
Co-generation		Yes. Maximum 50% of supply, must have efficiency above 70%.					
Contribution / Consumption		100% consumption only.					
Publicly funded plant		No requirements.					
CO <sub>2</sub> reduction		No requirements.					
Energy balancing period		Biannual.					
Company Assessment		The company's general policy must support renewables. Information must be provided to consumers periodically.					
Further information		Web <a href="http://www.tuev-sued.de/industrielleistungen/umweltservice/gprtnkgolycf.asp">http://www.tuev-sued.de/industrielleistungen/umweltservice/gprtnkgolycf.asp</a>					

### 5.6.2 Issuing body: *Grüner Strom Label e.V.*

Grüner Strom Label e.V. was launched in 1999 by a group of suppliers, generators, consumers and environmental NGOs<sup>15</sup>. The focus of this label is to ensure that the premium which customers pay results in additional renewable energy capacity. There are two levels to the label, gold and silver, as documented below. For both, PV must contribute 1% to supply, and a minimum 10% of annual production has to come from new facilities.

#### **Label name: Grüner Strom Gold**

The following table describes the criteria for the Gold Label.

<sup>15</sup> The following organisations were involved in establishing the label: Eurosolar, Naturschutzbund, Bund für Umwelt- und Naturschutz Deutschland, Deutscher Naturschutzring, Bund der Energieverbraucher, Naturwissenschaftler Initiative, 'Verantwortung für den Frieden', Internationale Ärzte für die Verhütung des , Atomkrieges Deutschland and Die Verbraucherinitiative.

**Figure 5.6.2: Grüner Strom gold label****Table 5.6.6: Grüner Strom Gold criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope		Facilities, tariffs, suppliers and customers.					
Renewable Energy Sources		Photovoltaics (minimum 1%, under 5MW), wind, hydro (under 5MW), biomass (under 20MW, criteria for ecological cultivation), biogas (excluding landfill gas) and geothermal.					
New plant		Minimum of 10% of production to come from new facilities.					
Imports		Yes.					
Co-generation		No.					
Contribution / Consumption		Consumption and contribution are both eligible. Consumption tariffs covering a portion of a customer's energy use are also eligible.					
Publicly funded plant		No. Plant funded under the Renewable Energy Law cannot be included.					
CO <sub>2</sub> reduction		No requirements.					
Energy balancing period		Annual.					
Company Assessment		The supplier must have a friendly attitude towards renewables. Also, the supplier must provide energy saving information to customers. The product cost and pricing is assessed for contributions based products.					
Other conditions		Residential customers must cover 100% of their demand, commercial customers at least 25%, if they wish to use the logo. At least 2 euro cent per kWh of green electricity sold must be invested into new renewable energy plant.					
Further information		Web <a href="http://www.gruenerstromlabel.de/">http://www.gruenerstromlabel.de/</a>					

### **Label name: Grüner Strom Silver**

The Silver Label is similar to the Gold Label, but requires that 1 - 2 cent/kWh of green electricity sold must be invested in renewable energy plant. If less than 1 cent is invested in renewable plant, then no label is awarded. Prior to 31<sup>st</sup> December 2000, Grüner Strom Silver Label allowed suppliers to provide 50% of energy from co-generation, providing it was better than 70% efficient. Suppliers who were previously awarded the Silver Label under these conditions can continue to use the logo.

**Figure 5.6.3: Grüner Strom silver label**



**Table 5.6.7: Grüner Strom Silver criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope	Facilities, tariffs, suppliers and customers.						
Renewable Energy Sources	Photovoltaics (minimum 1%, under 5MW), wind, hydro (under 5MW), biomass (under 20MW, criteria for ecological cultivation), biogas (excluding landfill gas) and geothermal.						
New plant	Minimum of 10% of production to come from new facilities.						
Imports	Yes.						
Co-generation	No.						
Contribution / Consumption	Consumption and contribution are both eligible. Consumption tariffs covering a portion of a customer's energy use are also eligible.						
Publicly funded plant	No. Plant funded under the Renewable Energy Law cannot be included.						
CO <sub>2</sub> reduction	No requirements.						
Energy balancing period	Annual.						
Company Assessment	The supplier must have a friendly attitude towards renewables. Also, the supplier must provide energy saving						

	information to customers. The product cost and pricing is assessed for contributions based products.
Other conditions	Residential customers must cover 100% of their demand, commercial customers at least 25%, if they wish to use the logo. At least 1 euro cent per kWh of green electricity sold must be invested into new renewable energy plant.
Further information	Web <a href="http://www.gruenerstromlabel.de/">http://www.gruenerstromlabel.de/</a>

### 5.6.3 Issuing body: *Energie Vision*

In 1999, Öko Institut developed two pilot labels (Regenerativ and Effectiv). Following on from that, a new Issuing body was formed in Germany, called Energie Vision, which launched the OK Power label. Energie Vision was established jointly by Öko Institut, WWF Germany and Verbraucher-Zentrale NRW in 2000 to issue the OK Power Label.

#### **Label name: OK Power**

**Figure 5.6.4: OK Power label**



The main focus of the label is to ensure that green electricity products lead to real environmental improvements. Therefore the supplier must build new renewable energy capacity that is additional to the minimum legal requirements under the Renewable Energy Law.

Since the developers were aware of the confusing array of existing labels in Germany, they chose to use just one label category, which can be applied to different types of green tariff. The differences are explained to consumers through product description rather than through a variety of different labels in the hope of improving the consumer recognition of the label.

**Table 5.6.8: OK Power criteria**

RES-E	✓	CHP	✓	DSM	✗	CO <sub>2</sub>	✗
Scope	Tariffs.						
Renewable Energy Sources	Photovoltaics, wind, hydro (only on adherence to ecological criteria and for new hydro, the criteria system established by EAWAG, Switzerland may be used), biomass (only chemically untreated wood and organic wastes and biofuels from certified ecological cultivation), biogas and geothermal.						
New plant	For consumption tariffs, one third of the energy must be from plants not older than 3 years. For contribution tariffs, the surcharge must be used to support new renewable energy plant.						
Imports	Yes.						
Co-generation	Yes, up to 50%. 66% CO <sub>2</sub> reduction compared to a new coal plant is required.						
Contribution / Consumption	100% RES consumption, 50%RES/50% CHP consumption, contribution based on RES, and contribution based on conventional sources are all eligible.						
Publicly funded plant	For consumption tariffs, the new installations must be developed outside of the Renewable Energy Law. For contribution tariffs, financial support must be given to RES generators outside of the Renewable Energy Law.						
CO <sub>2</sub> reduction	Requirement on co-generation portion (see above).						
Energy balancing period	Annual.						
Other	For contribution products, energy generation sources must be disclosed.						
Further information	Web <a href="http://www.ok-power.de/">http://www.ok-power.de/</a>						

#### 5.6.4 Issuing body: *Landesgewerbeanstalt Bayern (LGA)*

The LGA is an international testing and certification company that provides many services such as research in technical and engineering fields. They established a green electricity label in 2000 [LGA].



**Figure 5.2: Öko-Strom regenerativ and Öko-Strom effectiv logos****Label name: Öko-Strom Regenerativ**

The Regenerativ label is for electricity from renewable sources only. There is no requirement for new plant, except to meet any growth in demand, but publicly funded plant are not eligible for the label.

**Table 5.6.9: Öko-Strom regenerativ criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope	Facilities, tariffs and commercial customers						
Renewable Energy Sources	Photovoltaics, wind, hydro (pumped storage schemes are not admissible), biomass, biogas, landfill gas and geothermal.						
New plant	New facilities are required to meet increasing demand.						
Imports	No.						
Co-generation	No.						
Contribution / Consumption	Consumption.						
Publicly funded plant	No requirements.						
CO <sub>2</sub> reduction	No.						
Energy balancing period	Annual.						
Company Assessment	Environmental management system is assessed.						
Further information	Web <a href="http://www.lga.de/deutsch/u/oekostr.htm">http://www.lga.de/deutsch/u/oekostr.htm</a>						

**Label name: Öko-Strom Effectiv**

The Öko-Strom Effectiv label is similar to the Öko-Strom Regenerativ label, but allows 75% of supply to come from co-generation.

**Table 5.6.10: Öko-Strom effectiv criteria**

RES-E	✓	CHP	✓	DSM	✗	CO <sub>2</sub>	✗
Scope	Facilities, tariffs and commercial customers						
Renewable Energy Sources	Photovoltaics, wind, hydro (pumped storage schemes are not admissible), biomass, biogas, landfill gas and geothermal.						
New plant	New facilities are required to meet increasing demand.						
Imports	No.						
Co-generation	Yes, up to a maximum 75%.						

Contribution / Consumption	Consumption.
Publicly funded plant	No requirements.
CO <sub>2</sub> reduction	No.
Energy balancing period	Annual.
Company Assessment	Environmental management system is assessed.
Further information	Web <a href="http://www.lga.de/deutsch/u/oekostr.htm">http://www.lga.de/deutsch/u/oekostr.htm</a>

## 5.7 Greece

No quality labels for renewable energy were found in Greece.

## 5.8 Ireland

No quality labels for renewable energy were found in Ireland.

## 5.9 Italy

### 5.9.1 Issuing body: *Re-Energy Foundation (REEF) organizzazione non lucrativa di utilità sociale (Onlus)*

**Label name: Bollino Verde**

**Figure 5.9.1: Bollino Verde label**



The Re-Energy Foundation was set up following the '100% energia verde' initiative of the Association of Renewable Energy Producers (APER) and Enel-Green Power, and with support from environmental groups, for the purpose of issuing the 'Bollino Verde' (green stamp) label for green electricity. Information is available on <http://www.centopercentoverde.org>.



**Table 5.9.1: Bollino Verde criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope		Tariffs, suppliers and customers					
Renewable Energy Sources		Photovoltaics, wind, hydro (run-of-river under 150 MW), biomass (ecological cultivation up to 30 MW), biogas, geothermal, wave and tidal. A maximum of 20% from hydro is permitted.					
New plant		No requirement.					
Imports		Yes.					
Co-generation		No					
Contribution / Consumption		Consumption.					
Publicly funded plant		No requirements.					
CO <sub>2</sub> reduction		No.					
Energy balancing period		Annual.					
Company Assessment		No requirements.					
Further information		Web <a href="http://www.centopercentoverde.org">http://www.centopercentoverde.org</a>					

## 5.10 Luxembourg

No quality labels for renewable energy were found in Luxembourg.

## 5.11 Netherlands

The WWF lent its logo and support to green electricity products that it judged to be of a good standard at the time of writing the ELGREEN report. However, while WWF still supports green electricity, it has now withdrawn this label from the market completely. There are now some 2.2 million green customers in the Netherlands, and a large number of suppliers. The green tariff market in the Netherlands has become highly competitive within a very short time, offering green power at the same price (or lower) as standard electricity. Most of the green certificates created in the Dutch market in 2001-2002 were derived from long-existing renewable energy sources from abroad, thus not leading to new additional renewable energy generation. This has led to both the Dutch government changing the rules, including making importing 'green' less attractive, and the WWF withdrawing its label. Thus no quality labels for renewable energy were found to be operational in the Netherlands at the time of writing.

## 5.12 Norway

### 5.12.1 Issuing body: *Norges Naturvernforbund (Norwegian Society for the Conservation of Nature / Friends of the Earth Norway)*

#### Label name: Bra Miljøval (good environmental choice)

The Bra Miljøval label was set up in conjunction with the Finnish & Swedish schemes. 99% of electricity in Norway comes from hydropower, and so there is not a great demand for green electricity tariffs. However, following droughts, it became necessary for Norway to import coal and nuclear produced electricity from Sweden and Denmark. The label was therefore set up not to encourage development of renewable energy, but to reassure customers that they were purchasing electricity from existing clean sources.

**Figure 5.12.1: Bra Miljøval logo**



**Table 5.12.1: Bra Miljøval criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope		Tariffs and delivery contracts.					
Renewable Energy Sources		Photovoltaics, wind, hydro (only facilities that were built before 1995), biomass (ash must be returned to the land), biogas, landfill gas, geothermal and MSW (only if the organic content is at least 90%).					
New plant		No special conditions apply.					
Imports		From Finland and Sweden.					
Co-generation		No.					
Contribution / Consumption		Consumption only.					
Publicly funded plant		No requirements.					
CO <sub>2</sub> reduction		No requirements.					
Energy balancing period		Annual.					
Company Assessment		No special conditions apply.					

## 5.13 Portugal

No quality labels for renewable energy were found in Portugal.

## 5.14 Spain

No quality labels for renewable energy were found in Spain.

## 5.15 Sweden

In Sweden there are three different ways in which green tariffs can be certified. Firstly, tariffs can be labelled by the Good Environmental Choice (Bra Miljöval) programme of the Swedish Society for Nature Conservation (SNC). Alternatively, the electricity supply can qualify under the Certified Environmental Product Declaration (EPD) developed by the Swedish environmental management council (SEMC), or thirdly under the Production Specified electricity (PS) scheme. The Bra Miljöval label is similar in design to the other labels discussed, and is documented below. The label is awarded to a wide range of environmentally friendly products, as well as green electricity. The other two certificates, EPD and PS, do not involve value judgements and only confirm the origin of the electricity produced. The EPD certificate is run by an independent institute, whilst with the PS scheme the supplier itself guarantees that the electricity is produced in a specified way.

### 5.15.1 Issuing body: *Svensk Naturskyddsföreningen (Swedish Society for Nature Conservation)*

#### **Label name: Bra Miljöval för el (Good environmental choice for electricity)**

The environmental NGO, Swedish Society for Nature Conservation (SNC), set up the 'Bra Miljöval för el' label for green electricity in 1996. The label was set up in close conjunction with the Norwegian and Finnish labels, and so accredited imports from these countries are acceptable. The criteria are described below [SNC].

**Figure 5.15.1: Bra Miljöval för el label**



**Table 5.15.1: Bra Miljöval för el criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope	Tariffs and delivery contracts.						
Renewable Energy Sources	Photovoltaics, wind, hydro (only facilities built before 1995 and enlargement projects if no additional impact occurs), biomass (ash must be returned to the land), biogas, landfill gas, geothermal and waste (only if the organic content is at least 90%). Peat is not permitted.						
New plant	No special conditions apply.						
Imports	From Finland and Norway.						
Co-generation	No.						
Contribution / Consumption	Consumption only.						
Publicly funded plant	Eligible.						
CO <sub>2</sub> reduction	No requirements.						
Energy balancing period	Annual.						
Company Assessment	No special conditions apply.						

## 5.16 Switzerland

### 5.16.1 Issuing body: Naturemade

The Swiss label issuing body offers two levels of green electricity label. They were introduced in 2000 by a utility and environmental NGO and are described in the tables below.

**Figure 5.16.1: Naturemade logo**



**Label name: Naturemade Basic****Table 5.16.1: Naturemade Basic criteria**

RES-E	✓	CHP	✗	DSM	✗	CO <sub>2</sub>	✗
Scope		Facilities (separate certification for each power plant) and tariffs					
Renewable Energy Sources		Photovoltaics, wind, hydro, biomass (principles of nature conservation must be respected), biogas (sewage biogas is excluded) and geothermal					
New plant		Within 5 years, at least 0.5% of supply must be from biomass, solar power and wind.					
Imports		No.					
Co-generation		No.					
Contribution / Consumption		Consumption only.					
Publicly funded plant		No requirements.					
CO <sub>2</sub> reduction		No requirements.					
Energy balancing period		Annual.					
Company Assessment		Environmental management is necessary for plant above 10MW.					

**Label name: Naturemade Star**

The Naturemade Star label is identical to the basic label except that it specifies stricter criteria including life cycle analyses and minimum standards for local environmental impacts. Hydropower is subject to a comprehensive assessment procedure, rather than a simple assessment of plant age or size. As in the Scandinavian countries, hydroelectricity has been exploited extensively in Switzerland and so the public is particularly sensitive to the environmental problems associated with this energy source.

**5.17 United Kingdom**

There are no quality labels for green electricity operating in the UK at the time of writing. The Future Energy label which was initiated and financed by the UK government, and run by the Energy Saving Trust, has become obsolete. With the introduction of the Renewable Obligation in 2002, few electricity suppliers wanted to provide consumers with a green electricity tariff option which meets with the UK electricity regulator's guidelines. However, there are still a number of tariffs which are being marketed by suppliers as being green.

## 5.18 EUGENE label available across all of Europe

Within the EU there are numerous quality labels in use. In some cases this can lead to customer confusion. The European Green Electricity Network (EUGENE) aims to clear up the confusion by providing a truly independent, international and credible labelling scheme on green electricity products. The EUGENE labelling scheme is based on a common standard for green electricity. National labelling bodies, accredited by EUGENE, implement this standard to the national level and may also impose additional criteria.

**Table 5.18.1: EUGENE Silver criteria**

RES-E	✓	CHP	✓	DSM	✗	CO <sub>2</sub>	✗
Scope	Tariffs.						
Renewable Energy Sources	Photovoltaics, wind, hydro (subject to ecological criteria), biomass (subject to criteria), biogas and geothermal.						
New plant	10% of supply must be from new renewable sources (and this additionality must be met entirely over and above governmental renewable legislation such as incentive tariffs).						
Imports	Yes.						
Co-generation	Yes up to maximum 50% of supply, provided it is at least 85% efficient and meets emissions limits.						
Contribution / Consumption	Consumption or contribution.						
Publicly funded plant	Eligible, but only to the level required under mandatory obligation.						
CO <sub>2</sub> reduction	No requirements.						
Energy balancing period	Annual.						
Special conditions	New plant is defined as having been put into operation on or after January 1 <sup>st</sup> of year of liberalisation of electricity market. Contribution tariffs are awarded silver label if at least 0.5 € cent/kWh is invested in new renewable plant.						

**Table 6.1.2: EUGENE Gold criteria**

RES-E	✓	CHP	✓	DSM	✗	CO <sub>2</sub>	✗
Scope		Tariffs.					
Renewable Energy Sources		Photovoltaics, wind, hydro (subject to ecological criteria), biomass (subject to criteria), biogas and geothermal.					
New plant		30% of supply must be from new renewable sources (and this additionality must be met entirely over and above governmental renewable legislation such as incentive tariffs).					
Imports		Yes.					
Co-generation		Yes up to maximum 50% of supply, provided it is at least 85% efficient and meets emissions limits.					
Contribution / Consumption		Consumption or contribution.					
Publicly funded plant		Eligible, but only to the level required under mandatory obligation.					
CO <sub>2</sub> reduction		No requirements.					
Energy balancing period		Annual.					
Special conditions		New plant is defined as having been put into operation on or after January 1 <sup>st</sup> of year of liberalisation of electricity market. Contribution tariffs are awarded the gold label if at least 1.5 € cent/kWh is invested in new renewable plant.					

## **6 INTERACTIONS BETWEEN THE INSTRUMENTS**

### **6.1 Interaction of labels with Guarantees of Origin**

The link between guarantees of origin and quality labels could be very strong since GOs could provide the tracking mechanism for electricity from renewable energy. Through the GO issuing bodies, information about type of generation will already be collected and verified by an independent body. However, as the GO requirement applies only to renewable energy generation this will allow official tracking (through this approach) by only a small part of the market (depending on the share of RE in each MS). Quality labels which incorporate CHP, for example, will not be able to use renewable energy guarantees of origin as a suitable auditing and tracking tool. However, there are proposals to introduce a guarantee of origin for CHP.

One potential problem with GO as an appropriate auditing tool for quality labels could arise if they are issued as separate certificates from existing certificate schemes, as is the case with Renewables Obligation Certificates (ROCs) and Climate Change Levy Exemption Certificates (LECs) in the UK. This could lead to double counting of renewable electricity. However, this problem is eliminated in the context of quality labels provided only one type of certificate (e.g. GO) is used for tracking.

### **6.2 Interaction of labels with Disclosure**

The EU Directive 2003/54/EC requires MS to put in place legislation for electricity disclosure by July 2003. Subsidiarity enables all MS to determine the best approach for implementation based on their own circumstances. Disclosure is based on company portfolios rather than specific product or tariff mixes. Where a company portfolio is the product mix, disclosure procedures may provide a suitable auditing method for green quality labels.

### **6.3 Interaction of labels with Certificates**

RECS is a voluntary trading system which aims to provide "a cost effective and reliable certificate system for renewable energy in Europe". RECS advocates the creation of standard certificates as evidence of the production of renewable energy, and provides a methodology for trading or otherwise using the certificates separately from the associated physical energy.

Several countries, notably the Netherlands, Austria, Denmark and Italy appear to be embracing the RECS approach for their Guarantee of Origin requirements and are creating a tiered certificate approach so that one certificate for RE can comply with both Guarantees of Origin and RECS. With regards certificates and disclosure, the certificates at present apply only to the renewable energy part of the market but could be scaled up over time. If certificates prove to be a reliable method of tracking and auditing renewable electricity for guarantees of origin and disclosure, certificates may also prove to be a reliable tool for verifying green quality labels. However, as RECS is a voluntary approach and not European policy it makes more sense to focus on how GO can be used with quality labels (since not all countries will embrace RECS whereas all MS have to introduce GO).



## 7 RECOMMENDATIONS

- It is recommended that labelling bodies and the European Union monitor the effectiveness of the guarantee of origin, in order to consider the possible use of guarantee of origin as a tool for auditing green quality labels.
- It is recommended that labelling bodies and the European Union monitor the implementation of disclosure, in order to consider disclosure procedures as possible auditing procedures for green quality labels.
- It is recommended that labelling bodies and the European Union monitor the progress of certificate systems, in order to consider certificates as a tool for auditing green quality labels.
- It is recommended that duplication of auditing and tracking systems be avoided to reduce the risk of double counting and increase harmonisation of guarantees of origin, disclosure and certificates for green power in member states.
- It is recommended that, given the limited quality label requirements for additionality, member states and the European Union continue to consider other policy mechanisms (in addition to green quality labels) as necessary for increasing the generation of electricity from renewable energy sources.