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**Report on implementation of 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**

Vienna, October 2002

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## **1. INTRODUCTION**

Directive 2001/77/EC of the European Parliament and of the Council on the promotion of electricity produced from renewable energy sources in the internal electricity market (RES Directive), adopted on 27 September 2001, is a further important milestone as regards the promotion of renewable energy. In addition to its relevance in terms of environment policy, the Directive also contributes towards achieving the objectives set in the White Paper on renewable sources of energy, such as security and diversification of energy supply, environmental protection, social and economic cohesion within the Community, the strengthening of competitiveness and increasing independence from imports.

Austria has always played a pioneering role as regards the use of renewable energy. It is also one of the frontrunners in the European Community as far as implementation of Directive 2001/77/EC is concerned. The Federal Act introducing new provisions in the field of electricity produced from renewable energy sources and in the field of combined heat and power (Eco-electricity Act), published on 23 August 2002, is one of the first pieces of national legislation designed to transpose the RES Directive.

The Eco-electricity Act is not, however, the only measure designed to promote renewable energy, rather it is just a further, albeit important, part of a package of measures which has been developing over several years.

## 2. THE TARGETS SET IN DIRECTIVE 2001/77/EC

Directive 2001/77/EC reshapes the legal framework for the Member States. The following chapter summarises the key EU requirements so that an assessment can then be made of the resulting incentives and consequences for Austria.

### 2.1. Purpose

The purpose of the Directive is to promote an increase in the contribution of renewable energy sources (RES) to electricity production in the internal market for electricity (Article 1 RES Directive). To this end, reference values for 2010 are given in the Annex to the Directive, the overall RES contribution in 2010 being 22% in terms of gross electricity consumption.

**Figure 1: Member States' contributions to achieving the 22% target**

[heading: RES electricity in 1997 and 2010]

Figure 1 shows that Austria already led the way in the base year (1997) as far as the RES share of gross electricity consumption was concerned. Nevertheless, that share is to increase by 8.1% by 2010.

### 2.2. Definitions used in the RES Directive

Article 2 of the RES Directive contains the following definitions.

**Renewable energy sources** include renewable non-fossil energy sources (wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogas).

**Biomass** means 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. This differs from the definitions used in the Austrian Electricity Industry and Organisation Act of 2000 (EIWOG 2000), which excludes refuse, sewage sludge and waste liquor.

**Electricity produced from renewable energy sources** is defined as 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.

Although Article 1 of the RES Directive explicitly refers to an increase in the RES share of electricity production, the reference values set out in the Annex relate to **gross national electricity consumption**, which is defined as 'national electricity production, including autoproduction, plus imports, minus exports'.

### 2.3. Guarantee of origin

Pursuant to Article 5 of the RES Directive, Member States are, not later than 27 October 2003, to ensure that the origin of electricity produced from renewable energy sources can be guaranteed as such within the meaning of the Directive according to objective, transparent and non-discriminatory criteria laid down by each Member State. Member States may designate one or more bodies, independent of generation and distribution activities, to supervise the issue of such guarantees of origin.

Guarantees of origin must contain information on the following:

- \* energy source
- \* date of production
- \* place of production
- \* capacity (in the case of hydroelectric installations)

Guarantees of origin that have been issued should be mutually recognised by the Member States exclusively as proof of the elements listed above.

## 2.4. Targets for Austria pursuant to the RES Directive

The Annex to the Directive sets out the contributions to be made by each Member State to achieving the EU-wide target of a 22% RES share in total consumption. Table 1 summarises the targets to be met by Austria:

Targets for Austria pursuant to the RES Directive		
<b>1997</b>		
reference basis	in TWh	55.78
RES electricity	in TWh	39.05
RES electricity	%	70.00
<b>2010</b>		
reference basis	in TWh	56.10
RES electricity	in TWh	43.81
RES electricity	%	78.10
increase by 2010	in TWh	4.76
increase by 2010	%	8.10
<b>2010 (estimate based on current trends)</b>		
reference basis	in TWh	71.91
RES electricity	in TWh	44.83
RES electricity	%	62.34

**Table 1: Targets for Austria pursuant to the RES Directive**

At the bottom of the table, the figures for 2010 are recalculated on the basis of a forecast-based estimate of trends. The 71.91 TWh figure is the result of a projection based on gross national electricity consumption in 2001, which was 62.341 GWh, and a 1.6% per annum increase in consumption, which was established in a study (Energy Scenarios until 2020) by the Austrian Institute for Economic Research.

Austria attached a condition to meeting the ambitious target set for it, and this was incorporated into the RES Directive in the form of a footnote:

*'Austria states that 78.1% would be a realistic figure, on the assumption that in 2010 gross national electricity consumption will be 56.1 TWh. Due to the fact that the production of electricity from renewable sources is highly dependent on hydropower and therefore on the annual rainfall, the figures for 1997 and 2010 should be calculated on a long-range model based on hydrologic and climatic conditions'.*

This course of action was considered essential, as it was not advisable to rely exclusively on a relative value, owing to the already above-average baseline value and the specific

structure of electricity production in Austria, a very high proportion of which comes from hydropower (cf. Figure 2), and the associated dependence of electricity production on rainfall.

**Figure 2: Hydropower share of total production in 2001**

[key:    *Anteil an der Monatserzeugung* = share of monthly production  
         *Anteil an der Jahreserzeugung* = share of annual production  
         *Anteil in %* = share in %]

Figure 3 shows the effects of different rainfall conditions on production from run-of-river power plants in 2001. The maximum and minimum values reflect the situation over a 20-year period. The fluctuations are obvious, and hence also the rainfall-dependence of electricity production in Austria.

**Figure 3: Production coefficients for run-of-river power plants in 2001**

Apart from this feature of Austrian electricity production, which is determined by topographical factors, it should also be pointed out that opinions on the figures for electricity produced from renewable sources have differed. The figures published by the Austrian National Statistical Office for 1997 are 1.3 TWh lower than the values shown in the Directive. The reason for this is not yet clear. It may only be assumed that there was a difference between EU and national data collection methods. However, as the Directive has given the figure of 39.05 TWh for RES electricity for 1997, it is that figure which will be used throughout this report.

### 3. RENEWABLE ENERGY PROMOTION PACKAGE

#### 3.1. Transposition of the RES Directive by means of the Eco-electricity Act

Less than one year after the RES Directive was adopted, Austria has succeeded in incorporating the targets set by the European Community into national legislation. The Eco-electricity Act was published in the Federal Law Gazette on 23 August 2002 and enters into force on 1 January 2003. Until then, the implementing legislation adopted by Austria's nine *Länder* on the basis of EIWOG 2000 will apply. As the Eco-electricity Act is of decisive importance as regards further development in this area, this report will focus on its provisions rather than providing a detailed description of the current legal situation.

##### 3.1.1. Objectives

The following objectives are set out in the Eco-electricity Act (§4) on the basis of those set in the RES Directive:

- \* increasing the share of electricity produced from renewable energy sources so as to meet the RES Directive's 78.1% target in 2008,
- \* efficient use of funding,
- \* focusing technology policy on bringing new technologies to the market (keyword: energy efficiency),
- \* increasing the share of electricity produced at small-scale hydropower plants (capacity <10MW) to 9% in 2008,
- \* guaranteeing investment security in respect of existing and future installations,
- \* country-wide equalisation of costs incurred in promoting energy production from renewable energy sources and combined heat and power (keyword: energy efficiency).

Just as the RES Directive sets targets, so the Eco-electricity Act also sets targets for the share of electricity to be produced at eco-friendly power plants and small-scale hydropower plants. In 2008, eco-friendly power plants are to account for 4%, and small-scale hydropower plants for 9%, of final consumption. Figure 4 outlines the targets and the relevant support mechanisms.

78.1% of electricity from renewable energy sources pursuant to the EU Directive			
62% large-scale hydropower plants >10MW	9% small-scale hydropower plants <10MW	4% eco-friendly power plants	2-3% other RES
no support	feed-in tariffs	feed-in tariffs no detailed targets regarding shares for wind power or biomass PV max 15 MW	no support (mixed municipal waste, MBM, etc.)

Figure 4: Target shares and support systems pursuant to the Eco-electricity Act

In addition to the targets for 2008, interim targets have also been set for eco-friendly energy: eco-friendly power's share must be 2% in 2004 (cf. §4(2) of the Eco-electricity Act) and rise continuously until 2008.

**Figure 5: Intermediate targets pursuant to the Eco-electricity Act**

[key:    %-Anteil an der jährlichen Stromabgabe an Endverbraucher = % share of electricity supplied annually to final consumers  
          bis 1. Jänner = by 1 January]

The Eco-electricity Act is aimed at increasing the RES share of total energy production, but another of its key aims is to increase energy efficiency, a priority as far as energy policy is concerned. Whilst this fundamental principle is reflected generally in the targets by means of references to the promotion of new (energy-efficient) technologies, the objective is implemented in particular by §12 and §13 of the Eco-electricity Act, which lay down minimum energy efficiency requirements to be met by small-scale hydropower plants if they are to receive the special support tariff.

*3.1.2. Definitions pursuant to the Eco-electricity Act*

The requirements of the Directive are also reflected in the definitions used in the Eco-electricity Act, so that not only 'new' renewables (wind power, photovoltaics, etc.) are now included under the eco-electricity heading, but hydropower as well (without any restriction on capacity). The only distinction made between large-scale and small-scale hydropower plants is with regard to the promotion of the electricity they produce, large-scale hydropower plants (capacity >10MW) being excluded from support schemes. Eco-electricity also includes electricity produced from waste with a high biogenic fraction. The specific types of waste concerned are listed in the annex to the Eco-electricity Act, on the basis of the Waste Catalogue.

*3.1.3. Support mechanisms provided for by the Eco-electricity Act*

The promotion of renewable energy takes the form of direct support via minimum feed-in tariffs (for eco-electricity in the narrow sense and for electricity from small-scale hydropower plants) laid down by the Federal Minister for Economic Affairs and Labour in a ministerial order. The feed-in tariffs thus laid down are guaranteed for at least 10 years and apply throughout Austria. Such provisions were necessary with regard to the planned development of eco-power plants in order to offer investors the appropriate security. The country-wide approach is a major improvement on the current situation, where there are nine different ministerial orders on minimum feed-in tariffs. The new framework also helps to ensure that eco-power plants are built at the most suitable locations in Austria and hence that funding is used efficiently.

There is a ceiling on support for photovoltaics, where the overall capacity eligible for support has been set at 15 MW. An exception is made for installations with a capacity of up to 20 kW. In their case, there is a purchase obligation, though no guaranteed priced obligation, once the 15 MW ceiling has been exceeded.

Changes to the current legal situation have also been made as regards small-scale hydropower. Firstly, this sector's share is to increase from 8% to 9%, and, as from 1 January 2003, support will no longer be provided via a certificate-based system, but instead by means of a system of minimum feed-in tariffs, as in the case of eco-power plants.

This system is financed via the settlement price and supplements payable by consumers. The supplementary charges are capped by law so as to limit the burden on consumers. Figure 6 provides an overview of the maximum supplements payable:

**Figure 6: Maximum charge per final consumer (cent/kWh)**

[key: *Ökoanlagen* = eco-power plants; *Kleinwasserkraft* = small-scale hydropower; *Kraft-Wärme-Kopplung* = CHP]

In addition to the support schemes for eco-electricity in the narrow sense and small-scale hydropower described above, support is also provided for CHP plants with a view to increasing their energy efficiency (§12 et seq. of the Eco-electricity Act). In this case, support does not take the form of a minimum feed-in tariff but of a support tariff calculated by allocating the support budget according to the amount of electricity (in kWh) fed in from small-scale hydropower plants. Under the Act, the highest tariff rate per kWh is 1.5 cent. In order to receive this, a plant operator must meet certain criteria, including the ability to demonstrate that he has met a specified efficiency requirement. This mechanism ensures that only plants which help to increase the energy efficiency of the system as a whole receive support.

Under existing legislation, the distribution network operator has been responsible for the purchase of eco-electricity. Under the new legislation, this task passes to the eco-balance group manager (Öko-BGV). One of the eco-balance group manager's tasks is to purchase eco-friendly energy offered for sale at the minimum prices specified. As from 1 January 2003, this role will be performed by the three regulating zone managers, but as soon as the requisite technical, legal and administrative conditions have been created, there will be just one eco-balance group manager. The eco-balance group managers' costs, as well as the cost of balancing energy, are to be met from the support budget.

Recognition of plants as eco-power plants and decisions as to who is to receive funding will remain within the remit of the heads of provincial governments. Existing installations (installations which possessed all the necessary construction permits before 1 January 2003) will continue to be regarded as eco-power plants and will still be entitled to receive feed-in tariffs at current rates.

#### *3.1.4. Guarantee of origin*

In accordance with the RES Directive, the Eco-electricity Act also contains provisions governing the issue of guarantees of origin. These are issued by the network operator, who, at the request of power plant operators, must forward them to the latter free of charge. Pursuant to §8(2) of the Eco-electricity Act, the guarantee must state:

- \* the quantity of energy produced,
- \* the type of production installation and its peak capacity,
- \* the period and place of production, and
- \* the energy sources used.

Supervisory tasks relating to the issue of such guarantees fall within the remit of heads of provincial government. If an eco-power plant operator or an electricity trader disposes of the electrical energy to another electricity trader, the vendor must transfer the relevant guarantees of origin, free of charge and demonstrably, to the purchaser.

### **3.2. Investment promotion schemes**

In addition to the direct support schemes under the Eco-electricity Act which are described in detail above, there is part of the support budget, specifically intended for the promotion of new technologies, for which the provinces are responsible. Pursuant to §22(4) of the Eco-electricity Act, hydropower, sewage sludge, meat-and-bone meal and waste liquor are excluded from these arrangements. The budget will be EUR 25 m in 2003, EUR 15 m in 2004 and EUR 7 m annually thereafter.

In addition to the feed-in tariffs, the Federal Ministry of Agriculture, Forestry, the Environment and Water Management (BMLFUW) also provides support for investment in technology (via Kommunalkredit Austria AG), the emphasis being on the promotion of biomass and energy production from biogenic waste.

Another BMLFUW investment promotion scheme is also focused on the biomass sector. In this case, the amount of support does not depend exclusively on the type of technology and the sources used, but also on the revenue situation of the applicant.

### **3.3. Preferential treatment in the context of authorisation of plants and installations**

§12 of the Electricity Industry and Organisation Act (EIWOG) governs the construction and entry into service of plants and leaves provincial implementing legislation considerable leeway in this respect. It states that electricity production plants which produce electrical energy from renewable energy sources or waste or operate according to the CHP principle may, up to a specific capacity, be subject to a simplified procedure. The provinces have, without exception, made use of this provision.

Another provision facilitating the entry into service of eco-power plants concerns rights of way for power lines: installations used exclusively for the transmission of electricity produced from renewable energy sources are exempt from the authorisation requirement for which legislation on rights of way for power lines provides.

### **3.4. Priority access to transmission lines**

Pursuant to §20(1)(4) of the EIWOG, electricity from renewable energy sources may receive preferential treatment. Access to the network may thus be denied to an operator who is entitled to use the network *'if electricity from district heating-oriented, environment-friendly, resource-efficient and technically and economically sound CHP plants or from installations which use renewable energy sources would otherwise be excluded, despite meeting current market prices, it being necessary to exploit opportunities for the sale to third parties of electrical energy thus produced.'*

## **4. MEETING THE INDICATIVE TARGETS**

This chapter provides an overview of the amounts of electricity produced in 2001. The following tables and graphs show the amounts attributable to the various production types, both in GWh and as percentages. 'Biogenic fuels in the narrow sense' include all fuels which may clearly be classified thus pursuant to EIWOG. 'Other energy sources' include mainly waste liquor, sewage sludge and refuse, i.e. fractions which are included amongst renewable energy sources under the RES Directive but which do not receive support under the Eco-electricity Act.

Biogenic fuels (total: 435 GWh) may be sub-divided into solid (362 GWh) and gaseous (67 GWh) fuels. A more detailed breakdown cannot be given owing to the statistical recording methods currently used.

Production type		Electricity supply undertakings 2001	Autoproducers 2001	Total 2001
Hydropower	hydropower plants with peak capacity >10MW	36 197.4	1 037.6	37 235.0
	hydropower plants with peak capacity ≤10MW (1) (incl. notifiable only for purely statistical purposes)	3 269.4	964.0	4 233.4
	estimated values and statistical discrepancies (2)	108.6	154.3	262.9
	<b>Total hydropower</b>	<b>39 575.4</b>	<b>2 155.9</b>	
Wind power, photovoltaics	wind(1)	105.8		105.8
	photovoltaics(1)	0.2	no details	no details
	<b>Total wind and photovoltaics</b>	<b>106.1</b>	<b>no details</b>	<b>106.1</b>
Thermal power	biogenic fuels in the narrow sense (1)	39.1	396.6	435.7
	other energy sources	82.7	1662.2	1 744.9
	fossil fuels	13 676.4	4558.6	18 235.1
	<b>Total thermal power</b>	<b>13 798.2</b>	<b>6 617.4</b>	<b>20 415.7</b>
<b>Total production</b>		<b>53 479.7</b>	<b>8 773.4</b>	<b>62 253.1</b>
(1) Information based on annual operating statistics surveys.				
(2) Deviation between recorded and/or estimated monthly data and annual survey results.				

**Table 2: Production from renewable energy sources in 2001, in GWh**

**Figure 7: Percentage shares of gross electricity production in 2001**

[key:

*Wasserkraftwerke mit Engpaßleistung >10 MW = hydropower plant with peak capacity >10 MW*

*Wasserkraftwerke mit Engpaßleistung ≤10 MW = hydropower plant with peak capacity ≤10 MW*

*Wind, Photovoltaik = wind, photovoltaics*

*Biogene Brennstoffe im engeren Sinn = biogenic fuels in the narrow sense*

*Sonstige Energieträger = other energy sources*

*Fossile Brennstoffe = fossil fuels]*

Additional help in estimating trends is provided by a list of provincial notifications for eco-power plants. The data for 2003 is based on projects which are known to the regulatory authority and for some of which notifications have already been received. Nevertheless, the figures shown are only indicative. Calculation of the kWh was based on average number of hours at full load. One aspect of this overview which poses a problem is the estimated increase in the case of solid biomass, as a high proportion of this is attributable to the co-firing of CO<sub>2</sub>-neutral biomass in thermal power plants. To what extent this will actually happen depends very much on the economic circumstances.

Existing plants pursuant to the Eco-electricity Act				
Energy source	kW now	kWh now	kW 2003	kWh 2003
Biogas	8 500.30	39 266 757.30	9 854.30	45 521 500.00
Solid biomass	19 087.00	84 984 473.74	66 287.00	295 141 500.00
Liquid biomass	994.00	4 970 000.00	994.00	4 970 000.00
Landfill gas	5 011.00	14 214 654.87	5 511.00	15 633 000.00
Geothermal	1 250.00	8 750 000.00	1 250.00	8 750 000.00
Sewage tr. plant gas	2 415.00	7 002 671.53	2 915.00	8 452 500.00
Photovoltaics	2 389.27	2 389 270.00	4 917.77	4 917 770.00
Wind power	96 804.00	189 092 720.45	175 854.00	343 505 550.00
<b>Total</b>	<b>136 450.57</b>	<b>350 670 547.88</b>	<b>267 583.07</b>	<b>726 891 820.00</b>

**Table 3: Existing plants pursuant to the Eco-electricity Act**

The overview shows what enormous potential exists in the biomass and wind power sectors in particular. A disproportionately high rate of growth is also expected in the case of photovoltaic installations. This trend is already evident from the increase in the number of eco-power plant notifications in the photovoltaics sector and is in line with expectations based on developments in recent years (cf. Figure 8).

### Figure 8: Percentage share of gross power production since 1995

[key:

*Wasserkraftwerke mit Engpaßleistung > 10 MW = hydropower plant with peak capacity > 10 MW*

*Wasserkraftwerke mit Engpaßleistung ≤ 10 MW = hydropower plant with peak capacity ≤ 10 MW*

*Wind, Photovoltaik = wind, photovoltaics*

*Biogene Brennstoffe im engeren Sinn = biogenic fuels in the narrow sense*

*Sonstige Energieträger = other energy sources*

*Fossile Brennstoffe = fossil fuels]*

## 5. TARGETS UNTIL 2010

During the period to 2010, Austria is seeking to meet specific intermediate targets for renewable energy. As above, the 'Other' heading covers energy sources which are renewable pursuant to the RES Directive but which are not supported under the Eco-electricity Act.

GWh per energy source	2002	2003	2005	2008	2010	% share reference basis = 56.1 TWh	% share reference basis = 71.9 TWh(1)
Biogas	39.27	45.52	80.17	114.81	115.39	0.21%	0.16%
Solid biomass	84.98	295.14	495.50	695.86	699.34	1.25%	0.97%
Liquid biomass	4.97	4.97	11.22	17.47	17.56	0.03%	0.02%
Landfill gas	14.21	15.63	26.98	38.33	38.52	0.07%	0.05%
Geothermal	8.75	8.75	8.75	8.75	8.79	0.02%	0.01%
Sewage gas	7.00	8.45	21.50	34.55	34.72	0.06%	0.05%
Photovoltaics	2.39	4.92	10.33	15.74	15.82	0.03%	0.02%
Wind power	189.09	343.51	734.18	1 124.85	1 130.47	2.02%	1.57%
Small-scale hydropower	3 870.00	4 000.00	4 463.00	4 926.00	4 950.63	8.82%	6.89%
Large-scale hydropower	37 500.00	37 518.75	37 528.13	37 725.20	37 725.20	67.25%	52.47%
Other	82.70	86.84	89.01	91.18	91.63	0.16%	0.13%
<b>Total</b>	<b>41 803.37</b>	<b>42 332.48</b>	<b>43 468.76</b>	<b>44 605.05</b>	<b>44 828.07</b>	<b>79.91%</b>	<b>62.35%</b>
<b>Target</b>					<b>43 810.00</b>	<b>78.10%</b>	<b>62.35%</b>
(1) see also Tab. 1							

Table 4: Targets until 2010

The penultimate column shows the percentage shares for the various energy sources if the reference basis is assumed to be 56.1 TWh. This value was determined using an energy-saving scenario produced by the European Commission and, owing to its inclusion in the footnote to the Directive, has also been used as the basis for these calculations. It is clear that, if rainfall conditions are favourable, the target will be fully met.

## 6. COMPATIBILITY WITH THE KYOTO PROTOCOL

In March 2002, the Council of the European Union unanimously adopted a decision to ratify the Kyoto Protocol to the UN Framework Convention on Climate Change. The result is a commitment to reducing greenhouse gas emissions EU-wide by 8% between 1990 and 2008/2012. As in the RES Directive, individual national targets have been set, in this case for reducing emissions. Under the EU burden-sharing agreement, Austria is to cut its emissions of the six greenhouse gases (CO<sub>2</sub>, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride) by 13% by 2010.

The preamble to the Directive refers explicitly to the importance of using renewable energy with a view to meeting the Kyoto targets. In Austria, these targets were, and still are, an important factor in shaping economic and environment policy generally and the Eco-electricity Act in particular. The following table published by the Federal Environment Office shows trends in greenhouse gas emissions in Austria.

	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Fluorinated gases together	Total
Base year	62.3	11.3	2.3	1.7	77.6
1990	62.3	11.3	2.3	1.5	77.4
1991	66.2	11.1	2.3	1.7	81.3
1992	60.2	10.8	2.4	1.3	74.9
1993	60.7	10.7	2.5	0.9	74.8
1994	62.0	10.5	2.6	1.1	76.2
1995	64.0	10.3	2.6	1.7	78.6
1996	65.4	10.1	2.6	1.9	80.0
1997	67.0	9.9	2.5	1.9	81.3
1998	65.5	9.6	2.6	1.8	79.5
1999	66.0	9.5	2.5	1.6	79.7
2000	66.1	9.4	2.5	1.7	79.8
% change - base year to 2000	6.1%	-16.8%	8.9%	-0.1%	2.8%
Share in 2000	82.9%	11.8%	3.2%	2.1%	100.0%

**Table 5: Trends in greenhouse gas emissions**

A detailed estimate of the potential reductions which could be achieved by using renewable energy was published by Kommunalkredit Austria AG in 1999. Taken in conjunction with the observations made in the National Climate Strategy 2008/2012, the potential for savings in the electricity sector is put at 2.1 m tonnes CO<sub>2</sub> equivalent per annum. Here, too, attention is drawn not only to the substitution of fossil fuels by renewable energy sources but also specifically to the need to increase energy efficiency. According to Kommunalkredit Austria AG, a reduction potential of 0.5 m tonnes CO<sub>2</sub> equivalent per annum exists in the 'power from CHP installations/district heating units for residential blocks' sector alone.

This not insignificant contribution to reducing emissions of the Kyoto gases helps demonstrate, in this regard too, the relevance and importance of the new federal legislation.

## **7. SUMMARY AND OUTLOOK**

When the Federal Act introducing new provisions in the field of electricity produced from renewable energy sources and in the field of combined heat and power was adopted on 23 August 2002, Austria became one of the first EU Member States to transpose Directive 2001/77/EC of the European Parliament and of the Council on the promotion of electricity produced from renewable energy sources in the internal electricity market. The fundamental ideas behind the Eco-electricity Act are to increase the RES share of total electricity production and to increase energy efficiency and cost-effectiveness.

Pursuant to the Directive, electricity from renewable sources is to account for 78.1% of gross national electricity consumption in Austria. Based on the 56.1 TWh reference value for power consumption in 2010 indicated in the footnote to the Directive, the corresponding figure for renewables is 43.81 TWh. This equates to a 4.76 TWh increase in production from the starting point of 39.05 TWh in base year 1997. The target is the highest in the whole Community and will also be met, as shown in this report. With regard to the 'new' renewables, the biggest contribution to meeting the target will come from developing existing potential in the wind power and biomass sectors.

By implementing the Eco-electricity Act, Austria is moving one step further towards developing an environment-friendly, resource-efficient, cost-effective and energy-efficient energy system, thereby setting itself the challenge of developing a sustainable economy.

## **8. BIBLIOGRAPHY**

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**National reports under Article 3(2) of Directive 2001/77: a comparative table**

*[in English - pl. refer to the original]*