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Report

pursuant to Article 3(3) and Article 6(2) 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 2003

Contents

1	Report in accordance with Article 3(3) of Directive 2001/77/EC	2
2	Introduction.....	3
3	Current situation	4
3.1	Legal basis.....	4
3.2	Payment system	7
3.3	Development of renewable energy sources.....	10
3.3.1	Achievement of targets in 2002	12
3.3.2	Trends in 2003.....	13
4	Analysis of the framework conditions for developing renewable energy sources in Austria.....	17
4.1	Overview	17
4.2	Simplified authorisation procedures in the provinces.....	19
4.3	General barriers to the development of green electricity plants.....	23
4.3.1	Directive 2000/60/EG (Water Framework Directive).....	23
4.3.2	Expansion of the grid	25
4.3.3	Costs	26
4.3.4	Public opposition.....	27
4.4	Individual barriers.....	27
4.4.1	Wind power	27
4.4.2	Biomass	28
4.4.3	Hydropower.....	28
4.5	Objectivity, transparency and non-discrimination	29
4.5.1	Network access.....	29
4.5.2	Guidelines.....	29
4.6	Guarantee of origin database	30
4.7	Two-way consumption metering	31
5	Summary and outlook	32

Figures

Figure 1:	Legal basis for promoting renewable energy sources (other green electricity).....	8
Figure 2:	Payment flows in the green electricity and small-scale hydro sector.....	9
Figure 3:	Allocation of green electricity	10
Figure 4:	Comparison Directive 2001/77/EC..... Eco-electricity Act	11
Figure 5:	Production coefficients for run-of-river plants in 2001	13
Figure 6:	Gross electricity production in 2002.....	14
Figure 7:	Comparison hydro power production 2002 – 2003.....	15
Figure 8:	Development of "other green energy" in the first half of 2003.....	16
Figure 9:	Development of green electricity plant in Austria.....	17
Figure 10:	Authorisations required by green electricity plants	19
Figure 11:	Trend in demand and the effect of the Water Framework Directive	23
Figure 12:	Comparison feed-in tariffs – market price.....	25

Tables

Table 1:	Comparison EIWOG 2000 and Eco-electricity Act	6
Table 2:	Simplified procedures for green electricity plants.....	21

1 Report in accordance with Article 3(3) of Directive 2001/77/EC

Article 3(3) 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 requires Member States to publish, for the first time not later than 27 October 2003 and thereafter every two years, a report which includes an analysis of

- the extent to which the national indicative targets have been met taking account, in particular, of climatic factors likely to affect the achievement of those targets, and
- the extent to which the measures taken are consistent with the national climate change commitment.

The report must also:

- describe the mechanisms put in place to ensure that guarantees of origin are both accurate and reliable (Article 5(5) RES Directive);
- evaluate the authorisation procedures or the other procedures laid down in Article 4 of Directive 96/92/EC (Article 6(1) RES Directive);
- describe coordination between the different administrative bodies as regards deadlines and reception and treatment of applications for authorisations,
- draw up possible guidelines for the authorisation procedures and the feasibility of a fast-track planning procedure for producers of electricity from renewable energy sources, and designate authorities to act as mediators in disputes between authorities responsible for issuing authorisations and applicants for authorisations (Article 6(2) RES Directive); examine measures to be taken to facilitate access to the grid system for electricity produced from renewable energy sources. The report must examine, inter alia, the feasibility of introducing two-way metering (Article 7(7) RES Directive).

The aim of this report is to identify legal and other barriers to the expansion of electricity production from renewable energy sources and to point up ways of simplifying and expediting procedures at the various administrative levels and ensuring that the rules are objective, transparent and non-discriminatory. The rules should make due allowance for the specific characteristics of the various technologies involving the use of renewable energy sources.

2 Introduction

The Renewable Energy Directive (RES Directive) adopted on 27 September 2001 is another important milestone on the road to promoting alternative energy sources. In addition to its relevance to environmental policy, this instrument raises public awareness and promotes the objectives already laid down in the European Commission's White Paper on renewable energy sources, such as security and diversification of the energy supply, environmental protection, social and economic cohesion in the Community, enhanced industrial competitiveness and reduced dependence on imports.

Austria has always played a pioneering role in the use of renewable energy. It is also one of the frontrunners in the European Community as far as implementation of the RES Directive 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.

3 Current situation

3.1 Legal basis

Promotion of renewable energy sources has long been a key component of both the European and the Austrian legislation. Even before the RES Directive was adopted, support for electricity production from renewables was regulated in the Electricity Industry and Organisation Act — EIWOG 1998 (BGBl.143/1998). The first amendment to the EIWOG (BGBl. 121/2000) set out specific objectives for the promotion of renewable energy (see Table 1).

Austria has a very heterogeneous support structure owing to the particular division of powers between the federal government and the provinces (Article 12 of the Constitution), with the federal government having responsibility for basic legislation in the electricity sector while the practical implementing legislation is the responsibility of the nine provinces. Each of the nine provinces set about achieving the objectives in its own way. The feed-in tariffs for green electricity and the mark-ups on the network tariffs required for financing purposes were also set independently by each province. The less than satisfactory outcome of this arrangement was that East Austria, for example, which has very suitable sites for wind turbines, capped its support for wind energy and that West Austria's objectives were not achievable from the outset and/or achieving them would have involved a disproportionately high cost.

The adoption of the Eco-electricity Act in August 2002 was designed to remedy this situation. The federal government and the provinces agreed a federal act introducing uniform rules for the promotion of renewable energy with effect from 1 January 2003. Under Section 11 of the Eco-electricity Act, responsibility for setting the feed-in tariffs now lies with the Federal Minister for Economic Affairs and Labour and is designed to achieve the target shares for green electricity specified in Section 4 of the Act as cost-effectively as possible. Table 1 reviews the main differences between the arrangements under the EIWOG 2000 and the Eco-electricity Act.

Thema, Ziele (Auszug)	EIWOG 2000	Ökostromgesetz 2002
a) Kleinwasserkraft	Sicherung des Bestandes (8%)	Sicherung des Bestandes und Anreize für den Ausbau (9%)
b) Sonstige Ökoanlagen	2% ab Jänner 2004 3% ab Jänner 2006 4% ab Oktober 2007	4% im Kalenderjahr 2008
c) Sonstige		wirtschaftlicher Einsatz der Unterstützungsmittel, EU-Ziel 78% bis 2010
System	Zertifikate für Kleinwasserkraft, Einspeisetarife für sonstige Ökoanlagen	Bundeseinheitliches Einspeisetarifsystem für Kleinwasserkraft und sonstige Ökoanlagen
Verpflichtete	Stromhändler für Kleinwasserkraft, Netzbetreiber für sonstige Ökoenergie	Verpflichtung zur Zielquotenerreichung ist bei der Festlegung der Einspeisetarifhöhe zu berücksichtigen
Kompetenzen	Alle Detailregelungen (Öko-Einspeisetarife, Öko-Zuschläge, Pönalzahlungen, etc.) wurden vom jeweiligen Bundesland in sehr unterschiedlicher Form festgelegt	Bundeseinheitliche Öko-Einspeisetarife, Förderbeiträge und KWK-Zuschläge Festlegung durch BMWA im Einvernehmen mit BMLFUW ¹ und BMJ ² bzw. Mitsprache der Bundesländer
Lastenaufteilung	Die Endverbraucher des Bundeslandes zahlen für die Anlagen im jeweiligen Bundesland, daher stark unterschiedliche Kostenbelastungen	Einheitliche Kostenbelastung je Endverbraucher in ganz Österreich (Differenzierung nach Netzebene möglich)
Kraft-Wärme-Kopplung	Sowohl Art als auch Ausmaß der KWK-Unterstützung in jedem Bundesland sehr unterschiedlich	bundeseinheitliches Unterstützungstarifsystem
Stromkennzeichnung	Unterschiedliche Systeme je Bundesland (einheitlicher Händlermix versus unterschiedliche Produktdifferenzierungen je Händler)	Einheitlicher Händlermix ab Juli 2004 verpflichtend

¹ Bundesminister für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft

² Bundesminister für Justiz

Table 1: Comparison EIWOG 2000 and Eco-electricity Act

Subject, objectives (extract)	EIWOG 2000	Eco-electricity Act 2002
a) Small-scale hydro power	Secure the current base (8%)	Secure the current base and incentives for expansion (9%)
b) Other green power plants	2% from January 2004 3% from January 2006 4% from October 2007	4% in calendar year 2008
c) Other		Efficient use of support, EU objective 78% by 2010
System	Certificates for small-scale hydro, feed-in tariffs for other green power plants	Uniform national tariff system for small-scale hydro and other green power plants
Actors	Electricity traders for small-scale hydro, network operators for other green power plants	Obligation to reach target quota must be taken into account in setting the feed-in tariffs
Powers	Each province set its own, widely differing, detailed regulations (green feed-in tariffs, green supplements, penalties, etc)	Uniform national green feed-in tariffs, support payments and CHP mark-ups. Set by Ministry of Economic Affairs and Labour in cooperation with the Ministry of Agriculture, Forestry, Environment and Water management and the Ministry of Justice, and in consultation with the provinces
Burden sharing	Final consumers in the province pay for the plants in their province, hence very uneven cost burdens	Uniform burden of costs per final consumer throughout Austria (differentiation possible according to network level)
Combined heat and power	Very different support arrangements for CHP in each province	Uniform national support tariff system
Electricity labelling	Different systems in each province (uniform trader mix versus varying product differentiations per trader)	Uniform trader mix obligatory from July 2004

It is also important to note that the transitional arrangements contain a provision to the effect that existing plants (i.e. plants with all the necessary permits by

31.12.2002) will continue to receive the feed-in tariff set by the provinces. In the "other" green energy sector, this results in the differences in payment principles for existing and new plant shown in Figure 1 below.



Figure 1: Legal basis for promoting renewable energy sources (other green electricity)

1 January 2003

Existing plant	New plant
EIWOG 2000 and	Eco-electricity Act and
9 provincial implementing laws and	1 national feed-in order
9 provincial feed-in orders	

3.2 Payment system

As already described in Chapter 2.1, the support system prior to the entry into force of the Eco-electricity Act was characterised by the following:

- different provincial feed-in tariffs
- different provincial mark-ups
- differences in the extent to which targets were achieved

- achievement of targets had to be demonstrated by the grid operator (for other green energy) or by the electricity trader (small-scale hydro)
- feed-in tariff paid out by around 140 distribution system operators.

The provisions of the Eco-electricity Act release the grid operator both from its obligation to meet the set targets, i.e. to purchase the energy offered for sale from green power plants, and from the obligation to pay out the feed-in tariffs. The purchase obligation has passed from the distribution network operator to the regulating area manager in its capacity as eco-balance group manager (Öko-BGV)¹, which is required to buy the green energy offered at the set prices (feed-in tariffs). Uniform prices apply throughout Austria for new plants.

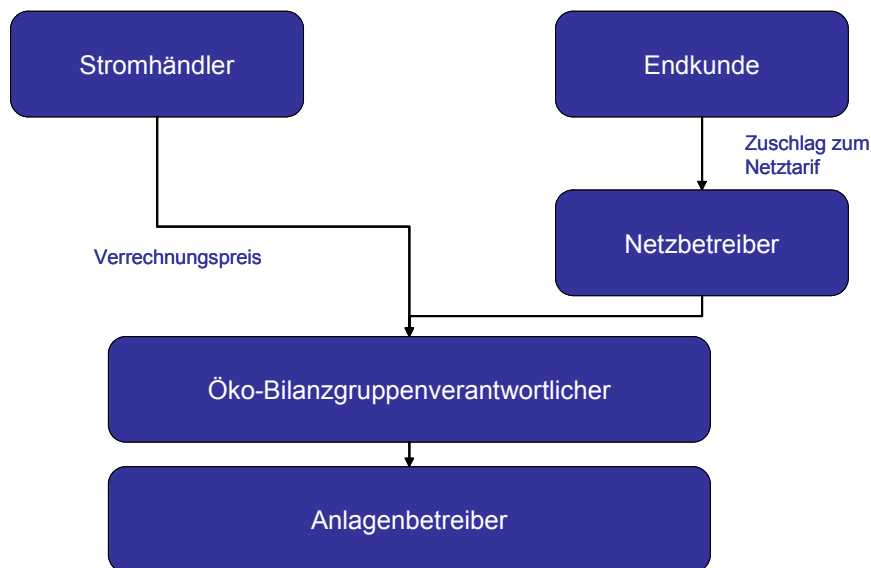


Figure 2: Payment flows in the green electricity and small-scale hydro sector

Key to Figure 2:

Electricity trader

Final consumer

Mark-up on network tariff

Settlement price

Grid operator

Eco-balance group manager

Plant operator

¹ There are three eco-balance group managers in Austria corresponding to the regulating areas. These are the Verbund APG, TIRAG and VKW.

The financial arrangements for financing the promotion scheme have also been standardised. Every final consumer pays the same mark-up on the system utilisation tariff. The second part of financing the promotion of green electricity involves the allocation (sale) of the green energy by the eco-balance group manager to the electricity trader at a fixed settlement price (above the market price) of currently EUR 45/MWh.

Figure 3 shows the mechanism for allocating green electricity. The plant operator, assuming it is participating in the promotion scheme via the feed-in tariff, sells to the eco-balance group manager all the electricity fed into the grid from green power plants at the set prices. The eco-balance group manager "bundles" this energy and allocates an appropriate share to the electricity trader, based on the latter's deliveries to final consumers, at the settlement price laid down in Section 19 of the Eco-electricity Act. The energy is also shared out between the balance groups on the basis of energy deliveries to final consumers in their particular regulating area. This sharing-out process serves to balance out the quantities and hence also the financial burdens. Every electricity trader thus has an equal share of green electricity based on its deliveries to final consumers.

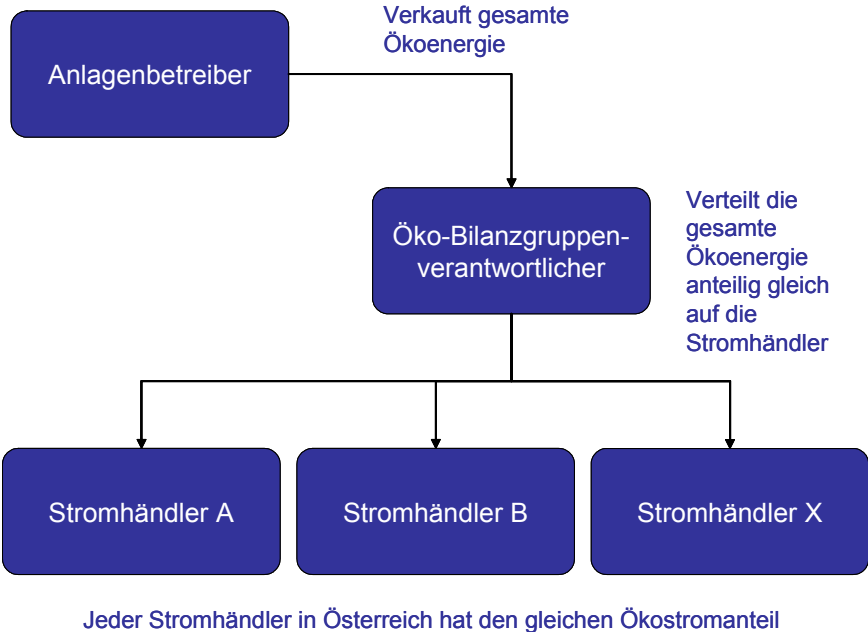
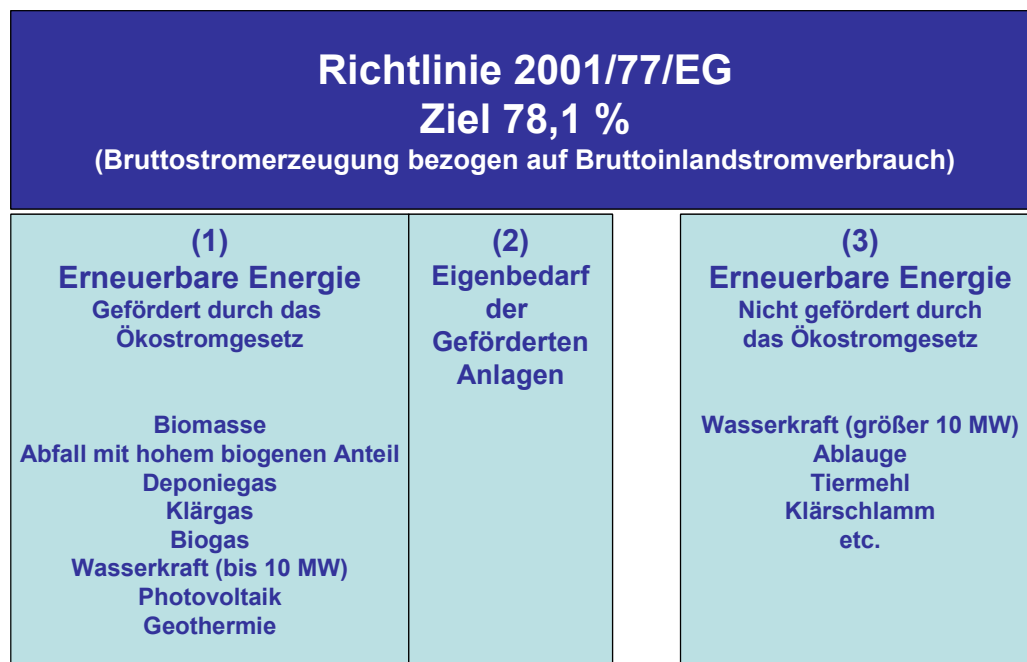


Figure 3: Allocation of green electricity

Plant operator	Sale of all green energy	
	Eco-balance group manager	Shares out all the green energy proportionately between electricity traders
Electricity trader A	Electricity trader B	Electricity trader X
Every electricity trader in Austria has the same proportion of green electricity		

3.3 Development of renewable energy sources

Austria already had the highest share (70%) of renewable electricity production in terms of gross national electricity consumption in the whole of the European Union in 1990, the base year for Directive 2001/77/EC. This share is meant to rise to 78.1% by the year 2010.²



² Based on gross national electricity consumption of 56.1 TWh (see footnote 3 in the annex to Directive 2001/77/EC).

Figure 4: Comparison Directive 2001/77/EC - Eco-electricity Act

Directive 2001/77/EC Target 78.1% (Gross electricity production in terms of gross national electricity consumption)		
(1)	(2)	(3)
Renewable energy Promoted under the Eco-electricity Act	Promoted plants' own requirement	Renewable energy Not promoted under the Eco-electricity Act
Biomass Waste with a high biogenic fraction Landfill gas Sewage treatment plant gas Biogas Hydro power (up to 10 MW) Photovoltaics Geothermal		Hydro power (above 10 MW) Waste liquor Carcass meal Sewage sludge etc

Austria has attached a condition to the achievement of this ambitious target, which was incorporated as a footnote to the RES Directive:

„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 hydro power 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 approach was considered essential, as it would have been irresponsible to base the target exclusively on a relative value given that the baseline value was already above average and given Austria's specific electricity production structure,

characterised by a very high proportion of hydro power and the associated dependence of electricity production on rainfall.

Figure 5 shows the effects of different rainfall conditions on production from run-of-river power plants in 2001 and 2002. The maximum and minimum values reflect the situation over the period from 1955 to 1990. This shows considerable fluctuations, and hence also that electricity production in Austria is heavily dependent on rainfall, as described above.

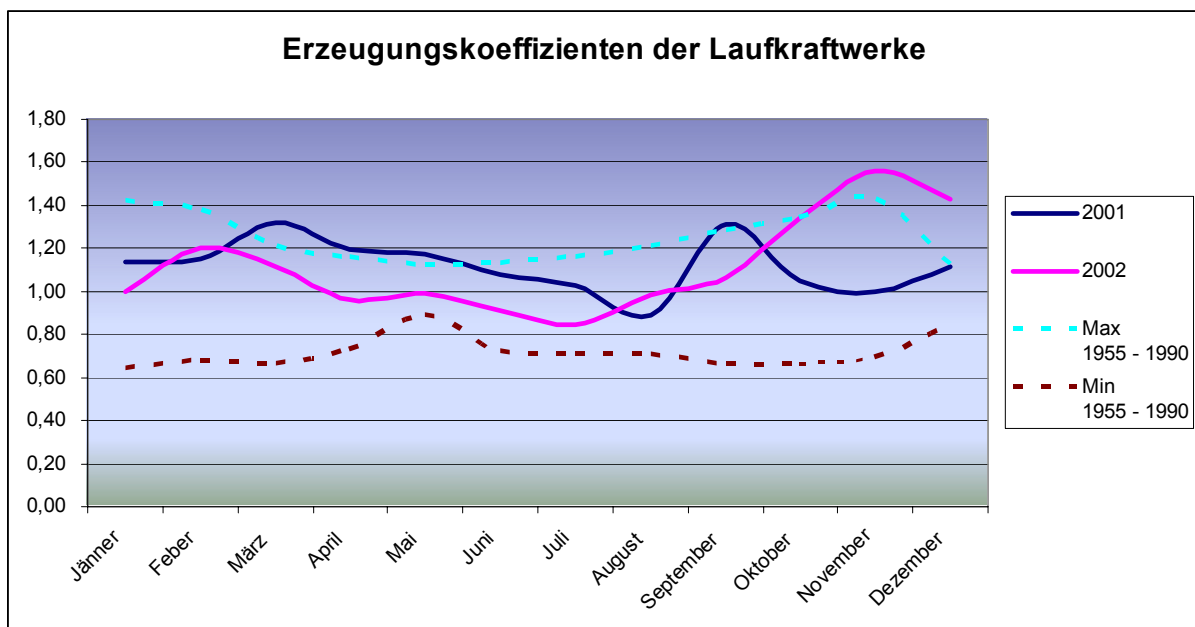


Figure 5: Production coefficients for run-of-river power plants in 2001

3.3.1 Achievement of targets in 2002

Gross electricity production from renewable energy sources in 2002 amounted to approximately 44 000 GWh. This figure includes an (estimated) 1 400 GWh for the source materials waste liquor, sewage sludge and other sludges, etc., based on the data from the 1998 operating statistics. This gives "renewables" a share of over 70% of total Austrian gross electricity production (see Figure 6).

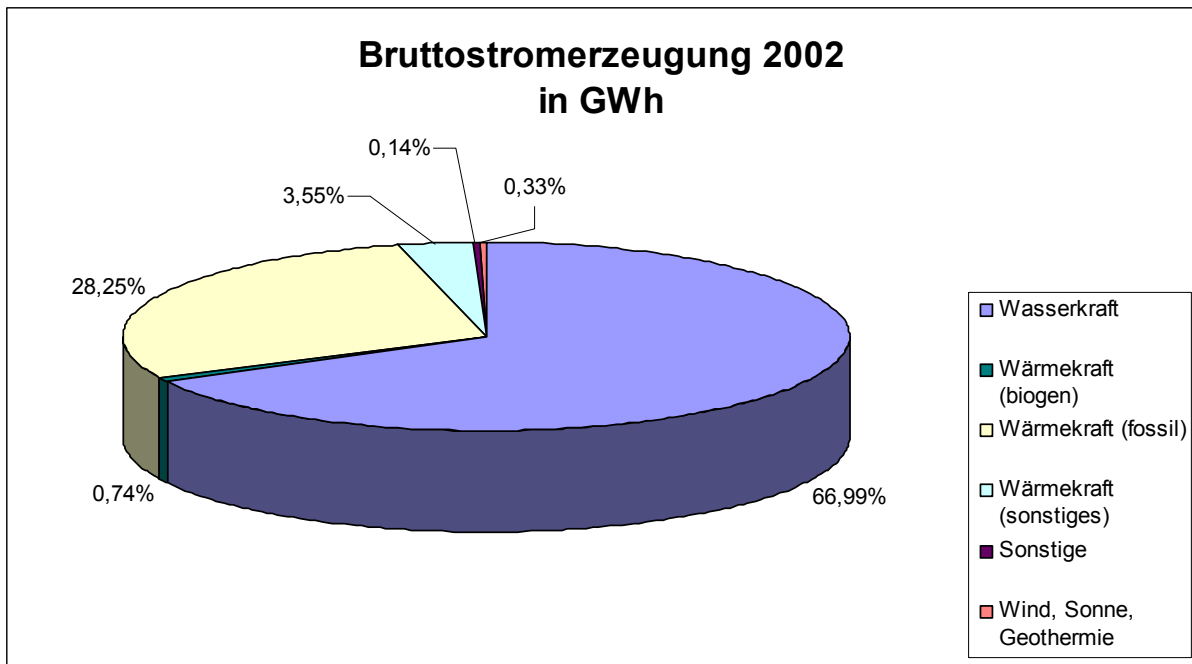


Figure 6: Gross electricity production in 2002

Key: hydro power
 thermal (biogenic)
 thermal (fossil)
 thermal (other)
 other
 wind, sun, geothermal

However, Directive 2001/77/EC takes gross national electricity consumption as the basis for achieving the target. In view of the value of 56.1 TWh in the footnote to the Annex to the Directive and of pumped electricity production of around 1 800 GWh (estimate), this gives a share of around 75% in 2002. If actual gross national electricity consumption is taken as a basis, renewables have a share of around 69%.

3.3.2 Trends in 2003

Austria's dependence on hydro power became clear in the first half of 2003. Production from hydro power stations was well below the figures for the previous years (see Figure 7).

Wind power was also below average during that period. Despite a great deal of new construction activity in the wind energy sector, very little additional energy was fed into the grid. The results for the first half of 2003 are shown in Figure 8.

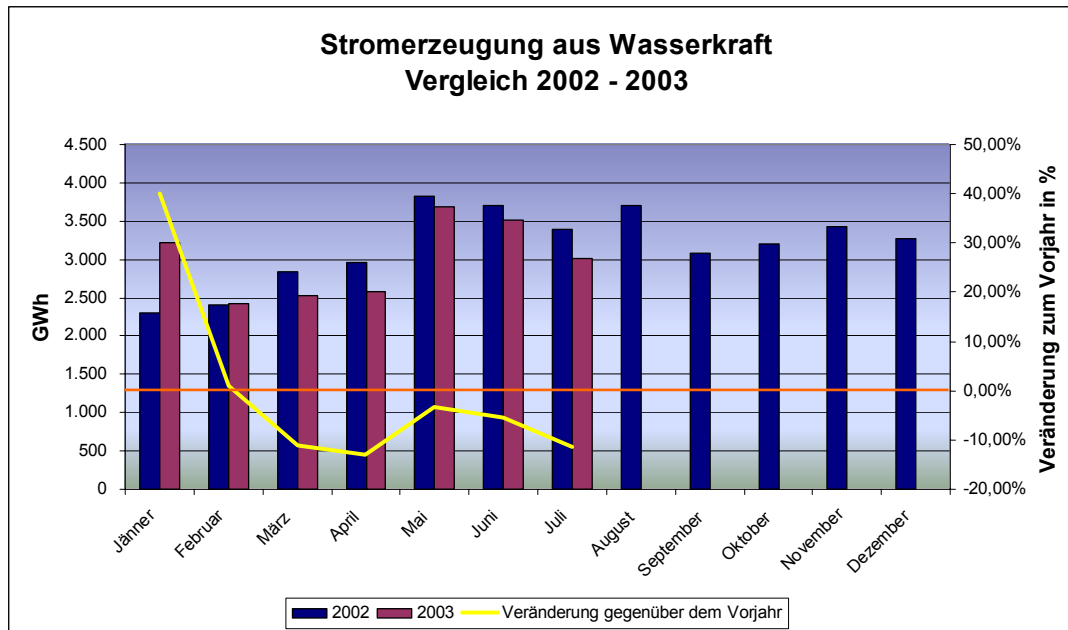


Figure 7: Comparison hydro power production 2002 – 2003

Key:

Veränderung zum Vorjahr: change compared with the previous year

The unfavourable wind conditions clearly emerge, even allowing for the fact that there is more wind in winter than in summer.

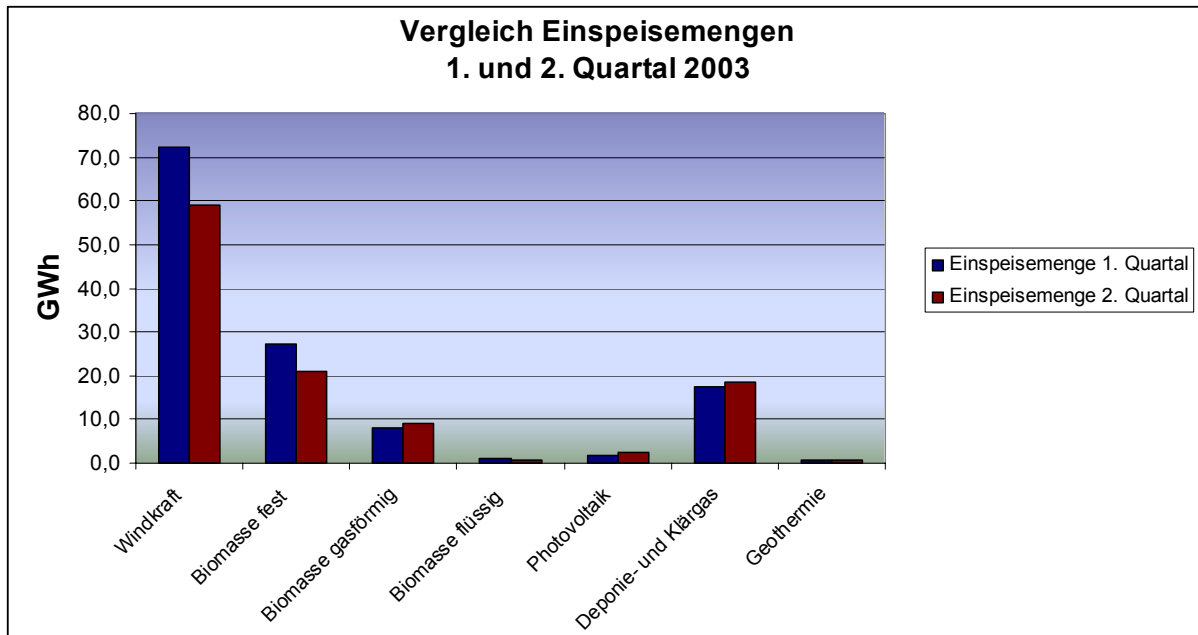


Figure 8: Development of "other green energy" in the first half of 2003

Key:

Vergleich Einspeisemengen 1. und 2. Quartal 2003: Comparison of feed-in quantities 1st and 2nd quarter 2003

(Left to right) Wind power, solid biomass, gaseous biomass, liquid biomass, photovoltaics, landfill and sewage treatment plant gas, geothermal

The number of notifications from the provincial authorities accepting the "green" status of electricity production plants can, with certain reservations, be taken as an indicator for the future development of green electricity plant in Austria. The trends in the wind energy and biomass sector in particular are shown in Figure 9.

However, these figures do not fully reflect the trend in wind energy. A study by Consentec³ concluded that the maximum scenario for wind was 1 700 MW. At present, however, owing to the network situation and other factors (see chapter 3.3), installed wind energy capacity is expected to be only around 1 400 MW in 2008.

³ See Consentec/IAEW/FGH, 2003, Auswirkungen des Windkraftausbaus in Österreich.

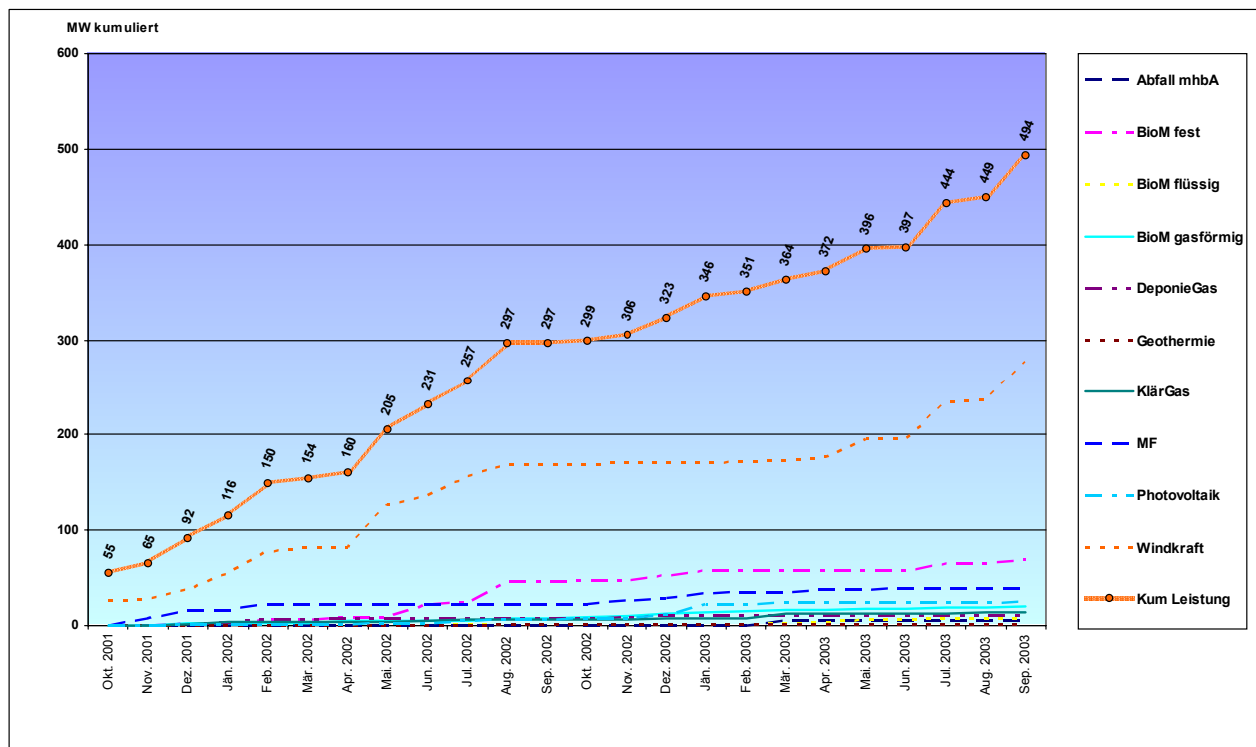


Figure 9: Development of green electricity plant in Austria

Key:

MW kumuliert = cumulated MW

Abfall mhBA = waste with a high biogenic fraction

BioM fest = solid biomass

BioM flüssig = liquid biomass

BioM gasförmig = gaseous biomass

Deponiegas = landfill gas

KlärGas = sewage treatment plant gas

MF = hybrid plant

Photovoltaik = photovoltaics

Windkraft = wind power

Kum Leistung = cumulated output

The trends shown surpass the expectations associated with the Eco-electricity Act. There are still question marks regarding the financing of the system in view of the circumstances described. Under the Eco-electricity Act, the Minister for Economic Affairs and Labour cannot raise the maximum charge of 0.22 cents/kWh in the "other

green energy" sector until 2005. Any increase must take account of the objectives of the Act.

4 Analysis of the framework conditions for developing renewable energy sources in Austria

4.1 Overview

Section 12(2) of the EIWOG contains the following basic provision on the construction and commissioning of green electricity plants: *"The implementing laws may provide that electricity production plants of a maximum given capacity which generate electrical energy from renewable energy sources or from waste or which operate according to the CHP principle are subject to a simplified procedure or to a notification obligation. Plants subject to a licensing or notification obligation under the provisions of the Industrial Code 1994, BGBl. 1994, are in any case exempt from any notification obligation."*

While most of the provinces have made use of this provision, the legal basis in this area is very heterogeneous — as in the case of the feed-in payments prior to the entry into force of the Eco-electricity Act.

In addition to authorisation under the electricity legislation, other areas such as water law, environmental protection law, etc. are affected and entail authorisation requirements which may also vary greatly depending on the type of plant or its size.

The plant operator must apply to the provincial governor for recognition under Section 7 of the Eco-electricity act in addition to the above administrative authorisations, if he wishes to claim payment under the Feed-in Order. Such recognition is a condition for concluding the contract with the eco-balance group manager.



Figure 10: Authorisations required by green electricity plants

Key:

Conditions for taking into service:

Authorisations (depending on the type and size of the plant)

from the:

district administration

provincial government

provincial governor

under:

Water law

Nature protection law

Forestry law

Electricity law

Construction law

Commercial law

EIA Act (e.g. wind turbines above 20 MW)

Etc.

Conditions for obtaining feed-in payment:

Recognition as a green power plant under Section 7 of the Eco-electricity Act

from the

Provincial governor

Section 1(2) of the law on rights of way exempts plants in accordance with Section 31(3) ElWOG, as amended in BGBl. I 143/1998, from the licensing obligation under this law. All "new renewable energy sources" (biomass, wind, etc) are therefore exempt from the licensing obligation, but not small-scale hydro power stations.

4.2 Simplified authorisation procedures in the provinces

As already mentioned, Section 12(2) ElWOG gives every province scope to introduce simplified procedures for green electricity plants. A brief overview of the current legal situation is given below.

Vereinfachte elektrizitätsrechtliche Verfahren für Ökostromanlagen

Bundesland	Vereinfachte Verfahren für	Anmerkungen
Burgenland	Biomasse, Biogas, Geothermie oder KWK-Anlagen bis 200 kW Windkraftanlagen bis 1 MW bzw. max. 2 Konvertern Photovoltaik bis zu einer Gesamtfläche von 500 m ²	§ 7 Burgenländisches Elektrizitätswesengesetz 2001, LGBl. 41/2001
Kärnten	Anlagen, deren Engpassleistung höchstens 500 kW beträgt	§ 9 Kärntner Elektrizitätswirtschaftsgesetz 2001, LGBl. 5/1999
Niederösterreich	Anlagen, deren Engpassleistung höchstens 250 kW beträgt Photovoltaikanlagen bis zu einer Gesamtfläche von 500 m ²	§ 7 Niederösterreichisches Elektrizitätswesengesetz 2001, LGBl. 92/2001
Oberösterreich	Stromerzeugungsanlagen mit einer Engpassleistung von 10 - 200 kW, die elektrische Energie aus erneuerbaren Energieträgern oder Abfällen erzeugen oder nach dem Prinzip der Kraft-Wärme-Kopplung arbeiten	§ 11 Oberösterreichisches Elektrizitätswirtschafts- und -organisationsgesetz, LGBl. 88/2001
Salzburg	Anlagen zwischen 10 und 200 kW sind nur anzeigepflichtig. Wird die Anzeige nicht innerhalb von drei Monaten zurückgewiesen, sind die Anlagen bewilligt	§ 45 Salzburger Landeselektrizitätsgesetz 1999, LGBl. 75/1999
Steiermark	Anlagen, die mit erneuerbarer Energie oder Abfällen betrieben werden oder nach dem Prinzip der Kraftwärmekopplung arbeiten und die installierte elektrische Engpassleistung höchstens 500 kW beträgt Photovoltaikanlagen bis zu einer Gesamtfläche von 500 m ²	§ 7 Steiermärkisches Elektrizitätswirtschafts- und -organisationsgesetz, LGBl. 60/2001
Tirol	Anlagen unter 5 kW werden vom Geltungsbereich des Gesetzes ausgenommen, Anlagen zwischen 5 und 100 kW sind anzeigepflichtig, Anlagen über 100 kW sind genehmigungspflichtig	§§ 1, 6 und 7 Tiroler Elektrizitätsgesetz 2001, LGBl. 76/2001
Vorarlberg	Anlagen, die mit erneuerbaren Energieträgern betrieben werden oder nach dem Prinzip der Kraftwärmekopplung arbeiten und die Leistung höchstens 500 kW beträgt	§ 8 Vorarlberger Elektrizitätswirtschaftsgesetz, LGBl. 6/1999
Wien	Anlagen, die mit fester oder flüssiger Biomasse, Bio-, Klär- oder Deponiegas, geothermischer Energie, Wasser, Wind oder Abfällen betrieben werden oder nach dem Prinzip der Kraft-Wärme-Kopplung arbeiten und die installierte Engpassleistung maximal 100 kW beträgt Photovoltaikanlagen bis zu einer Gesamtfläche von 50 m ²	§ 7 Wiener Elektrizitätswirtschaftsgesetz, LGBl. 72/2001

Table 11: Simplified procedures for green electricity plants

Province	Simplified procedure for	Comments
Burgenland	Biomass, biogas, geothermal or CHP plants up to 200 kW Wind turbines up to 1 MW or max. 2 converters Photovoltaics up to a total area of 500 m ²	Section 7 Burgenländisches Elektrizitätsgesetz 2001, LGBl. 4/2001
Kärnten	Plants with a peak capacity not exceeding 500 kW	Section 9 Kärntner Elektrizitätswirtschaftsgesetz 2001, LGBl. 5/1999
Lower Austria	Plants with a peak capacity not exceeding 250 kW Photovoltaics up to a total area of 500 m ²	Section 7 Niederösterreichisches Elektrizitätswesensgesetz 2001, LGBl. 92/2001
Upper Austria	Electricity generating plants with a peak capacity of 10-200 kW, which produce electricity from renewables or waste or operate on the CHP principle	Section 11 Oberösterreichisches Elektrizitätswirtschafts- und organisationsgesetz, LGBl. 88/2001
Salzburg	Plants between 10-200 kW only have to be notified. The plant is authorised if the notification is not rejected within three months	Section 45 Salzburger Landeselektrizitätsgesetz 1999, LGBl. 75/1999
Steiermark	Plants generating electricity from renewables or waste or	Section 7 Steiermärkisches Elektrizitätswirtschafts- und organisationsgesetz, LGBl.

	operating on the CHP principle with a peak capacity of 500 kW Photovoltaics up to a total area of 500 m ²	60/2001
Tirol	Plants below 5 kW are exempt from the scope of the Act, plants between 5 and 100 kW have to be notified, plants over 100 kW must be licensed	Sections 1, 6 and 7 of the Tirol Elektrizitätsgesetz 2001, LGBl. 76/2001
Vorarlberg	Plants generating electricity from renewables or waste or operating on the CHP principle with a peak capacity of 500 kW	Section 8 Vorarlberger Elektrizitätswirtschaftsgesetz, LGBl. 6/1999
Vienna	Plants generating electricity from solid or liquid biomass, sewage or landfill gas, geothermal, hydro, wind or waste or operating on the CHP principle, with a peak capacity of 100 kW Photovoltaics up to a total area of 50 m ²	Section 7 Wiener Elektrizitätswirtschaftsgesetz, LGBl. 72/2001

Most of the provinces have taken the option of simplifying the authorisation procedures for green electricity plants. However, Tirol, Salzburg and Kärnten are the exception, as they take plant capacity, and not the primary energy source, as the sole criterion for simplified procedures. Lower Austria also bases simplified

procedures on capacity, but makes special provision for photovoltaic plants up to a total area of 500 m².

Preferential treatment of renewable energy sources is not limited to the production sector: Section 20(1)(4) of the EIWOG allows preferential access to transmission lines for electricity from renewable energy sources. 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.”*

4.3 General barriers to the development of green electricity plants

There is a growing trend in Austria generally to expand green electricity plants. This clearly emerges from the trend in the recognition notifications (Figure 10). Nevertheless, there are several factors which prevent maximum exploitation of the economic potential.

4.3.1 Directive 2000/60/EG (Water Framework Directive)

The objectives of both the RES Directive and of the Eco-electricity Act are linked to the development of electricity consumption. The growth in demand has a significant influence on the construction of green electricity plants. Assuming an annual increase in demand of 1.6%, the implementation of the 4% objective for green electricity will therefore merely offset 2.5 years' growth.

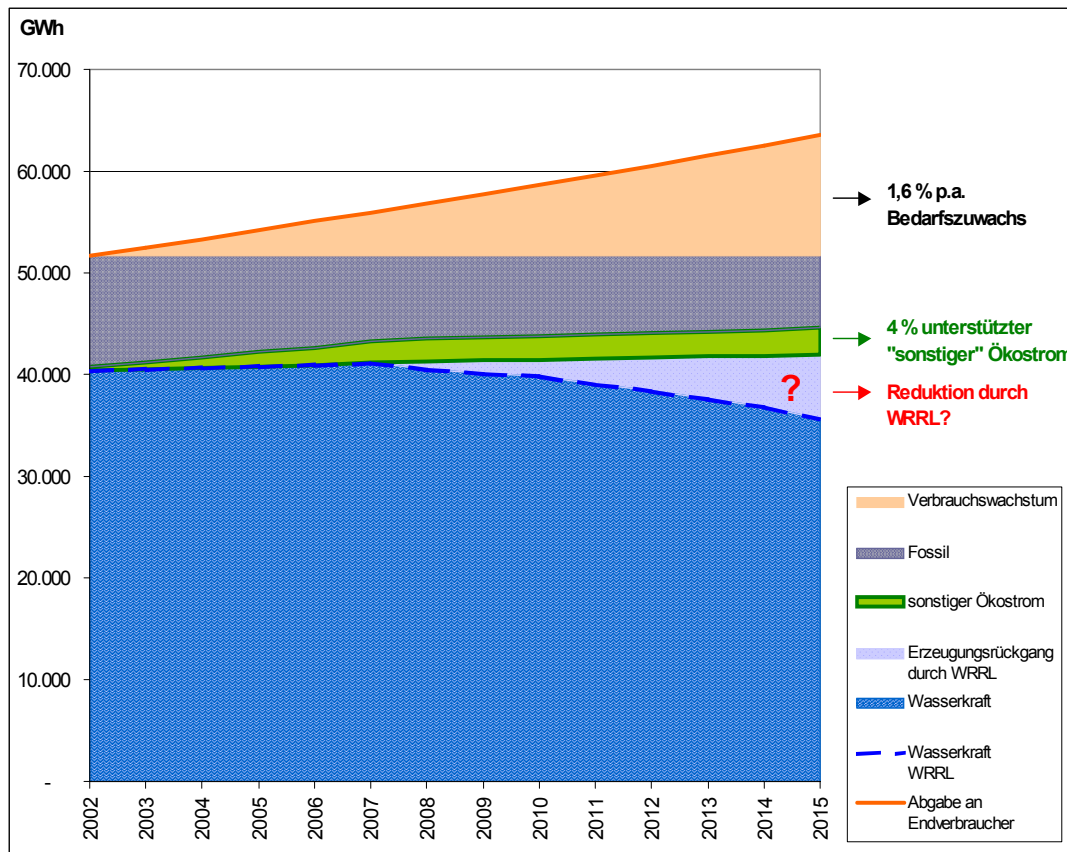


Figure 12: Trend in demand and the effect of the Water Framework Directive

Key:

1.6% annual growth in demand

4% promoted "other" green electricity

Reduction owing to Water Framework Directive?

Increase in consumption

Fossil

Other green electricity

Reduction in production due to Water Framework Directive

Hydro power

Hydro power Water Framework Directive

Delivery to final consumer

This situation is further exacerbated by the electricity production structure in Austria. In addition to dependence on rainfall, as shown in Chapter 2.3, it will be difficult for Austria to make full use of its hydro power potential in future as a result of Directive

2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (Water Framework Directive – WFD).

The WFD was published in the Official Journal of the European Union on 22.12.2000 and has to be transposed in national law within three years. Austria has already taken the first step by amending its Water Resources Act (Wasserrechtsgesetze) — but this Act, like the Directive, leaves a broad margin of discretion, so that the actual effects will be seen only after the implementing orders enter into force.

In particular, more restrictive measures in respect of the residual river flow, unobstructed passage and surge control could lead to a massive reduction in hydroelectricity production in Austria. According to experts, production may fall by between 10 and 15%, which is equivalent to between 4 200 and 6 300 GWh in terms of gross hydroelectricity production in 2002 (see Figure 6).

There is a clear conflict of aims between the requirements of Directive 2001/77/EC and Directive 2000/60/EC in the hydro power sector. In the worst case, the development of renewable energy sources will be more than offset by lower production from hydro power plants with the result that, despite massive financial support under the Eco-electricity Act, renewables will have a lower share of overall electricity production than in 1997, the reference year.

4.3.2 Expansion of the grid

The technical feasibility of connection to the grid is an issue in the North East of Austria in particular. There have been bottlenecks here for several years in the transport of energy southward. The transmission network operator, Verbund APG, has been trying to close the gap for years in the 380 kV grid.

However, as the best wind energy sites are in this region, network availability is critical to the development of green electricity plants. While the distribution network operators EVN, BEWAG and Wienstrom are taking steps to develop their network, it

is essential to expand the transmission system and establish connections to the high-voltage network because of the substantial development plans (maximum scenario for wind energy in Austria 1 400-1 700 MW).

4.3.3 Costs

One of the objectives of the Eco-electricity Act is to make electricity from renewable energy sources viable. Section 4(1) No 3 of the Act states that “policy should focus on bringing new technologies to the market”. However, a comparison shows that most of these technologies have production costs well above the market price.

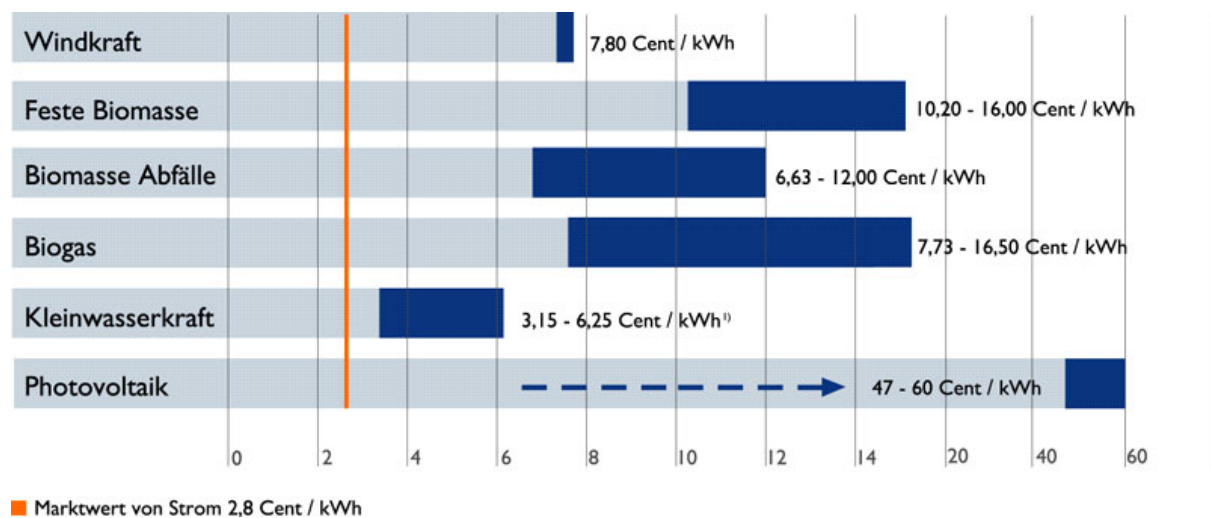


Figure 13: Comparison feed-in tariffs – market price

Key:

wind energy

solid biomass

biomass waste

biogas

small-scale hydropower

photovoltaic

Market price of electricity 2.6 cent/kWh

Moreover, the claimed learning effects and degressive costs are not yet being felt in the renewables sector. Although technological progress has been made, the supplier monopoly that exists in practice means that the resulting financial potential is not being passed on to customers and that prices, e.g. for wind turbines, are not falling.

4.3.4 Public opposition

In addition to the described practical barriers to the development of green energy plants, some projects cannot be put into practice because of local opposition. Most of the opposition is directed at small-scale power stations (e.g. campaign in Tirol und Kärnten) and against wind turbines (opposition mainly from local residents, nature protection groups and hunters).

Because of this opposition, wind registers were set up in Lower Austria and Burgenland to determine possible sites for wind turbines in cooperation with various interest groups. In addition, most project managers seek to involve the local population at an early stage and provide them with proper information.

4.4 Individual barriers

4.4.1 Wind power

As already described in Chapter 3.3, network deficiencies and public opposition are the main obstacle to the development of wind turbines. Furthermore, because of the wind conditions in Austria, development is concentrated in the North East. A few plants are planned in the South (Steiermark, Kärnten) and the West (Vorarlberg), mainly in Alpine regions. Apart from climate conditions (icing in winter), there is also strong opposition to the implementation of projects in these areas from the tourist industry.

Nevertheless, the potential in the North East has already been utilised to an extent that more than meets the green electricity target, so that it would not make sense to construct wind turbines on sites with less favourable wind conditions. This would also be in contradiction to the cost efficiency objective (Section 4(1) No 2 Eco-electricity Act).

4.4.2 Biomass

There has also been a strong upward trend in the biomass sector since the Eco-electricity Act entered into force. A growth of around 50 MW is expected next year in the solid biomass sector. It is more difficult to estimate the trend in the biogas sector — here the experts are predicting an additional 200 plants in 2008.

The main barriers in this context result from the structure of Austria's agriculture and forestry industry. Large plants, e.g. in Vienna Simmering with a capacity of around 10 MW_{el} and 60 MW_{th}, need around 600 000 solid cubic metres of biomass (timber) per year in full operation. Procurement logistics very quickly come up against their natural limits in view of such quantities, because of the small-scale of forestry operations in Austria.

For this reason, plant capacity tends to be at the lower end of the range, often with the disadvantage that heat is not extracted/utilised, meaning that efficiency is usually lower.

Opposition from local residents is less common in this case, however, as there is usually a working relationship with local businesses, which generates additional income.

4.4.3 Hydropower

Although hydro power is already being heavily utilised in Austria and despite the obstacles described in Chapter 3.3, such as the enormous impact of the Water

Framework Directive and local opposition, a number of hydro power projects are currently in progress. New capacities are being installed both in the large-scale (Tirol, Vorarlberg) and small-scale hydro sector (mainly Tirol, Lower Austria and Steiermark). The provisions resulting from the Water Framework Directive will be the limiting factor in this area. According to experts, hydro power generation in Austria may decline by between 10 and 15%.

4.5 Objectivity, transparency and non-discrimination

Objectivity, transparency and non-discrimination are important criteria for decision-making under Austrian electricity law and they are applied consistently at all levels. There are no known cases of technology discrimination based on administrative provisions.

4.5.1 Network access

Non-discriminatory network access was already a fundamental principle of the first liberalisation phase designed to prevent the network operator abusing its monopoly position. All plants are connected to the network, to the extent that it is technically possible.

Cases of denied network access are heard by an independent, tribunal-type body, the Energy Control Commission.

4.5.2 Guidelines

On the basis of Section 12(1) EIWOG, the implementing regulations must in all cases determine *"the conditions applying to the construction and entry into service of electricity production plants (...) on the basis of objective, transparent and non-*

discriminatory criteria (...)". This provision has been implemented by all the provinces.

In addition, some provinces have already issued guidelines for the authorisation of plants producing electricity from renewables (Tirol, Lower Austria and Steiermark), in order to provide support to potential plant operators and contribute to an efficient authorisation process.

4.6 Guarantee of origin database

In keeping with the provisions of the RES Directive, the Eco-electricity Act also contains provisions governing the issue of guarantees of origin. These are issued by the network operator to power plant operators on request, free of charge. Pursuant to Section 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.

If the operator of a green power plant or an electricity trader sells the electrical energy to another electricity trader, the vendor must pass the relevant guarantees of origin to the purchaser free of charge and this must be recorded.

In order to comply with the provisions on guarantee of origin in a cost-effective, transparent and uniform manner, network operators have the use of a guarantee of origin database provided by the company Energie-Control GmbH. Compliance with these criteria is a further step towards "information for the final consumer" and boosting of final consumer confidence.

4.7 Two-way consumption metering

As already described, Austria's promotion scheme is based on statutory feed-in tariffs and a corresponding purchase obligation on the part of the eco-balance group manager. This ensures that reimbursement for all electricity fed into the system is made in accordance with the rules. The network utilisation system is based on regulated third party access (rTPA), which exempts producers with a capacity of less than 1 MW from network utilisation charges (producers with a capacity of more than 1 MW pay a network service charge for secondary regulation). Consequently, every unit of electricity consumed bears a network utilisation "charge", but not every unit of energy delivered. This also means that two-way consumption metering would result in an unequal weighting of network utilisation. Complex administrative measures would be needed to prevent this imbalance, which would also conflict with Austria's existing rTPA system. While two-way consumption metering would have been easy to implement under the "old" vertically integrated system, it would not fit in with the new, separate scheme and was therefore not adopted.

5 Summary and outlook

Austria is at the forefront of the European Community with regard to the renewable share of gross electricity production. The Eco-electricity Act has created a uniform, cost-effective basis to achieve the ambitious target of 78.1% in 2010, and also provides sufficient incentives for the necessary development of green power plants.

Electricity generation from hydro power will have a decisive influence on whether Austria achieves its target. In addition to the uncertainty resulting from the dependence of hydro power on climatic factors, hydro power's share will also depend to a large extent on how the Water Framework Directive is transposed in national law. More restrictive measures concerning residual water flow, unobstructed passage of rivers and surge control could lead to a fall of up to 15%. As a result, electricity production from green power plants, promoted by the Eco-electricity Act, may not offset the fall in production due to the potential repercussions of the Water Framework Directive.

The administrative procedures are objective and transparent, and there are simplified procedures for small plants. However, it must also be borne in mind that Austria, in addition to very strict environmental protection requirements, offers a high level of legal protection and hence corresponding scope for public participation, and the resulting court cases and appeals can lead to delays.