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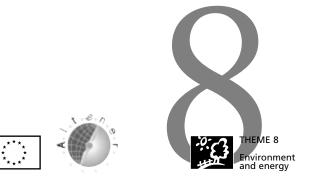
Página 3

2002 EDITION



# Renewable energy sources statistics in the EU, Iceland and Norway

Data 1989-2000



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> Yves Franchet Director-General



## Contents

Introduction	
RES Primary Energy Production	9
Inland Consumption	
Electricity Generation	
The Impact of Each Resource	
Country Data	
Belgium	
Denmark	
Germany	
Greece	
Spain	
France	
Ireland	

Italy	
Luxembourg	
The Netherlands	
Austria	60
Portugal	
Finland	
Sweden	
The United Kingdom	
Iceland	
Norway	

#### Introduction

In the late 80's very few statistics existed on renewable energy either at the EU level or in the Member States. At the time only data on electricity generation from large hydro plants were collected regularly. The Council Recommendation of 9 June, 1988 (88/349/EEC) stipulates that the Member States, in collaboration with Eurostat, should establish a statistical system for data collection on Renewable Energy Sources.

#### Main actions

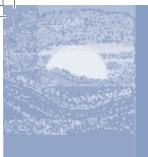
- 1990: The first data collection was launched, with 1989 as the reference year. Creation of a network of national centres of expertise (Ministries, Energy Agencies, Statistical offices) at national level.
- 1991-99: Revision and finalisation for the data collection methodology, in collaboration with the Member States. Collection of statistics continued on an annual basis and was financed partially by the Commission (DG Energy Altener Programme), Eurostat and DG R&D). Member States presented their national results in various national publications. The repetition of data collection allowed Member States to improve the quality of statistics for certain applications as well as to bring the project to a level of routine activity. Specific surveys were also performed for difficult applications, either as a result of this project or as a result of other surveys initiated by Eurostat (e.g. households, services, combined heat and power plants).
- 2000: Member States agreed to undertake the entire cost of this data collection and reporting to Eurostat in the future. For this purpose Eurostat created a new questionnaire to be used in conjunction with the existing four questionnaires covering conventional fuels. This questionnaire fully meets the requirements of DG TREN, and will also be used for data collection in all OECD countries (Joint Eurostat/IEA/UNECE questionnaire).

#### Project Results

This project, a joint effort of Eurostat, DG TREN and DG R&D has provided the following concrete results:

- Reference statistics for setting and monitoring Community quantitative targets on the contribution of renewable energy sources,
- Four specific publications with statistics and the methodology used,
- A database with detailed information on RES from 1989 to 2000,
- Expertise developed by the national statistical systems in providing harmonised statistics.

This publication contains the main renewable energy data and indicators for the period 1989 to 2000 for the European Union, Norway and Iceland based on statistics collected by Eurostat and financed in the framework of the Altener programme, Directorate General for Energy and Transport. The information was compiled by the Centre for Renewable Energy Sources, CRES, Greece and the Institute for the Diversification and Energy Saving, IDAE, Spain.



## **Renewable Energy Sources Statistics EU - 15 Data**









# Glossary

CAP	Common Agricultural Policy
CHP	Combined Heat and Power
EU	European Union
GIC	Gross Inland Consumption
MSW	Municipal Solid Waste
NCV	Net Calorific Value
$\mathbf{PV}$	Photovoltaic
RES	Renewable Energy Sources
WECs	Wind Energy Converters
kJ	Kilojoule
MJ	Megajoule
ŢJ	Terajoule
ktoe	Thousand tonnes of oil equivalent
Mtoe	Million tonnes of oil equivalent
kWp	Kilowatt peak
MW	Megawatt
$\mathrm{MW}_{\mathrm{th}}$	Megawatt thermal
$\mathrm{MW}_{\mathrm{e}}$	Megawatt electric

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TWh

GW GWh

Gigawatthour

Gigawatt

Megawatthour

MWh

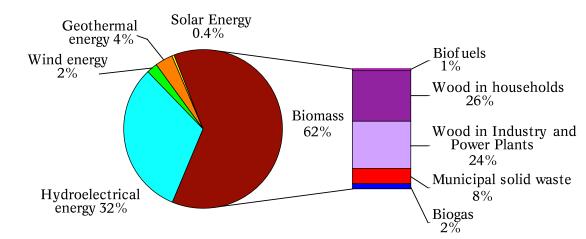
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			Prin	Primary Energy Production								
				Average Annual Increase per period								
ktoe	1989	1995	2000	89-95	95-00	89-00						
All Fuels Renewables	719 962 65 010	736 563 73 505	758 694 87 645	0.4% 2%	0.6% 4%	0.5% 3%						
WIND	45	350	1931	41%	41%	41%						
SOLAR	127	242	364	11%	9%	10%						
HYDRO	21 619	24 948	27 663	2%	2%	2%						
GEOTHERMAL	2 216	2 517	3 335	2%	6%	4%						
BIOMASS incl. BIOFUELS	41 002	45 450	54 352	2%	4%	3%						
Total RES Electricity Generation (TWh)	271	321	388	3%	4%	3%						



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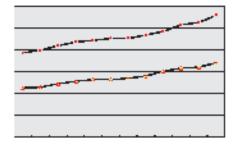
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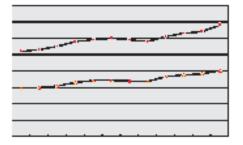
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#### EU-15, Primary Energy Production in 2000

Primary	Primary energy production from RES in EU-15												
Year	Primary energy production from	Total primary production (ktoe)	Total inland consumption (ktoe)	Contribution of RES to total primary	Contribution of RES to total inland								
	RES (ktoe)			production	consumption								
1989	65 010	719 962	1 310 261	9.0%	5.0%								
1990	65 760	705 705	1 319 239	9.3%	5.0%								
1991	68 830	707 474	1 346 604	9.7%	5.1%								
1992	70 810	701 893	1 336 150	10.1%	5.3%								
1993	72 440	709 102	1 336 212	10.2%	5.4%								
1994	72 772	722 754	1 336 436	10.1%	5.4%								
1995	73 506	736 511	1 363 797	10.0%	5.4%								
1996	76 079	762 107	1 413 344	10.0%	5.4%								
1997	80 064	755 897	1 410 318	10.6%	5.7%								
1998	82 996	750 562	1 436 907	11.1%	5.8%								
1999	84 245	764 518	1 444 142	11.0%	5.8%								
2000	87 635	758 681	1 455 105	11.6%	6.0%								

P eal 11 The application of the **substitution principle** shows that if the electricity generated from hydropower, wind, geothermal, biomass and photovoltaic systems had been produced from a conventional power station (where 220 toe of primary energy are required to produce 1 GWh), renewable energy in the year 2000 in the European Union (EU 15) would have contributed 16.4% to total primary energy production.





ne ge Productor (m. 1953) I

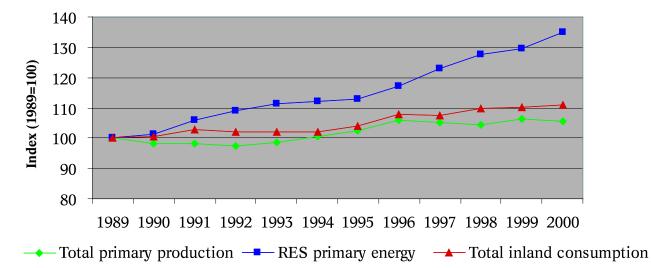
Primary energy production of renewable energy sources in the European Union (EU-15) in 1989 was 65 Mtoe, representing 9.0% of overall primary energy production. The increase to 88 Mtoe over the period 1989-2000, resulted in a higher contribution to primary production (11.6% in 2000).

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### Primary Energy Evolution in EU-15, 1989-2000

#### Inland Consumption

Renewable energy sources accounted for 5.0% of the total inland consumption in the European Union (EU-15) in 1989. This percentage was increased to 6.0% in 2000. In the European Union, hydro and biomass/wastes are the major renewable energy sources while geothermal, solar and wind energy, make a smaller contribution. The use of biomass/wastes is predominantly in the form of firewood consumption in households, although wood waste burned in industry and municipal solid waste incineration, contribute significantly.

\* Gross Electricity Consumption of a country or a region is the sum of the Gross Electricity Production plus the net imports of electricity in the country or the region.

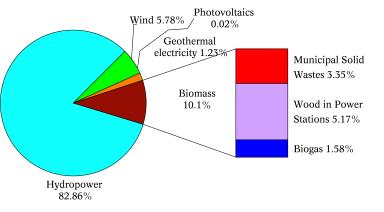
RES Contr	ibution in 2000		
Country	To Total Primary Production	To Total Inland Consumption	To Gross Electricity Consumption*
В	5.6%	1.3%	1.5%
DK	7.7%	10.8%	17.1%
D	7.6%	2.9%	6.8%
GR	14.1%	5.0%	7.7%
Е	22.5%	5.7%	15.7%
F	13.4%	6.8%	15.0%
IRL	11.3%	1.8%	4.9%
Ι	40.5%	7.0%	16.1%
L	100.0%	1.6%	2.9%
NL	2.9%	2.1%	3.9%
А	69.9%	23.2%	71.5%
Р	100.0%	13.0%	29.4%
FIN	52.7%	23.9%	28.5%
S	49.3%	30.7%	55.3%
UK	1.0%	1.1%	2.7%
EU-15	11.6%	6.0%	14.7%

#### **Electricity Generation**

In 2000, electricity generation in the European Union (EU-15) from renewable energy sources was 388 TWh, representing 14.7% of the Gross Electricity Consumption and coming essentially from hydropower plants (321 TWh in 2000). Looking at electricity generation from biomass/ wastes (39.2 TWh in 2000), municipal solid wastes (13.0 TWh) account for 33.2% of the total electricity from biomass, while wood/wood waste and agricultural solid wastes burned in power stations (20 TWh) for 51.1%, with the remainder being generated from biogas. In 1989, 528 GWh were generated from wind turbines whose total installed capacity was 354 MW at that time, while in 2000, 22 434 GWh were generated from an installed capacity of 12 792 MW.

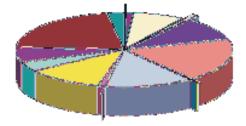
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Electricity Generation from RES in EU-15											
Year	Electricity Generation from RES (TWh)	Gross Electricity Consumption (TWh)	Contribution of RES to Gross Electricity Consumption								
1989	271	2 044	13.3%								
1990	279	2 086	13.4%								
1991	289	2 238	12.9%								
1992	309	2 251	13.7%								
1993	315	2 254	14.0%								
1994	325	2 287	14.2%								
1995	321	2 345	13.7%								
1996	324	2 410	13.5%								
1997	335	2 434	13.8%								
1998	353	2 506	14.1%								
1999	360	2 555	14.1%								
2000	388	2 641	14.7%								

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#### The Impact of Each Resource

#### Wind

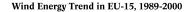
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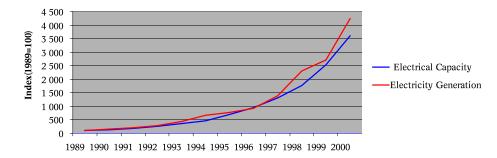
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In 2000, the installed capacity of wind energy converters in EU-15 was 12 792 MW, generating 22 434 GWh of electricity (1931 ktoe). Since 1989, installed capacity has increased by a factor of 36 while electricity generation has risen by a factor of almost forty-two. The average annual increase of the electricity generated by wind energy converters in the period 1995-2000 is 41%.





#### Hydropower

Hydropower is the second largest renewable energy source in EU-15 in terms of primary energy production, accounting for 31.6% (27 663 ktoe) of total RES primary energy production in 2000. By the end of 2000, installed capacity was 94 620 MW, showing an increase of 11.2% over the period 1989-2000. It must be stressed that the potential of large-scale plants in the European Union has almost already been exploited.

Hydrop	ower in EU-15				
Year	Installed Capacity (MW)	of which < 10 MW	Primary energy production (ktoe)	Electricity generation (TWh)	Contribution of Hydro Electricity in Total RES Electricity
1989	85 055	8 495	21 619	251	93%
1990	85 659	8 604	22 275	259	93%
1991	86 320	8 702	23 085	268	93%
1992	86 739	8 812	24 587	286	93%
1993	87 430	9 084	24 883	289	92%
1994	91 019	9 268	25 536	297	91%
1995	91 380	9 417	24 948	290	90%
1996	91 756	9 653	24 816	288	89%
1997	92 972	9 755	25 454	296	88%
1998	93 614	9 845	26 265	305	86%
1999	93 440	9 870	26 319	306	85%
2000	94 620	9 708	27 663	321	83%

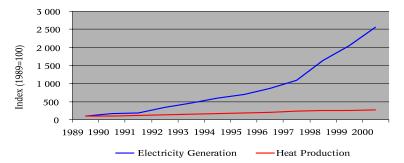
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#### Solar energy

20

In 2000, the total installed surface of solar collectors in EU-15 was 10.4 million square metres. Primary energy production was 356 ktoe, i.e. 0.4% of total EU-15 RES primary energy. Production has almost tripled over the reference period. About 29% of the total surface area of installed solar collectors in EU-15 was located in Germany, 29% in Greece and 18% in Austria while the shares to the total heat production are 26%, 28% and 13% for Germany, Greece and Austria respectively.

Installed capacity of photovoltaic (PV) panels in EU-15 by the end of 2000 was 88 MWp, which means an increase of twenty times the 1989 capacity of 4.4 MWp. Electricity generation has risen by a factor of twenty six from 1989 (4 GWh) to 2000 (96 GWh). Significant reductions in cost due to the use of cheaper materials, together with promotion policies in some Member States, have resulted in significant development of PV panels mainly in small-scale stand-alone applications. Germany had the largest PV capacity in EU-15 in 2000 with more than 40 MW.

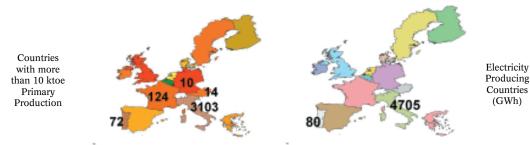


Solar Energy Evolution in EU-15, 1989-2000

#### **Geothermal Energy**

Primary production of geothermal energy was 3 335 ktoe in 2000, which represented 3.8% of total RES primary energy in EU-15. The main contributing Member State is Italy with 3 103 ktoe in 2000 with a share of 93%.

In EU-15, electricity production and installed capacity of geothermal power plants in 2000 were 4 785 GWh and 644 MWe respectively, i.e. an increase of 51.4% in generation and 21.6% in capacity since 1989. Electricity generation is almost exclusively confined to Italy (4 705 GWh) due to the high enthalpy geothermal resources while minor contributions were made by Portugal (80 GWh). In contrast to the use of geothermal heat for electricity generation, the direct end-use of low enthalpy geothermal heat is more widely spread across the European Union and serves mainly in district heating and agriculture.



#### **Biomass/Wastes**

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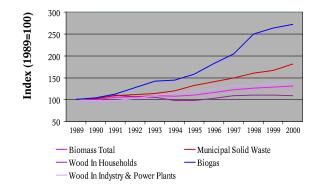
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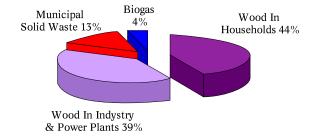
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Biomass/Wastes are the most important renewable energy sources in EU-15.

Biomass/wastes contributed 53 690 ktoe of primary energy production in EU-15 in 2000, representing 61.3% (62.0% including Biofuels) of total RES energy production. They are mainly used to produce heat, the electricity generation being 39.2 TWh in 2000.



#### The Breakdown of Biomass in 2000



### **Municipal Solid Waste incineration**

Incineration is the method used most frequently to recover energy from wastes disposed of by households, industry and the tertiary sector. In 2000, primary energy production of Municipal Solid Wastes, was 7 243 ktoe, i.e. an increase of 81% since 1989, representing about 13.5% of the total primary energy production from biomass/wastes. In Europe, electricity generation from MSW was 13.0 TWh in 2000, showing an increase of 169% since 1989. It represented 33.2% of total electricity generation from biomass/wastes. It must be noticed that, in the above figures, no distinction between biodegradable and non-biodegradable Waste is made.

It must be noticed that although the above data include both biodegradable and non-biodegradable MSW, the statistical system is now adapted to the requirements of the new Directive on electricity from renewables and future statistics will exclude the non-biodegradable part from the production and consumption of Municipal Solid Wastes.

Year		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Primary P (ktoe)	roduction	4 006	4 103	4 376	4 440	4 548	4 811	5 283	5 648	5 968	6 406	6 685	7 243
Primary P (index 198		100	102	109	111	114	120	132	141	149	160	167	181

## Wood/Wood Wastes/Other Solid Wastes

The combustion of firewood and forestry/agricultural solid wastes is the major RES technology in EU-15, accounting for 82.5% of total primary energy production from biomass/wastes and 50.5% of the total RES energy production. The principal fuels used are firewood and wood waste (wood chips, bark etc.), while there are minor contributions from black liquor, straw and other agricultural wastes.

Firewood consumption in households was 23 182 ktoe in 2000. France (7 407 ktoe), Germany (3 727 ktoe), Italy (3 614 ktoe) and Spain (2 049 ktoe) show significant levels of firewood consumption for domestic heating. It should be noted here that accurate statistics on firewood consumption can only be obtained with surveys.

The quantity of wood and wood waste used in power stations and industry for electricity and/or heat production was 21100 ktoe in 2000, while electricity generation was 20.0 TWh, as mentioned above.

#### Primary Production of Wood, Wood Waste and Other Solid Waste (index 1989=100)

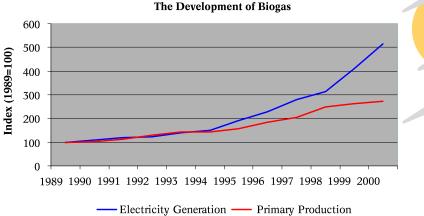
Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
In Households	100	102	110	107	106	98	98	102	109	111	111	109
In Power Stations and Industry	100	97	98	102	110	115	119	125	131	134	137	142

#### **Biogas**

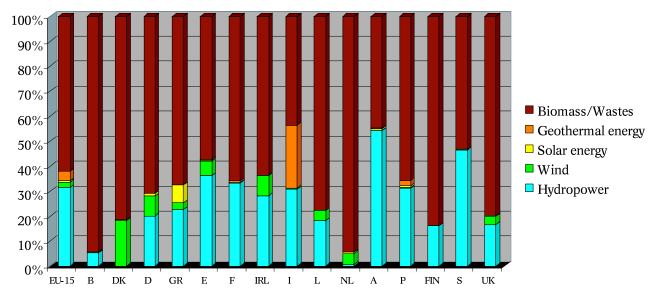
The anaerobic fermentation of organic wastes is a practice that has been rapidly expanding in EU-15. Whereas it is an activity that takes place mainly for environmental reasons, energy recovery is a welcomed by-product. In EU-15, biogas energy production was 2 164 ktoe in 2000, mainly from landfill gas and sewage sludge gas. Electricity generation from biogas in EU-15 was 6.1 TWh in 2000, mainly from landfill gas.

#### **Biofuels**

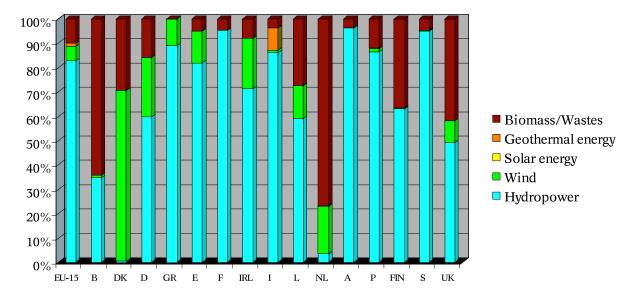
Primary energy production of liquid biofuels in EU-15 has increased significantly since 1989 and attained 663 ktoe in 2000.



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#### Primary Energy Production by Source in 2000



#### **Electricity Generation by Source in 2000**

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## Renewable Energy Sources Statistics Country Data









RES Primary Energy Production in 2000 breakdown by source Geothermal Biofuels energy 0.2% / \_\_\_\_\_ energy 5.4% Municipal solid waste 43.0% Wood in households 21.0% Other wood and wood waste 26.5% Biogas 3.6% Wind energy 0.2% Solar Energy 0.2%

30

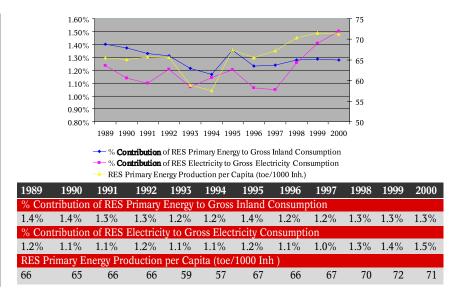
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Hydroelectrical													
energy	26	23	20	29	22	30	29	21	26	33	29	40	6%
Wood in													
households	185	185	185	177	180	176	170	210	167	168	177	154	-2%
Other wood													
and wood waste	151	151	152	147	70	59	148	97	133	178	197	193	6%
Wind energy	1	1	1	1	1	1	1	1	1	1	1	1	13%
Solar Energy	1	1	1	1	1	1	1	1	1	1	1	1	4%
Biogas	6	6	10	7	7	10	11	10	13	22	20	26	19%
Municipal													
solid waste	281	281	289	297	311	298	323	325	341	314	304	314	-1%
Geothermal energy		1	1	1	1	1	2	2	2	2	2	1	-3%
Biofuels	0	0	0	0	2	6	0	0	0	0	0	0	0
Total	652	649	659	660	593	582	684	666	684	718	732	731	1%

**RES Primary Energy Production (ktoe)** 

Average Annual

Change

Wood and wood wastes cover the largest percentage of the total RES primary energy production (47.5% in 2000), while municipal solid waste is the second largest source (43% of RES primary energy production in 2000). MSW is used for the production of the largest percentage of RES electricity. The percentage of RES in the Gross Inland Consumption was 1.3% in 2000 (and is equal to the average of the last ten years), while the percentage of RES electricity in the Gross Electricity Consumption was 1.5% in the same year.





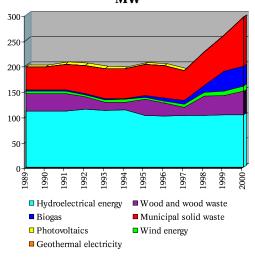
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	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Share of RES Electricity to Gross Electricity Consumption													
	1.2%	1.1%	1.1%	1.2%	1.1%	1.1%	1.2%	1.1%	1.0%	1.3%	1.4%	1.5%	
<b>Electricity Generation</b>	Electricity Generation per RES Technology as a percentage of the Gross Electricity Consumption												
Hydroelectrical energy	0.5%	0.4%	0.3%	0.5%	0.3%	0.5%	0.4%	0.3%	0.4%	0.5%	0.4%	0.5%	
Wood and wood waste	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.2%	0.2%	
Wind energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	
Municipal solid waste	0.5%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
<b>RES Primary Energy Pro</b>	duction	ı per Ca	pita (to	e/1000	Inh )								

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	3	2	2	3	2	3	3	2	3	3	3	4
Wood in households	19	19	19	18	18	17	17	21	16	16	17	15
Other wood and wood waste	e 15	15	15	15	7	6	15	10	13	17	19	19
Wind energy	0	0	0	0	0	0	0	0	0	0	0	0
Solar Energy	0	0	0	0	0	0	0	0	0	0	0	0
Biogas	1	1	1	1	1	1	1	1	1	2	2	3
Municipal solid waste	28	28	29	30	31	29	32	32	34	31	30	31
Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0
Biofuels	0	0	0	0	0	1	0	0	0	0	0	0
All RES	66	65	66	66	59	57	67	66	67	70	72	71

MW

Т



<b>RES Primary Energy Production in 2000</b>													(	2
breakdown by source		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	ļ
Biofuels	Hydroelectrical													1
Geothermal 2.0% Hydroelectrical	energy	2	2	2	2	2	3	3	2	2	2	3	2	
Municipal solid energy 0.1% energy 0.0% Wood in households 21.2%	Wood in													
waste 34.2%	households	422	423	458	465	477	455	446	457	455	420	420	448	
	Other wood													
	and wood waste	312	328	363	394	400	372	388	383	409	435	469	439	
	Wind energy	37	52	64	79	89	98	101	106	166	242	260	382	
	Solar Energy	1	2	3	3	4	4	5	6	7	7	8	8	
	Biogas	26	30	37	37	41	46	42	48	57	64	63	70	
Biogas	Municipal													
3.3% Other wood wood waste		368	382	402	419	453	477	560	607	660	652	695	725	
Energy 0.4% Wind energy 18.0%	Geothermal energy	1	1	1	1	1	1	1	1	1	1	1	1	
	Biofuels	0	0	0	0	0	0	0	0	0	0	0	42	
	Total	1 169	1 221	1 330	1 401	1 468	1 457	1 546	1 608	1 757	1 824	1 919	2 118	

**RES Primary Energy Production (ktoe)** 

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Average Annual Change

95-00

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2%

30%

10%

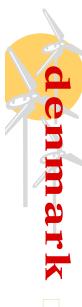
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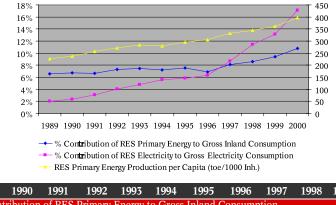
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The largest percentage of RES electricity in Denmark is produced by wind energy converters (12% in 2000) and by incinerators of MSW (3.4% in 2000). Wood and wood wastes cover the largest percentage of the total RES primary energy production (41.9% in 2000), while MSW is the second largest source (34.2% of RES primary energy production in 2000). The percentage of RES in the Gross Inland Consumption was 10.8% in 2000, while the percentage of RES electricity in the Gross Electricity Consumption was 17.1% in the same year.

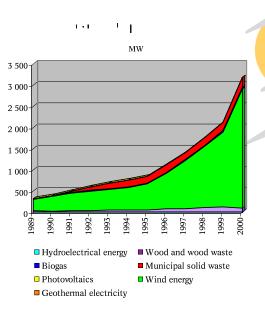


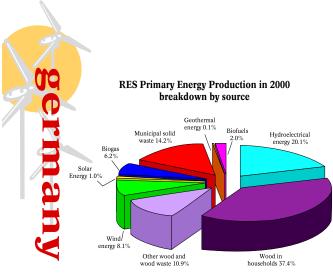
1969	1990	1991	1992	1995	1994	1995	1990	1997	1999	1999	2000
% Con	tribution	ı of RES	Primary	Energy	to Gross	Inland (	Consump	otion			
6.5%	6.7%	6.7%	7.3%	7.5%	7.2%	7.5%	6.9%	8.1%	8.6%	9.4%	10.8%
% Con	tribution	of RES	Electrici	ty to Gr	oss Elec	tricity Co	onsumpti	on			
2.0%	2.4%	3.0%	4.0%	4.8%	5.6%	5.8%	6.3%	8.7%	11.4%	13.1%	17.1%
RES Pr	imary Eı	nergy Pr	oduction	per Car	oita (toe/	′1000 Inl	n )				
228	238	258	271	283	280	295	306	332	344	361	397

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Share of RES Electricity	to Gro	ss Elect	ricity C	onsump	tion							
	2.0%	2.4%	3.0%	4.0%	4.8%	5.6%	5.8%	6.3%	8.7%	11.4%	13.1%	17.1%
Electricity Generation p	oer RES	Techno	logy as	a perce	ntage of	i the Gr	oss Elec	tricity (	Consum	ption		
Hydroelectrical energy	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%
Wood and wood waste	0.5%	0.2%	0.3%	0.4%	0.5%	0.5%	0.5%	0.8%	0.9%	1.2%	1.3%	1.1%
Wind energy	1.3%	1.9%	2.1%	2.6%	3.0%	3.2%	3.3%	3.2%	5.2%	7.7%	8.3%	12.0%
Biogas	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.2%	0.2%	0.3%	0.3%	0.5%	0.6%
Municipal solid waste	0.0%	0.1%	0.3%	0.8%	1.0%	1.5%	1.7%	2.0%	2.2%	2.3%	2.9%	3.4%
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

#### RES Primary Energy Production per Capita (toe/1000 Inh )

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	0	0	0	0	0	1	0	0	0	0	1	0
Wood in households	82	82	89	90	92	87	85	87	86	79	79	84
Other wood and wood wast	e 61	64	70	76	77	71	74	73	77	82	88	82
Wind energy	7	10	12	15	17	19	19	20	31	46	49	72
Solar Energy	0	0	1	1	1	1	1	1	1	1	1	1
Biogas	5	6	7	7	8	9	8	9	11	12	12	13
Municipal solid waste	72	74	78	81	87	92	107	115	125	123	131	136
Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0
Biofuels	0	0	0	0	0	0	0	0	0	0	0	8
All RES	228	238	258	271	283	280	295	306	332	344	361	397

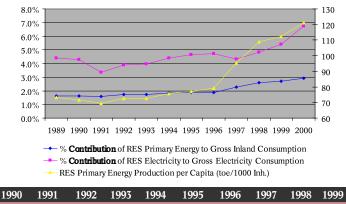




													Change
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Hydroelectrical													
energy	1 439	1 385	1 242	1 470	1 473	1 591	1 698	1 718	1 492	1 511	1 689	1 997	3%
Wood in													
households	2 180	2 180	2 188	2 188	2 188	2 188	2 188	2 188	3 675	3 815	3 745	3 727	11%
Other wood													
and wood waste	781	764	729	743	767	788	774	806	754	1 072	1 064	1 082	7%
Wind energy	2	6	18	25	58	123	147	179	261	395	475	805	40%
Solar Energy	7	8	9	14	21	37	41	57	70	83	78	96	19%
Biogas	298	292	292	336	334	333	333	369	391	620	621	621	13%
Municipal													
solid waste	1 063	1 063	1 063	1 063	1 0 3 6	1 066	1 073	1 103	1 083	1 339	1 416	1 416	6%
Geothermal energy	7	7	7	9	9	9	9	10	10	10	10	10	3%
Biofuels	0	0	0	4	4	27	33	53	86	96	124	203	43%
Total	5 777	5 705	5 549	5 850	5 890	6 160	6 295	6 482	7 821	8 939	9 221	9 956	10%

# **RES Primary Energy Production (ktoe)**

Average Annual The contribution of RES in the Gross Inland Consumption was 2.9% in 2000, while the contribution of RES electricity in the Gross Electricity Consumption was 6.8% in the same year. Wood and wood wastes cover the largest percentage of the total RES primary energy production (48.3% in 2000), while hydroelectric energy is the second largest source (20% of RES primary energy production in 2000). Finally, municipal solid waste cover 14.2% of RES primary energy production in 2000. The installed capacity of wind energy converters has increased considerably to 6.1 GW in 2000.



1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
% Con	tribution	of RES	Primary	Energy	to Gross	s Inland (	Consumj	otion			
1.6%	1.6%	1.6%	1.7%	1.7%	1.8%	1.9%	1.9%	2.3%	2.6%	2.7%	2.9%
% Con	tribution	of RES	Electrici	ty to Gr	oss Elec	tricity Co	onsumpti	ion			
4.4%	4.3%	3.3%	3.9%	4.0%	4.4%	4.7%	4.7%	4.3%	4.8%	5.4%	6.8%
RES PI	rimary Eı	nergy Pro	oduction	per Caj	pita (toe)	/1000 Inl	h.)				
73	72	69	73	73	76	77	79	95	109	112	121



5		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
	Share of RES Electricity	to Gros	ss Electi	ricity Co	onsump	tion							
		4.4%	4.3%	3.3%	3.9%	4.0%	4.4%	4.7%	4.7%	4.3%	4.8%	5.4%	6.8%
	Electricity Generation p												
	Hydroelectrical energy	3.7%	3.5%	2.7%	3.2%	3.2%	3.5%	3.6%	3.6%	3.2%	3.2%	3.5%	4.0%
	Wood and wood waste	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
	Wind energy	0.0%	0.0%	0.0%	0.1%	0.1%	0.3%	0.3%	0.4%	0.6%	0.8%	1.0%	1.6%
	Biogas	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%
	Municipal solid waste	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.4%	0.6%	0.6%	0.6%
	Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
•	Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	<b>RES Primary Energy</b>	Produ	iction	per Ca	apita (	toe/10	00 Inh	1)			_	_	
		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
	Hydroelectrical energy	18	17	16	18	18	20	21	21	18	18	21	24

 12 000 10 000 8 000-6 000-4 000 2 000-1989 1990-1993-1996-1999-Hydroelectrical energy ■ Wood and wood waste Biogas Municipal solid waste Photovoltaics Wind energy Geothermal electricity

MW

E

Wood in households

Municipal solid waste

Geothermal energy

Wind energy

Solar Energy

Biogas

Biofuels

All RES

Other wood and wood waste10

(IC

Dreak	down by source															0	
	Municipal solid			1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00	
	waste 0.0%		Hydroelectrical														
Biog	as Geotherma	1	energy	163	152	266	189	196	223	303	374	334	320	416	318	1%	
Solar 0.1%	% energy 0.1%		Wood in														
Energy 7.0%	Biofuels		households	702	702	702	702	702	702	702	702	702	702	702	704	0%	
Wind energy 2.8%	0.0%		Other wood														1
			and wood waste	183	191	195	196	197	191	195	206	208	205	209	241	4%	
			Wind energy	0	0	0	1	4	3	3	3	3	6	14	39	68%	
			Solar Energy	51	57	63	70	75	79	82	86	89	93	97	99	4%	
			Biogas	0	0	0	1	1	1	1	1	1	1	1	1	na	
			Municipal														
		Hydroelectrical	solid waste	0	0	0	0	0	0	0	0	0	0	0	0	na	
Other wood and wood waste 17.2%	Wood in	energy 22.6%	Geothermal energy	3	3	3	3	3	4	3	3	2	3	2	2	na	
wood waste 17.2 %	households 50.2%		Biofuels	0	0	0	0	0	0	0	0	0	0	0	0	na	
			Total	1 102	1 104	1 230	1 161	1 178	1 203	1 289	1 374	1 339	1 329	1 442	1 403	2%	

**RES Primary Energy Production (ktoe)** 

RES Primary Energy Production in 2000 breakdown by source Average Annual

Change

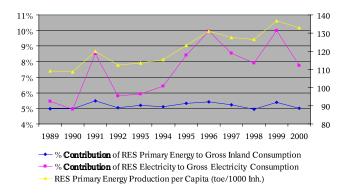
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In Greece, wood and wood wastes cover the largest percentage of the total RES primary energy production (67.3% in 2000), while hydroelectric energy is the second largest source (22.6% of RES primary energy production in 2000). Hydroelectric energy covered about 6.9% and wind energy covered about 6.9% and wind energy covered 0.8% of the Gross Electricity Consumption. The percentage of RES in the Gross Inland Consumption was 5% in 2000, while the percentage of RES electricity in the Gross Electricity Consumption was 7.7% in the same year.

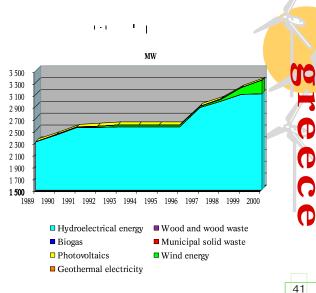


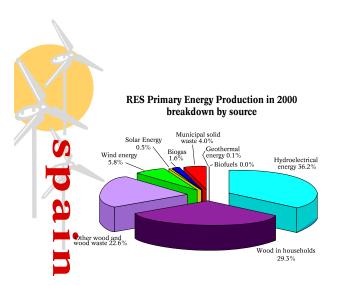
1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
% Con	tribution	of RES	Primary	Energy	to Gross	Inland	Consum	otion			
5.0%	5.0%	5.5%	5.0%	5.2%	5.1%	5.3%	5.4%	5.2%	4.9%	5.4%	5.0%
% Con	tribution	of RES	Electrici	ty to Gr	oss Elec	tricity Co	onsumpti	on			
5.4%	4.9%	8.5%	5.8%	5.9%	6.4%	8.4%	10.0%	8.5%	7.9%	10.0%	7.7%
RES Pr	imary Er	nergy Pro	oduction	per Cap	oita (toe/	′1000 In	h )				
109	109	120	113	113	115	123	131	128	126	137	133

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Share of RES Electricity	to Gro	ss Elect	ricity Co	onsump	tion							
	5.4%	4.9%	8.5%	5.8%	5.9%	6.4%	8.4%	10.0%	8.5%	7.9%	10.0%	7.7%
Electricity Generation p	er RES	Techno	logy as	a perce	ntage of	the Gr	oss Ele	ctricity (	Consum	ption		
Hydroelectrical energy	5.4%	4.9%	8.5%	5.8%	5.8%	6.3%	8.3%	9.9%	8.5%	7.7%	9.7%	6.9%
Wood and wood waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wind energy	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%	0.8%
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Municipal solid waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

#### RES Primary Energy Production per Capita (toe/1000 Inh )

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	16	15	26	18	19	21	29	36	32	30	40	30
Wood in households	70	69	69	68	68	67	67	67	67	67	67	67
Other wood and wood waste	18	19	19	19	19	18	19	20	20	19	20	23
Wind energy	0	0	0	0	0	0	0	0	0	1	1	4
Solar Energy	5	6	6	7	7	8	8	8	8	9	9	9
Biogas	0	0	0	0	0	0	0	0	0	0	0	0
Municipal solid waste	0	0	0	0	0	0	0	0	0	0	0	0
Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0
All RES	109	109	120	113	113	115	123	131	128	126	137	133



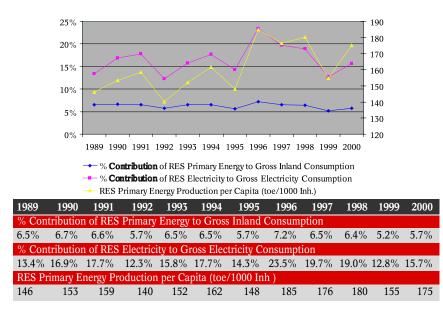


													Change
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Hydroelectrical													
energy	1 664	2 186	2 348	1 620	2 088	2 410	1 989	3 396	2 991	2 926	1 968	2 536	5%
Wood in													
households	2 074	2 074	2 084	2 097	2 099	2 102	1 992	1 992	1 991	1 991	1 992	2 049	1%
Other wood													
and wood waste	1 839	1 587	1 622	1 612	1 623	1 636	1 507	1 532	1 546	1 624	1 613	1 579	1%
Wind energy	1	1	1	9	10	15	23	29	62	185	236	407	77%
Solar Energy	21	21	21	21	22	24	25	26	25	27	29	33	6%
Biogas	10	10	10	17	19	22	75	77	79	82	90	109	8%
Municipal													
solid waste	60	81	81	87	87	116	187	211	244	275	199	279	8%
Geothermal energy	2	2	2	7	7	7	7	7	7	7	5	8	3%
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0	na
Total	5 671	5 962	6 170	5 469	5 953	6 332	5 805	7 269	6 944	7 116	6 1 3 2	6 998	4%

Average Annual

**RES Primary Energy Production (ktoe)** 

Renewable Energy Sources in Spain accounted for 5.7% of the Gross Inland Consumption in 2000, while the contribution of RES electricity in the Gross Electricity Consumption was 15.7% in the same year. Wood and wood wastes cover the largest percentage of the total RES primary energy production (51.8% in 2000), while hydroelectric energy is the second largest source (36.2% of RES primary energy production in 2000). Wind energy electricity covers 2.1% of the Gross Consumption of Electricity, and the installed capacity of wind energy converters has increased dramatically to 1.9 GW in 2000.

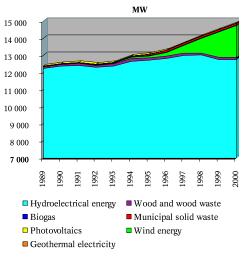




	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000			
Share of RES Electricit	y to Gro	ss Elect	ricity C	onsum	otion										
	13.4%	16.9%	17.7%	12.3%	15.8%	17.7%	14.3%	23.5%	19.7%	19.0%	12.8%	15.7%			
Electricity Generation	per RES	Techno	ology as	a perce	entage o	f the G	oss Ele	ctricity	Consun	ption					
Hydroelectrical energy															
Wood and wood waste	0.1%	0.1%	0.1%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%			
Wind energy	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.4%	1.1%	1.3%	2.1%			
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%			
Municipal solid waste	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%			
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
DEC Drimowy Enorg	n Duo d	notion	man C	anita	(100/1)	000 Im	h )								

RES Primary Energy Production per Capita (toe/1000 Inh)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	43	56	60	42	53	62	51	86	76	74	50	64
Wood in households	53	53	54	54	54	54	51	51	51	50	50	51
Other wood and wood was	te 47	41	42	41	42	42	38	39	39	41	41	40
Wind energy	0	0	0	0	0	0	1	1	2	5	6	10
Solar Energy	1	1	1	1	1	1	1	1	1	1	1	1
Biogas	0	0	0	0	0	1	2	2	2	2	2	3
Municipal solid waste	2	2	2	2	2	3	5	5	6	7	5	7
Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0
All RES	146	153	159	140	152	162	148	185	176	180	155	175



<b>RES Primary Energy Production in 2000</b>	, , , , , , , , , , , , , , , , , , ,			,	,									Annual Change
breakdown by source		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Geothermal	Hydroelectrical													
Biogas energy 0.7%	energy	4 122	4 636	5051	5 997	5 627	6 822	6 315	5 650	5 399	5 388	6 284	5 810	-2%
	Wood in													
Municipal solid	households	7 770	7 990	9 890	9 177	9 070	7 625	7 778	8 4 2 2	7 417	7 610	7 481	7 407	-1%
Solar Energy 0.1%	Other wood													
Wind Wind	and wood waste	1 785	1 799	1 848	1 914	1 792	1 922	1 956	1 908	2 0 2 2	2 046	1 961	1 786	-2%
energy 0.0%	Wind energy	0	0	0	0	0	1	1	1	2	4	3	7	62%
	Solar Energy	12	12	13	13	13	14	15	15	16	17	18	25	12%
	Biogas	116	116	116	118	120	125	131	137	143	150	150	107	-4%
	Municipal													
	solid waste	1 0 3 3	1 050	1 253	1 255	1 256	1 266	1 640	1 610	1 514	1 560	1560	1 811	2%
	Geothermal energy	133	125	125	130	122	125	132	133	124	117	117	124	-1%
Other wood and	Biofuels	0	0	0	3	25	84	162	241	305	259	279	323	15%
wood waste 10.3% Wood in households 42.6%	Total	14 970	15 728	18 295	18 606	18 025	17 984	18 129	18 116	16 944	17 152	17 854	17 400	-1%

**RES Primary Energy Production (ktoe)** 

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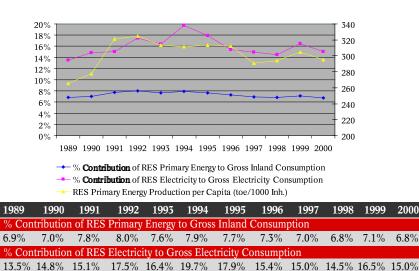
Average

45

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RES electricity was 15% of the Gross Electricity Consumption in 2000, while the contribution of RES in the Gross Inland Consumption was 6.8% in the same year. Wood and wood wastes cover the largest percentage of the total RES primary energy production (52.8% in 2000), while hydroelectric energy is the second largest source (33.4% of RES primary energy production in 2000) with an installed capacity of 21 GW. Hydroelectric energy covered about 14% of the Gross Electricity Consumption.



RES Primary Energy Production per Capita (toe/1000 Inh)

325

314

312

313

312

291

294

305

265

277

321

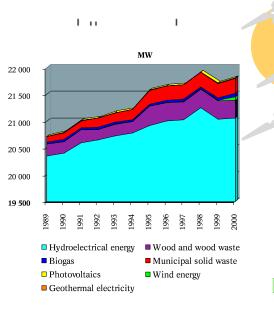
2000

295

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Share of RES Electricit	y to Gro	oss Elect	tricity C	onsum	ption							
	13.5%	14.8%	15.1%	17.5%	16.4%	19.7%	17.9%	15.4%	15.0%	14.5%	16.5%	15.0%
Electricity Generation	per RES	Techno	ology as	a perce	entage o	f the Gi	toss Ele	ctricity	Consun	ption		
Hydroelectrical energy	13.1%	14.4%	14.6%	17.0%	15.9%	19.2%	17.3%	14.8%	14.3%	13.8%	15.8%	14.3%
Wood and wood waste	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.4%	0.3%	0.3%
Wind energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Municipal solid waste	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.2%	0.3%
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

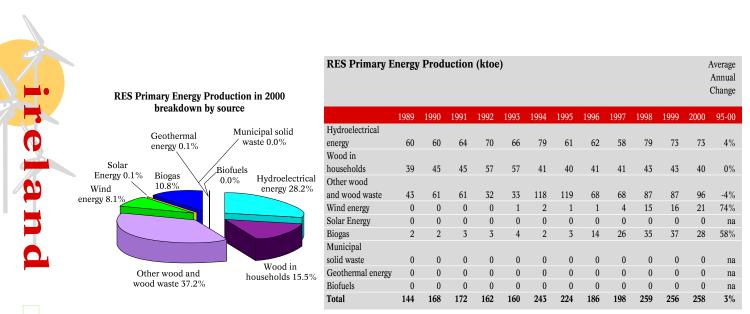
#### RES Primary Energy Production per Capita (toe/1000 Inh )

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	73	82	89	105	98	118	109	97	93	92	107	99
Wood in households	138	141	174	160	158	132	134	145	127	130	128	126
Other wood and wood was	ste 32	32	32	33	31	33	34	33	35	35	33	30
Wind energy	0	0	0	0	0	0	0	0	0	0	0	0
Solar Energy	0	0	0	0	0	0	0	0	0	0	0	0
Biogas	2	2	2	2	2	2	2	2	2	3	3	2
Municipal solid waste	18	19	22	22	22	22	28	28	26	27	27	31
Geothermal energy	2	2	2	2	2	2	2	2	2	2	2	2
Biofuels	0	0	0	0	0	1	3	4	5	4	5	5
All RES	265	277	321	325	314	312	313	312	291	294	305	295

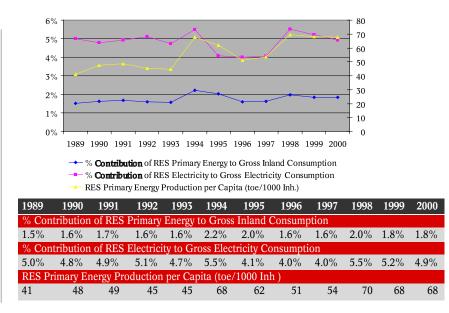


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Wood and wood wastes cover the largest percentage of the total RES primary energy production (52.7% in 2000), while hydroelectric energy is the second largest source (28.2% of RES primary energy production in 2000) and biogas is the third (10.8%)of RES primary energy production in 2000). Hydroelectric energy covered about 3.5% and wind electricity covered 1% of the Gross Electricity Consumption. RES accounted for 1.8% of the Gross Inland Consumption in 2000, while the contribution of RES electricity in the Gross Electricity Consumption was 4.9% in the same year.





	1989	1	990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Share of RES Electricity	to Gr	oss l	Electri	city Co	nsumpt	ion							
	5.0%	4	.8%	4.9%	5.1%	4.7%	5.5%	4.1%	4.0%	4.0%	5.5%	5.2%	4.9%
<b>Electricity Generation p</b>	er RE	S Te	chnolo	ogy as a	percen	itage of	f the Gr	oss Elec	tricity C	onsum	ption		
Hydroelectrical energy	5 0%	4	.8%	4.9%	5.1%	4.7%	5.4%	4.0%	3.8%	3.4%	4.3%	3.8%	3.5%
Wood and wood waste	0.0%	0	.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wind energy	0.0%	0	.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.8%	0.8%	1.0%
Biogas	0.0%	0	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	0.4%	0.6%	0.4%
Municipal solid waste	0.0%	0	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Geothermal electricity	0.0%	0	.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Photovoltaics	0.0%	0	.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RES Primary Energ	<b>y</b> 110 19		1990	1991	1992			,	5 1996	5 199	7 1998	3 1999	9 2000
Hydroelectrical energy		17	17	18									
Wood in households		11	13	13	16	5 1	6 1	2 1	1 11	. 1	1 12	2 12	2 11
Other wood and wood w	vaste	12	17	17	ç	)	9 3	33	3 19	) 1	8 24	4 23	3 25
Wind energy		0	0	0	0	)	0	0	0 (	)	1 4	4 4	4 6
Solar Energy		0	0	0			•	-	0 (		0 (		0 0
Biogas		1	1	1			1	-	1 4		7 9		
Municipal solid waste		0	0	0			•	•	0 (		0 (		0 0
Geothermal energy		0	0	0	C	)	0	0	0 (	)	0 (	) (	0 0

68 62 51 54 70

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41 48 49 45 45

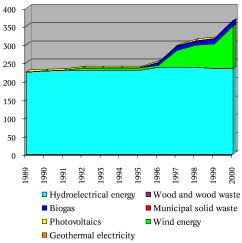
Biofuels

All RES

50

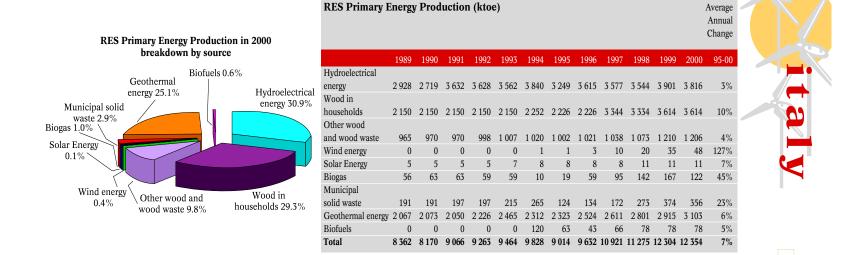






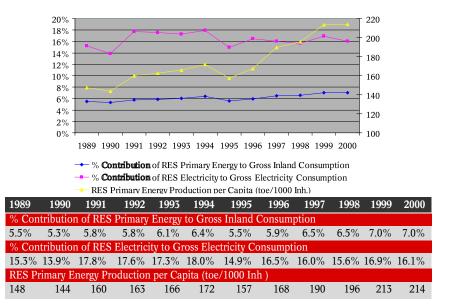
0

68





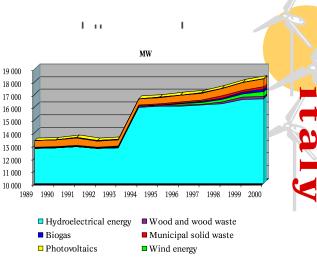
7% of the Gross Inland Consumption in 2000 was covered by RES, while the percentage of RES electricity in the Gross Electricity Consumption was 16.1% in the same year. Wood and wood wastes cover the largest percentage of the total RES primary energy production (39% in 2000), while hydroelectric energy is the second largest source (30.9% of RES primary energy production in 2000) and geothermal energy is the third (25.1%)of RES primary energy production in 2000). Hydroelectric energy covered about 13.8% and geothermal electricity covered 1.5% of the Gross Electricity Consumption.



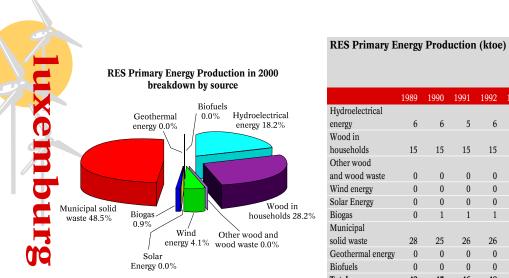
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Share of RES Electricit	y to Gro	oss Elect	tricity C	Consum	otion								
	15.3%	13.9%	17.8%	17.6%	17.3%	18.0%	14.9%	16.5%	16.0%	15.6%	16.9%	16.1%	
Electricity Generation	per RES	5 Techno	ology as	a perce	entage o	f the G	ross Ele	ctricity	Consun	ption			
Hydroelectrical energy	13.9%	12.6%	16.4%	16.1%	15.8%	16.6%	13.6%	14.9%	14.4%	13.7%	14.8%	13.8%	
Wood and wood waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	
Wind energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.2%	0.2%	
Municipal solid waste	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	
Geothermal electricity	1.3%	1.3%	1.2%	1.3%	1.4%	1.3%	1.2%	1.3%	1.3%	1.4%	1.4%	1.5%	
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

### RES Primary Energy Production per Capita (toe/1000 Inh )

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	52	48	64	64	62	67	57	63	62	62	68	66
Wood in households	38	38	38	38	38	39	39	39	58	58	63	63
Other wood and wood wast	e 17	17	17	18	18	18	17	18	18	19	21	21
Wind energy	0	0	0	0	0	0	0.0	0.0	0.2	0.3	0.6	0.8
Solar Energy	0	0	0	0	0	0	0	0	0	0	0	0
Biogas	1	1	1	1	1	0	0	1	2	2	3	2
Municipal solid waste	3	3	3	3	4	5	2	2	3	5	6	6
Geothermal energy	36	37	36	39	43	40	41	44	45	49	51	54
Biofuels	0	0	0	0	0	2	1	1	1	1	1	1
All RES	148	144	160	163	166	172	157	168	190	196	213	214



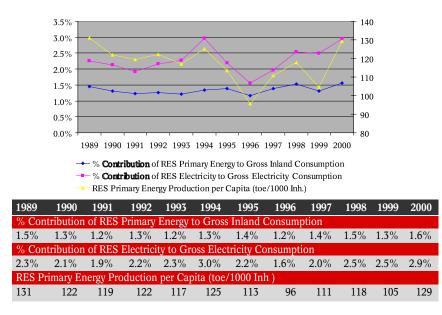
Geothermal electricity



													Change
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Hydroelectrical													
energy	6	6	5	6	6	10	7	5	7	10	8	10	7%
Wood in													
households	15	15	15	15	15	15	15	15	15	15	15	16	1%
Other wood													
and wood waste	0	0	0	0	0	0	0	0	0	0	0	0	na
Wind energy	0	0	0	0	0	0	0	0	0	1	2	2	na
Solar Energy	0	0	0	0	0	0	0	0	0	0	0	0	na
Biogas	0	1	1	1	1	1	1	2	1	2	0	1	na
Municipal													
solid waste	28	25	26	26	25	24	23	18	23	23	20	28	4%
Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0	na
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0	na
Total	49	47	46	48	47	51	47	40	47	50	45	57	4%

Average Annual

Municipal solid waste covers the largest percentage of the total RES primary energy production (48.5% in 2000), while wood and wood waste is the second largest source (28.2% of RES primary energy production in 2000) and hydroelectric energy is the third (18.2% of RES primary energy production in 2000). Hydroelectric energy covered about 1.7% and wind electricity covered 0.4% of the Gross Electricity Consumption. The contribution of RES in the Gross Inland Consumption was 1.6% in 2000, while the contribution of RES electricity in the Gross Electricity Consumption was 2.9% in the same year.



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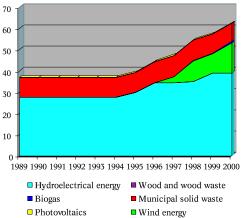
		1989
	Share of RES Electricity	to Gro
		2.3%
	Electricity Generation p	er RES
	Hydroelectrical energy	1.3%
	Wood and wood waste	0.0%
	Wind energy	0.0%
	Biogas	0.0%
	Municipal solid waste	0.9%
	Geothermal electricity	0.0%
	Photovoltaics	0.0%
	<b>RES Primary Energy</b>	y Prod
· •		198
	Hydroelectrical energy	10
	Wood in households	4
	Other wood and wood w	aste (
	Wind energy	(
	Solar Energy	(
VM	Biogas	_
	Municipal solid waste	74
	Geothermal energy	
	Biofuels	

Share of RES Electricity	to Gross	Electri	city co									
	2.3% 2	2.1%	1.9%	2.2%	2.3%	3.0%	2.2%	1.6%	2.0%	2.5%	2.5%	2.9%
Electricity Generation p	er RES T	echnol	ogy as a	percen	tage of	the Gro	ss Elect	ricity C	onsump	otion		
Hydroelectrical energy	1.3%	1.3%	1.0%	1.3%	1.3%	2.1%	1.3%	1.0%	1.2%	1.7%	1.4%	1.7%
Wood and wood waste	0.0% (	).0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wind energy	0.0%	).0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	0.4%
Biogas	0.0% (	).0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Municipal solid waste	0.9% (	).9%	0.9%	0.8%	1.0%	0.9%	0.8%	0.6%	0.7%	0.7%	0.8%	0.8%
Geothermal electricity	0.0% (	).0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Photovoltaics	0.0% (	).0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RES Primary Energy	, 			<u> </u>			<u>΄</u>	1000	1007	1000	1000	0000
RES Primary Energ	, 			<u> </u>			<u>΄</u>	1004	1007	1009	2 1000	2000
RES Primary Energy	y Produ <u>1989</u> 16	ction 1990 15	per Ca 1991 12	apita ( <sup></sup>	1993	1994	1995					
	1989	1990	1991	1992	<mark>1993</mark> 14	<b>199</b> 4 25	1995	12	2 16	23	5 19	24
Hydroelectrical energy	1989 16 41	1990 15	1991 12	1992 15	1993 14 39	1994 25 38	1995 18 38	12 37	2 16 7 37	23 36	i 19 i 35	24 36
Hydroelectrical energy Wood in households Other wood and wood w Wind energy	1989 16 41	1990 15 40	1991 12 40	1992 15 39 0	1993 14 39 0 0	1994 25 38 0	1995 18 38 0	12 37 (	2 16 7 37 0 0	23 36 0	5 19 5 35 9 0	24 36 0
Hydroelectrical energy Wood in households Other wood and wood w Wind energy Solar Energy	1989 16 41 raste 0	1990 15 40 0 0	1991 12 40 0 0 0	1992 15 39 0 0 0	1993 14 39 0 0 0	1994 25 38 0 0	1995 18 38 0 0 0	12 37 ( (	2 16 7 37 0 0 0 0	23 36 2 0	5 19 5 35 9 0 2 3 9 0	24 36 0 5
Hydroelectrical energy Wood in households Other wood and wood w Wind energy Solar Energy Biogas	1989 16 41 raste 0 0 0 1	1990 15 40 0 0 0 2	1991 12 40 0 0 0 1	1992 15 39 0 0 0 2	1993 14 39 0 0 0 0	1994 25 38 0 0 0 0 2	1995 18 38 0 0 0 0 0 2	12 37 0 0 0 4	2 16 7 37 0 0 0 0 0 0 1 3	23 36 0 2 0 4	5 19 5 35 0 0 2 3 0 0 4 0	24 36 0 5 0 1
Hydroelectrical energy Wood in households Other wood and wood w Wind energy Solar Energy Biogas Municipal solid waste	1989 16 41 raste 0 0 0 1 74	1990 15 40 0 0 0 2 65	1991 12 40 0 0 0 1 66	1992 15 39 0 0 0 0 2 66	1993 14 39 0 0 0 2 62	1994 25 38 0 0 0 0 2 60	1995 18 38 0 0 0 0 0 2 2 56	12 37 0 0 0 4 43	2 16 7 37 0 0 0 0 0 0 4 3 5 55	23 36 0 2 0 4 53	i 19 i 35 0 0 2 3 0 0 4 0 i 46	24 36 0 5 0 1 1 63
Hydroelectrical energy Wood in households Other wood and wood w Wind energy Solar Energy Biogas Municipal solid waste Geothermal energy	1989 16 41 raste 0 0 0 1 74 0	1990 15 40 0 0 0 2 65 0	1991 12 40 0 0 0 0 1 66 0	1992 15 39 0 0 0 0 2 66 0	1993 14 39 0 0 0 0 2 62 62 0	1994 25 38 0 0 0 0 0 2 60 0 0	1995 18 38 00 00 00 00 22 56 00	12 37 0 0 0 4 43 0	2 16 7 37 0 0 0 0 0 0 1 3 5 55 0 0	23 36 0 2 0 4 53	i 19 i 35 i 0 2 3 i 0 i 0 i 46 i 0	24 36 0 5 0 1 6 63 0
Hydroelectrical energy Wood in households Other wood and wood w Wind energy Solar Energy Biogas Municipal solid waste	1989 16 41 raste 0 0 0 1 74	1990 15 40 0 0 0 2 65	1991 12 40 0 0 0 1 66	1992 15 39 0 0 0 0 2 66 0 0 0 0	1993 14 39 0 0 0 0 2 62 62 0 0	1994 25 38 0 0 0 0 0 2 60 0 0	1995           18           38           0	12 37 0 0 0 4 43 0	2 16 7 37 0 0 0 0 1 3 5 55 5 0 0 0	23 36 0 2 0 4 53 0 0	i 19 i 35 i 0 2 3 i 0 i 0 i 0 i 46 i 46 i 0 i 0 i 0	24 36 0 5 5 0 0 1 5 63 0 0 0 0 0 0

e Electricity Consumptio

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000





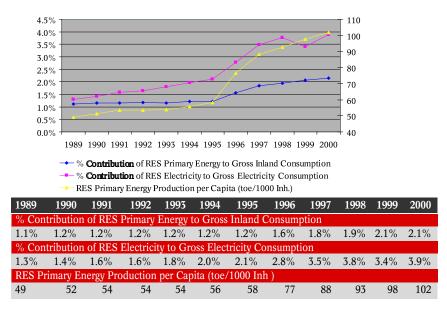
Geothermal electricity

<b>RES Primary Energy Prod</b>		RES Primary E	nergy	Prod	uctior	ı (ktoe	;)							1	verage Annual Change
breakdown by so	burce		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Hydroelectrical		Hydroelectrical													
Geothermal energy 0.8%	:	energy	3	7	9	10	8	9	8	7	8	9	8	12	10%
energy 0.0% Wood Biofuels households		Wood in households	221	221	218	218	214	211	211	208	208	208	208	194	-2%
	wood waste 6.5%	Other wood													
	Wind	and wood waste	35	42	42	38	37	33	33	36	46	59	59	106	26%
	energy 4.4%	Wind energy	3	5	8	13	15	20	27	38	41	55	55	71	21%
	Solar	Solar Energy	1	2	2	3	3	3	4	4	5	7	7	9	19%
	Energy 0.6%	Biogas	64	64	75	93	100	107	119	125	128	123	119	132	2%
	Biogas 8.2%	Municipal													
Municipal solid	0	solid waste	403	429	454	441	447	473	497	774	943	994	1 090	1 098	17%
waste 67.7%		Geothermal energy	gy O	0	0	0	0	0	0	0	0	0	0	0	na
		Biofuels	0	0	0	0	0	0	0	0	0	0	0	0	na
		Total	730	770	807	815	825	857	899	1 191	1 380	1 454	1 546	1 622	13%

e netherland 57

etherlands 58

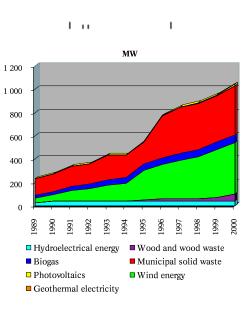
Municipal solid waste covers the largest percentage of the total RES primary energy production (67.7% in 2000), while wood and wood waste is the second largest source (18.5% of RES primary energy production in 2000) and biogas is the third (8.2% of RES primary energy production in 2000). Electricity of MSW origin covered about 2.4% and wind electricity covered 0.8% of the Gross Electricity Consumption. The percentage of RES in the Gross Inland Consumption was 2.1% in 2000, while the percentage of RES electricity in the Gross Electricity Consumption was 3.9% in the same year.



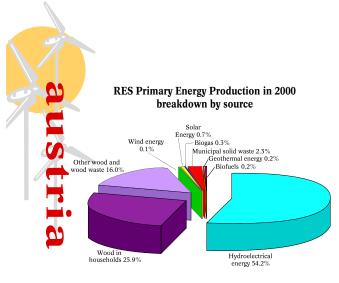
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Share of RES Electricity	y to Gro	ss Electr	icity Co	nsumpt	ion							
	1.3%	1.4%	1.6%	1.6%	1.8%	2.0%	2.1%	2.8%	3.5%	3.8%	3.4%	3.9%
Electricity Generation p	oer RES	Technol	ogy as a	percen	tage of	the Gro	ss Elect	ricity C	onsump	tion		
Hydroelectrical energy	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Wood and wood waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
Wind energy	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.5%	0.5%	0.6%	0.6%	0.8%
Biogas	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%
Municipal solid waste	1.1%	1.1%	1.2%	1.2%	1.3%	1.3%	1.4%	2.0%	2.6%	2.8%	2.4%	2.4%
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

#### RES Primary Energy Production per Capita (toe/1000 Inh )

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	0	0	1	1	1	1	0	0	1	1	0	1
Wood in households	15	15	14	14	14	14	14	13	13	13	13	12
Other wood and wood	waste 2	3	3	3	2	2	2	2	3	4	4	7
Wind energy	0	0	0	1	1	1	2	2	3	4	4	4
Solar Energy	0	0	0	0	0	0	0	0	0	0	0	1
Biogas	4	4	5	6	7	7	8	8	8	8	8	8
Municipal solid waste	27	29	30	29	29	31	32	50	60	63	69	69
Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0
All RES	49	52	54	54	54	56	58	77	88	93	98	102

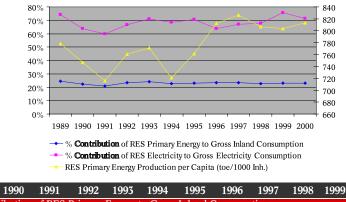


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RES Primary Energ	gy Prod	luction	(ktoe)										Average Annual Change
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Hydroelectrical													
energy	3 019	2 708	2 702	2 995	3 156	3 070	3 187	2 941	3 093	3 192	3 589	3 579	2%
Wood in													
households	2 2 2 4	2 332	2 1 1 9	2 2 2 4	2 0 2 1	1 776	1 891	1 958	1 848	1 826	1 864	1 709	-2%
Other wood													
and wood waste	670	641	648	650	823	779	871	1 440	1 496	1 264	830	1 059	4%
Wind energy	0	0	0	0	0	0	0	0	2	4	4	6	na
Solar Energy	11	13	17	21	25	29	36	42	48	55	47	47	6%
Biogas	9	7	24	27	27	28	30	34	39	40	17	19	-9%
Municipal													
solid waste	29	67	77	89	95	97	95	20	125	121	127	149	10%
Geothermal energy	2	2	2	4	4	4	4	5	5	7	12	14	27%
Biofuels	1	1	11	7	8	6	11	1	12	13	16	16	9%
Total	5 964	5 771	5 600	6 017	6 158	5 789	6 1 2 4	552	6 667	6 520	6 506	6 598	2%

Hydroelectric energy is the main renewable source used in Austria and it covers a large percentage of the Gross Electricity Consumption (68.7% in 2000). Wood and wood wastes cover 42% of RES primary production, and are mainly used for heat production. The largest increase in renewable energy production during the year 1995 to 2000 is in geothermal energy (27%), which holds only 0.2% of RES primary production and in municipal solid waste (10%). The contribution of RES in the Gross Inland Consumption was 23% in 2000, while the contribution of RES electricity in the Gross Electricity Consumption was 71.5% in the same year.

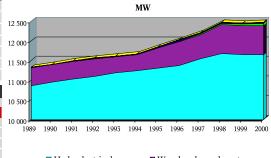


1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
% Con	itributio	n of RES	Primary	Energy	to Gros	s Inland	Consum	ption			
24.4%	22.5%	20.7%	23.4%	24.0%	22.6%	23.2%	23.4%	23.4%	22.6%	22.9%	23.2%
% Con	ntribution	n of RES	Electric	ity to G	ross Elec	tricity C	onsumpt	tion			
74.2%	63.9%	59.9%	66.7%	71.0%	68.3%	70.6%	63.9%	67.2%	67.8%	75.7%	71.5%
RES P	rimary E	nergy Pr	oduction	ı per Ca	pita (toe	/1000 In	ւh )				
779	747	716	760	771	721	761	813	826	807	804	813



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					1994	1995	1996	1997	1998	1999	2000	
ty to Gro	oss Elect	tricity C	onsum	ption								
74.2%	63.9%	59.9%	66.7%	71.0%	68.3%	70.6%	63.9%	67.2%	67.8%	75.7%	71.5%	
per RES	Techno	ology as	a perce	entage o	f the Gi	oss Ele	ctricity	Consun	ption			
72.0%	61.8%	57.9%	64.7%	69.0%	66.3%	68.4%	61.3%	64.1%	64.8%	72.7%	68.7%	
2.2%	2.0%	1.9%	1.9%	1.8%	1.9%	2.0%	2.4%	2.8%	2.7%	2.7%	2.4%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	1
0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	1
0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Drodu	otion n	or Car	ita (to	0/1000	Inh )							1
TIUUU	cuon p	ei Cap	114 (10	c/ 1000	<i>)</i>							1
1980	) 199(	) 199	199	2 199'	3 1994	1 199	5 1996	5 199'	7 1998	3 1990	2000	1
												1
vaste 87	7 83	3 83	3 82	2 103	3 97	7 108	3 179	9 18	5 156	5 103	3 130	
(	) (	) (	) (	) (	) (	) (	) (	) (	) (	) 1	l 1	
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1	1 1	2 2	2 3	3 3	3 4	4 4	1 5	5 (	57	(	5 6	
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-	1	l 3	3 3 ) 1	3 3 1 12	3 3 2 12	5 4 2 12	4 4 2 15	4 . 5 1.	5 5 5 15	5 2 5 16	2 2 5 18	
2	1 : 1 : ) (	) 1(	3 3 ) 11	3 3 1 12 0 (	3 3 2 12	5 4 2 12	4 4 2 15	1	5 5 5 15 1 1	5 2 5 10	2 2 5 18 2 2	
2	1 ( ) (	) (	3 ( ) 1: ) (	3 ( 1 1) ) ( 1 1	3 3 2 12 ) (	5 4 2 12 ) 1	4 4 2 15 1 5	4 . 5 1. 1 .	5 5 5 15 1 1		$     \begin{array}{ccc}       2 & 2 \\       5 & 18 \\       2 & 2 \\       2 & 2 \\       2 & 2     \end{array} $	
	74.2% per RES 72.0% 2.2% 0.0% 0.0% 0.0% 0.0% Product 1988 394 290 vaste 85	y to Gross Elect 74.2% 63.9% per RES Technt 72.0% 61.8% 2.2% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% Production p 1989 1990 394 350 290 300 vaste 87 85	y to Gross Electricity C           74.2%         63.9%         59.9%           per RES Technology as         72.0%         61.8%         57.9%           2.2%         2.0%         1.9%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%           0.9%         1.990         1990         1992         394         350         344           290         302         271         xaste         87         83         85	y to Gross Electricity Consum 74.2%         63.9%         59.9%         66.7%           per RES Technology as a perce         72.0%         61.8%         57.9%         64.7%           2.2%         2.0%         1.9%         1.9%         0.0% <td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%           per RES Technology as a percentage o         72.0%         61.8%         57.9%         64.7%         69.0%           2.2%         2.0%         1.9%         1.9%         0.0%         0.0%         0.0%           0.0%&lt;</td> <td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%           per RES Technology as a percentage of the Gr         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.1%         0.1%         0.1%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%</td> <td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%           per RES Technology as a percentage of the Gross Ele         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%         2.0%           0.0%<td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%           per RES Technology as a percentage of the Gross Electricity         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.5%           2.2%         2.0%         1.9%         1.9%         1.9%         2.0%         2.4%           0.0%         <t< td=""><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%           per RES Technology as a percentage of the Gross Electricity Consum         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%           2.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%           2.0%         1.9%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%           0.0%<!--</td--><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%           0.0%         0.1%</td><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%           2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%         2.7%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%         0.</td><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%         71.5%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%         68.7%           2.2%         2.0%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%         2.7%         2.4%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%</td></td></t<></td></td>	y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%           per RES Technology as a percentage o         72.0%         61.8%         57.9%         64.7%         69.0%           2.2%         2.0%         1.9%         1.9%         0.0%         0.0%         0.0%           0.0%<	y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%           per RES Technology as a percentage of the Gr         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.1%         0.1%         0.1%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%           0.0%         0.0%         0.0%	y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%           per RES Technology as a percentage of the Gross Ele         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%         2.0%           0.0% <td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%           per RES Technology as a percentage of the Gross Electricity         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.5%           2.2%         2.0%         1.9%         1.9%         1.9%         2.0%         2.4%           0.0%         <t< td=""><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%           per RES Technology as a percentage of the Gross Electricity Consum         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%           2.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%           2.0%         1.9%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%           0.0%<!--</td--><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%           0.0%         0.1%</td><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%           2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%         2.7%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%         0.</td><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%         71.5%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%         68.7%           2.2%         2.0%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%         2.7%         2.4%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%</td></td></t<></td>	y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%           per RES Technology as a percentage of the Gross Electricity         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.5%           2.2%         2.0%         1.9%         1.9%         1.9%         2.0%         2.4%           0.0% <t< td=""><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%           per RES Technology as a percentage of the Gross Electricity Consum         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%           2.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%           2.0%         1.9%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%           0.0%<!--</td--><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%           0.0%         0.1%</td><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%           2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%         2.7%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%         0.</td><td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%         71.5%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%         68.7%           2.2%         2.0%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%         2.7%         2.4%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%</td></td></t<>	y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%           per RES Technology as a percentage of the Gross Electricity Consum         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%           2.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%           2.0%         1.9%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%           0.0% </td <td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%           0.0%         0.1%</td> <td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%           2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%         2.7%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%         0.</td> <td>y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%         71.5%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%         68.7%           2.2%         2.0%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%         2.7%         2.4%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%</td>	y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%           2.2%         2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%           0.0%         0.1%	y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%           2.0%         1.9%         1.9%         1.8%         1.9%         2.0%         2.4%         2.8%         2.7%         2.7%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%         0.	y to Gross Electricity Consumption           74.2%         63.9%         59.9%         66.7%         71.0%         68.3%         70.6%         63.9%         67.2%         67.8%         75.7%         71.5%           per RES Technology as a percentage of the Gross Electricity Consumption         72.0%         61.8%         57.9%         64.7%         69.0%         66.3%         68.4%         61.3%         64.1%         64.8%         72.7%         68.7%           2.2%         2.0%         1.9%         1.9%         1.9%         2.0%         2.4%         2.8%         2.7%         2.4%           0.0%         0.0%         0.0%         0.0%         0.0%         0.0%         0.1%





Geothermal electricity

Energy Production in 2000 kdown by source	, i i i i i i i i i i i i i i i i i i i				<b>,</b>	,								Annual Change
Biogas		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
0.0%	Hydroelectrical													
pal solid Biofuels e 5.6% 0.0%	energy	500	787	778	399	734	916	717	1 269	1 127	1 1 1 6	625	974	6%
Geothermal \ /	Wood in													
energy 2.3% / /	households	1 150	1 150	1 150	1 150	1 150	1 150	1 150	1 150	1 150	1 150	1 150	1 150	0%
Hydroelectrical energy 31.1%	Other wood													
	and wood waste	602	590	595	736	864	762	683	779	869	692	725	728	1%
	Wind energy	0	0	0	0	1	1	1	2	3	8	11	14	62%
	Solar Energy	9	11	13	13	14	14	15	16	16	17	18	18	4%
	Biogas	2	2	2	2	2	3	3	3	3	2	1	1	-18%
	Municipal													
	solid waste	0	0	0	0	0	0	0	0	0	0	57	174	na
Wood in	Geothermal energy	0	3	4	4	4	30	37	42	45	51	70	72	14%
households 36.7%	Biofuels	0	0	0	0	0	0	0	0	0	0	0	0	na
	Total	2 264	2 543	2 542	2 305	2 770	2 876	2 607	3 261	3 213	3 035	2 6 5 6	3 1 3 3	4%

**RES Primary Energy Production (ktoe)** 

#### **RES Primary En** ---... breakd

Municipal waste 5 Solar Energy 0.6% Wind energy 0.5% Other wood and wood waste 23.2%

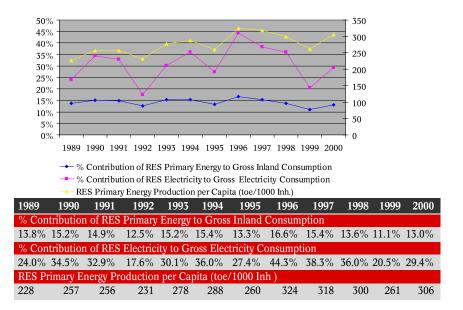
95-00 6% 0% 1% 62% 4% -18% **jo** na 14%

Average

63



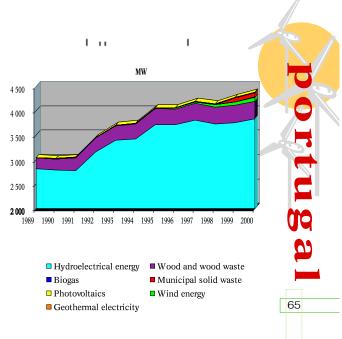
Renewable Energy Sources accounted for 13% of the Gross Inland Consumption in 2000, while the percentage of RES electricity in the Gross Electricity Consumption was 29.4% in the same year. Wood and wood waste cover the largest percentage of the total RES primary energy production (60% in 2000), while hydroelectric energy is the second largest source (31.1% of RES primary energy production in 2000) and MSW is the third (5.6% of RES primary energy production in 2000). Hydroelectricity covered about 25.3% and wood and wood waste produced electricity covered 2.3% of the Gross Electricity Consumption.

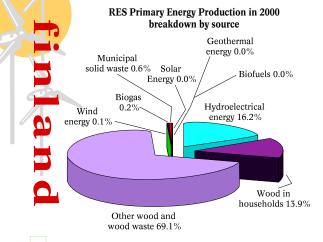


	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		
Share of RES Electricit	y to Gro	oss Elect	tricity C	onsum	ption									
	24.0%	34.5%	32.9%	17.6%	30.1%	36.0%	27.4%	44.3%	38.3%	36.0%	20.5%	29.4%		
Electricity Generation per RES Technology as a percentage of the Gross Electricity ConsumptionHydroelectrical energy21.6%32.1%30.2%14.8%27.2%33.0%24.4%41.4%35.3%33.0%17.1%25.3%														
Hydroelectrical energy	21.6%	32.1%	30.2%	14.8%	27.2%	33.0%	24.4%	41.4%	35.3%	33.0%	17.1%	25.3%		
Wood and wood waste	2.5%	2.4%	2.7%	2.8%	2.9%	2.9%	2.9%	2.7%	2.8%	2.6%	2.5%	2.3%		
Wind energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%	0.2%	0.3%	0.4%		
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Municipal solid waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	1.2%		
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%		
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		

#### RES Primary Energy Production per Capita (toe/1000 Inh )

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	50	80	78	40	74	92	72	126	112	110	61	95
Wood in households	116	116	116	115	115	115	115	114	114	114	113	112
Other wood and wood was	te 61	60	60	74	87	76	68	77	86	68	71	71
Wind energy	0	0	0	0	0	0	0	0	0	1	1	1
Solar Energy	1	1	1	1	1	1	2	2	2	2	2	2
Biogas	0	0	0	0	0	0	0	0	0	0	0	0
Municipal solid waste	0	0	0	0	0	0	0	0	0	0	6	17
Geothermal energy	0	0	0	0	0	3	4	4	4	5	7	7
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0
All RES	228	257	256	231	278	288	260	324	318	300	261	306





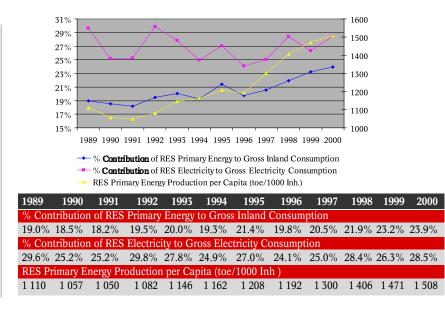
	<b>RES Primary</b>	Energy	Production	(ktoe)	
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Average Annual

Change

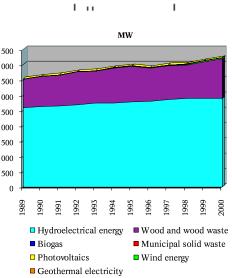
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Hydroelectrical													
energy	1 1 2 0	934	1 135	1 301	1 158	1 013	1 1 1 0	1 0 2 0	1053	1 294	1 099	1 262	3%
Wood in													
households	$1\ 065$	1 068	1 070	1 072	1075	$1\ 075$	1 068	1 1 2 0	1 1 25	1 1 39	1 1 1 2	1 082	0%
Other wood													
and wood waste	3 298	3 240	3 030	3 051	3 545	3 796	3 965	3 946	4 466	4 790	5 348	5 392	6%
Wind energy	0	0	0	0	0	1	1	1	1	2	4	7	49%
Solar Energy	0	0	0	0	0	0	0	0	0	0	0	0	14%
Biogas	10	10	10	10	11	11	13	16	24	18	18	18	7%
Municipal													
solid waste	18	19	18	18	17	16	12	8	10	4	15	45	30%
Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0	na
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0	na
Total	5 512	5 270	5 263	5 453	5 806	5 911	6 169	6 110	6 680	7 247	7 596	7 806	5%

Hydroelectric energy covered about 17.9% and wood and wood waste covered 10.4% of the Gross Electricity Consumption of Finland in 2000. Wood and wood wastes cover the largest percentage of the total RES primary energy production (82.9% in 2000), while hydroelectric energy is the second largest source (16.2% of RES primary energy production in 2000). The percentage of RES in the Gross Inland Consumption was 23.9% in 2000, while the percentage of RES electricity in the Gross Electricity Consumption was 28.5% in the same year.





		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
	Share of RES Electricit	y to Gro	ss Elect	ricity C	onsump	otion							
		29.6%	25.2%	25.2%	29.8%	27.8%	24.9%	27.0%	24.1%	25.0%	28.4%	26.3%	28.5%
	<b>Electricity Generation</b>	per RES	Techno	ology as	a perce	ntage o	f the Gr	oss Elec	ctricity	Consum	ption		
		21.7%	17.6%	18.9%	22.9%	19.6%	16.3%	18.2%	16.2%	15.9%	18.9%	15.8%	17.9%
	Wood and wood waste	7.9%	7.6%	6.3%	6.9%	8.2%	8.6%	8.8%	7.8%	9.0%	9.4%	10.4%	10.4%
	Wind energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
	Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Municipal solid waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
	Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
I	<b>RES Primary Energy</b>	v Produ	uction	per C	apita (	toe/10	)00 Inł	1)					
	<u></u>	,		<u></u>	<u>F</u> (			- /					
		1989	1990	1991	1992	1993	5 1994	1995	1996	5 1997	1998	3 1999	2000
ŀ	Hydroelectrical energy	226	187	226	5 258	229	9 199	) 217	199	) 205	5 251	. 213	244
ľ	Wood in households	215	214	213	213	212	2 211	209	9 219	9 219	) 221	. 215	209
(	Other wood and wood w	aste 664	650	604	605	700	) 746	5 776	5 770	) 869	929	0 1 0 3 5	1 042
I	Vind energy	0	0	) (	) ()	0	) (	) (	) (	) (	) (	) 1	1
S	Solar Energy	0	0									) ()	0
	Biogas	2	2	: 2	2 2	2	-			5 5	5 3		-
	Aunicipal solid waste	4	4					_			-	. 3	
	Geothermal energy	0	0	) (		-	) (	) (	) (			) ()	0
-	Biofuels	0	0		, 0		, ,	, v	· ·	· ·		· ·	v
A	All RES	1 1 1 0	1 057	1 050	1 082	1 146	5 1 162	2 1 208	3 1 1 9 2	2 1 3 0 0	1406	5 1471	1 508



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	Energy Product															8-
bica	Ruown by sour			1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
	Municipal	0/_	Hydroelectrical													
	Solid waste 2.0	70	energy	6 169	6 234	5 437	6 394	6 419	5 082	5 856	4 4 4 9	5 934	6 391	6 166	6 795	3%
В	iogas	Geothermal	Wood in													
	0.7% Solar	/	households	926	937	939	943	945	911	926	948	962	975	827	612	-8%
Wind	Energy 0,0	0% /	Other wood													
energy 0.3%		id waste 2.8% Geothermal energy 0.0% Energy 0,0% Biofuels 0.0% Wood in Hydroelectrical energy 46.6%	and wood waste	4 154	4 0 4 0	4 288	4 478	4 891	5 200	5 494	5 834	5 946	5 896	6 041	6 6 3 2	4%
			Wind energy	0	1	1	3	4	6	9	12	18	27	32	38	33%
			Solar Energy	3	3	4	4	4	4	5	4	4	5	5	5	2%
			Biogas	0	0	0	0	81	92	99	115	124	103	102	107	2%
			Municipal													
			solid waste	340	355	352	364	373	362	390	372	426	417	422	403	1%
Other wood	Julier wood		Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0	na
and wood waste 45.5%	ood waste 45.5% Wood in energy 46.6%	energy 46.6%	Biofuels	0	0	0	0	0	0	0	0	0	0	0	0	na
	households 4.2%		Total	11 592	11 569	11 021	12 185	12 717	11 656	12 779	11 734	13 414	13 813	13 594	14 592	3%

**RES Primary Energy Production in 2000** 

## **RES Primary Energy Production (ktoe)**

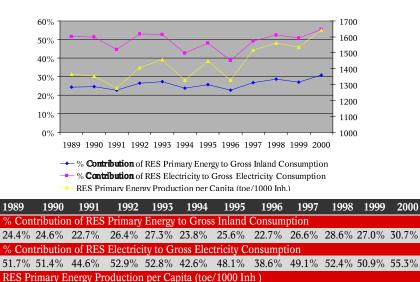
Average Annual Change

5

D



Hydro-electricity covered about 52.4% and wood and wood waste produced electricity covered 2.4% of the Gross Electricity Consumption in 2000. The percentage of RES in the Gross Inland Consumption was 30.7% in 2000, while the contribution of RES electricity in the Gross Electricity Consumption was 55.3% in the same year. Wood and wood waste cover the largest percentage of the total RES primary energy production (49.6% in 2000), while hydroelectric energy is the second largest source (46.6% of RES primary energy production in 2000) and MSW is the third (2.8% of RES primary energy production in 2000).

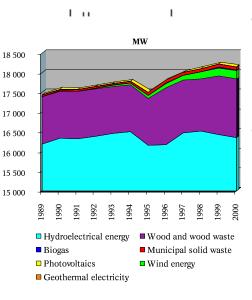


1 365 1 352 1 279 1 406 1 459 1 327 1 448 1 327 1 516 1 561 1 535 1 645

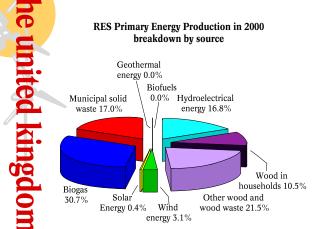
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Share of RES Electricity	to Gr	oss Elec	tricity (	Consum	ption								
	51.7%	51.4%	44.6%	52.9%	52.8%	42.6%	48.1%	38.6%	49.1%	52.4%	50.9%	55.3%	
Electricity Generation p													1
Hydroelectrical energy	50.2%	49.9%	43.1%	51.4%	51.2%	41.1%	46.4%	35.2%	47.0%	50.3%	48.5%	52.4%	
Wood and wood waste	1.4%	1.4%	1.4%	1.4%	1.5%	1.5%	1.6%	3.0%	1.8%	1.7%	2.0%	2.4%	1
Wind energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.3%	0.3%	
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
Municipal solid waste	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	Ι.
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
	- 1												

# RES Primary Energy Production per Capita (toe/1000 Inh )

		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
	Hydroelectrical energy	726	728	631	738	736	579	663	503	671	722	696	766
Wind energy         0         0         0         0         1         1         1         1         2         3         4         4           Solar Energy         0         0         0         0         1         1         1         2         3         4         4           Solar Energy         0         0         0         0         1         1         0         0         1	Wood in households	109	109	109	109	108	104	105	107	109	110	93	69
Solar Energy         0         0         0         0         1         1         0         0         1 <t< td=""><td>Other wood and wood v</td><td>vaste 489</td><td>472</td><td>498</td><td>517</td><td>561</td><td>592</td><td>622</td><td>660</td><td>672</td><td>666</td><td>682</td><td>748</td></t<>	Other wood and wood v	vaste 489	472	498	517	561	592	622	660	672	666	682	748
Biogas         0         0         0         9         10         11         13         14         12         12         12           Municipal solid waste         40         41         41         42         43         41         44         42         48         47         48         45           Geothermal energy         0	Wind energy	0	0	0	0	1	1	1	1	2	3	4	4
Municipal solid waste         40         41         41         42         43         41         44         42         48         47         48         45           Geothermal energy         0 <td< td=""><td>Solar Energy</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></td<>	Solar Energy	0	0	0	0	0	1	1	0	0	1	1	1
Geothermal energy         0	Biogas	0	0	0	0	9	10	11	13	14	12	12	12
Biofuels 0 0 0 0 0 0 0 0 0 0 0 0	Municipal solid waste	40	41	41	42	43	41	44	42	48	47	48	45
	Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0
All RES 1 365 1 352 1 279 1 406 1 459 1 327 1 448 1 327 1 516 1 561 1 535 1 645	Biofuels	0	0	0	0	0	0	0	0	0	0	0	0
	All RES	1 365	1 352	1 279	1 406	1 459	1 327	1 448	1 327	1 516	1 561	1 535	1 645



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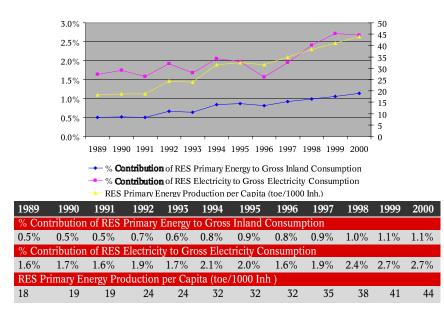
# **RES Primary Energy Production (ktoe)**

Average Annual

Change

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	95-00
Hydroelectrical													
energy	398	436	394	474	368	438	416	289	355	450	461	440	1%
Wood in													
households	204	204	204	204	204	204	204	204	204	204	276	276	6%
Other wood													
and wood waste	57	57	57	233	237	455	498	505	506	506	529	563	2%
Wind energy	1	1	1	3	19	30	34	42	57	75	77	81	19%
Solar Energy	5	5	5	6	6	6	6	6	6	7	7	11	13%
Biogas	195	218	256	307	320	359	380	442	501	585	685	804	16%
Municipal													
solid waste	193	160	165	185	234	352	358	369	427	435	406	445	4%
Geothermal energy	0	0	1	1	1	1	1	1	1	1	1	1	0%
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0	na
Total	1 053	1 082	1 082	1 413	1 388	1 845	1 895	1 858	2 057	2 264	2 442	2 621	7%

Wood and wood waste cover the largest percentage of the total RES primary energy production (32% in 2000), while biogas is the second largest source (30.7% of RES primary energy production in 2000) and MSW is the third (17% of RES primary energy production in 2000). Hydroelectricity covered about 1.3% and biogas produced electricity covered 0.7% of the Gross Electricity Consumption. The contribution of RES in the Gross Inland Consumption was 1.1% in 2000, while the percentage of RES electricity in the Gross Electricity Consumption was 2.7% in the same year.



nited kingdom 73

Wind energy

Solar Energy

Municipal solid waste

Geothermal energy Biofuels

Biogas

All RES

0 0

0

3

3 3 3

0 0 0 0

0 0 0 0

18 19 19 24 24

0 0

4

0

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Share of RES Electricity	to Gro	ss Elect	ricity Co	onsump	tion								
	1.6%	1.7%	1.6%	1.9%	1.7%	2.1%	2.0%	1.6%	1.9%	2.4%	2.7%	2.7%	
Electricity Generation p	er RES	Techno	logy as	a perce	ntage of	the Gr	oss Elec	tricity C	Consum	ption			- 3
Hydroelectrical energy	1.4%	1.5%	1.3%	1.6%	1.3%	1.5%	1.4%	0.9%	1.1%	1.4%	1.4%	1.3%	
Wood and wood waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	2
Wind energy	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	
Biogas	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.4%	0.4%	0.6%	0.7%	2
Municipal solid waste	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.3%	0.3%	2
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
<b>RES Primary Energy</b>	Produ	ction	per Ca	pita (f	toe/10	00 Inh	)						1
<u> </u>				1			<i></i>						1 ^
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Hydroelectrical energy	7	8	7	8	6	8	7	5	6	8	8	7	[
Wood in households	4	4	4	4	4	3	3	3	3	3	5	5	
Other wood and wood w	vaste 1	1	1	4	4	8	8	9	9	9	9	9	

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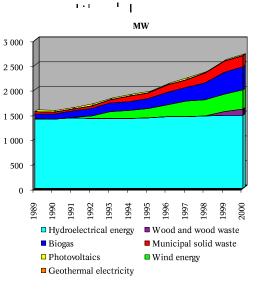
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<b>RES Primary E</b>	nergy	Prod	uction	(ktoe	;)					
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Hydroelectrical										
energy	366	362	362	371	384	388	403	410	448	483
Wood in										
households	0	0	0	0	0	0	0	0	0	0
Other wood										
and wood waste	0	0	0	0	0	0	0	0	0	0
Wind energy	0	0	0	0	0	0	0	0	0	0
Solar Energy	0	0	0	0	0	0	0	0	0	0
Biogas	0	0	0	0	0	0	0	0	0	0
Municipal										
solid waste	0	0	0	1	1	1	1	1	1	1
Geothermal energy	948	964	940	928	935	928	976	992	1 0 3 2	1 256
Biofuels	0	0	0	0	0	0	0	0	0	0

1 314 1 325 1 302 1 299 1 321 1 317 1 379 1 404 1 481 1 741 2 274 2 490

Total

# **RES Primary Energy Production in 2000** breakdown by source

Hydroelectr energy 22. Geothermal energy 78.0%

75

an

Average Annual Change

2000 95-00

6%

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0% 1 1 942

15%

13%

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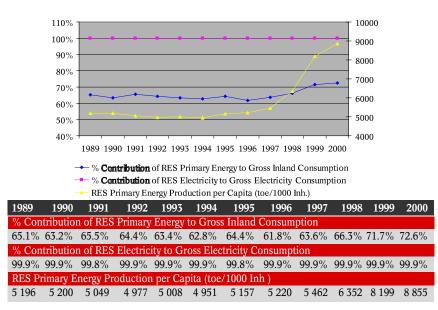
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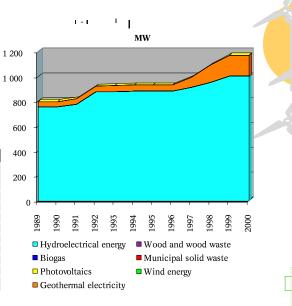
All the electricity consumed in Iceland is produced from renewable energy sources. In 2000, 82.7% of the electricity was produced from hydro and 17.3% from geothermal energy. Also 72.6% of the Gross Inland Consumption of Iceland (in 2000) is covered by renewable energy sources (hydro and geothermal). Geothermal energy is used for heating purposes as well.



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Share of RES Electricit	y to Gro	oss Elect	tricity C	Consum	ption								
	99.9%	99.9%	99.8%	99.9%	99.9%	99.9%	99.8%	99.9%	99.9%	99.9%	99.9%	99.9%	Ι,
Electricity Generation	per RES	Techno	ology as	a perce	entage o	of the Gi	ross Ele	ctricity	Consun	ption			1
Hydroelectrical energy	93.9%	93.2%	93.5%	94.8%	94.5%	94.5%	94.0%	93.1%	93.2%	89.5%	84.1%	82.7%	
Wood and wood waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
Wind energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Municipal solid waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Geothermal electricity	6.0%	6.7%	6.3%	5.1%	5.4%	5.4%	5.8%	6.8%	6.7%	10.4%	15.8%	17.2%	
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

# RES Primary Energy Production per Capita (toe/1000 Inh )

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
			1001					1000		1000	1000	
Hydroelectrical energy	1 449	1 4 1 9	1 402	1 420	1 456	1 460	1 505	1 526	1 652	1 764	1 875	1 944
Wood in households	0	0	0	0	0	0	0	0	0	0	0	0
Other wood and wood w	raste 0	0	0	0	0	0	0	0	0	0	0	0
Wind energy	0	0	0	0	0	0	0	0	0	0	0	0
Solar Energy	0	0	0	0	0	0	0	0	0	0	0	0
Biogas	0	0	0	0	0	0	0	0	0	0	0	0
Municipal solid waste	0	0	0	4	4	4	4	4	4	4	4	4
Geothermal energy	3 748	3 781	3 647	3 553	3 547	3 487	3 648	3 690	3 807	4 584	6 3 2 0	6 908
Biofuels	0	0	0	0	0	0	0	0	0	0	0	0
All RES	5 196	5 200	5 049	4 977	5 008	4 951	5 157	5 220	5 462	6 352	8 199	8 855

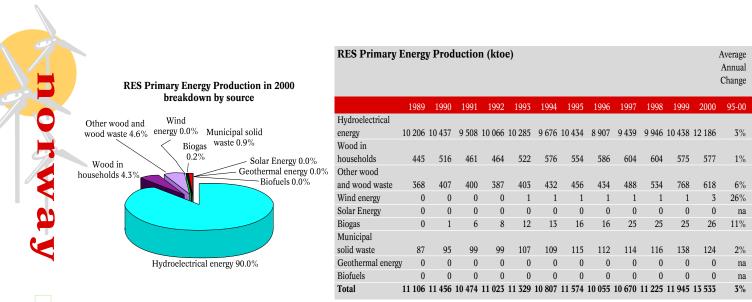


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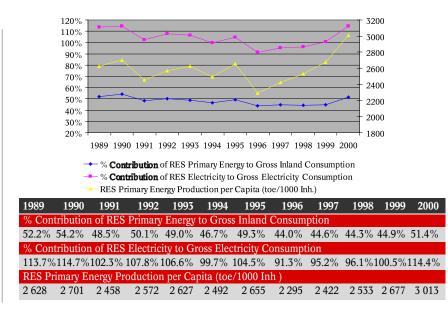
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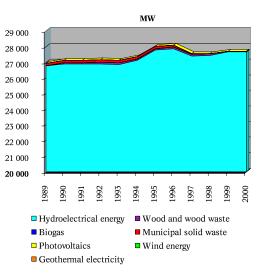
More than half of the Gross Inland Consumption of Norway (51.4% in 2000) is covered by renewable energy sources, while hydro-electricity was 1.14 times larger than the Gross Consumption of Electricity.

Hydroelectric energy is the main renewable source (90% of RES primary energy) and the remaining is covered by wood, biogas and municipal solid wastes.





	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Share of RES Electricit												
	113.7%1										00.5%1	14.4%
Electricity Generation	per RES '	Techno	logy as a	a percei	itage of	f the Gro	oss Elec	ctricity (	Consum	ption		
Hydroelectrical energy	113.7%1	14.5%1	02.1%1	07.5%1	06.4%	99.4%1	04.2%	91.0%	95.0%	95.8%1	00.4%1	14.3%
Wood and wood waste	0.0%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%
Wind energy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Biogas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Municipal solid waste	0.1%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Geothermal electricity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Photovoltaics	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>RES Primary Energy</b>	v Produ	ction	ner Ca	nita (t	oe/10	00 Inh	)					
	9			· <b>F</b> - · · · ( ·			<u>,</u>					
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectrical energy	2 415	2 461	2 2 3 1	2 348	2 385	2 2 3 1	2 393	2 0 3 3	2 143	2 244	2 3 3 9	2 713
Wood in households	105	122	108	108	121	133	127	134	137	136	129	128
Other wood and wood	waste87	96	94	90	93		105	99	111	120	172	138
Wind energy	0	0	0	0	0	•	0	•	•	•	0	1
Solar Energy	0	0	0	0	0	-	0				0	0
Biogas	0	0	1	2	3	•	4				6	6
Municipal solid waste	21	22	23	23	25	25	26	25	26	26	31	28
Geothermal energy	0	0	0	0	0	0	0	0	0	0	0	0
Biofuels	0	0	0	0	0	0	0	0		*	0	0
All RES	2 628	2 701	2 458	2 572	2 6 2 7	2 492	2 655	2 295	2 422	2 533	2 677	3 013



European Commission

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