



Renewable Energy Share by 2020 – the RE industry point of view

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European Renewable Energy Council**

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European Renewable Energy Council

Umbrella organisation regrouping:

As Members

- ✓ **EPIA** European Photovoltaic Industry Association
- ✓ **ESHA** European Small Hydropower Association
- ✓ **ESTIF** European Solar Thermal Industry Federation
- ✓ **EUBIA** European Biomass Industry Association
- ✓ **EWEA** European Wind Energy Association
- ✓ **EUREC Agency** European Renewable
Energy Research Centers Agency

As Associate Members

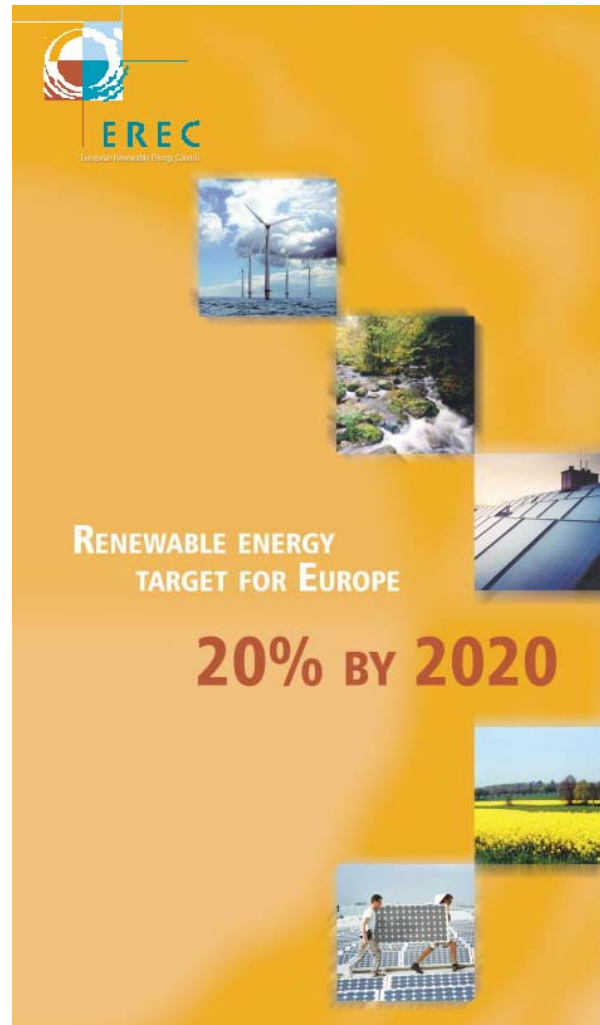
- ✓ **EGEC** European Geothermal Energy Council
- ✓ **AEBIOM** European Biomass Association

EREC's objectives



- ❑ **To act as a forum** for exchange of information and discussion on issues related to RES.
- ❑ **To provide information and consultancy** on renewable energies for the political decision makers on local, regional, national and international level.
- ❑ **To launch policy initiatives** to create a positive framework for renewable energy sources
- ❑ **To promote European RES equipment, products and services** on world markets

20 % by 2020 in Europe



20 % by 2020



- ◆ A contribution of RES to total inland consumption of 20 % by 2020 is possible
- ◆ The contribution of RES to electricity production will be more than 33 % in 2020
- ◆ The contribution of RES to heat production will be 25 % in 2020.

Contribution of RES to Total Inland Consumption - 20% by 2020

Eurostat Convention (Mtoe)



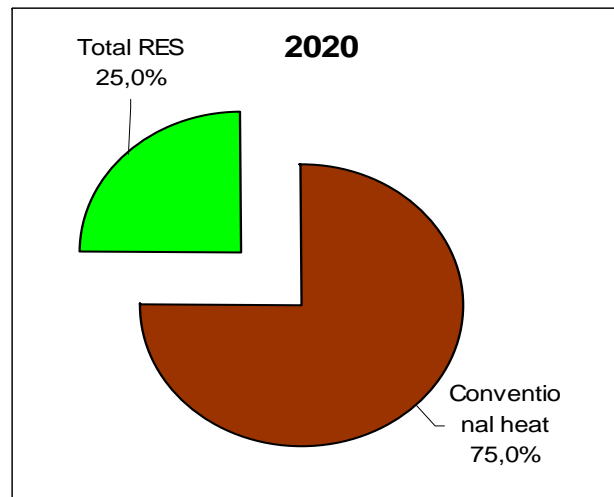
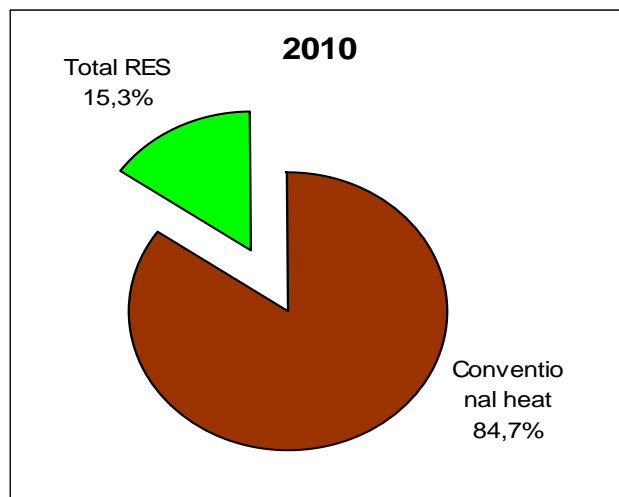
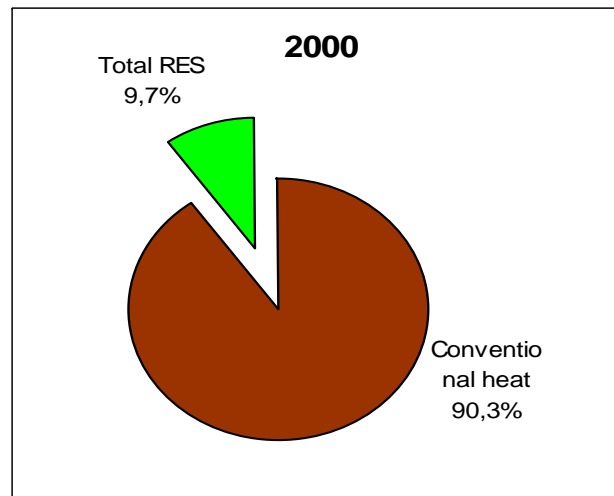
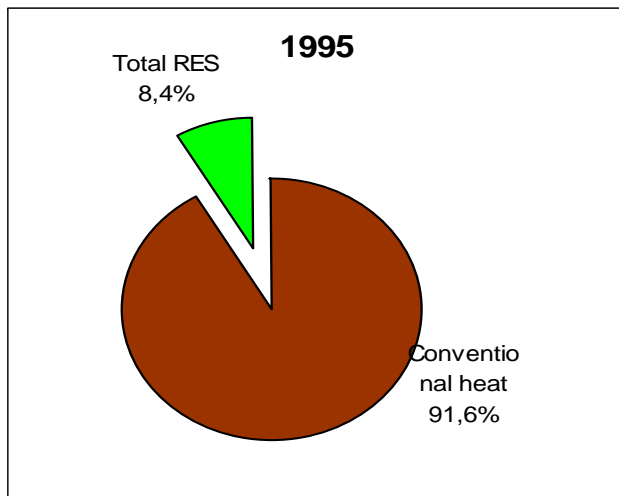
	2000		TARGETS 2010		TARGETS 2020	
TYPE OF ENERGY	Eurostat Convention	% of total	Eurostat Convention	% of total	Eurostat Convention	% of total
Total Gross Inland Consumption	1,455		1,576 (trends to 2030)		1,576	
1. Wind	1.92	0.13	14.4	0.91	38	2.4
2. Hydro	27.6	1.9	30.6	1.94	33	2.1
3. Photovoltaics	0.01		0.3	0.02	3.6	0.2
4. Biomass	54.5	3.73	125.5	7.96	205	13.0
5. Geothermal	3.32	0.22	6.2	0.4	12.4	0.8
6. STC	0.38	0.02	3	0.2	24	1.5
Total Renewable Energies	87.8	6.0	180	11.43	316	20.0

Contribution of Renewables to Electricity Production (1995-2020)



	1995 Eurostat TWh	2000 Eurostat TWh	2010 Projections TWh	2020 Projections TWh
Wind	4	22.4	168	444
PV	0.03	0.1	3.6	42
Biomass	22.5	39.2	141	282
Hydro	290.2	321.5	355.4	384
Geothermal	3.5	4.8	7	14
TOTAL RES	320.2	388	675	1166
Total Electricity Generation (Trends to 2030)	2308.3	2574	3027	3450
Share of RES	13.9%	15.1%	22.3%	33.8%

Contribution of Renewable Energy to Heat Production (1995-2020)





The Benefits

Total RES investment (2001 - 2020)

	2001-2010 Billion Euro	2011-2020 Billion Euro	2001-2020 Billion Euro
Wind	55	101	156
PV	10	66	76
Biomass	44	45	89
Hydro	11	9	20
Geothermal	4	7	11
Solar thermal	16	75	91
TOTAL RES	140	303	443

Cumulative Avoided External Costs in the EU15 (2001 - 2020)



	2001-2010 Billion Euro	2001-2020 Billion Euro
Wind	9.4 – 24.0	40.2 – 102.8
PV	0.2 – 0.5	2.7 – 6.8
Biomass	16.7 – 42.7	62.6 – 160.1
Hydro	2.2 – 5.6	7.5 – 19.1
Geothermal	0.6 – 1.4	2.5 – 6.3
Solar thermal	1.3 – 3.4	11.2 – 28.8
TOTAL RES	30.4 – 77.6	126.7 – 323.9

Annual CO₂ Emission Reductions due to RES Penetration (2001 - 2020)



	2010 Mt/year	2020 Mt/year
Wind	99	236
PV	2.2	24
Biomass	176	326
Hydro	23	35
Geothermal	5.8	15
Solar thermal	14	92
TOTAL RES	320	728
% of total EU15 CO₂ emissions in 2000	9.6%	21.9%

Cumulative Avoided Fuel Costs in the EU-15 (2001 - 2020)

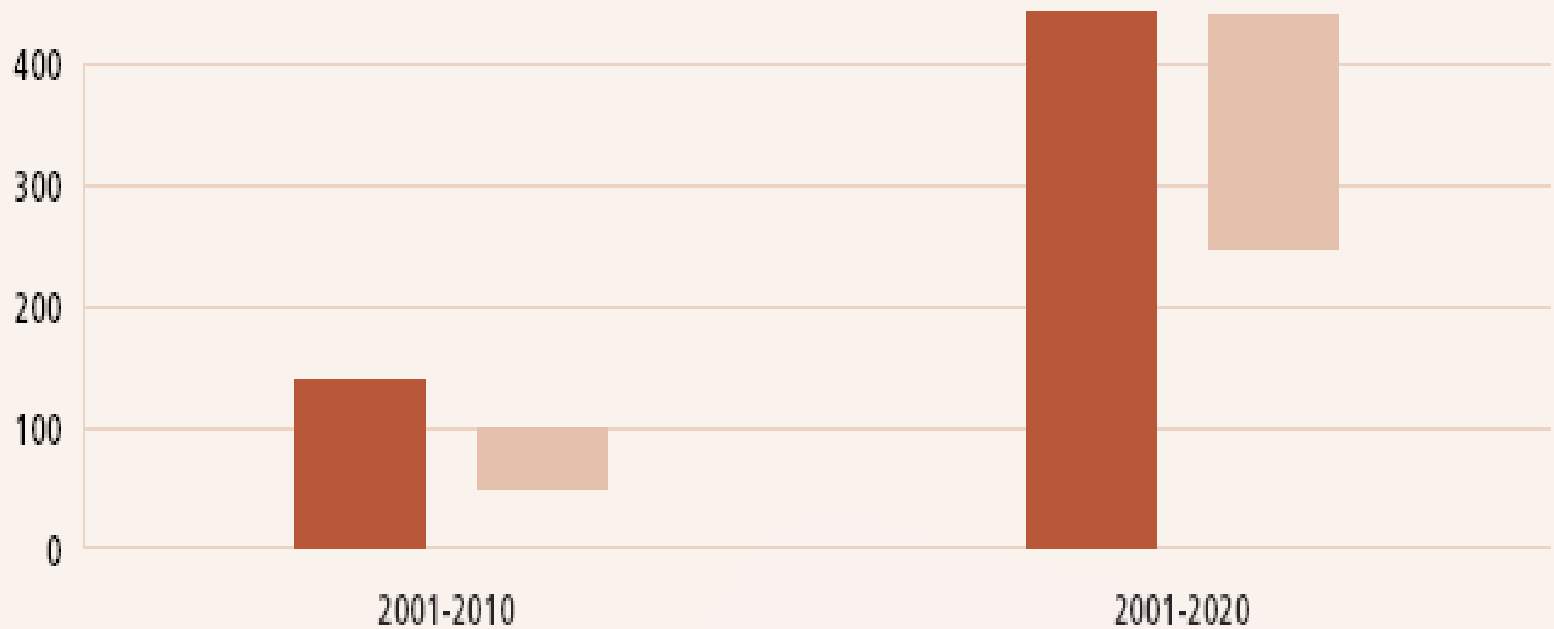


	2001-2010 Billion Euro	2001-2020 Billion Euro
Wind	12.9	63
PV	0.2	4.3
Biomass	-	-
Hydro	3.1	11.5
Geothermal	1.5	7.3
Solar thermal	2.3	29.7
TOTAL RES	20.0	115.8

Investments compared to avoided fuel costs and avoided external costs



Investments compared to avoided fuel costs and avoided external costs (in billion €)



Cumulative investment

140

443

Cumulative avoided costs (External+fuels)

50.4 - 97.6

242.5 - 439.7

RES - Full Time Employment Growth (2001 - 2020)



	2010 Jobs (FTE)	2020 Jobs (FTE)
Wind	184,000	318,000
PV	30,000	245,000
Biomass	338,000	528,000
Biofuels	424,000	614,000
Small Hydro	15,000	28,000
Geothermal	6,000	10,000
Solar thermal	70,000	280,000
TOTAL RES	1,067,000	2,023,000



Further information:

EREC – European Renewable Energy Council

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