IRENA
International Renewable Energy Agency

RENEWABLE ENERGY COUNTRY PROFILES
EUROPEAN UNION

June 2013 edition

www.irena.org

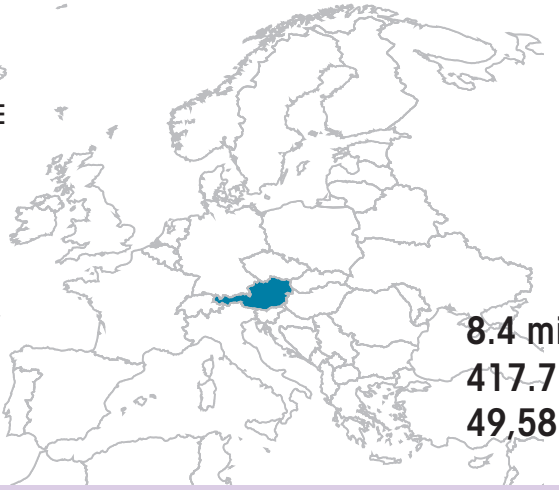
IRENA Renewable Energy Country Profiles take stock of the latest developments in the field of renewables at country level around the world. Each profile combines analysis by IRENA's specialists with the latest available country data and additional information from a wide array of sources. The resulting reports provide a brief yet comprehensive picture of the situation with regard to renewable energy, including energy supply, electrical generation and grid capacity, and access. Energy policies, targets and projects are also considered, along with each country's investment climate and endowment with renewable energy resources.

The energy statistics presented here span the period from 2010 until 2013, reflecting varying timelines in the source material. Since data availability differs from country to country, wider regional comparisons are possible only for the latest year with figures available for every country included. Despite the time lag in some cases, the evident differences and disparities between countries and regions around the world remain striking.

The current package of country profiles is just a starting point. The geographic scope will continue to expand, and existing profiles will be enhanced with new indicators, with the whole series maintained as a live product on the IRENA website (www.irena.org). Your feedback on both the format and the content of these country profiles would be greatly appreciated. Please address any comments to statistics@irena.org.

RENEWABLE ENERGY COUNTRY PROFILE

AUSTRIA



8.4 million Population (2011)
417.7 billion USD GDP (2011)
49,581 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

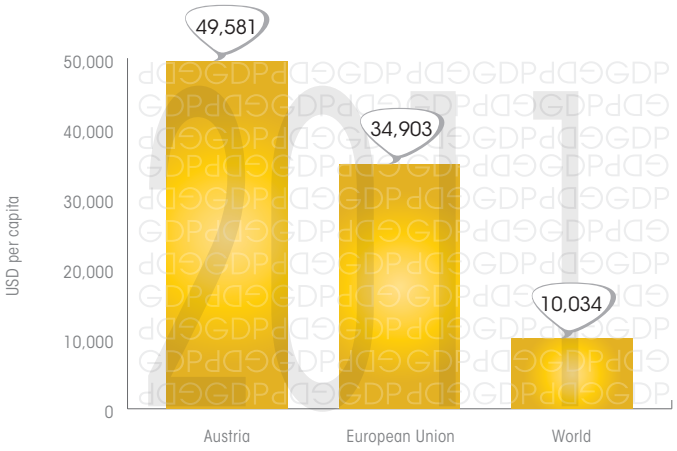
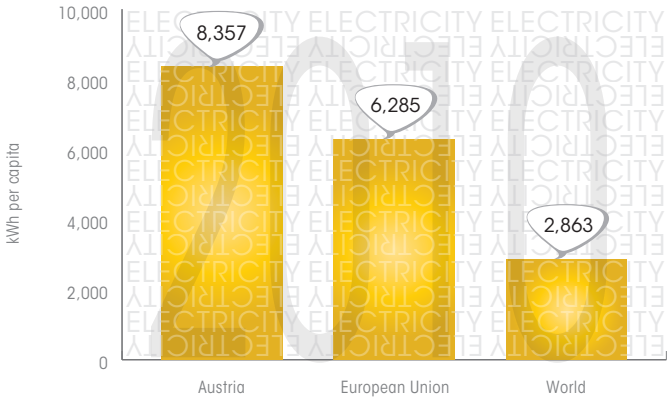


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



The European Union includes Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 1,385.5 PJ - Of which renewables: 367.3 PJ (26.5%)
- Energy self-sufficiency: 35.0%
- Fuel imports: 21.7 billion USD (11.4% of total imports)
- Electricity generation: 62.2 TWh - Of which renewables: 40.8 TWh (65.7%)
- Electricity use per capita: 8,344 kWh
- Electrical capacity: 22.8 GW - Of which renewables: 15.0 GW (65.8%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 20%

* 2010

TARGETS:

- 45% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020
- Adding 2 GW of wind, 1.2 GW of solar photovoltaic, 1 GW of hydro and 0.2 GW of bioenergy (solid and gaseous biomass) capacity by 2020

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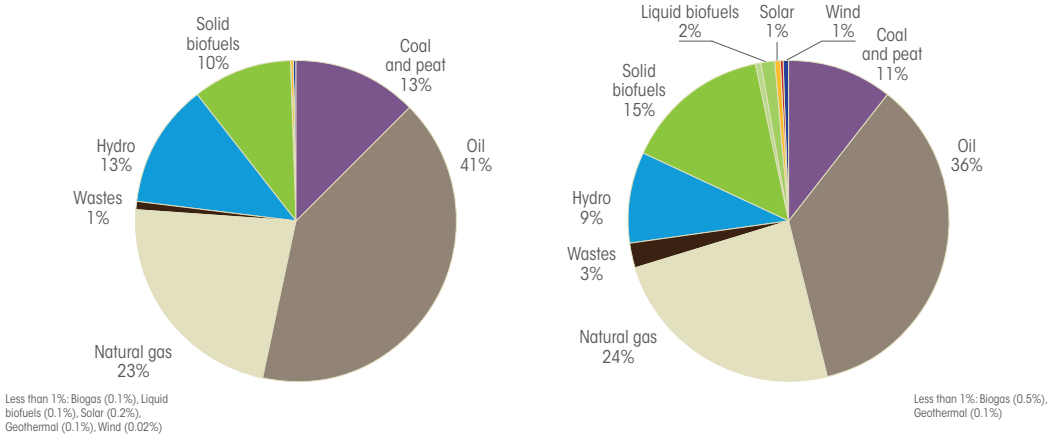
FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1996	2000	2001	2002	2004	2007	2009	2010	2012
RD & D Budget Allocations	National Climate Strategy 2000-08/12	Federal Environment Fund	Green Electricity Act (amended in 2009 and 2010)	Amendent to the Mineral Oil Tax and the Fuel Ordinance	Austrian Climate Change Strategy	Signed the IRENA Statute	Energy Strategy of Austria	Green Electricity Act 2012
	Renewable Energy Targets	Eco-Plants Feed-In Tariffs		klima:aktiv Programme	Climate and Energy Fund	Combined Heat and Power Law		

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 29 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 188 MW of wind capacity addition announced (2 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	⊗

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

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BELGIUM

11.0 million Population (2011)
513.7 billion USD GDP (2011)
46,608 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

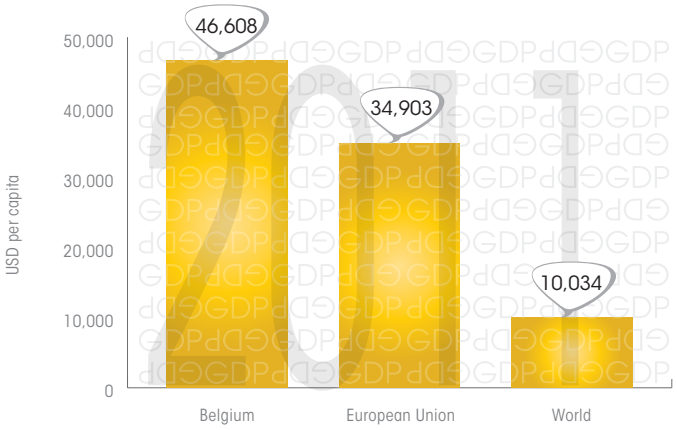
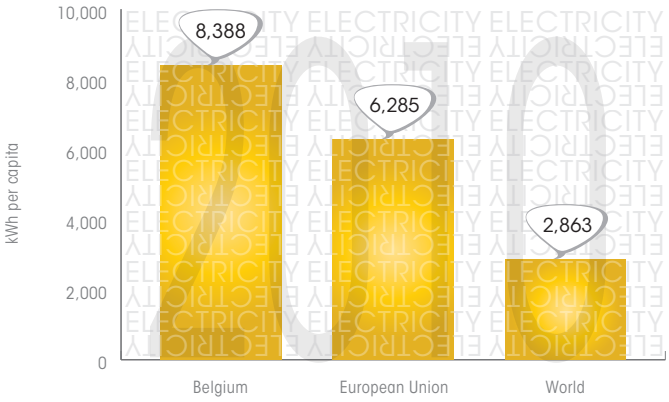


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 2,444.8 PJ - Of which renewables: 119.7 PJ (4.9%)
- Energy self-sufficiency: 31.6%
- Fuel imports: 76.2 billion USD (16.5% of total imports)
- Electricity generation: 88.9 TWh - Of which renewables: 8.4 TWh (9.4%)
- Electricity use per capita: 8,034 kWh
- Electrical capacity: 20.1 GW - Of which renewables: 3,841 MW (19.1%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 13% of final energy from renewables by 2020
- 10.15% of transport energy from renewables by 2020
- 11.9% of gross final consumption in heating and cooling from renewables by 2020
- Wallonia: 30% of electricity generation from renewables by 2016, 8 TWh of renewable electricity generated in 2020

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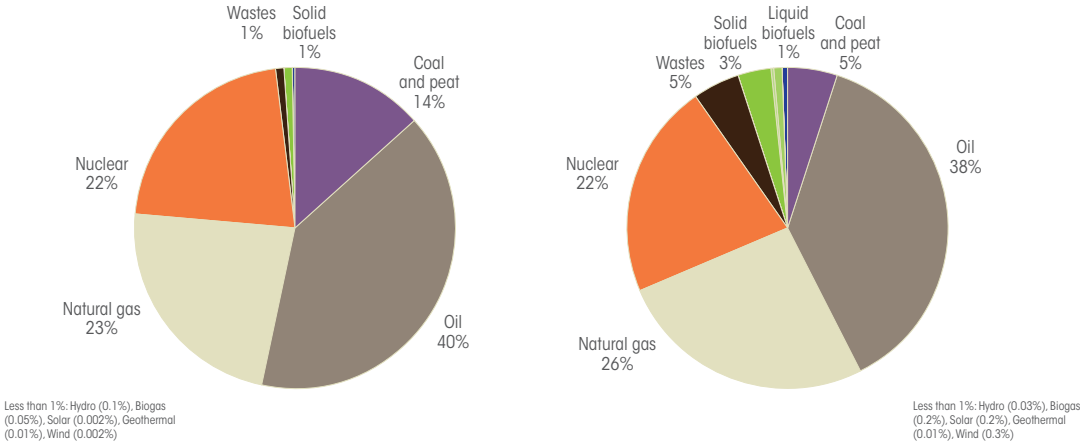
Figure 3: Total Primary Energy Supply* in 2000 and 2011



2000: 2,434.1 PJ

2011: 2,438.3 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1992	1996	2000	2001	2002	2003	2003/06	2009	2011
Tax deduction for investments in energy efficiency & renewable energy by Enterprises	RUE/Electricity Generation Fund	Access to the Grid (Renewables and CHP)	National Green Certificate Scheme	Royal Decree on the Introduction of Mechanisms Promoting Renewable Electricity Generation	Tax deductions for investments in energy efficiency and renewable energy	Green Certificate Scheme Excise Tax Reduction for Biofuels	Law of obligation for the incorporation of biofuels in fossil fuels	Signed the IRENA Statute

Notes: 1) All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)
2) Many support schemes and policies have been put in place at the regional level in the Brussels-Capital Region, Flanders and Wallonia.

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 33 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 346 MW and 8 MWth of biomass-fired capacity addition announced (5 projects)
- 1.2 MW of solar photovoltaic capacity addition announced (1 project)
- More than 700 MW of wind capacity addition announced (8 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	◪	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

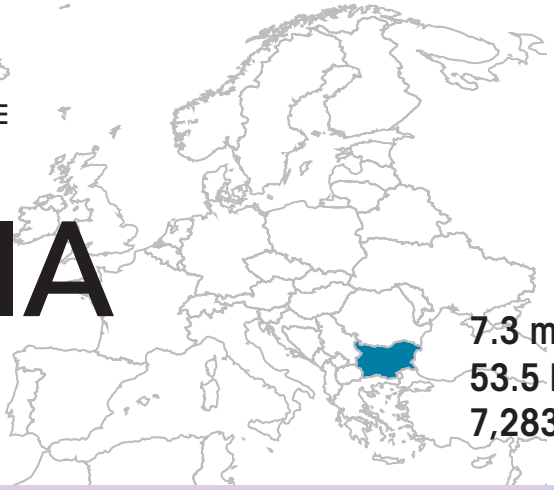
Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

BULGARIA



7.3 million Population (2011)
53.5 billion USD GDP (2011)
7,283 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

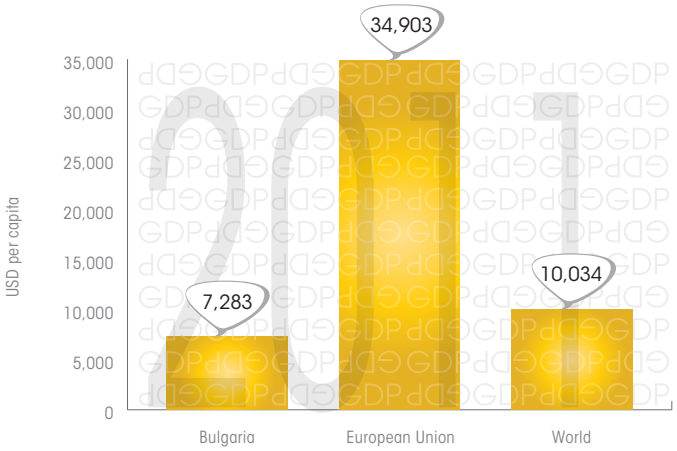
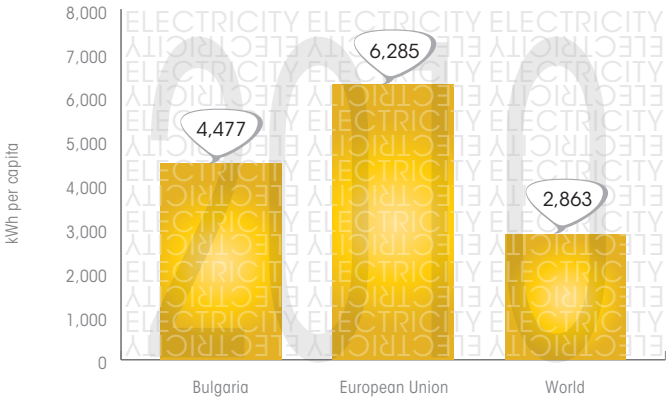


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 801.8 PJ - Of which renewables: 56.6 PJ (7.1%)
- Energy self-sufficiency: 64.4%
- Fuel imports: 7.5 billion USD (23.0% of total imports)
- Electricity generation: 50.0 TWh - Of which renewables: 3,935 GWh (7.9%)
- Electricity use per capita: 4,863 kWh
- Electrical capacity: 10.2 GW - Of which renewables: 2,944 MW (28.8%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 14%

* 2010

TARGETS:

- 16% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020
- 80 MW of solar photovoltaic capacity operational by 2014

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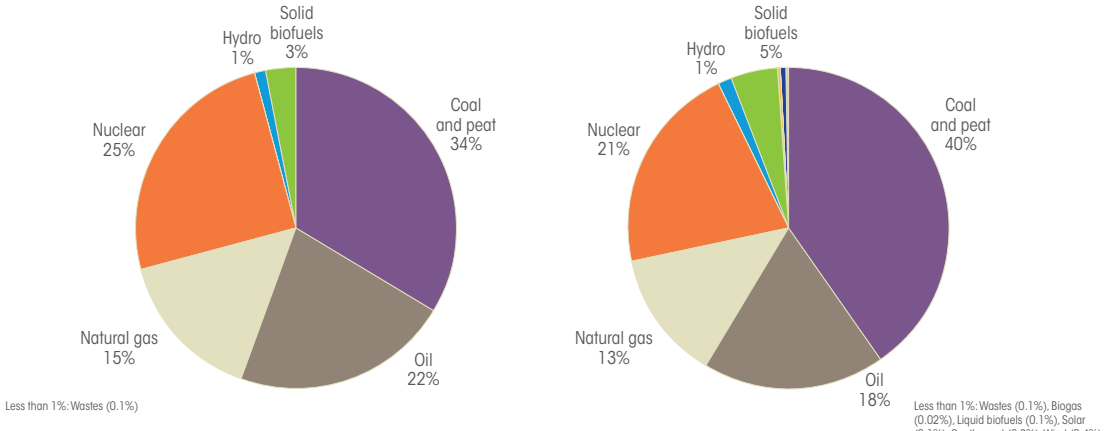
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

- Energy Act (amended in 2013) — 2003
- Renewable and Alternative energy sources and Biofuels Act — 2007
- Ratified the IRENA Statute — 2010
- Feed-in tariffs for electricity from renewable sources — 2011
- Energy from Renewable Sources Act — 2012
- Ordinance on the vocational education for fitters of energy equipment and installations — 2012

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 66 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 80 MW of small hydro capacity addition announced (1 project)
- 185 MW of solar photovoltaic capacity addition announced (12 projects)
- Around 2,300 MW of wind capacity addition announced (23 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

CYPRUS

1.1 million Population (2011)
24.7 billion USD GDP (2011)
22,112 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

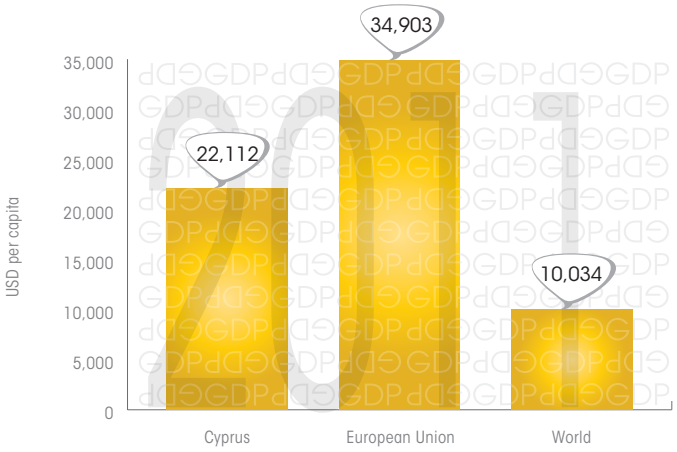
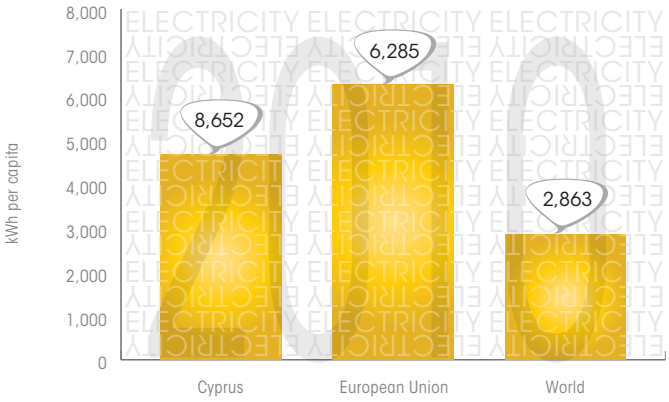


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 99.3 PJ - Of which renewables: 5.1 PJ (5.1%)
- Energy self-sufficiency: 4.1%
- Fuel imports: 2.2 billion USD (25.6% of total imports)
- Electricity generation: 4,929 GWh - Of which renewables: 178.0 GWh (3.6%)
- Electricity use per capita: 4,271 kWh
- Electrical capacity: 1,742 MW - Of which renewables: 160 MW (9.2%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 13% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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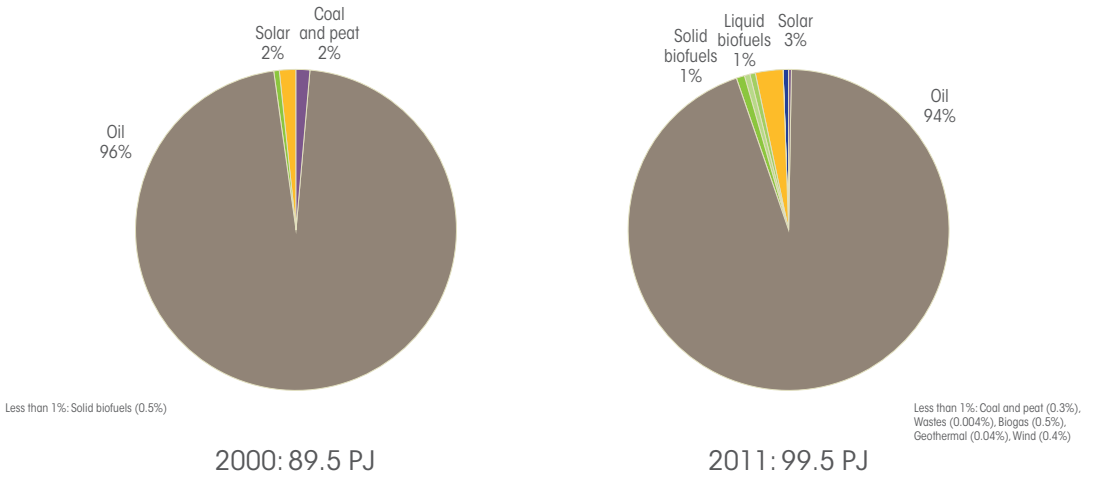
FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2011



2000: 89.5 PJ

2011: 99.5 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

2002	2003	2003	2004	2005	2009	2010	2012
Action Plan for the Promotion of Renewable Energy Sources	Law No. 33 on the Promotion of Renewable Energy and Energy Efficiency	Law regulating the electricity market	New Grant Scheme (amended in 2006)	Tax exemptions for biofuels	Support scheme for renewable electricity generation and energy saving	Ratified the IRENA Statute	New Law for the Promotion of Renewable Energy and Energy Efficiency in public consultation

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 36 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 3.4 MW of biomass-fired capacity addition announced (4 projects)
- 1.3 MW of solar photovoltaic capacity addition announced (1 project)
- 110 MW of wind capacity addition announced (3 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: 5

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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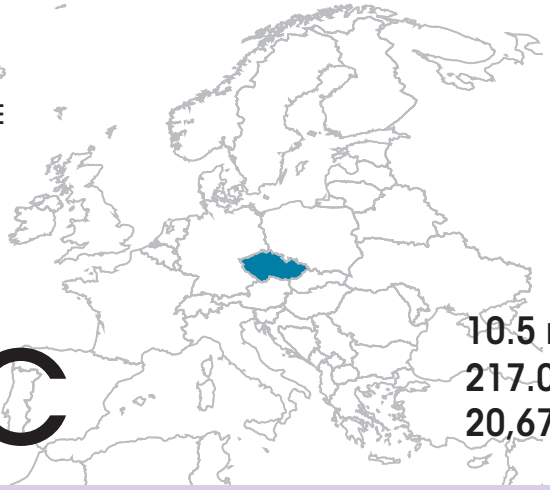
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

CZECH REPUBLIC



10.5 million Population (2011)
217.0 billion USD GDP (2011)
20,677 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

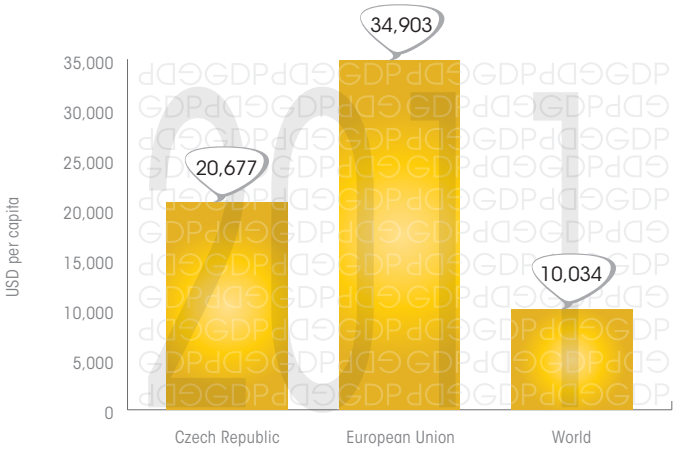
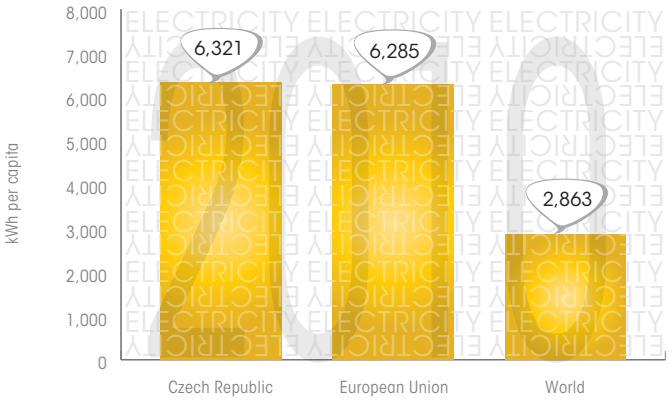


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 1,818.3 PJ - Of which renewables: 125.2 PJ (6.9%)
- Energy self-sufficiency: 73.8%
- Fuel imports: 16.0 billion USD (10.6% of total imports)
- Electricity generation: 86.8 TWh - Of which renewables: 7.2 TWh (8.4%)
- Electricity use per capita: 6,289 kWh
- Electrical capacity: 20.2 GW - Of which renewables: 3,703 MW (18.3%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 15%

* 2010

TARGETS:

- 13.5% of final energy from renewables by 2020
- 10.8% of transport energy from renewables by 2020

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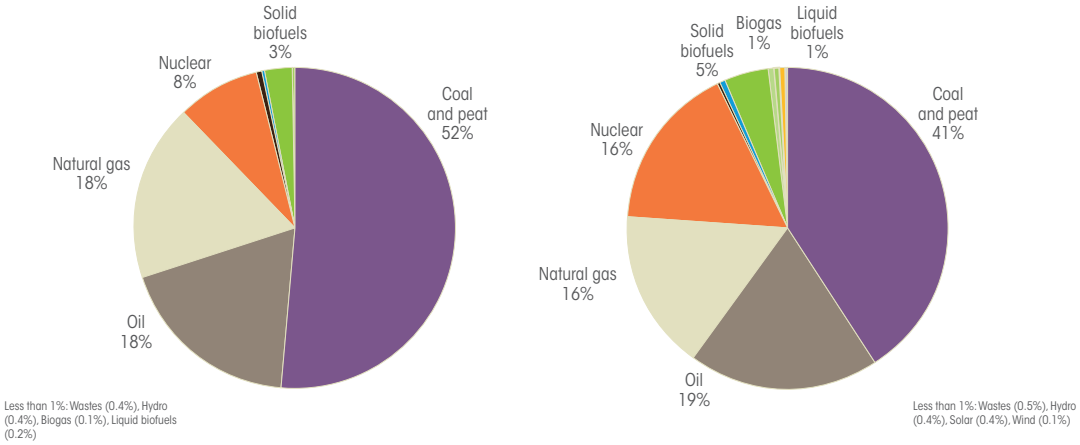
Figure 3: Total Primary Energy Supply* in 2000 and 2011



2000: 1,752.5 PJ

2011: 1,879.6 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1999	2001	2002	2003	2004	2004/05	2005	2007/09	2011
Subsidies for biodiesel production	Energy Management Act (amended in 2006 and 2010)	National Programme for Economical Energy Management and	Bill on Promotion of Power and Heat Generation	Promotion of crops for energy use	State Energy Policy	Act on the Promotion of the Use of Renewable	Biofuel blending requirements	Ratified the IRENA Statute
	New Energy Act	Use of Renewable and Secondary Energy Resources	from Renewable Energy Sources	Excise tax exemptions for biofuels	Tax exemption for renewable energy use	Energy Sources (amended in 2006 and 2011)	Green Investment Scheme	

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 65 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 30 MW of biomass-fired capacity addition announced (6 projects)
- 115 MW of solar photovoltaic capacity addition announced (12 projects)
- 190 MW of wind capacity addition announced (10 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	⊗

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

DENMARK

5.6 million Population (2011)
333.6 billion USD GDP (2011)
59,889 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

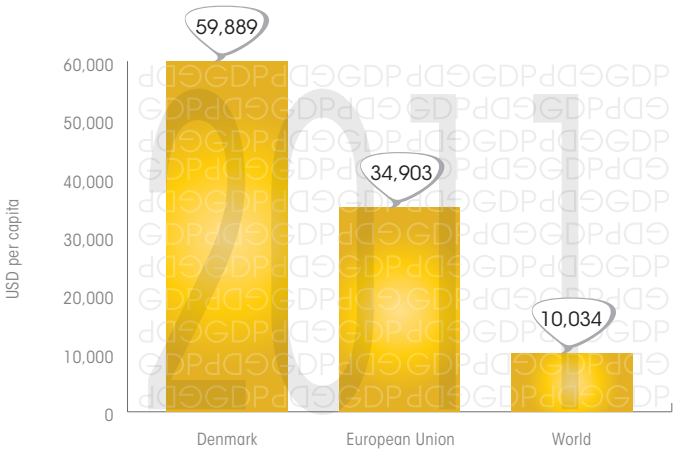
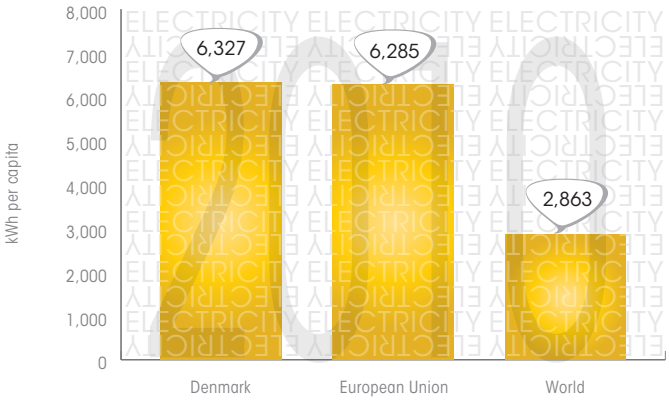


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 760.8 PJ - Of which renewables: 170.7 PJ (22.4%)
- Energy self-sufficiency: 116.7%
- Fuel imports: 9.0 billion USD (9.2% of total imports)
- Electricity generation: 35.2 TWh - Of which renewables: 14.2 TWh (40.3%)
- Electricity use per capita: 6,122 kWh
- Electrical capacity: 13.6 GW - Of which renewables: 5.3 GW (38.8%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 10% of transport energy from renewables by 2020 (100% by 2050)
- 50% of electricity consumption from wind by 2020
- Individual oil boilers and coal use in Danish power plants to be phased out by 2030
- Heat and electricity supply to be based on renewables energy by 2035
- 100% of total energy consumption covered by renewables by 2050

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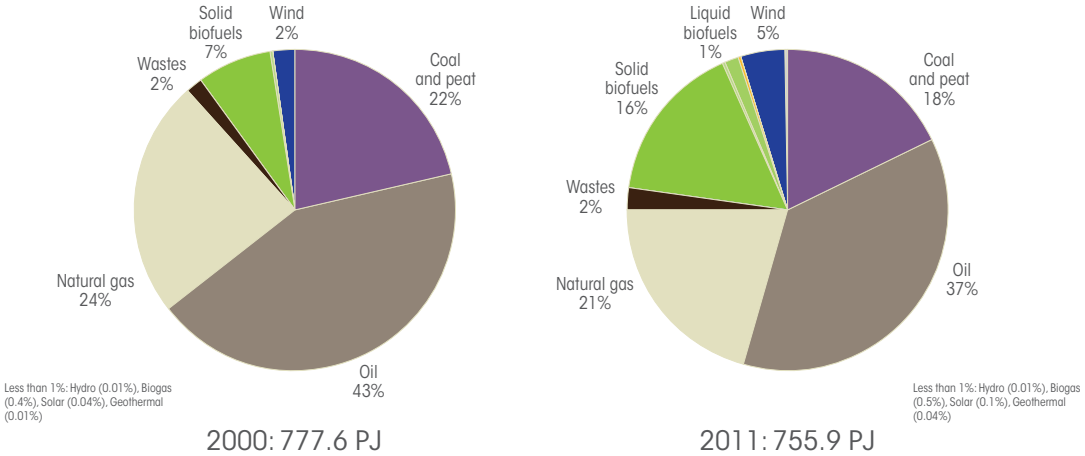
FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1993/97	1998/99	2000/01	2003	2004/05	2009	2010	2011	2012
Biomass Agreement	Net Metering for Small-scale PV	Electricity Reform Agreement	National RD&D Strategies for Renewable Energy	Subsidies for Renewable Electricity Generation	Green Growth Agreement	Ratified the IRENA Statute	Energy Strategy 2050	Energy Agreement
Wind Energy Co-operative Tax Incentive	Carbon Tax/ Green Tax System	New Rules for Payment of Green Electricity	Technologies	Energy Strategy 2025	Promotion of Renewable Energy Act			

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 5 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- More than 1,050 MW and 500 MWth of biomass-fired capacity addition announced (4 projects)
- 73 million litres of biodiesel per year capacity addition announced (1 project)
- 836 MW of wind capacity addition announced (6 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

ESTONIA

1.3 million Population (2011)
22.2 billion USD GDP (2011)
16,534 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

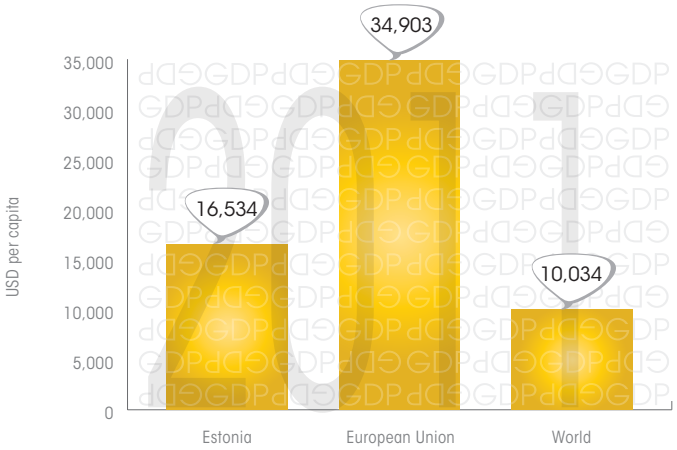
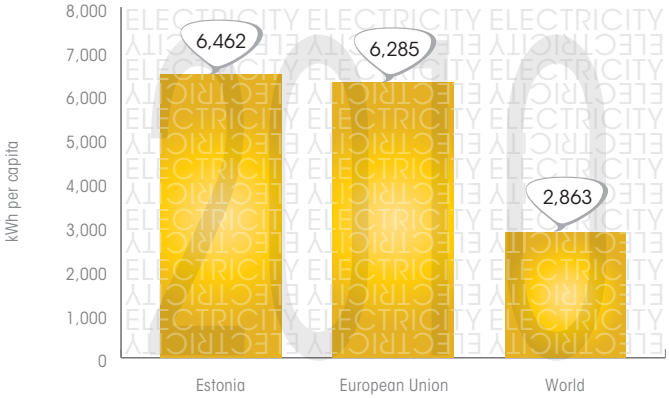


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 232.9 PJ - Of which renewables: 34.8 PJ (15.0%)
- Energy self-sufficiency: 90.6%
- Fuel imports: 3.1 billion USD (17.7% of total imports)
- Electricity generation: 12.9 TWh - Of which renewables: 1.179 GWh (9.1%)
- Electricity use per capita: 6,256 kWh
- Electrical capacity: 2,825 MW - Of which renewables: 252 MW (8.9%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 11%

* 2010

TARGETS:

- 18% of electricity generation from renewables by 2015
- 25% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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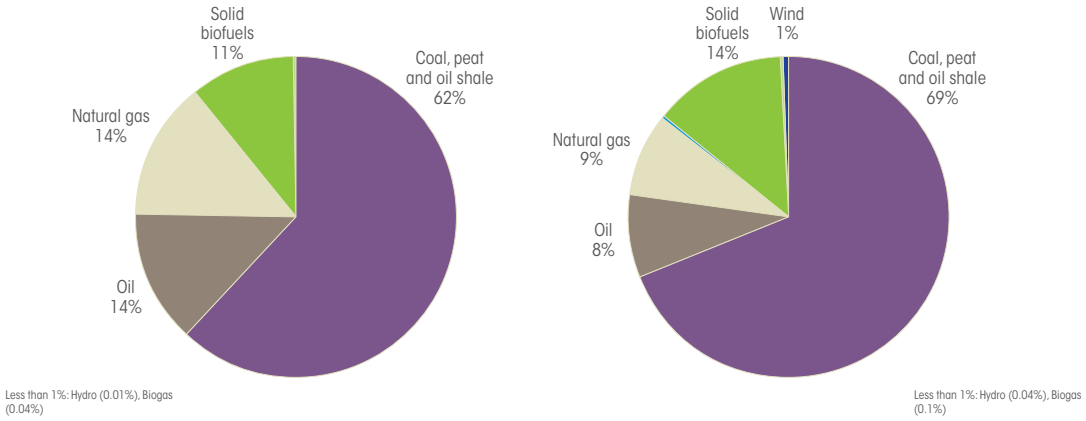
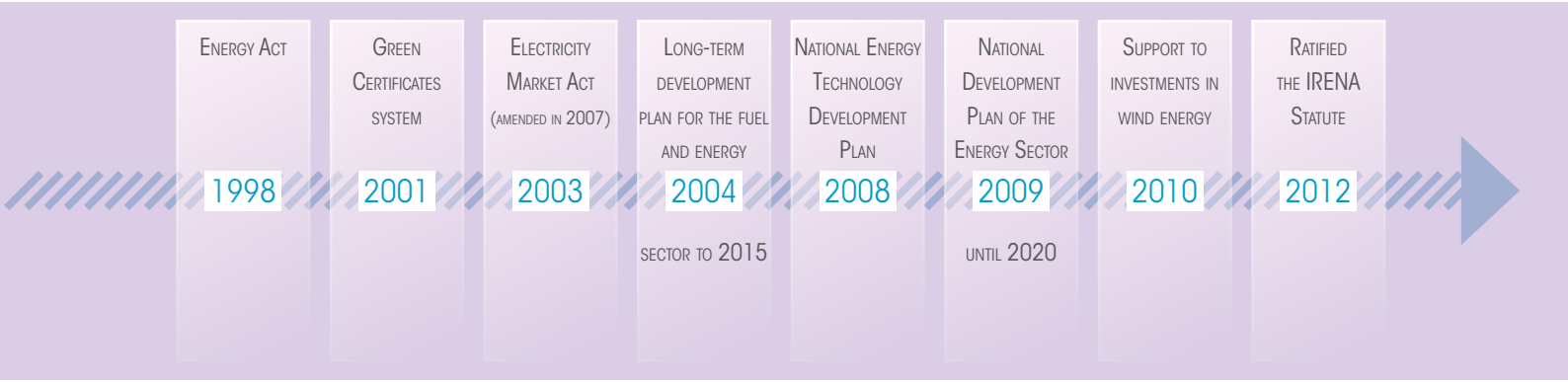
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 21 out of 185

RENEWABLE ENERGY PROJECTS:

- 1.36 MWe/1.4 MWth biogas capacity addition under development (1 project)
- 89 MW of wind capacity addition under development (2 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	◐	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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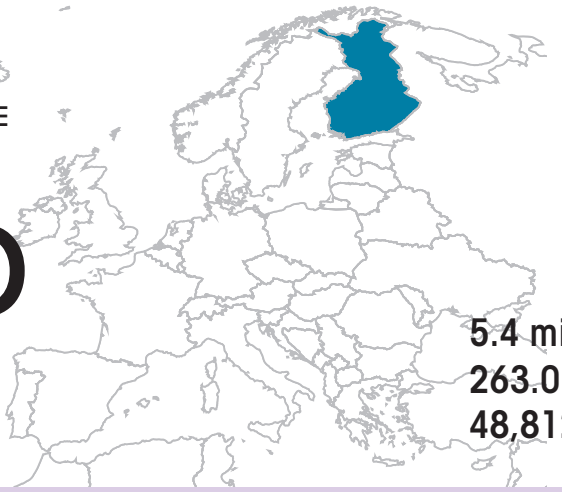
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

FINLAND



5.4 million Population (2011)
263.0 billion USD GDP (2011)
48,812 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

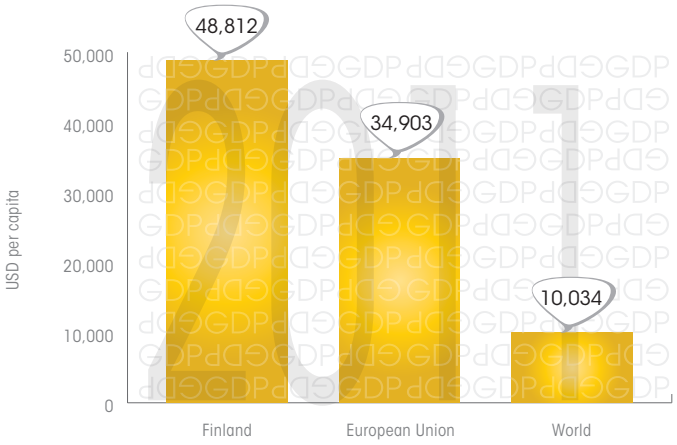
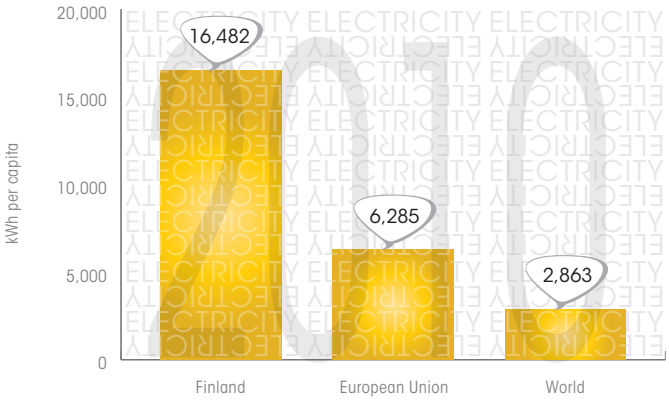


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 1,469.8 PJ - Of which renewables: 379.9 PJ (25.8%)
- Energy self-sufficiency: 49.2%
- Fuel imports: 18.3 billion USD (21.8% of total imports)
- Electricity generation: 73.5 TWh - Of which renewables: 24.2 TWh (32.9%)
- Electricity use per capita: 15,738 kWh
- Electrical capacity: 16.7 GW - Of which renewables: 5.3 GW (31.6%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 38% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020
- Increase the use of renewable energy by at least 25% by 2015 and 40% by 2025
- 884 MW of wind capacity, 14,598 MW of hydro capacity and 13,152 MW of bioenergy capacity by 2020

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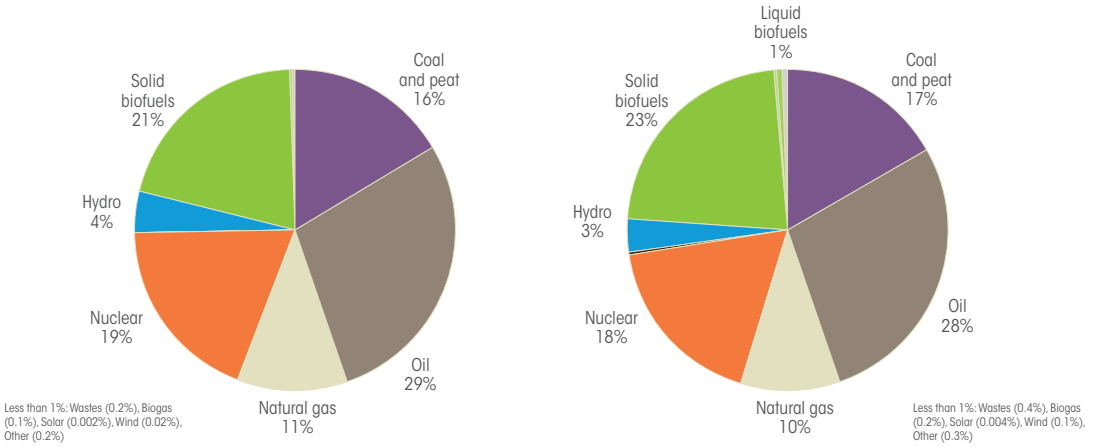
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1993	1994	1997	1999	1999	2003/05	2007	2010	2011
Wind Power Programme	Bioenergy Promotion Programme	Tax subsidies for renewable electricity (modified in 2007)	Action Plan for Renewable Energy Sources	Wood Energy Technology Programme	Energy Grants for Residential Buildings	Development Programme for Second Generation	Feed-in Tariffs for electricity from wind, biogas	Ratified the IRENA Statute
Bioenergy RD&D Programme		Finnish Energy Strategy	VAT Reduction	Energy Aid Scheme	Energy and Climate Policy Strategy	Transport Biofuels	and wood chips	

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 11 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 90 MW and 158 MWth of biomass-fired capacity addition announced (2 projects)
- 108 million litres of biodiesel per year capacity addition announced (1 project)
- 9.8 million litres of bioethanol per year capacity addition announced (1 project)
- More than 4,550 MW of wind capacity addition announced (28 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	◐	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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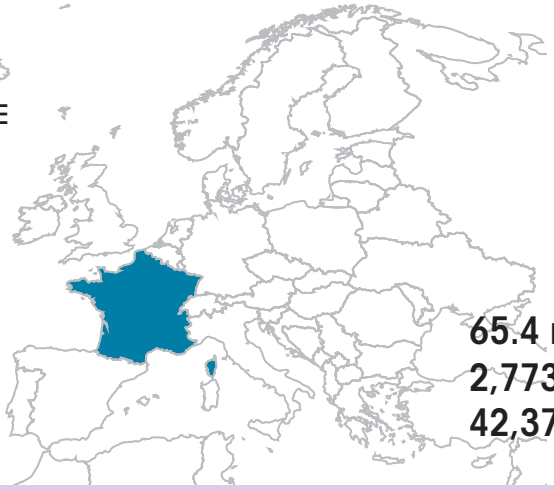
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

FRANCE



65.4 million Population (2011)
2,773.0 billion USD GDP (2011)
42,379 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

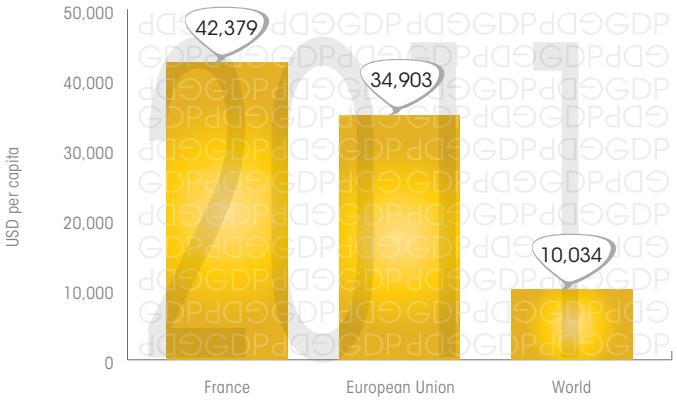
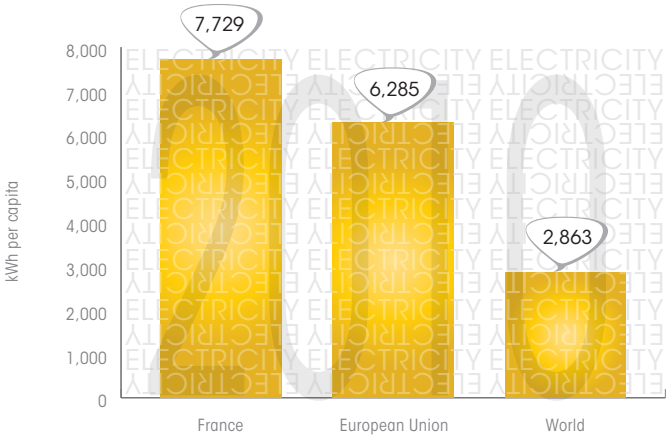


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 10,668.8 PJ - Of which renewables: 765.0 PJ (7.2%)
- Energy self-sufficiency: 53.6%
- Fuel imports: 114.4 billion USD (16.0% of total imports)
- Electricity generation: 556.9 TWh - Of which renewables: 64.8 TWh (11.6%)
- Electricity use per capita: 7,283 kWh
- Electrical capacity: 131.4 GW - Of which renewables: 29.5 GW (22.5%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 23% of final energy from renewables by 2020
- 27% of electricity generation from renewables by 2020
- 10.5% of transport energy from renewables by 2020
- 25 GW of wind capacity, including 6 GW of offshore wind, by 2020
- 32% of energy consumption for heating and cooling from renewables by 2020

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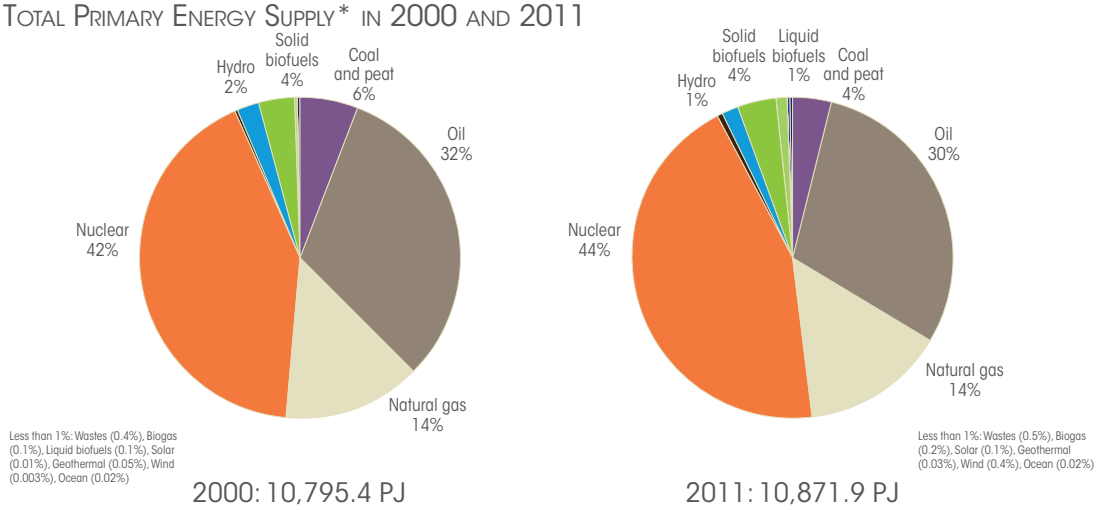
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1996	1999	1999	2000	2000/01	2003/07	2009	2011	2013
Wind Energy Programme	Renewable Energy Purchasing Conditions	Reduced VAT for Residential Renewable Energy	Tax Credit for Renewable Energy in New Buildings	Electricity Law 2000	Flexible depreciation scheme	Hydropower Revival Plan	Offshore wind tendering mechanism	New solar plan and second offshore wind tender
	Wood Energy Programme	Equipment	Solar Water Heaters plan	Renewable Energy Feed-in Tariffs	Grenelle de l'environnement	Pluriannual plan of investment	Ratified the IRENA Statute	Debate on energy transition

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 34 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 522 MW and 159 MWth of biomass-fired capacity addition announced (51 projects)
- 24 MWth of geothermal capacity addition announced (1 project)
- 240 million litres of biodiesel per year capacity addition announced (4 projects)
- 759 MW of solar photovoltaic capacity addition announced (33 projects)
- More than 8,100 MW of wind capacity addition announced (34 projects)
- 2 MW of marine capacity addition announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

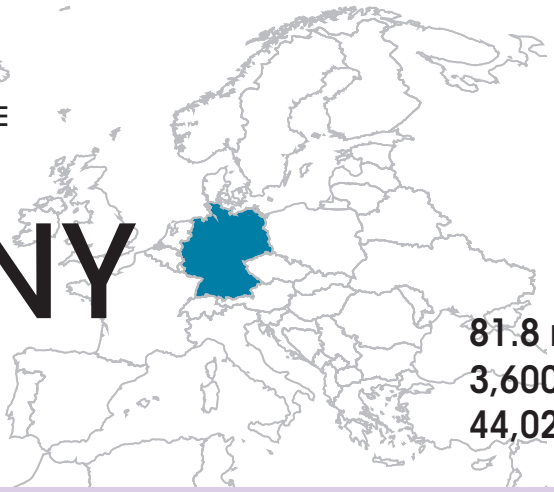
Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

GERMANY



81.8 million Population (2011)
3,600.8 billion USD GDP (2011)
44,021 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

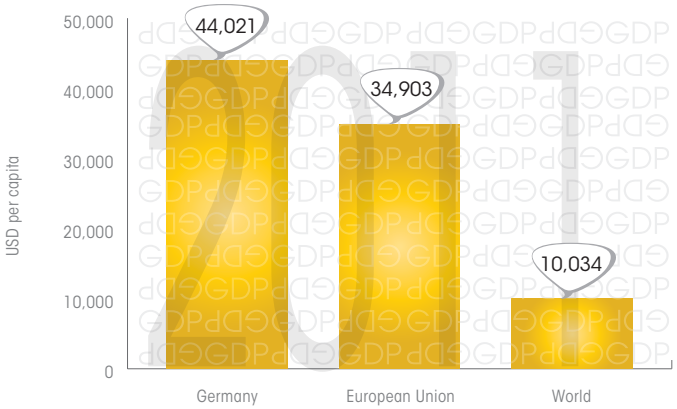
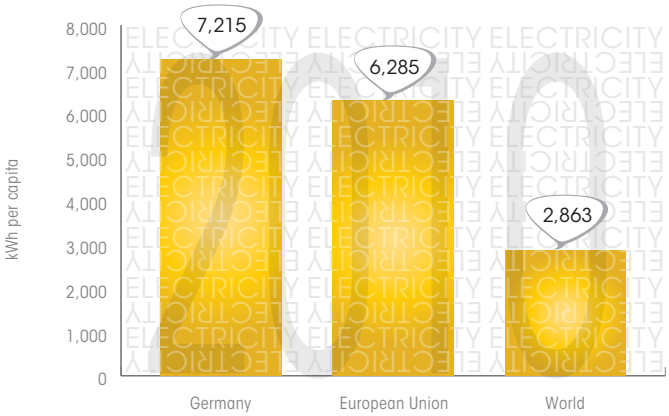


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 12,906.4 PJ - Of which renewables: 1,307.1 PJ (10.1%)
- Energy self-sufficiency: 40.6%
- Fuel imports: 169.0 billion USD (13.5% of total imports)
- Electricity generation: 602.6 TWh - Of which renewables: 123.1 TWh (20.4%)
- Electricity use per capita: 7,094 kWh
- Electrical capacity: 171.7 GW - Of which renewables: 66.1 GW (38.5%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 18% of final energy from renewables by 2020 (30% by 2030, 45% by 2040, 60% by 2050)
- 35% of electricity generation from renewables by 2020 (50% by 2030, 65% by 2040, 80% by 2050)
- At least 10% of transport energy from renewables by 2020
- 14% of total heat supply from renewables by 2020

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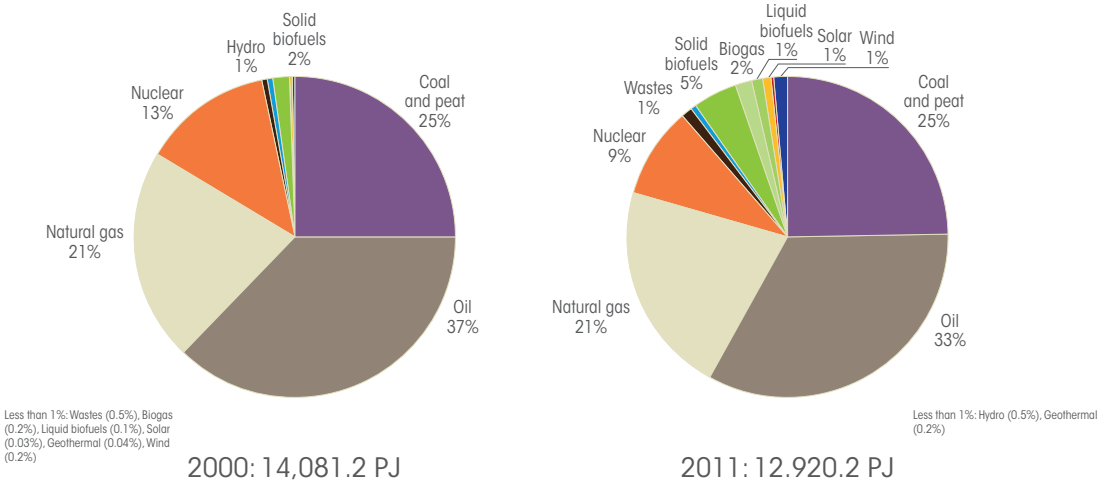
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1993/95	1997	1999	2000	2002	2005	2007/09	2009/10	2011
Incentives for solar PV installations	Federal Building Codes for Renewable Energy	Eco-Tax Reform	Renewable Energy Sources Act	Combined Heat and Power Law (amended in 2008, 2011 and 2012)	KfW Programme Producing Solar Power	Integrated Climate Change and Energy Programme	Ratified the IRENA Statute	Energiewende
100 Million DM Programme	Production	100,000 Roofs Solar Power Programme	(amended in 2004, 2009, 2011 and 2012)		Energy Industry Act (amended in 2012)	KfW Renewables Energies Programme	Energy Concept 2010	KfW Programme Offshore Wind Energy

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 20 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 18 MW and 57 MWth of biomass-fired capacity addition announced (4 projects)
- More than 33 MW and 105 MWth of geothermal capacity addition announced (6 projects)
- 61.2 million litres of biodiesel per year capacity addition announced (1 project)
- 182 MW of solar photovoltaic capacity addition announced (10 projects)
- More than 12,500 MW of wind capacity addition announced (44 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

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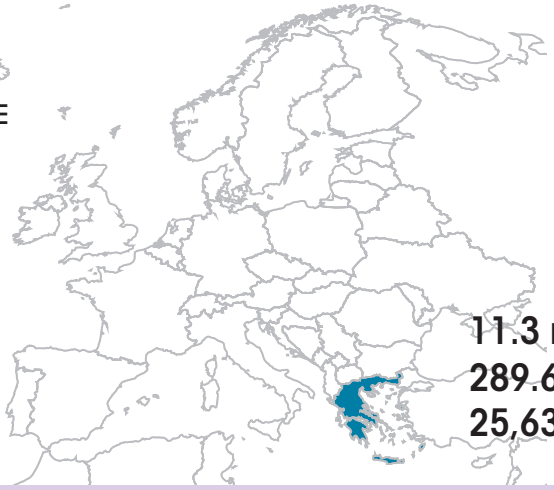
RENEWABLE ENERGY COUNTRY PROFILE

GREECE



11.3 million Population (2011)
289.6 billion USD GDP (2011)
25,630 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

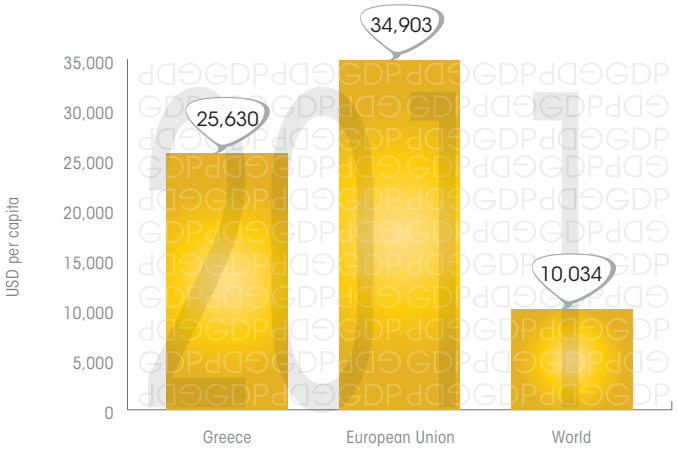
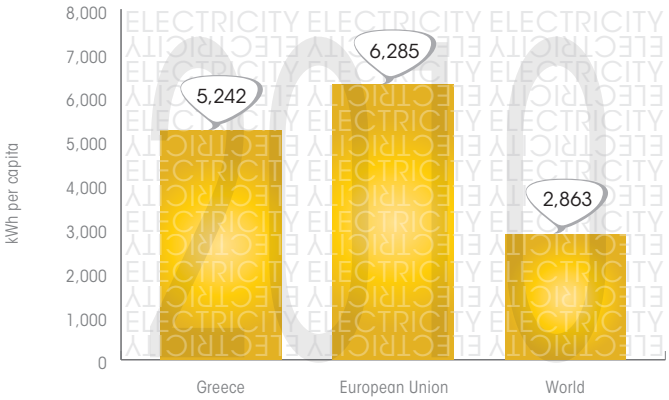


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 1,138.0 PJ - Of which renewables: 89.3 PJ (7.8%)
- Energy self-sufficiency: 35.4%
- Fuel imports: 16.5 billion USD (27.2% of total imports)
- Electricity generation: 52.9 TWh - Of which renewables: 8.1 TWh (13.8%)
- Electricity use per capita: 5,296 kWh
- Electrical capacity: 16.5 GW - Of which renewables: 4,822 MW (29.2%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 20% of final energy from renewables by 2020
- 40% of electricity generation from renewables by 2020
- At least 10% of transport energy from renewables by 2020
- 2.2 GW of solar photovoltaic capacity by 2030
- 20% of renewable energy in heating and cooling by 2020

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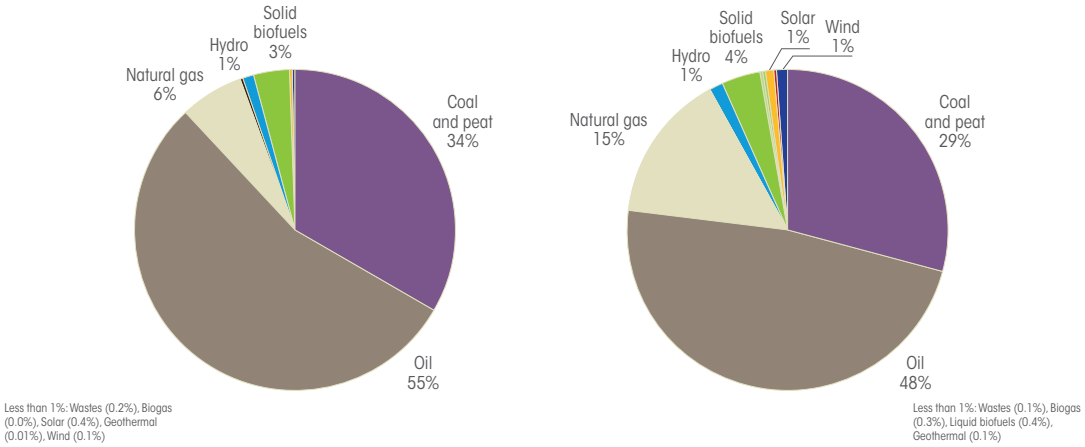
FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2011



2000: 1,134.1 PJ

2011: 1,126.4 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1994	1995/99	2003	2004	2005	2006	2010	2012
Fiscal Incentives for Renewables and Energy Conservation	Tax exemptions for renewable equipments (Law 2364/95)	New Law on the Exploitation of Geothermal Potential	Development incentives for renewable energy sources	Introduction of biofuels and other Renewable fuels	Promotion of renewable electricity (amended in 2009)	Renewable Energy Law (Law 3851/2010)	Ratified the IRENA Statute
Law 2244/94	Feed-in Tariffs (Law 2773/99)	(Law 3175/2003)	(Law 3299/2004)	(Law 3423/2005)	(Law 3468/2006)		

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 78 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- More than 2,050 MW of solar photovoltaic capacity addition announced (12 projects)
- 1,800 MW of wind capacity addition announced (5 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

HUNGARY

10.0 million Population (2011)
140.0 billion USD GDP (2011)
14,043 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

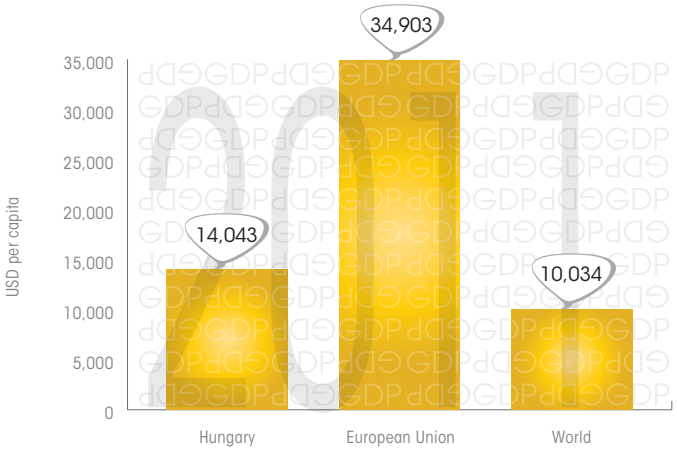
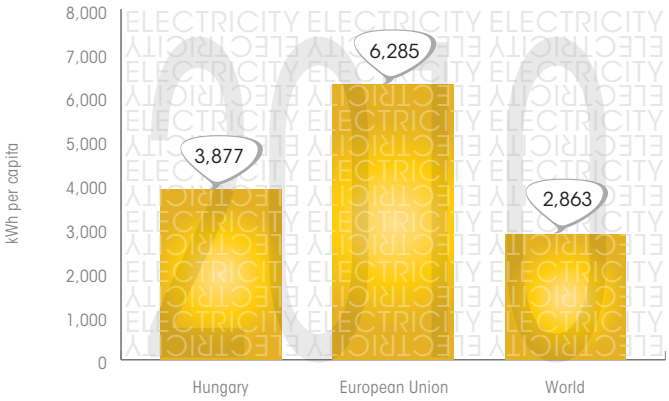


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 1,048.5 PJ - Of which renewables: 79.0 PJ (7.5%)
- Energy self-sufficiency: 43.3%
- Fuel imports: 12.5 billion USD (12.2% of total imports)
- Electricity generation: 36.0 TWh - Of which renewables: 2,708 GWh (7.5%)
- Electricity use per capita: 3,895 kWh
- Electrical capacity: 9.7 GW - Of which renewables: 918 MW (9.5%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 13% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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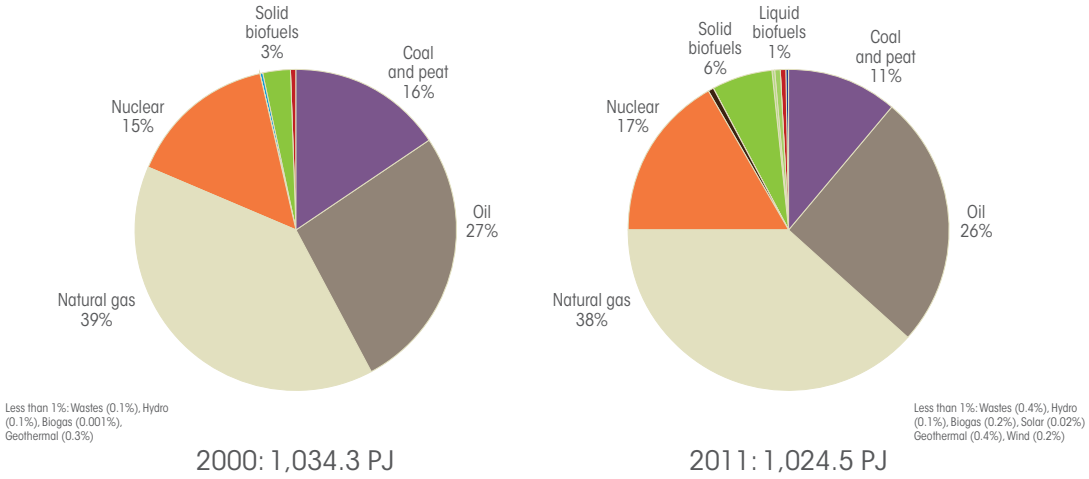

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1996	1999	2000/03	2004/05	2006	2007	2008	2009	2010
Energy Saving Action Plan	Hungarian Energy Policy Principles and Business	Széchenyi Plan	Government resolution on the use of biofuels	New Hungary Development Plan (NHDP)	Hungary Strategy on Renewable Energy Sources 2007-2020	National Energy Conservation Programme 2008	Green Investment System	Biofuel quota
	Model of the Energy Sector	Feed-in Tariff	Electricity Act		Excise tax exemption for biofuels	Electricity Act and Green Certificates Scheme		

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 54 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 91 MW and 110 MWth of biomass-fired capacity addition announced (4 projects)
- 12 MWth of geothermal capacity addition announced (1 project)
- 20 MW of wind capacity addition announced (1 project)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	⊗

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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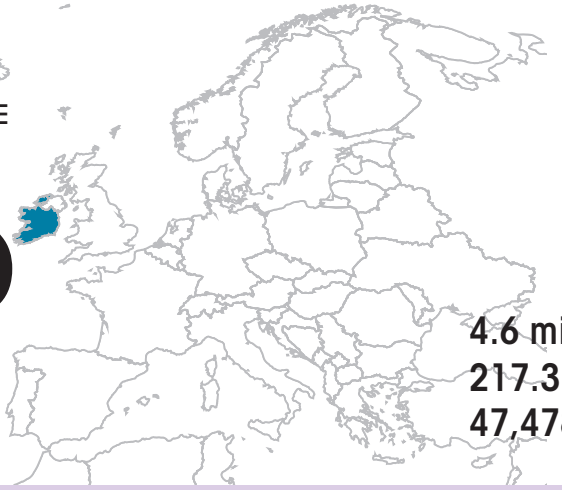
RENEWABLE ENERGY COUNTRY PROFILE

IRELAND



4.6 million Population (2011)
217.3 billion USD GDP (2011)
47,478 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

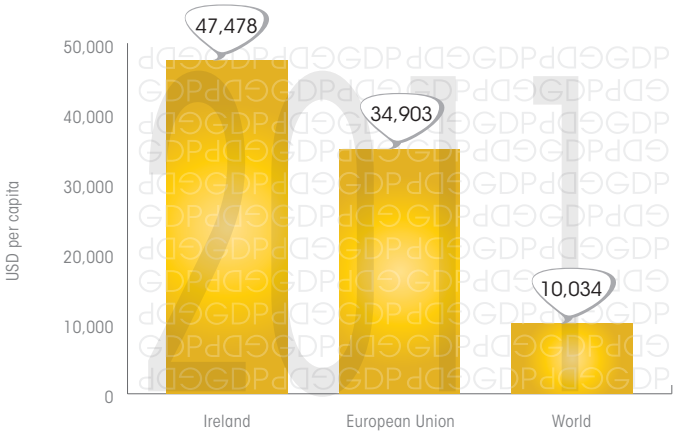
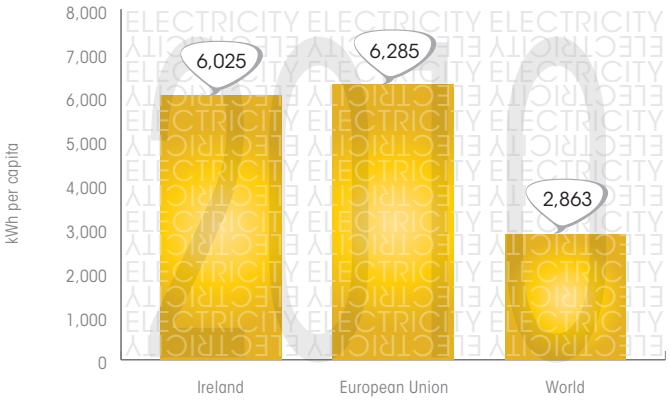


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 551.9 PJ - Of which renewables: 34.3 PJ (6.2%)
- Energy self-sufficiency: 13.7%
- Fuel imports: 9.5 billion USD (14.3% of total imports)
- Electricity generation: 27.5 TWh - Of which renewables: 5.4 TWh (19.7%)
- Electricity use per capita: 5,663 kWh
- Electrical capacity: 8.8 GW - Of which renewables: 1,907 MW (21.7%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 16% of final energy from renewables by 2020
- 40% of electricity generation from renewables by 2020
- At least 10% of transport energy from renewables by 2020
- 15% of energy consumption for heating from renewables by 2020

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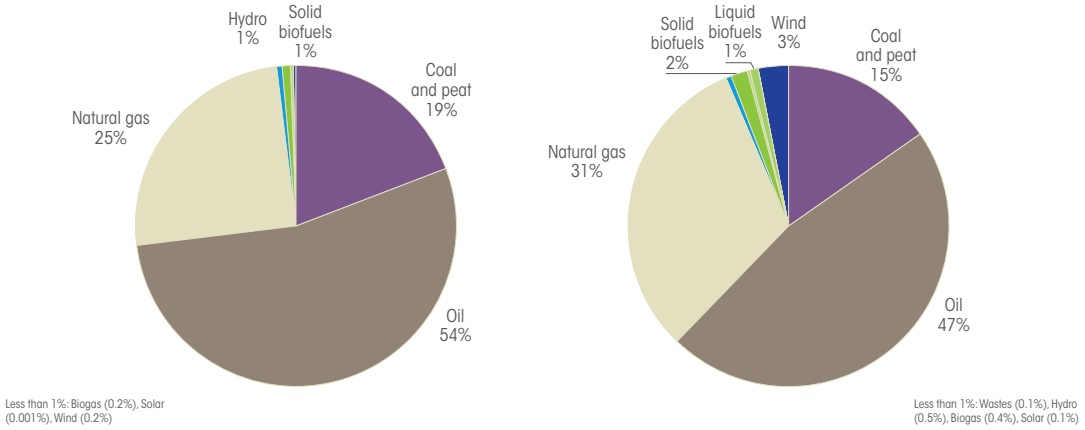
FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2011



2000: 574.5 PJ

2011: 550.2 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1998	2001/02	2005	2005	2007	2007	2008	2009	2010/11
Tax Relief for renewable energy investments	Public Sector Buildings Programme	Renewable Energy Feed-In Tariff	Pilot Programme for Mineral Oil Tax Relief on Biofuels	Renewable Heat Deployment Programme (ReHeat)	Sustainable Energy Component of the National	Best Practice Guidelines for the Irish Wind Industry	Signed the IRENA Statute	Biofuels Obligation Scheme
	Sustainable Energy Act	Greener Homes Scheme			Development Plan 2007-2013	Microgeneration Support Programme		Statutory Instrument 147

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 15 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 16 MW of biomass-fired capacity addition announced (1 project)
- 542 MW of wind capacity addition announced (15 projects)
- 250 MW of marine capacity addition announced (2 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	◐	●	●	●	●

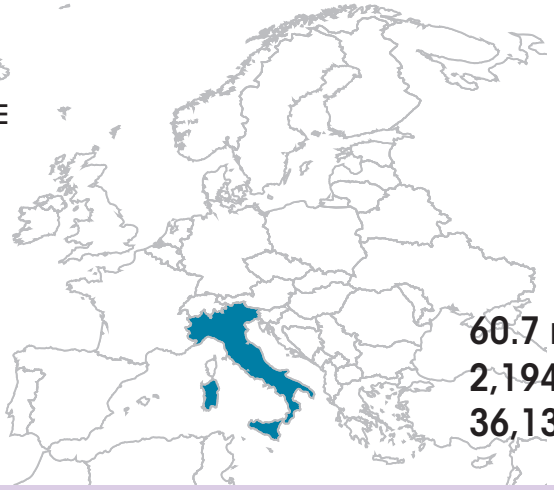
Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

ITALY



60.7 million Population (2011)
2,194.0 billion USD GDP (2011)
36,130 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

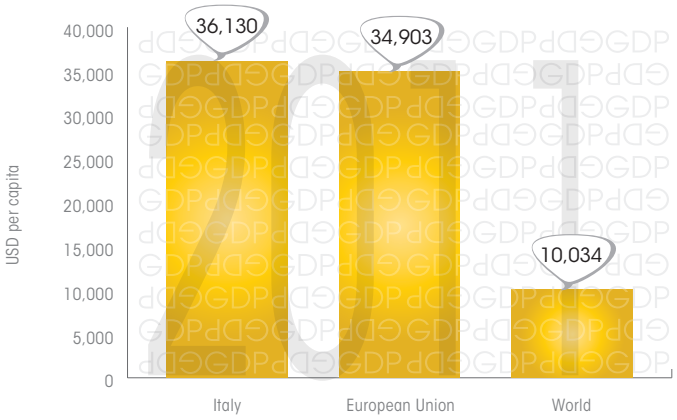
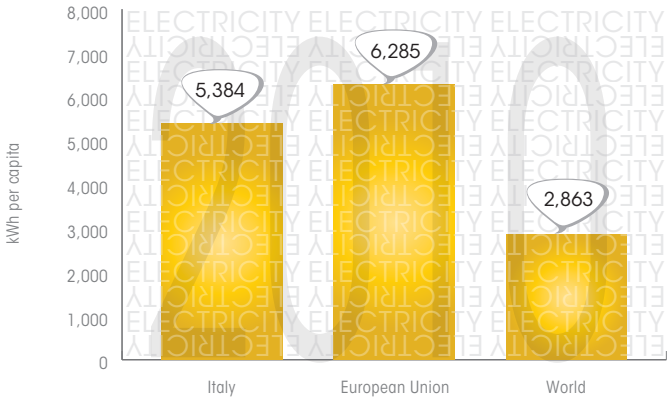


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 7,114.1 PJ - Of which renewables: 834.9 PJ (11.7%)
- Energy self-sufficiency: 19.2%
- Fuel imports: 110.5 billion USD (19.8% of total imports)
- Electricity generation: 300.6 TWh - Of which renewables: 83.0 TWh (27.6%)
- Electricity use per capita: 5,393 kWh
- Electrical capacity: 118.4 GW - Of which renewables: 37.3 GW (31.5%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 19-20% of final energy consumption from renewables by 2020
- 10% of transport energy from renewables by 2020
- 35-38% of electricity generation from renewables by 2020, corresponding to 120-130 TWh of electricity generation from renewables (including about 30 TWh produced by 27GW of PV)
- 20% of heat consumption from renewables by 2020

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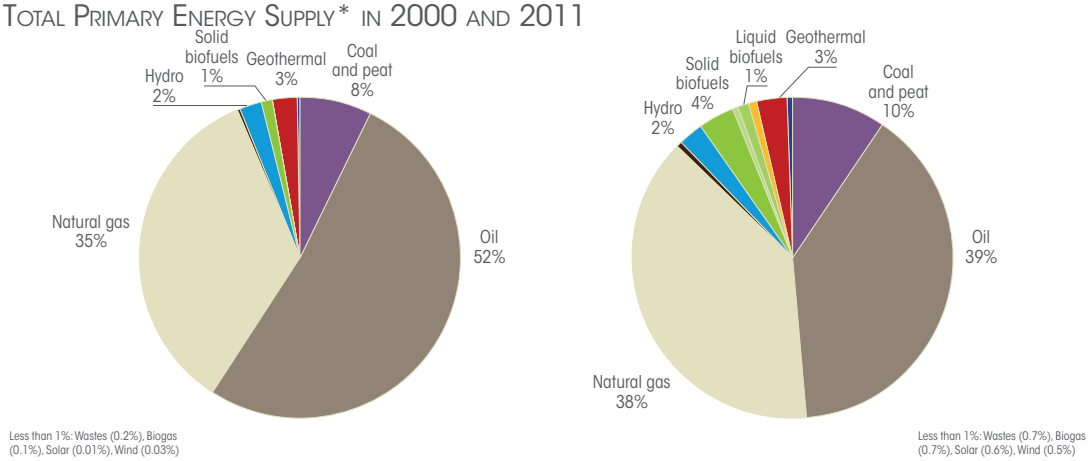
Figure 3: Total Primary Energy Supply* in 2000 and 2011



2000: 7,021.6 PJ

2011: 6,949.5 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

Inter-ministerial Price Committee Provision (CIP 6/92)	Introduction of the Green Certificates System	National Plan for Biofuels and Biomass	Introduction of the White Certificates System for renewable	"Conto Energia" feed-in premium for photovoltaic systems	"55%" fiscal support scheme for small renewable heat installations	"All inclusive" Feed-in Tariff for small renewable power plants	5th revision of "Conto Energia" support scheme for PV	New support scheme for renewable heat from small installations
1992	1999	2000	2001	2005/06	2007/08	2008/12	2012/13	2013
	Carbon Tax (Financial Law 448/98)	10,000 PV Roofs Programme	Heat and energy efficiency installations	Kyoto Rotation Fund	Biodiesel aid scheme: quotas	Ratified the IRENA Statute	New support scheme for non-PV renewable power	National Energy Strategy Decree (SEN)

Notes: 1) All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)
2) With the adoption of the National Energy Strategy (SEN) in 2013 Italy has introduced new voluntary targets on renewable energy that exceed European 2020 targets.

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 73 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 78 MW and 8 MWth of biomass-fired capacity addition announced (5 projects)
- 40 MW of geothermal capacity addition announced (1 project)
- 380 million litres of biodiesel per year capacity addition announced (1 project)
- 254 million litres of bioethanol per year capacity addition announced (1 project)
- Around 900 MW of solar photovoltaic capacity addition announced (73 projects)
- 131 MW of solar thermal capacity addition announced (4 projects)
- Around 2,450 MW of wind capacity addition announced (22 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

IRENA welcomes your comments and feedback at statistics@irena.org

RENEWABLE ENERGY COUNTRY PROFILE

LATVIA

2.1 million Population (2011)
28.3 billion USD GDP (2011)
13,727 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

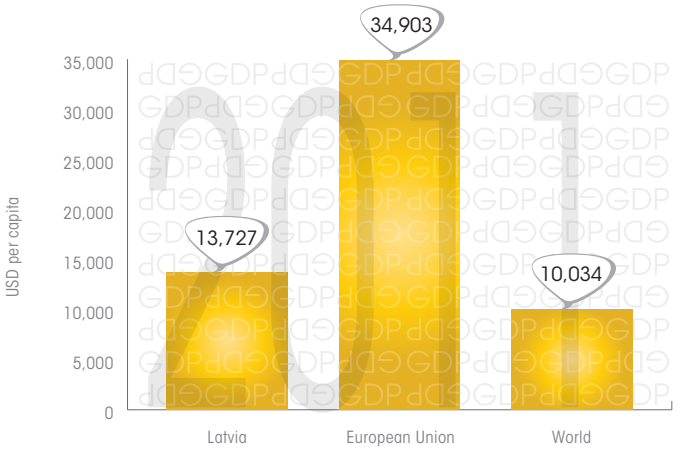
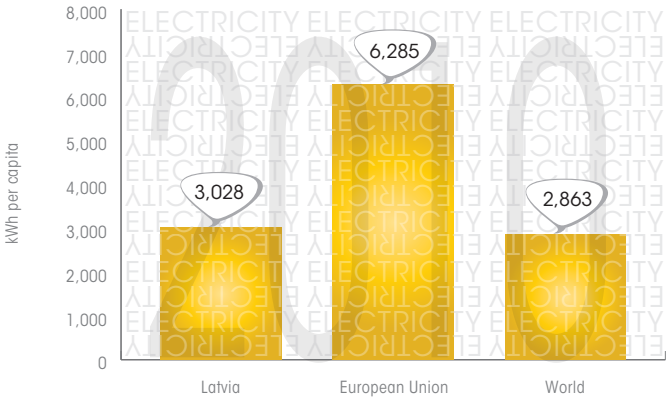


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 173.1 PJ - Of which renewables: 60.1 PJ (34.7%)
- Energy self-sufficiency: 50.4%
- Fuel imports: 2.6 billion USD (15.9% of total imports)
- Electricity generation: 6.1 TWh - Of which renewables: 3,078 GWh (50.5%)
- Electricity use per capita: 3,267 kWh
- Electrical capacity: 2,576 MW - Of which renewables: 1,642 GW (63.7%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 5%

* 2010

TARGETS:

- 40% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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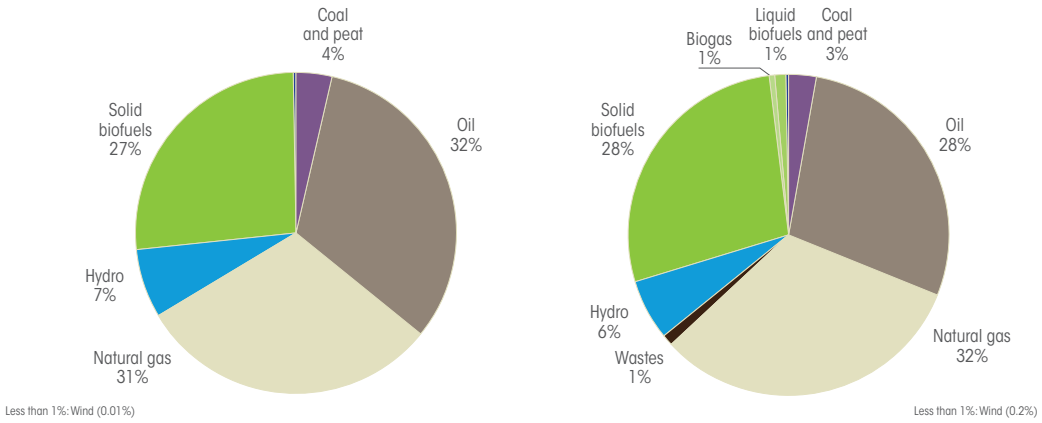
FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2011



2000: 149.1 PJ 2011: 168.6 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1998	2003	2005	2006	2007	2009	2009	2010	2010
Law on Energy	Programme "Biofuel Production and Use in Latvia (2003-2010)"	Financial support quotas for biofuel Electricity Market Law	Energy Development Guidelines for 2007-2016	Reduction of excise duty for biofuel Electricity tax exemption	Climate change financial instrument Biofuel quota	Regulations on the right to receive guaranteed payment for the electrical capacity installed in a CHP plant	Regulations on the production of renewable electricity and the procedures to determine the price	Ratified the IRENA Statute

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 25 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 52 MW of biogas capacity addition announced (50 projects)
- 1.1 MW of hydro capacity addition announced (2 projects)
- 102 MW of biomass capacity addition announced (50 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

LITHUANIA

3.0 million Population (2011)
42.7 billion USD GDP (2011)
14,100 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

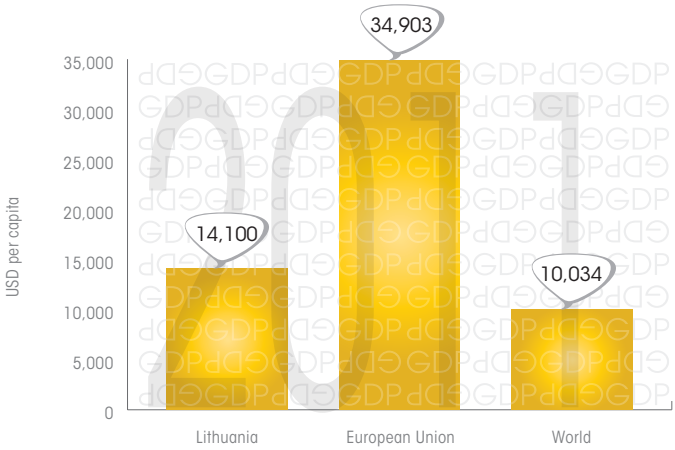
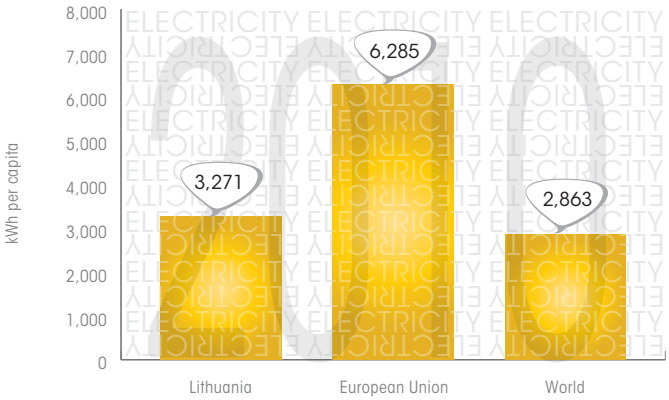


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 293.7 PJ - Of which renewables: 44.2 PJ (15.1%)
- Energy self-sufficiency: 18.6%
- Fuel imports: 10.6 billion USD (33.7% of total imports)
- Electricity generation: 4,246 GWh - Of which renewables: 1,113 GWh (26.2%)
- Electricity use per capita: 3,527 kWh
- Electrical capacity: 3,691 MW - Of which renewables: 351 MW (9.5%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 21%

* 2010

TARGETS:

- 23% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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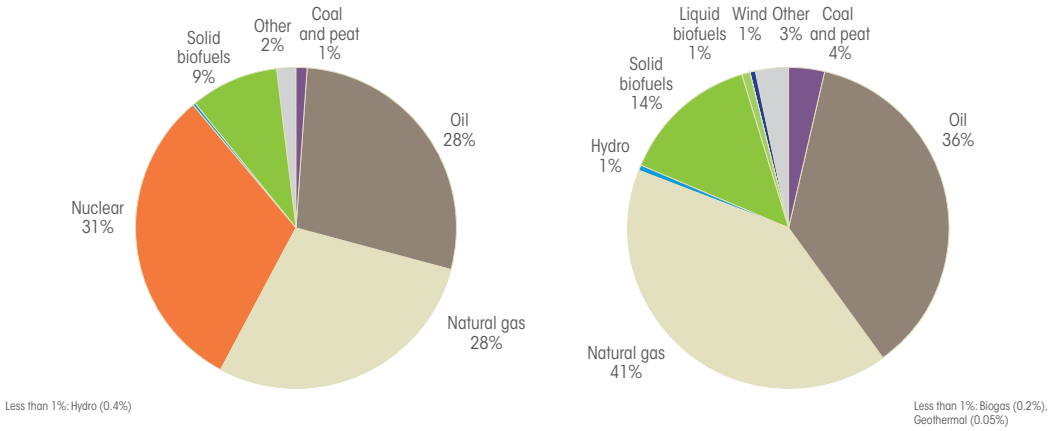
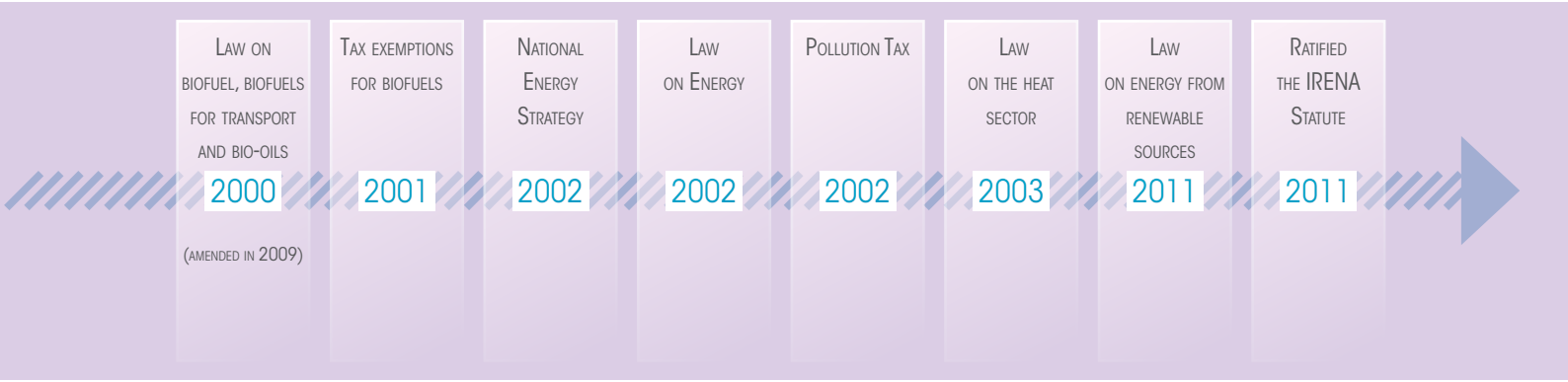


*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



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WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 27 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 60 MW and 50 MWth of biomass-fired capacity addition announced (3 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	◐	◐	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

LUXEMBOURG

518,000 Population (2011)
59.2 billion USD GDP (2011)
114,232 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

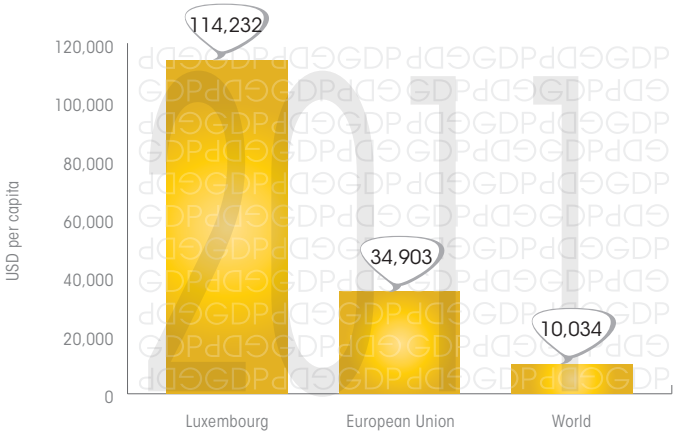
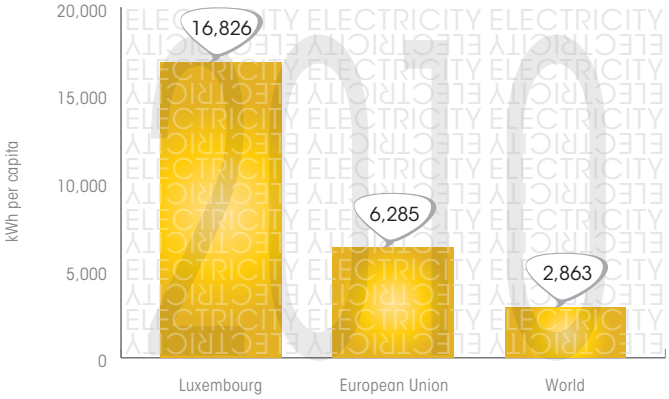


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 175.0 PJ - Of which renewables: 5.1 PJ (2.9%)
- Energy self-sufficiency: 2.8%
- Fuel imports: 3.3 billion USD (11.6% of total imports)
- Electricity generation: 2,645 GWh - Of which renewables: 242.0 GWh (9.1%)
- Electricity use per capita: 15,532 kWh
- Electrical capacity: 1,740 MW - Of which renewables: 149 MW (8.6%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 11% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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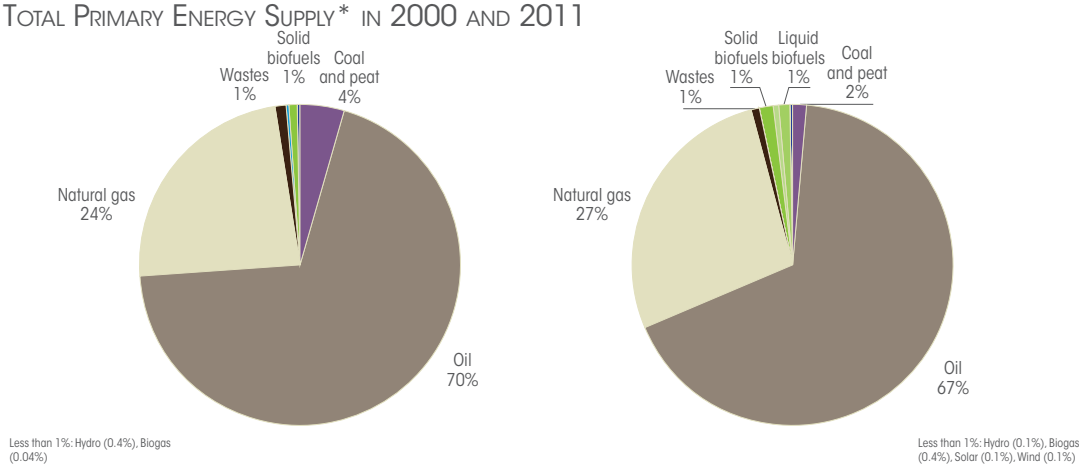
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

Framework Law	Feed-in tariffs for renewable energy and cogeneration	Energy Tax	Differentiated Tax on Fuels	Incentives for renewable electricity production	Incentives for renewable energy in buildings	Biofuel quota	Ratified the IRENA Statute
1993	1994 (amended in 2005 and 2008)	1999	2000	2001	2001 (amended in 2006, 2009 and 2012)	2009	2010

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 56 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- No information available

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	⊗

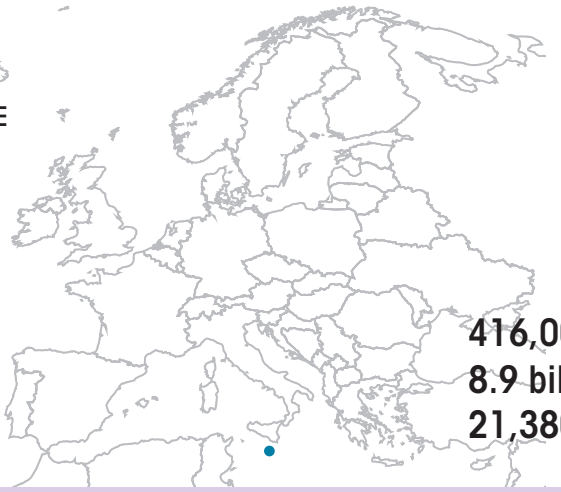
Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

MALTA



416,000 Population (2011)
8.9 billion USD GDP (2011)
21,380 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

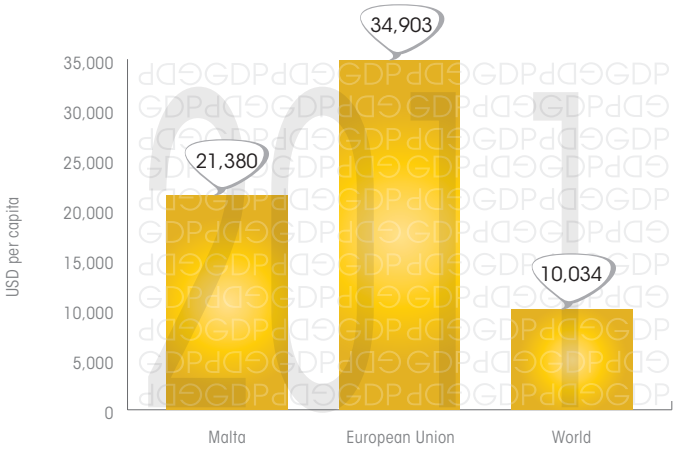
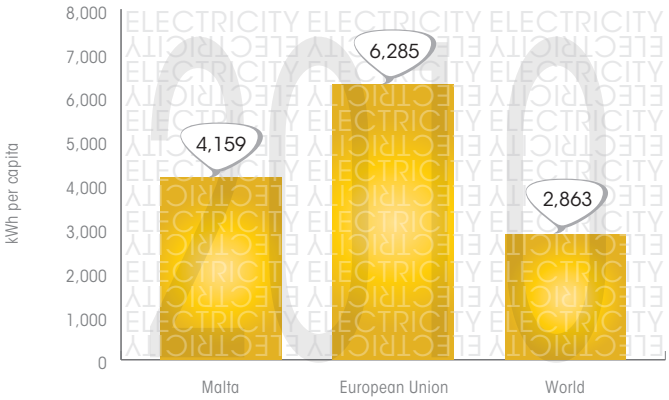


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



The European Union includes Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 43.2 PJ - Of which renewables: 0.1 PJ (0.1%)
- Energy self-sufficiency: 0.1%
- Fuel imports: 1.6 billion USD (26.1% of total imports)
- Electricity generation: 2,189 GWh - Of which renewables: 0.0 GWh (0.0%)
- Electricity use per capita: 4,684 kWh
- Electrical capacity: 571 MW - Of which renewables: 17 MW (3.0%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 10% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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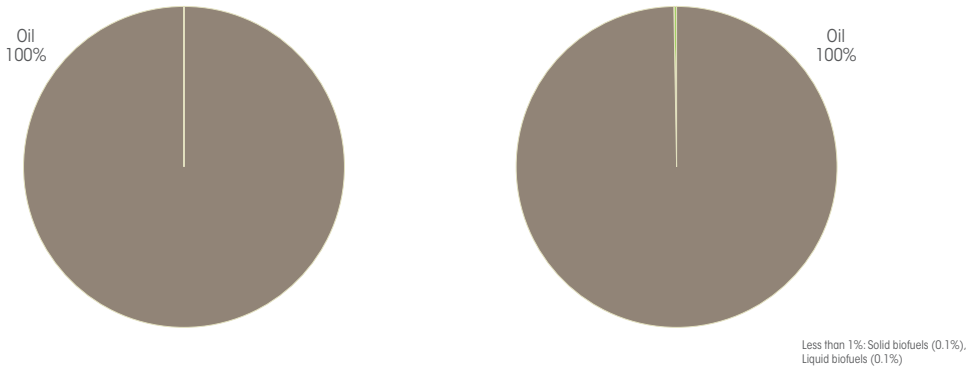
Figure 3: Total Primary Energy Supply* in 2000 and 2011

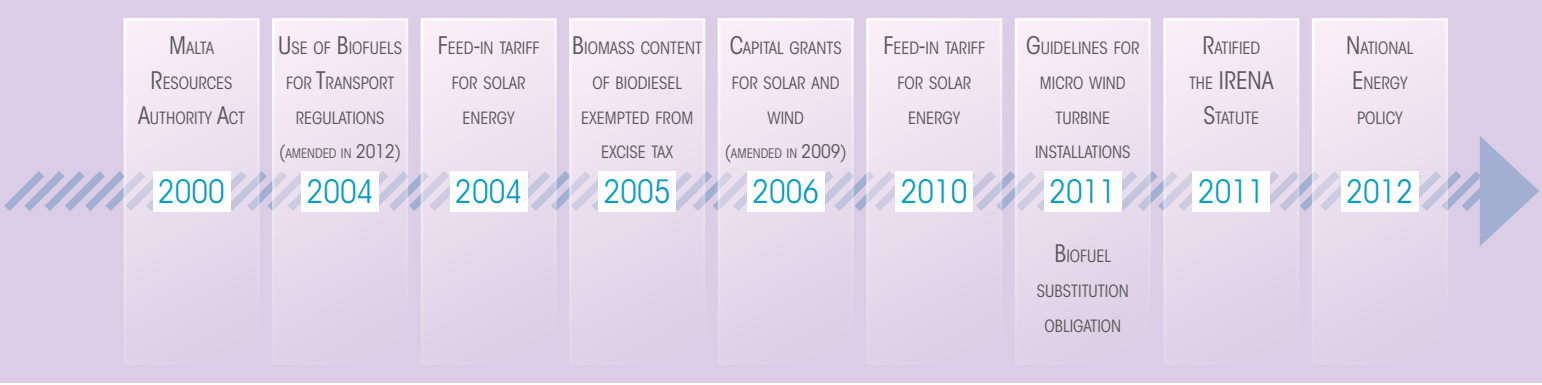


2000: 28.3 PJ

2011: 43.2 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992



Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 102 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 78 MW of biomass-fired capacity addition announced (1 project)
- 270 million litres of bioethanol per year capacity addition announced (2 projects)
- 110 MW of wind capacity addition announced (3 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	⊗	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

NETHERLANDS

16.7 million Population (2011)
836.1 billion USD GDP (2011)
50,085 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

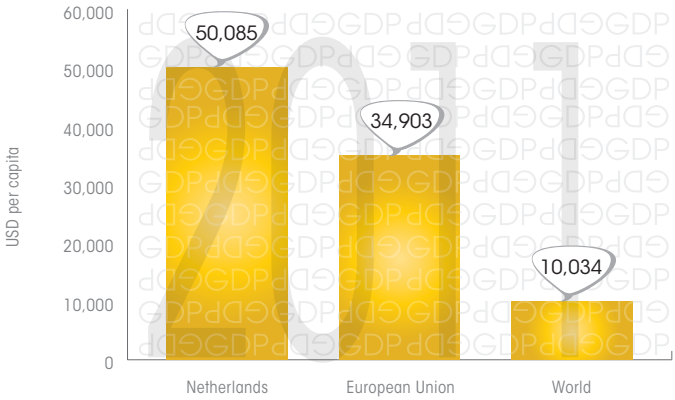
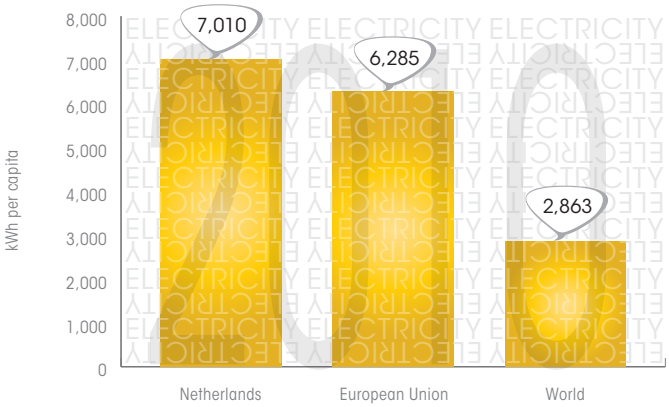


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 3,253.2 PJ - Of which renewables: 138.1 PJ (4.2%)
- Energy self-sufficiency: 83.3%
- Fuel imports: 132.6 billion USD (22.2% of total imports)
- Electricity generation: 113.0 TWh - Of which renewables: 12.3 TWh (10.9%)
- Electricity use per capita: 7,036 kWh
- Electrical capacity: 28.0 GW - Of which renewables: 4,094 MW (14.6%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 14% of final energy from renewables by 2020
- 5% of transport energy from renewables by 2013 (10% by 2020)

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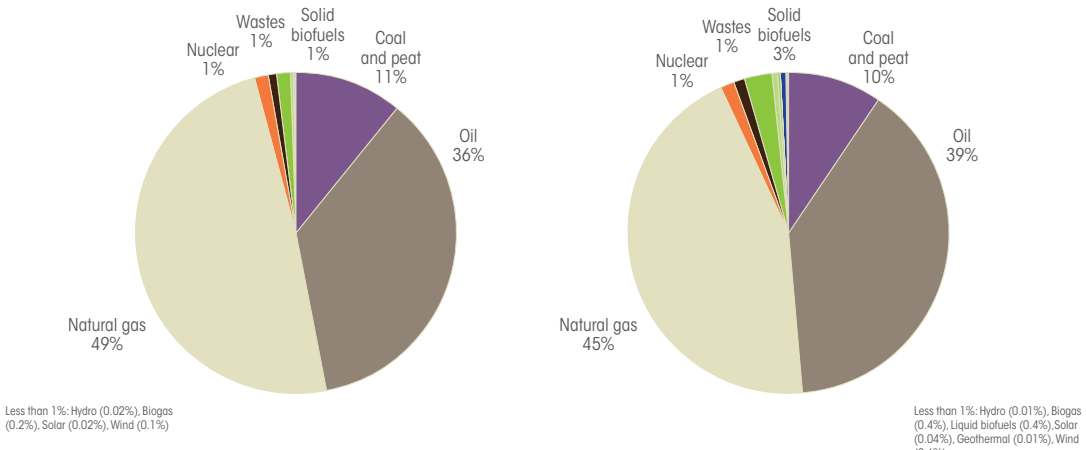
FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1995/96	2001	2001	2003	2005	2007	2009	2011	2011
Green Funds	Renewables for Government Buildings	Energy Premium (EPR) and Energy Performance	Feed-in tariff (amended in 2008 and 2011)	Energy Tax Regime	Transport Biofuels Act	Guarantee scheme for geothermal energy	Support scheme for solar panels	Ratified the IRENA Statute
Regulatory Energy Tax	Green Certificate Trading	Advice (EPA)					Offshore wind energy Green Deal	

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 31 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 500 million litres of biodiesel per year capacity addition announced (1 project)
- 1.5 MW of solar photovoltaic capacity addition announced (1 project)
- Around 1,150 MW of wind capacity addition announced (5 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

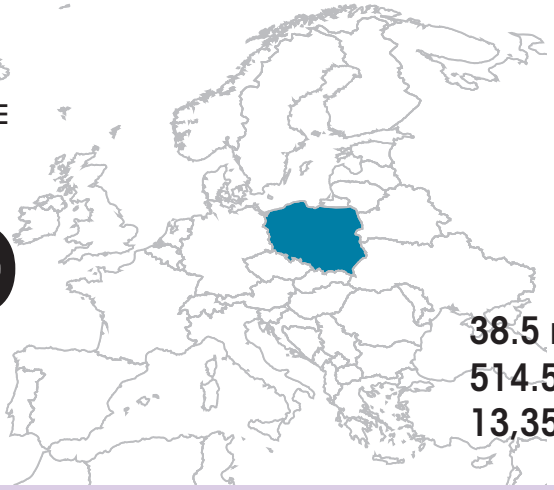
Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

POLAND



38.5 million Population (2011)
514.5 billion USD GDP (2011)
13,352 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

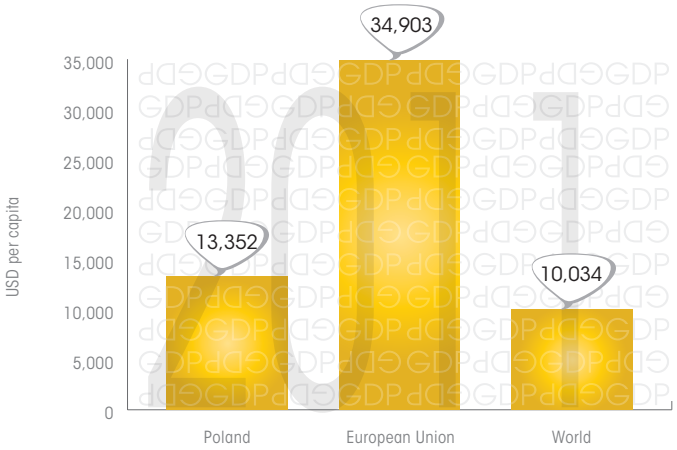
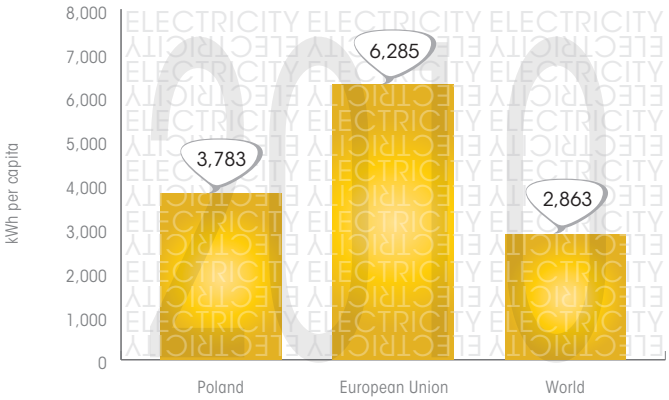


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 4,257.9 PJ - Of which renewables: 332.9 PJ (7.8%)
- Energy self-sufficiency: 67.7%
- Fuel imports: 26.5 billion USD (12.7% of total imports)
- Electricity generation: 163.1 TWh - Of which renewables: 13.1 TWh (8.1%)
- Electricity use per capita: 3,832 kWh
- Electrical capacity: 34.6 GW - Of which renewables: 3,021 MW (8.7%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 15% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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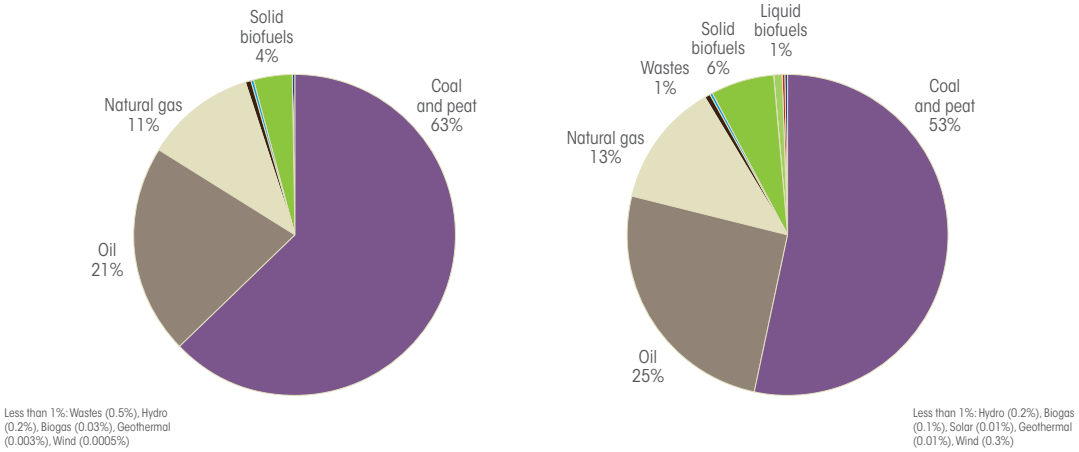
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1997	2002	2005	2006	2008	2009	2009	2010	2010/12
Energy Law (amended in 2002, 2005, 2007 and 2010)	Tax exemptions for renewable electricity	Obligation for Power Purchase from Renewable Sources (amended in 2008 and 2012)	Bio-Components and Liquid Biofuels Act	Long-term Programme for Promotion of Biofuels or Other Renewable Fuels	Programme for renewable energy and high efficiency cogeneration projects	Polish Energy Policy until 2030 Green Investment Scheme	Directions of development for agricultural biogas plant in Poland in 2010-2020	Ratified the IRENA Statute Order on the quota obligation

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 55 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 175 MW and 119 MWth of biomass-fired capacity addition announced (11 projects)
- More than 12 MW of geothermal capacity addition announced (2 projects)
- 20 MW of small hydro capacity addition announced (3 projects)
- Around 6,350 MW of wind capacity addition announced (56 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind ● **Solar** ● **Hydro** ● **Biomass** ● **Geothermal** ● **Ocean** ●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

PORTUGAL

10.6 million Population (2011)
237.4 billion USD GDP (2011)
22,485 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

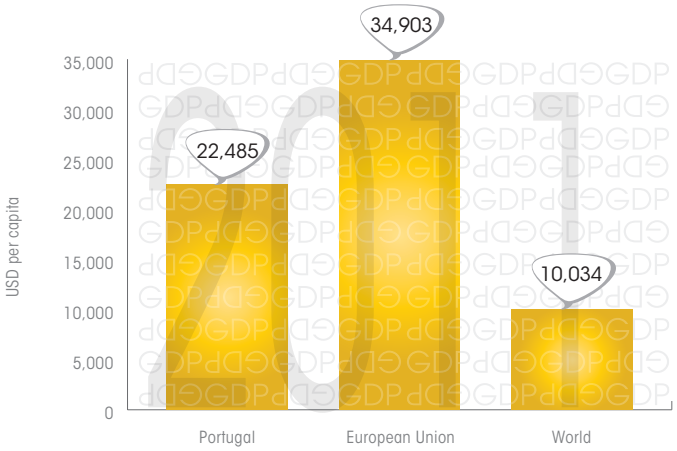
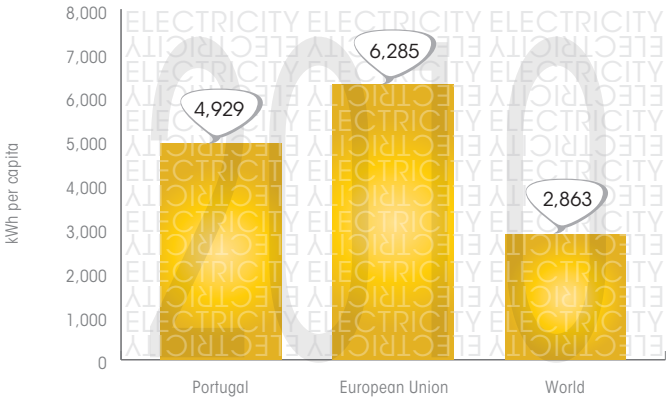


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 962.6 PJ - Of which renewables: 215.3 PJ (22.4%)
- Energy self-sufficiency: 23.3%
- Fuel imports: 14.3 billion USD (17.8% of total imports)
- Electricity generation: 51.9 TWh - Of which renewables: 24.1 TWh (46.5%)
- Electricity use per capita: 4,848 kWh
- Electrical capacity: 19.9 GW - Of which renewables: 9.6 GW (48.1%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 31% of final energy from renewables by 2020
- 55 to 60% of electricity generation from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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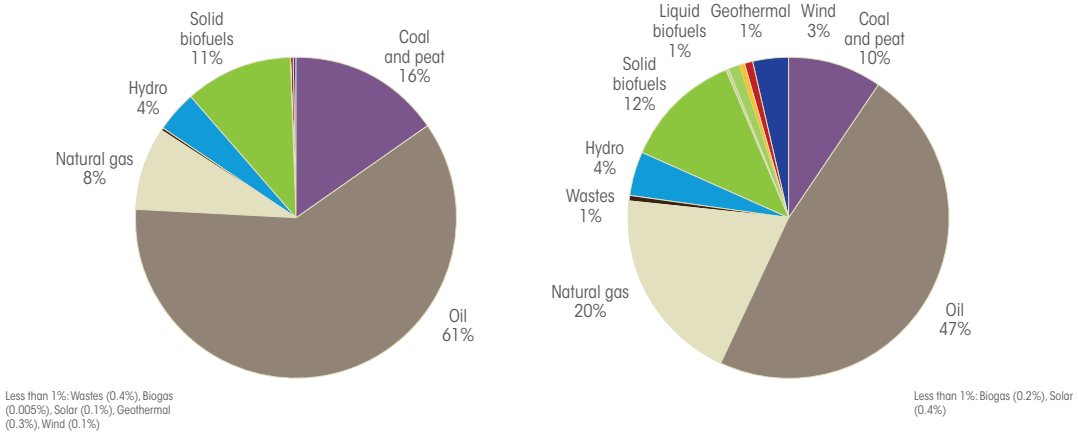
Figure 3: Total Primary Energy Supply* in 2000 and 2011



2000: 1,029.7 PJ

2011: 952.5 PJ

*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

ENERGIA Programme	Tax Reduction for Renewable Energy Equipment	Promotion of hydro and wind projects (Decree-Law	Energy Efficiency and Endogenous Energies (E4)	New feed-in tariffs for renewables (amended in 2005,	National Energy Strategy	Solar thermal incentive scheme	Microgeneration Law (amended in 2011)	Ratified the IRENA Statute
1994	1999	2000	2001	2001	2005/06	2009	2010	2011
		no.69/2000)	Programme	2007 and 2013)	Biofuels Law (amended in 2008)	Biodiesel blending requirement		

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 30 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 18 MW of biomass-fired capacity addition announced (2 projects)
- 310 million litres of biodiesel per year capacity addition announced (1 project)
- 5 MW of small hydro capacity addition announced (1 project)
- 13.5 MW of solar photovoltaic capacity addition announced (3 projects)
- 4 MW of solar thermal capacity addition announced (1 project)
- 115 MW of wind capacity addition announced (4 projects)
- 27 MW of marine capacity addition announced (3 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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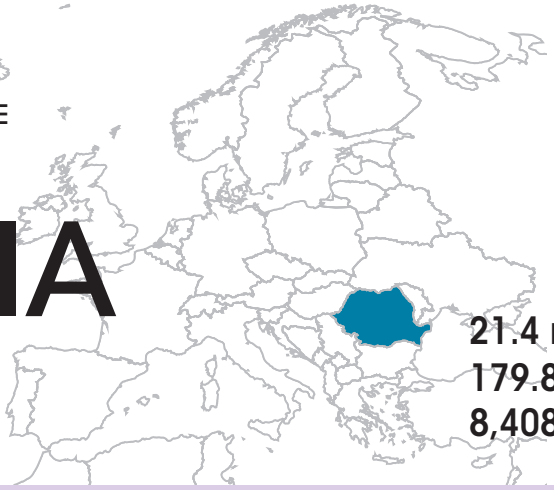
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

ROMANIA



21.4 million Population (2011)
179.8 billion USD GDP (2011)
8,408 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

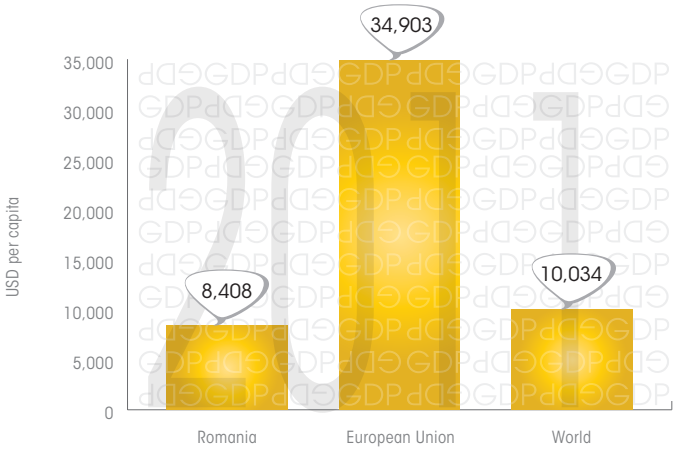
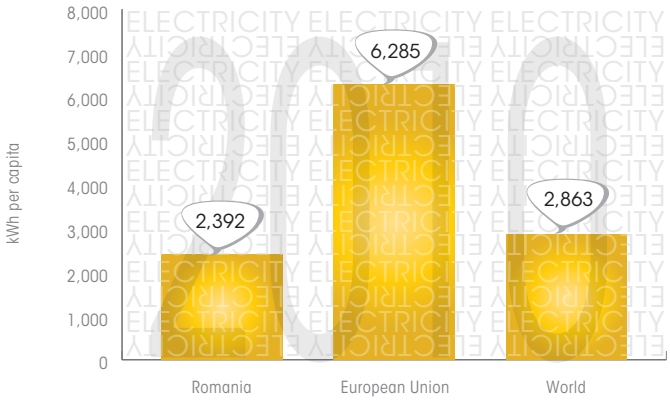


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



The European Union includes Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 1,519.2 PJ - Of which renewables: 212.2 PJ (14.0%)
- Energy self-sufficiency: 76.9%
- Fuel imports: 8.6 billion USD (11.3% of total imports)
- Electricity generation: 62.0 TWh - Of which renewables: 16.3 TWh (26.3%)
- Electricity use per capita: 2,486 kWh
- Electrical capacity: 20.5 GW - Of which renewables: 7.4 GW (36.1%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: 17%

* 2010

TARGETS:

- 24% of final energy from renewables by 2020
- 43% of electricity generation from renewables by 2020
- 10% of transport energy from renewables by 2020
- 22% of energy consumption for heating and cooling from renewables by 2020

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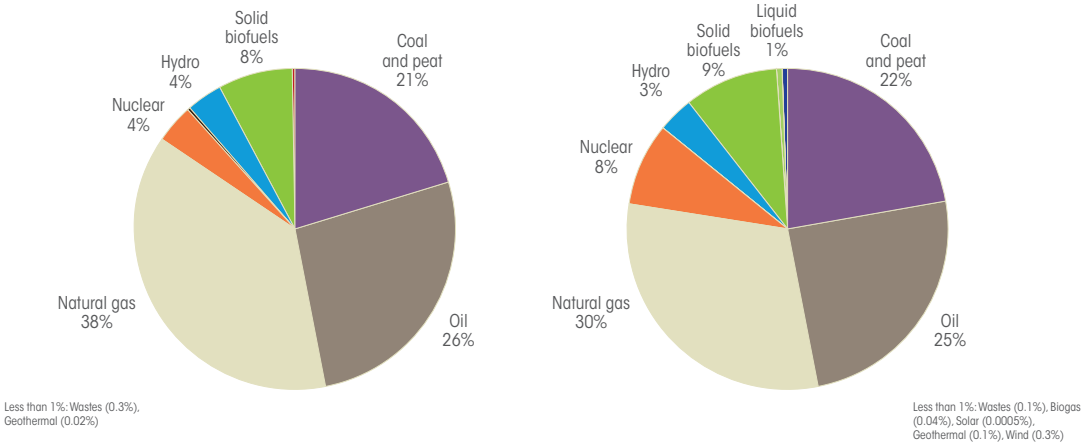
FIGURE 3: TOTAL PRIMARY ENERGY SUPPLY* IN 2000 AND 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 72 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 119 MW of biomass-fired capacity addition announced (6 projects)
- 293 MW of solar photovoltaic capacity addition announced (23 projects)
- Around 3,500 MW of wind capacity addition announced (30 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

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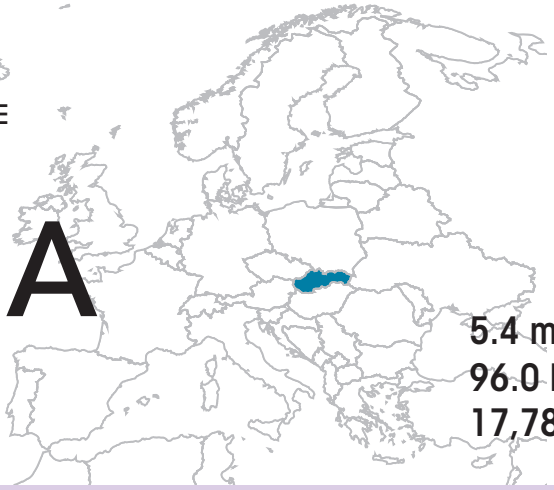
RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

SLOVAKIA



5.4 million Population (2011)
96.0 billion USD GDP (2011)
17,782 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

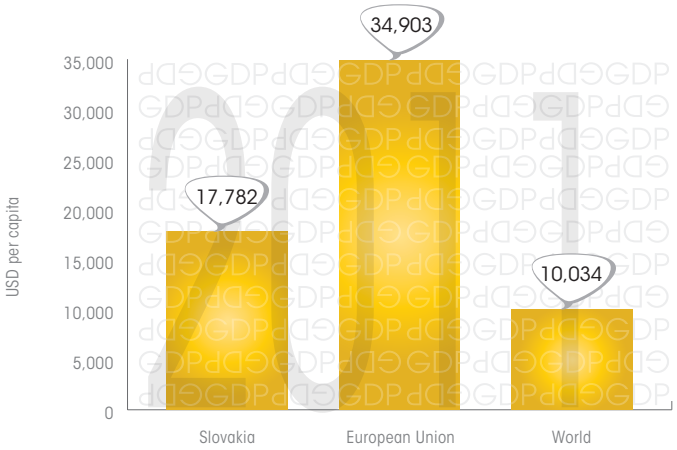
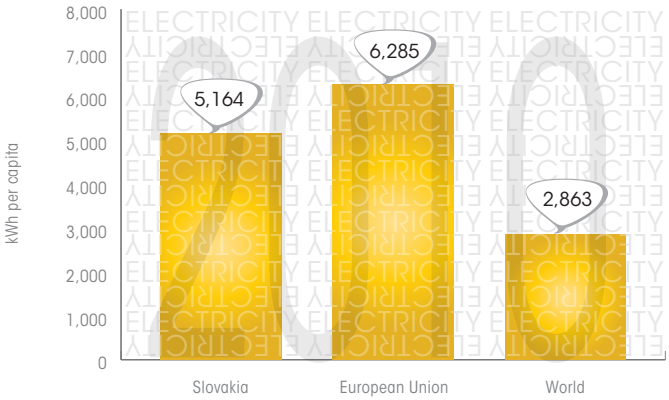


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 729.4 PJ - Of which renewables: 57.2 PJ (7.8%)
- Energy self-sufficiency: 37.8%
- Fuel imports: 11.3 billion USD (14.6% of total imports)
- Electricity generation: 28.3 TWh - Of which renewables: 4,999 GWh (17.7%)
- Electricity use per capita: 5,350 kWh
- Electrical capacity: 8.1 GW - Of which renewables: 1,998 MW (24.8%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 14% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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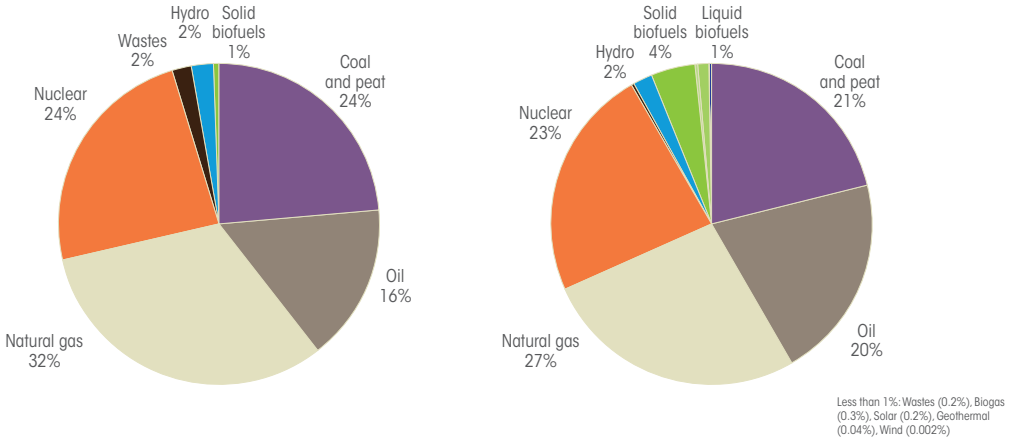
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

2001	2004/05	2005/06	2007	2008	2009	2009	2010	2011
Act on Regulation in Network Industries (amended in 2007)	Excise tax exemption for biofuels (amended in 2007)	Feed-in tariffs for renewable energy (updated yearly)	Strategy for greater use of renewable energy sources	Excise tax exemption for renewable electricity	Programme for Higher Biomass and Solar Energy Use	Act 309/2009 on Support of Renewable Energy Sources and	Ratified the IRENA Statute	Act 136/2011 on the promotion of renewable
	Act 656/2005 on Energy and amendments	Slovak Republic New Energy Policy	Minimum biofuel requirement	Biomass Action Plan 2008-2013		High Efficiency CHP (amended in 2010 and 2011)		energy and highly efficient cogeneration

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 46 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 1.5 MW of biomass-fired capacity addition announced (1 project)
- 6 MW of geothermal capacity addition announced (1 project)
- 50 MW of solar photovoltaic capacity addition announced (5 projects)
- 173 MW of wind capacity addition announced (4 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

High Medium Low Unknown Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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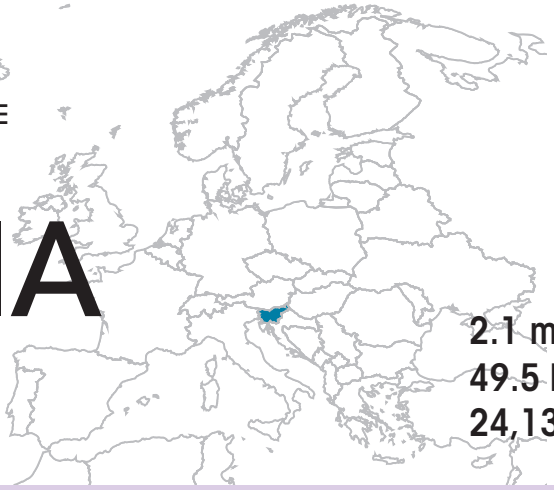
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

IRENA
International Renewable Energy Agency

SLOVENIA



2.1 million Population (2011)
49.5 billion USD GDP (2011)
24,132 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

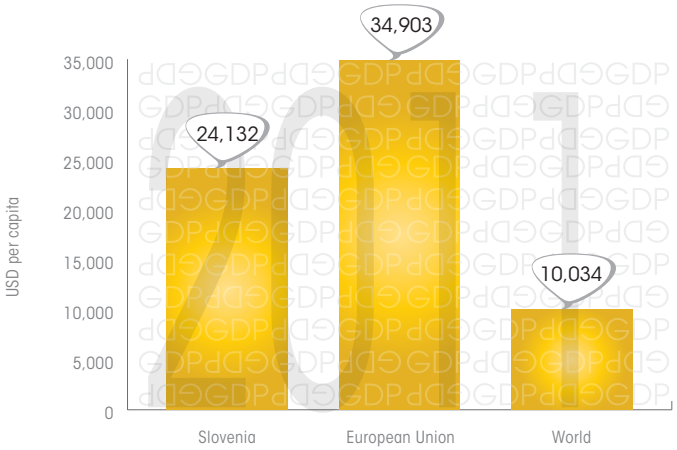
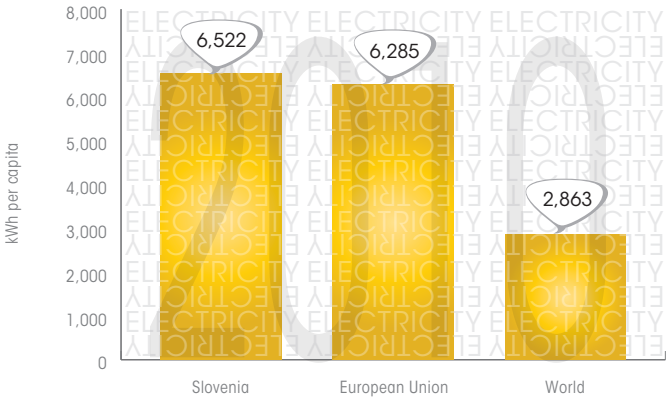


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 303.9 PJ - Of which renewables: 39.7 PJ (13.1%)
- Energy self-sufficiency: 51.8%
- Fuel imports: 5.0 billion USD (14.0% of total imports)
- Electricity generation: 15.9 TWh - Of which renewables: 3,876 GWh (24.4%)
- Electricity use per capita: 6,805 kWh
- Electrical capacity: 3,268 MW - Of which renewables: 1,188 MW (36.4%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 25% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020

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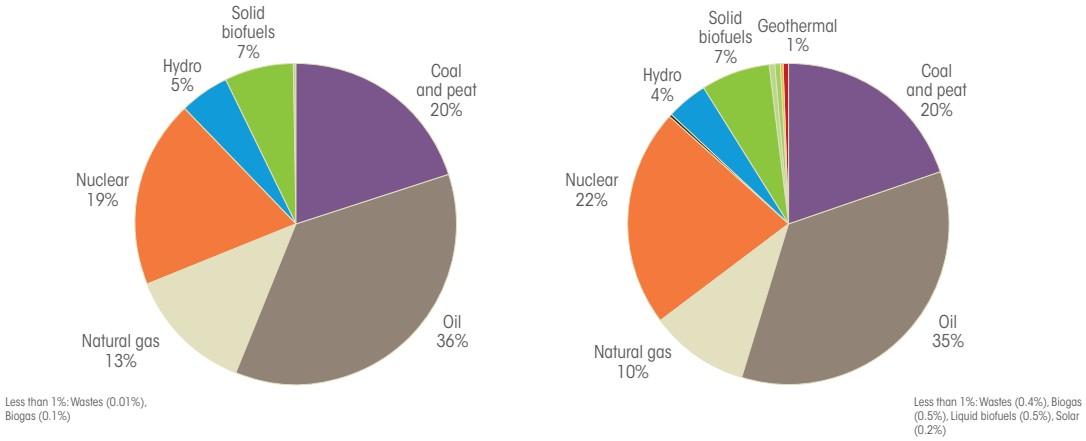
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1999	2000/02	2004	2007	2009	2010	2010	2011
Energy Act	Eco-Fund Feed-in Tariffs and Premiums	Resolution on the National Energy Programme (RS 57/2004) Tax exemptions for liquid biofuels	Promotion of the Use of Biofuels and Other Renewable Fuels for the Propulsion of Motor Vehicles (RS 103/2007)	Decree on the Support for Electricity Generated from Renewable Energy Sources (RS 37/2009)	Energy Act	Ratified the IRENA Statute	Decree on Green Public Procurement (RS 102/2011)

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 35 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 72 MW of small hydro capacity addition announced (2 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
◐	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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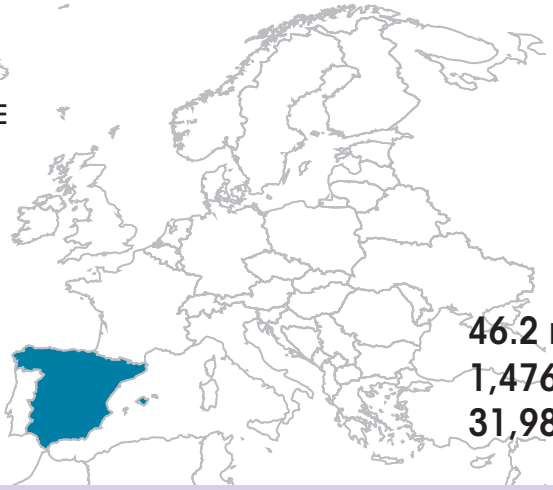
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

SPAIN



46.2 million Population (2011)
1,476.9 billion USD GDP (2011)
31,985 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

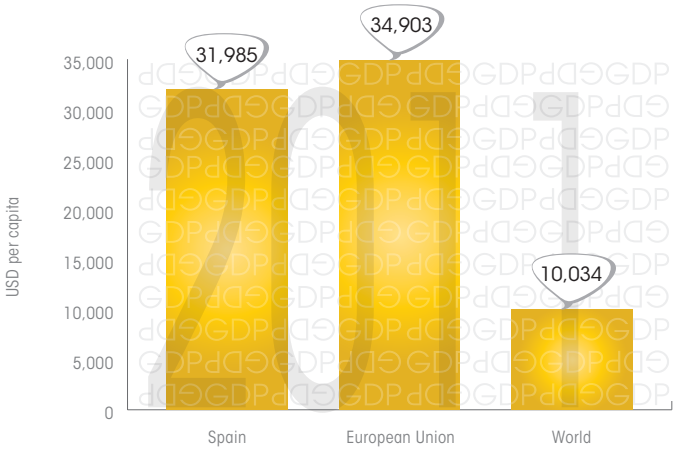
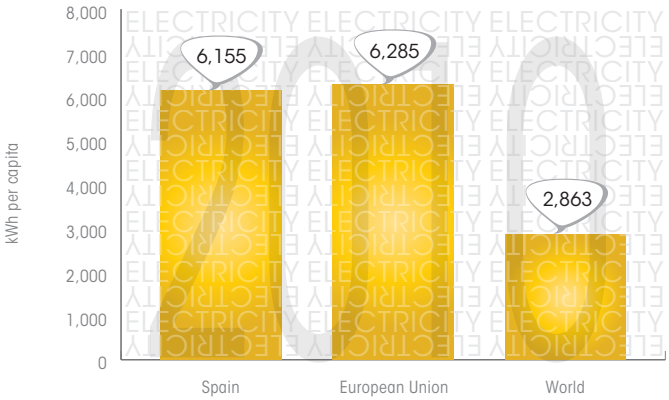


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 5,246.8 PJ - Of which renewables: 612.9 PJ (11.7%)
- Energy self-sufficiency: 25.6%
- Fuel imports: 77.9 billion USD (20.8% of total imports)
- Electricity generation: 289.4 TWh - Of which renewables: 86.2 TWh (29.8%)
- Electricity use per capita: 5,606 kWh
- Electrical capacity: 102.8 GW - Of which renewables: 41.4 GW (40.2%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 20.8% of final energy from renewables by 2020: 6.3% from wind, 5.8% from biomass and wastes, 3% from solar, 2.9% from hydro, 2.7% from liquid biofuels and 0.1% from other renewables
- 38.1% of electricity generation from renewables by 2020
- 11.3% of transport energy from renewables by 2020 18.9% of energy consumption for heating and cooling from renewables by 2020
- 72.5 GW of renewable capacity, of which 35 GW of onshore wind, 13.9 GW of hydro and 7.3 GW of solar photovoltaic, by 2020

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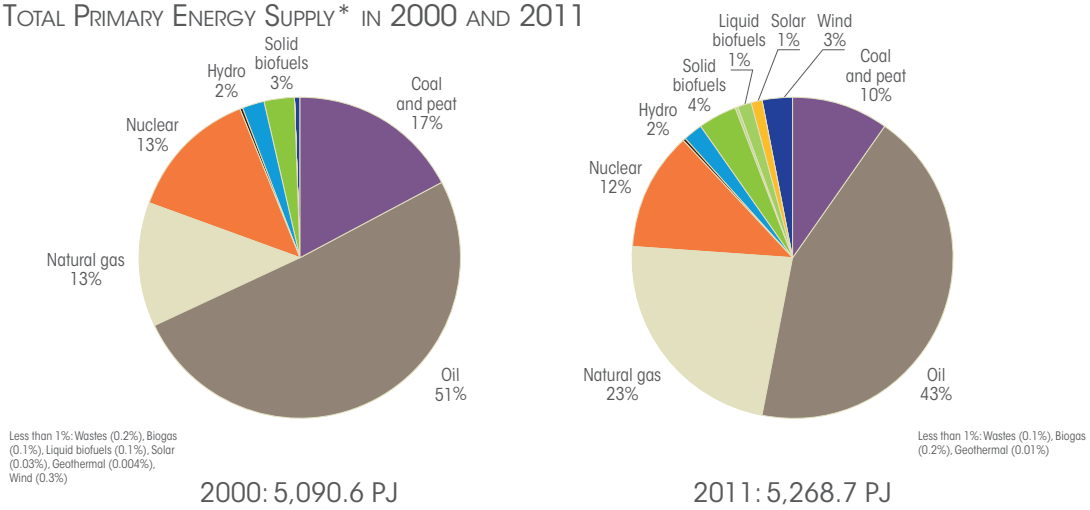
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

Royal Decree 2366/1994 on Feed-in tariffs (amended in 1998, 2000, 2004, 2007, 2009, 2010 and 2012)	Law 54/1997 on the Electricity Sector	Renewable Energy Promotion Plan 2000-2010 (modified in 2005)	Royal Decree 436/2004	Royal Decree 314/2006 on Technical Building Code	Law 12/2007 and mandatory biofuel requirement (revised in 2011)	Royal Decree 1578/2008 on PV electricity price	New regulatory framework for administrative procedures for RE facilities (Royal Decree Law 6/2009)	Ratified the IRENA Statute
1994	1997/98	1999	2004/06	2006/07	2007/08	2008	2009	2011
	Royal Decree 2818/1998		Control Centre of Renewable Energies established	Royal Decree 661/2007				Renewable Energy Plan 2011-2020

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WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 44 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 310 MW of biomass-fired capacity addition announced (14 projects)
- 10 MW and 8 MWth of geothermal capacity addition announced (2 projects)
- Around 1,400 MW of solar photovoltaic capacity addition announced (67 projects)
- 840 MW of solar thermal capacity addition announced (21 projects)
- 2,650 MW of wind capacity addition announced (33 projects)
- 6.5 MW of marine capacity addition announced (2 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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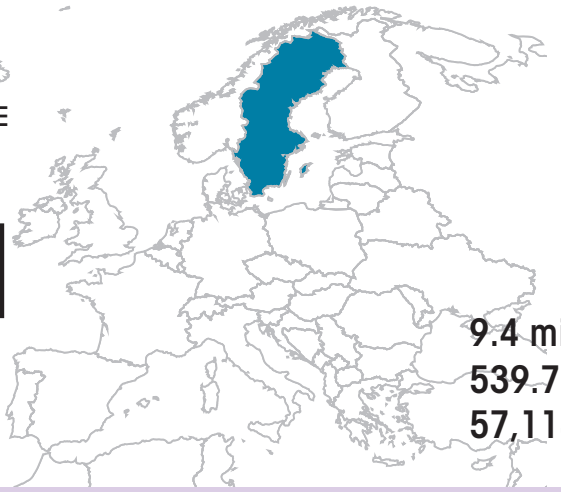
Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

SWEDEN



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9.4 million Population (2011)
539.7 billion USD GDP (2011)
57,114 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

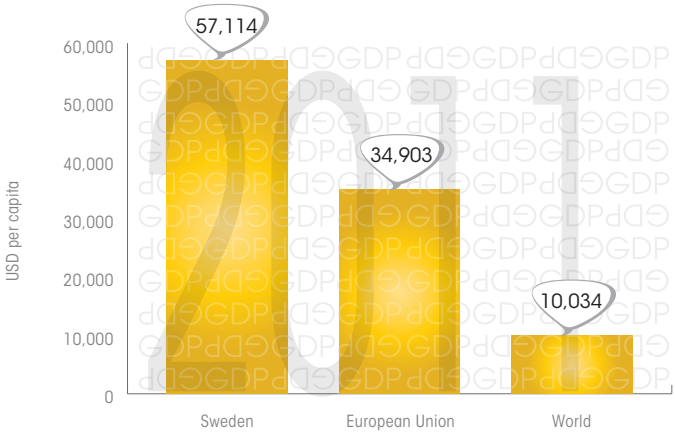
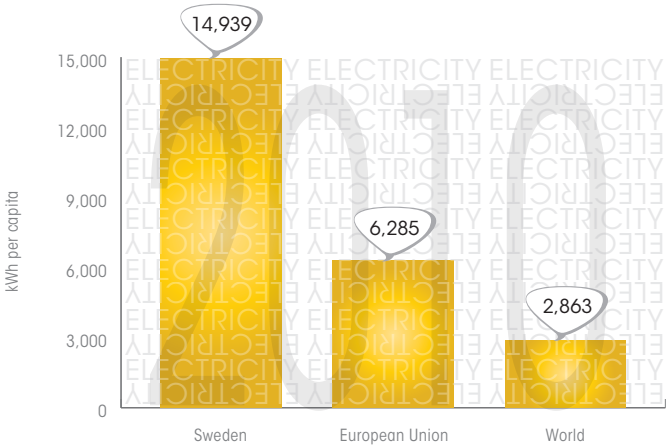


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



The European Union includes Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 2,051.7 PJ - Of which renewables: 659.4 PJ (32.1%)
- Energy self-sufficiency: 66.0%
- Fuel imports: 25.2 billion USD (14.3% of total imports)
- Electricity generation: 150.3 TWh - Of which renewables: 84.1 TWh (55.9%)
- Electricity use per capita: 14,030 kWh
- Electrical capacity: 35.1 GW - Of which renewables: 23.3 GW (66.4%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- At least 50% of final energy from renewables by 2020
- At least 10% of transport energy from renewables by 2020
- 25 TWh more renewable electricity than in 2002 by 2020
- A vehicle stock that is independent of fossil fuels by 2030

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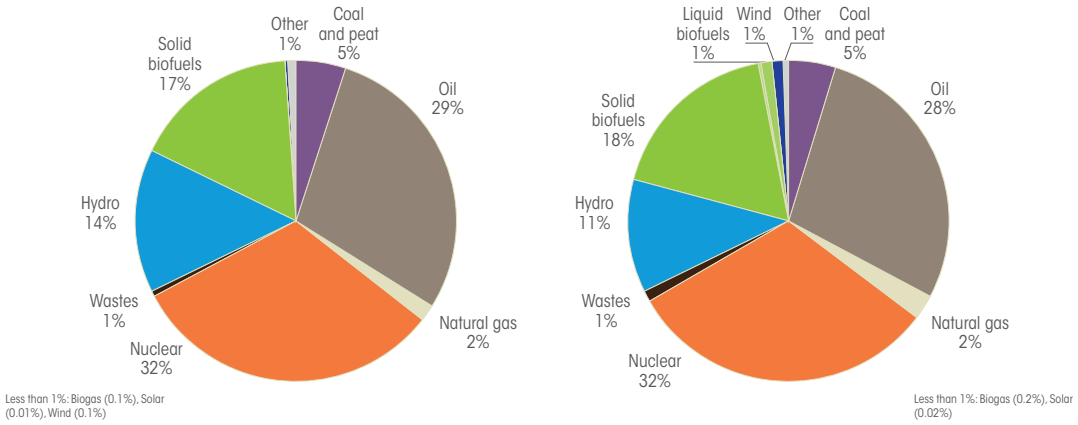
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

1994	1994/97	1997	2000/03	2006	2009	2009	2010	2011/12
Tax exemptions for renewable electricity (Act 1776)	Environmental Bonus for Wind Power (regular modifications)	Renewable Energy Investment Support Programme	Support for Small Scale Electricity Production	Grants for Residential Heating Conversion	Ratified the IRENA Statute	Support for the development and implementation of biogas	Act on sustainability criteria for biofuels and	Electricity Certificates Act
	Guaranteed Power Purchase Contracts	Energy policy programme	Green Certificate Scheme		Support for the installation of solar panels	technologies	bioliquids	Sweden-Norway Green Certificates scheme

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 13 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE:

- 429 MW and 107 MWth of biomass-fired capacity addition announced (7 projects)
- 126 million litres of bioethanol per year capacity addition announced (1 project)
- Around 4,500 MW of wind capacity addition announced (42 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	◐	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not prejudge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

Sources: Population and GDP: World Bank; Energy data: IEA, IRENA analysis based on Eurostat data; Share of fuel imports in total imports: World Trade Organisation; Electrical capacity: IEA, Eurostat; Electricity access rate: World Energy Outlook 2012 database (IEA); Share of population using solid fuels: World Health Organisation; Targets: REN21, IRENA; Policy/legislation: IEA, IRENA research; Ease of doing business index: World Bank; Renewable energy projects: Bloomberg New Energy Finance, IRENA research; Clean Development Mechanism projects: UNFCCC; Renewable energy resources: IRENA analysis.

Units: USD: United States dollar; kWh: kilowatt-hour; GWh: gigawatt-hour (1 GWh=10^6 kWh); TWh: terawatt-hour (1 TWh=10^3 GWh); PJ: petajoule; MW: megawatt; GW: gigawatt (1 GW=10^3 MW). Please also refer to the glossary for explanations on the terms used in the country profile.

RENEWABLE ENERGY COUNTRY PROFILE

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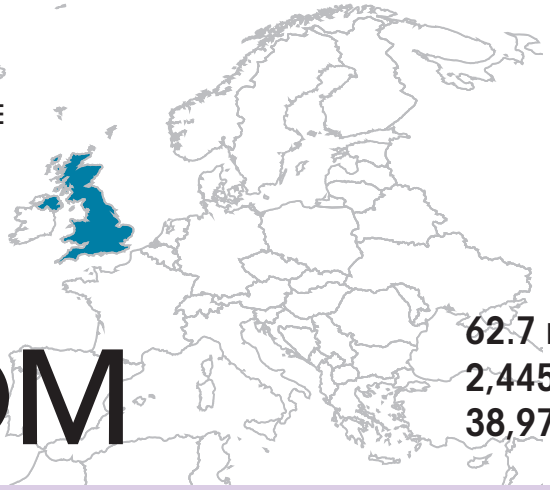
UNITED KINGDOM



62.7 million Population (2011)
2,445.4 billion USD GDP (2011)
38,974 USD GDP per capita (2011)

FIGURE 1: GDP PER CAPITA FOR 2011

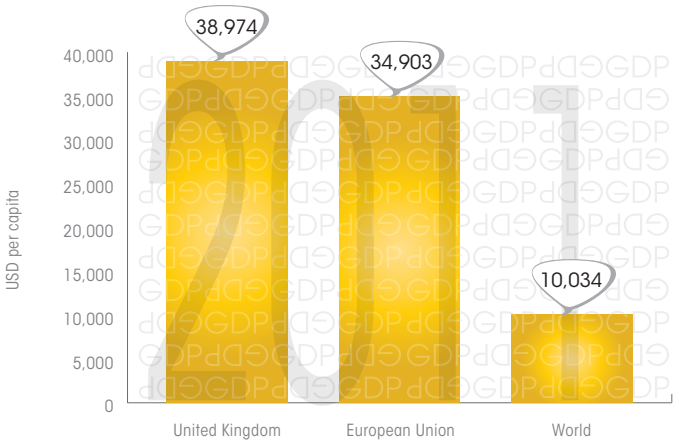
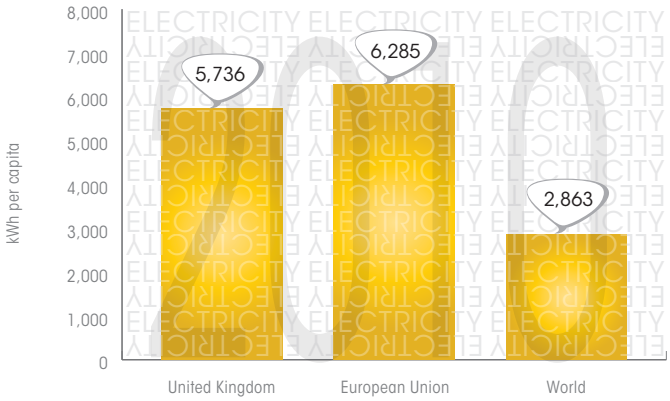


FIGURE 2: ELECTRICITY USE PER CAPITA FOR 2010



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ENERGY NATIONAL PROFILE 2011

- Total Primary Energy Supply: 7,852.1 PJ - Of which renewables: 326.6 PJ (4.2%)
- Energy self-sufficiency: 69.0%
- Fuel imports: 91.0 billion USD (14.3% of total imports)
- Electricity generation: 364.9 TWh - Of which renewables: 34.4 TWh (9.4%)
- Electricity use per capita: 5,517 kWh
- Electrical capacity: 93.8 GW - Of which renewables: 12.4 GW (13.2%)
- Electricity access rate: 99.9%
- Share of population using solid fuels*: < 5%

* 2010

TARGETS:

- 15% of final energy from renewables by 2020
- 5% of transport energy from renewables by 2014 (at least 10% by 2020)
- 12% of renewable heat by 2020
- Scotland: 15% of electricity generation from renewables by 2020 (80% by 2020)

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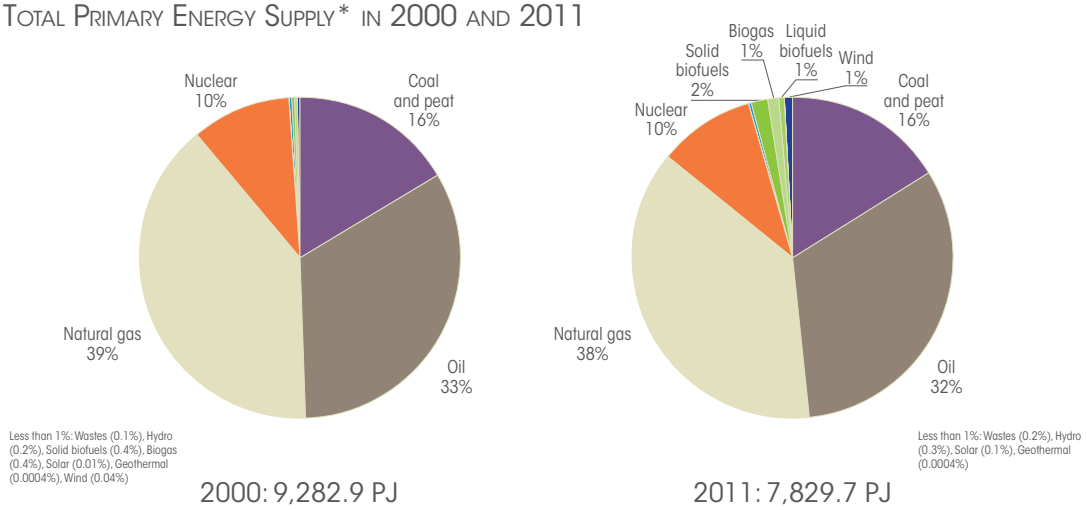
Figure 3: Total Primary Energy Supply* in 2000 and 2011



*excluding electricity trade

POLICIES IN PLACE TO PROMOTE RENEWABLE ENERGY SINCE THE RIO CONFERENCE OF 1992

2001	2002	2002	2006/08	2008	2009	2010	2011	2012
Climate Change Levy	Bio-energy Capital Grants Scheme	Renewables Obligation Order (amended in 2009)	Climate Change and Sustainable Energy Act	Energy Act 2008	Renewable Energy Strategy 2009	Feed-in Tariffs for renewable electricity	Renewable Heat Incentive	Ratified the IRENA Statute
	Offshore Wind Capital Grants Scheme		Climate Change Act	Renewable Transport Fuels Obligation		Energy Act	Energy White Paper	

Note: All Member States of the European Union published National Renewable Energy Action Plans in 2010, which detail how they expect to reach their legally binding 2020 target for the share of renewable energy in their total energy consumption, as required by the renewable energy Directive (2009/28/EC)

WORLD BANK EASE OF DOING BUSINESS INDEX FOR 2013: Ranked 7 out of 185

RENEWABLE ENERGY PROJECTS REPORTED IN THE BNEF DATABASE (CAPACITY ADDITIONS):

- Around 2,230 MW and 700 MWth of biomass-fired capacity addition announced (56 projects)
- 10 MW and 65 MWth of geothermal capacity addition announced (2 projects)
- 231 million litres of biodiesel per year capacity addition announced (3 projects)
- 623 million litres of bioethanol per year capacity addition announced (4 projects)
- 37 MW of small hydro capacity addition announced (7 projects)
- 135 MW of solar photovoltaic capacity addition announced (19 projects)
- Around 40,000 MW of wind capacity addition announced (172 projects)
- Around 2,800 MW of marine capacity addition announced (26 projects)

NUMBER OF REGISTERED CLEAN DEVELOPMENT MECHANISM PROJECTS FOCUSING ON RENEWABLE ENERGY: Not applicable

RENEWABLE ENERGY RESOURCES:

● High ● Medium ● Low ● Unknown ⊗ Not applicable

Wind	Solar	Hydro	Biomass	Geothermal	Ocean
●	●	●	●	●	●

Note: The information on resources should be taken as an indication only. It refers to a general trend of available resources, and does not pre-judge the feasibility of individual projects. The thresholds are indicative, and do not refer to any technological choice. The analysis is based on the literature.

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GLOSSARY

1 – PRODUCTS

Coal comprises the solid fossil fuels consisting of carbonised vegetal matter (hard coal and brown coal) and the products derived from them (e.g. patent fuel, coke, blast furnace gas, coke oven gas).

Peat is a solid formed from the partial decomposition of dead vegetation under conditions of high humidity and limited air access. Peat is not considered a renewable resource as its regeneration period is long.

Oil covers the liquid fossil hydrocarbons comprising crude oil, liquids extracted from natural gas (NGL), fully or partly processed products from the refining of crude oil (e.g. gasoline, diesel) and functionally similar liquid hydrocarbons and organic chemicals from vegetal or animal origins.

Natural gas includes natural gas but excludes natural gas liquids, which are included in oil and oil products.

Nuclear shows the primary energy equivalent of the electricity produced by a nuclear power plant assuming an average thermal efficiency of 33%.

Wastes are materials no longer required by their holders and which are used as fuels. They comprise municipal waste and industrial waste.

Hydro shows the energy content of the electricity produced from devices driven by fresh, flowing or falling water. Hydro output excludes output from pumped storage plants.

Biofuels are the solid, liquid or gaseous material obtained from living or recently living organisms (e.g. wood, charcoal, biogasoline, biodiesels, vegetal or animal waste).

Solar is the energy that is captured from solar radiation to produce a useful energy output (electricity from solar photovoltaic, heat or electricity from solar thermal).

Geothermal is the energy of the heat that is extracted from the earth, usually in the form of heated water or steam.

Ocean shows the energy content of the electricity produced by tidal movement, wave motion, ocean current and other sources of marine energy.

Wind shows the energy content of the electricity produced by wind turbines.

Renewables are sources of energy which are naturally replenished as they are used. They include hydro, biofuels, solar, geothermal, ocean and wind. For the purposes of energy statistics, the renewable portion of municipal waste is also included.

2 – ENERGY NATIONAL PROFILE BOX

Total Primary Energy Supply is the net flow of fuel or energy into the national territory from production, external trade, international bunkers and changes in stocks. Note that this value includes electricity trade unlike the pie charts presented later, which can result in small differences in values and the share of renewables.

Self-sufficiency is the ratio of domestic production divided by Total Primary Energy Supply. A value below 100% means that the country is a net energy importer, i.e. that it has to import or draw from its stocks the energy needed to meet the part of demand that is not met by domestic production. Conversely, a value above 100% indicates that the country is a net energy exporter.

Fuel imports show the amount spent on importing coal and peat, oil, natural gas and electricity in the country. For most countries, this amount includes cost, insurance and freight (CIF) (source http://www.wto.org).

Electricity generation is the total amount of electricity produced in power plants (i.e. the gross electricity production).

Electricity use is the electricity available for consumption, defined as the sum of domestic production and external trade minus the transmission losses.

Electrical capacity is the net maximum installed capacity of all power plants at the end of the year concerned, i.e. the maximum power that can be supplied, continuously, with all of the plant running, at the point of outlet to the network.

Electricity access rate is the share of the population with access to electricity

Share of population using solid fuels is the percentage of the population that relies on solid biofuels, coal

and peat as the primary source of domestic energy for cooking and heating (source http://www.who.int).

3 – OTHER INDICATORS

World Bank ease of doing business index ranks economies from 1 to 183 in 10 areas of business regulation: starting a business, dealing with construction permits, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, resolving insolvency and getting electricity (source: http://www.doingbusiness.org).

Registered Clean Development Mechanism (CDM) project: the CDM allows emission-reduction projects in developing countries to earn certified emission reduction credits which can be traded and sold, and used by industrialised countries to a meet a part of their emission reduction targets under the Kyoto Protocol. A project is registered when the Executive Board of the CDM gives its final approval (source: http://cdm.unfccc.int).

4 – RESOURCES

Note: Data on the assessment of the resources of tidal power and ocean current is not available. Therefore, and for the purposes of the resource assessment only, ocean energy is limited to wave energy.

For each renewable energy source, the rating is explained in the table below.

	Wind	Solar	Hydro	Biomass	Geothermal	Ocean
High	Several areas with average wind speed above 7 m/s at 50 m high	Several areas with global horizontal irradiation above 1800 kWh/m^2 per year	One or more sites can be equipped with a large hydropower facility (>10 MW)	Maximum identified theoretical potential above 100 PJ incl. agriculture, wood and residues	One or more sites can be equipped with a large scale facility (>10 MW)	Wave power above 30 kW/m
Medium	Several areas with average wind speed between 5 and 7 m/s at 50 m high	Several areas with global horizontal irradiation between 1200 and 1800 kWh/m^2 per year	One or more sites can be equipped with a medium scale hydropower facility (1-10 MW)	Maximum identified theoretical potential between 10 and 100 PJ incl. agriculture, wood and residues	One or more sites can be equipped with a medium scale facility (1-10 MW)	Wave power between 10 and 30 kW/m
Low	No area identified with average wind speed above 5 m/s	No identified area with global horizontal irradiation above 1200 kWh/m^2 per year	One or more sites can be equipped with a small scale hydropower facility (<1 MW)	Maximum identified theoretical potential below 10 PJ incl. agriculture, wood and residues	One or more sites can be equipped with a small scale facility (<1 MW)	Wave power below 10 kW/m
Unknown	No data identified by IRENA as yet					

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