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Renewable Energy Projections as Published in the National Renewable Energy Action Plans of the European Member States

This update covers 19 countries

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Disclaimer

This report has been compiled with great care. However, since the underlying NREAP documents have been published in the language of the respective Member State subtleties might have been lost in the process. Moreover, the data have been entered into the database manually: although checked, it is possible that typing errors have occurred. The original NREAP documents remain the authentic versions. The Energy research Centre of the Netherlands (ECN) and the European Environment Agency (EEA) cannot assure any responsibility for any remaining errors, if and when applicable, of the data in the this report and in the underlying database.

Abstract

This report presents an overview of all data that have been published in the National Renewable Energy Action Plans (NREAPs) so far. At the time of releasing this document (10 September 2010), 19 out of 27 European Member States had the NREAP available at the transparency platform on renewable energy. All these countries have been covered in this report. The countries considered are: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom.

The report highlights a set of cross-sections of the database that has been compiled from the NREAP documents. This report will be updated regularly. The underlying database and the figures from the report are publicly available at http://www.ecn.nl/nreap.

Keywords

National Renewable Energy Action Plans (NREAPs), renewable energy in the European Union

Scanning the two-dimensional barcode (QR) at the left with a camera phone equipped with appropriate software will open the URL http://www.ecn.nl/nreap, which redirects to the ECN Policy Studies project pages (http://www.ecn.nl/units/ps/themes/renewable-energy/projects/nreap). New versions of this report, the database and the image files will become available for download from this location.

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Summary

The Renewable Energy Directive (2009/28/EC)[1] addresses various subjects related to the development of renewable energies in the European Member States, among others the legally binding share of renewable energy in gross final energy consumption. In Article 4 of the Directive each Member State is requested to provide a National Renewable Energy Action Plan (NREAP) by 30 June 2010. In order to draft this plan, a template was published by the Commission. Each Member State is obliged to complete a set of tables in this template on how it expects to meet its 2020 target, including the technology mix and the trajectory to reach it. The current report makes use of the fact that these tables have been defined in a consistent way. All data have been collected from the NREAP documents and they are available as a data report (this report), a database containing all data from the NREAPs (in text format) and a set of figures from the datareport (in PDF and PNG). The purpose has been to allow easy comparison for further analysis by the audience[2].

The focus of this report, which evaluates the NREAP documents, is on the numbers and figures. All other subjects addressed in the documents, such as renewable energy policies, costs and benefits and grid integration issues have not been considered in the current analysis. Moreover, it was not the objective of this analysis to check whether the proposed policies indeed result in the projections made.

Whereas the data report focuses on the projections for the individual Member States, this summary section focuses on the aggregate results for the countries for which NREAP documents are available. In the current document, this regards the following Member States: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom.

The charts and tables in this report present primary data (numbers directly taken from the NREAP documents) and secondary data (data derived from the primary data). For the secondary data, four parameters have been presented consistently throughout the report: an indicator on full load hours (applies to electricity options only), an indicator on growth rates calculated from the projected energy production (for electricity options also for changes in capacity), and indicators on per capita and per surface area achievement. Although for the two latter indicators a bias exists between countries depending on their population density, these indicators enable comparison of large and small countries in a more meaningful manner.

Table 1 indicates that, based on the current number of countries incorporated in this report, the total gross production from renewable energy sources (RES) (excluding pumped storage hydropower and for renewable transport corrected for double counting according to Article 5.1 of the Directive) amounts to 211 Mtoe in the year 2020. The largest contribution of renewable energy originates from electricity (RES-E, 45% in 2020). The second largest contribution is from renewable heating and cooling (RES-H/C, 43%) and finally renewable transport (RES-T) contributes 12% to the overall renewable target. On average this projection results in an annual growth for overall renewables of approximately 6% annually. These numbers will change as more NREAP documents will be released and integrated into this report.

Looking at the overall growth rates per renewable energy type, it can be observed that the growth rates are smallest for renewable heating and cooling (between 3.2% and 5.5% annually, depending on the period), and that renewable transport is growing fastest (6.7% to 8.4% annually, with a very high growth rate for the period 2005 - 2010 (31.5% per year, caused by the relatively low value for 2005). Renewable electricity has a growth rate of 5.6% to 6.2% annually. It should be noted however that these growth rates are *average* values, and that the conventional renewable technologies (hydropower electricity, solid biomass heating) constitute a large part of the renewable energy stock.

[1] At http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0028:EN:NOT the Renewable Energy Directive is available for download

[2] At http://www.ecn.nl/nreap the report, the database and the image files are available for download

Table 1: *Total contribution from renewable energy sources (RES) for 19 countries: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom. See Tables 2 to 7 for details.*

	Energy				Share	Average annual growth		
	2005 [Mtoe]	2010 [Mtoe]	2015 [Mtoe]	2020 [Mtoe]	[%][a]	2005 – 2010 [%/year]	2010 – 2015 [%/year]	2015 – 2020 [%/year]
RES-E	40	52	70	94	45	5.6	6.2	6.1
RES-H/C	47	55	70	92	43	3.2	4.8	5.6
RES-T [b]	3	12	17	25	12	31.5	6.7	8.4
Total RES	90	119	157	211	100	5.8	5.6	6.1

[a] The percentage refers to the share of the renewable energy types (electricity, heating and cooling and transport) in total renewable energy in the year 2020

[b] Total renewable energy for transport has been corrected for electricity and hydrogen from renewable energy sources as indicated in Article 5.1 of Directive 2009/28/EC. See Table 6.

Table 2 shows the contribution of the renewable heating and cooling technologies in detail and Table 3 shows calculated growth rates. Based on the 19 countries included in this table it can be seen that for renewable heating and cooling the largest share in the year 2020 is from biomass (79.7%), notably solid biomass (70.4%). Second is renewable energy from heat pumps (12.4%), followed by solar thermal (5.8%) and geothermal heat (2.1%). From Table 3 can be seen that growth rates generally are higher for the non-biomass options (except biogas).

Table 4 shows the breakdown of the renewable electricity technologies into subcategories (where applicable) and Table 5 shows calculated growth rates. For new renewables such as wind power, solar PV and tidal, wave and ocean energy double-digit growth rates occur in the period to come. It is interesting to note that the growth rates decline over time: for most technologies the average annual growth rate is higher for the period 2010- 2015 than for 2015 - 2020. For individual countries data can be found in the tables on growth rates in the technology-specific chapters of the report.

Taking a closer look at the mix of renewable electricity technologies for the year 2020 (Table 2), it can be observed that the most important contribution is expected from wind power (41.4% of which onshore wind power contributes 28.9%-point). The second largest technology is expected to be hydropower (30.6% of all RES-E in 2020, of which large hydropower takes 25.2%-point). Biomass electricity is responsible for 17.4% and solar electricity for 9.1% (7.3%-point from photovoltaics).

Table 6 shows the contribution of the renewable transport energy carriers and Table 7 shows calculated growth rates. According to this table, biodiesel has the largest contribution in 2020 (65.8%), followed by bio-ethanol / bio-ETBE (21.7%). The tables in the report (see the page numbers in the last column of Table 6) provide more information about the shares of Article 21.2 biofuels and imported biofuels. Renewable electricity has also a significant contribution, but this does not count for the overall renewable energy production as specified in Article 5.1 of the Directive. None of the 19 countries covered in this version of the report project a contribution from renewable hydrogen in transport.

The secondary data as depicted in the report show the merits of presenting the data using derived indicators: large countries with high projections for certain renewables countries are averaged out when presented on a per capita or a per surface area basis. The indicator on full load hours shows expected deviations between Southern European countries and Northern European countries for solar electricity technologies.

Table 2: *Total renewable heating and cooling (RES-H/C) energy for 19 countries: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom.*

	2005 [Mtoe]	2010 [Mtoe]	2015 [Mtoe]	2020 [Mtoe]	Share [%][a]	Share [%][b]	*Page*
Geothermal	0.4	0.5	1.0	1.9	2.1	0.9	*96*
Solar thermal	0.7	1.4	2.7	5.4	5.9	2.6	*102*
Solid biomass	43.9	44.7	52.9	64.4	70.3	30.6	*110*
Biogas[c]	0.6	1.4	2.4	4.2	4.6	2.0	*110*
Bioliquids	1.1	3.6	4.1	4.4	4.8	2.1	*110*
Biomass (subtotal)	45.6	49.6	59.3	72.9	79.6	34.6	*110*
Aerothermal heat pumps	0.1	2.3	3.7	6.1	6.7	2.9	*116*
Geothermal heat pumps	0.2	1.2	2.3	4.0	4.3	1.9	*116*
Hydrothermal heat pumps	0.0	0.2	0.3	0.5	0.6	0.2	*116*
Renewable energy from heat pumps (subtotal)	0.6	3.9	6.9	11.4	12.4	5.4	*116*
Total renewable heating and cooling	47.2	55.4	69.9	91.6	100.0	43.5	-

[a] The percentage refers to the share of the individual technologies in total renewable heating and cooling in the year 2020
[b] The percentage refers to the share of the individual technologies in total renewable energy (electricity, heating and cooling and transport) in the year 2020
[c] In 'biogas' the value for 'Bio-SNG for grid feed-in' as specified in the Dutch NREAP has been included

Table 3: *Average annual growth for renewable heating and cooling (RES-H/C) energy for 19 countries: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom.*

	2005 – 2010 [%/year]	2010 – 2015 [%/year]	2015 – 2020 [%/year]	*Page*
Geothermal	5.5	14.1	13.0	*97*
Solar thermal	15.1	14.2	15.2	*103*
Solid biomass	0.4	3.4	4.0	-
Biogas[a]	17.5	11.9	11.8	-
Bioliquids	26.3	2.3	1.4	-
Biomass (subtotal)	1.7	3.6	4.2	*109*
Aerothermal heat pumps	75.1	10.2	10.7	-
Geothermal heat pumps	36.8	14.7	11.8	-
Hydrothermal heat pumps	50.5	8.6	8.4	-
Renewable energy from heat pumps (subtotal)	46.3	12.1	10.6	*115*
Average renewable heating and cooling	3.2	4.8	5.6	-

[a] In 'biogas' the value for 'Bio-SNG for grid feed-in' as specified in the Dutch NREAP has been included
The growth rates for subcategories of technologies in this table have been calculated from the projections in Table 2

Table 4: *Total renewable electricity (RES-E) capacity and energy for 19 countries: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom.*

		2005	2010	2015	2020	[%][a]	[%][b]	*Page*
Hydropower < 1MW	[GW]	2.4	2.4	2.6	2.8			*42*
	[TWh]	10.3	9.7	10.1	10.8			*45*
	[Mtoe]	0.9	0.8	0.9	0.9	1.0	0.4	-
Hydropower 1MW – 10 MW	[GW]	8.5	9.0	9.9	11.1			*42*
	[TWh]	31.7	31.8	33.5	36.7			*45*
	[Mtoe]	2.7	2.7	2.9	3.2	3.3	1.5	-
Hydropower >10MW	[GW]	86.2	86.6	91.4	98.5			*42*
	[TWh]	270.8	265.8	269.7	276.7			*45*
	[Mtoe]	23.3	22.9	23.2	23.8	25.2	11.3	-
Pumped storage hydropower	[GW]	18.7	23.4	27.3	34.5			*42*
	[TWh]	23.5	22.9	27.0	31.9			*45*
	[Mtoe]	2.0	2.0	2.3	2.7	n.a.	n.a.	-
Hydropower (subtotal excluding pumped storage)	[GW]	103.6	106.3	112.8	122.0			*42*
	[TWh]	318.0	316.5	323.5	335.9			*45*
	[Mtoe]	27.3	27.2	27.8	28.9	30.6	13.7	-
Geothermal	[GW]	0.7	0.8	1.0	1.5			*50*
	[TWh]	5.5	6.0	7.3	10.4			*52*
	[Mtoe]	0.5	0.5	0.6	0.9	0.9	0.4	-
Solar photovoltaic	[GW]	2.2	23.4	51.7	80.7			*60*
	[TWh]	1.5	19.2	49.0	79.8			*63*
	[Mtoe]	0.1	1.7	4.2	6.9	7.3	3.3	-
Concentrated solar power	[GW]	0.0	0.6	3.6	7.0			*60*
	[TWh]	0.0	1.2	9.0	20.0			*63*
	[Mtoe]	0.0	0.1	0.8	1.7	1.8	0.8	-
Solar (subtotal)	[GW]	2.2	24.1	55.2	87.8			*60*
	[TWh]	1.5	20.4	58.1	99.8			*63*
	[Mtoe]	0.1	1.8	5.0	8.6	9.1	4.1	-
Tidal, wave and ocean energy	[GW]	0.2	0.2	0.4	2.1			*68*
	[TWh]	0.5	0.5	0.9	6.0			*70*
	[Mtoe]	0.0	0.0	0.1	0.5	0.5	0.2	-
Onshore wind	[GW]	39.4	79.1	117.3	152.6			*78*
	[TWh]	66.3	150.4	237.0	317.0			*81*
	[Mtoe]	5.7	12.9	20.4	27.3	28.9	12.9	-
Offshore wind	[GW]	0.7	2.5	14.3	40.4			*78*
	[TWh]	1.9	8.5	45.9	131.3			*81*
	[Mtoe]	0.2	0.7	3.9	11.3	12.0	5.4	-
Wind power (subtotal)	[GW]	40.0	81.8	132.3	195.5			*78*
	[TWh]	69.8	159.3	284.3	454.4			*81*
	[Mtoe]	6.0	13.7	24.4	39.1	41.4	18.5	-
Solid biomass	[GW]	10.0	13.1	17.6	22.7			*88*
	[TWh]	51.6	64.7	92.1	125.7			*91*
	[Mtoe]	4.4	5.6	7.9	10.8	11.5	5.1	-
Biogas	[GW]	2.5	5.1	6.8	8.9			*88*
	[TWh]	11.9	27.1	38.5	52.6			*91*
	[Mtoe]	1.0	2.3	3.3	4.5	4.8	2.1	-
Bioliquids	[GW]	0.4	1.0	1.4	1.7			*88*
	[TWh]	1.4	8.6	10.9	12.7			*91*
	[Mtoe]	0.1	0.7	0.9	1.1	1.2	0.5	-
Biomass (subtotal)	[GW]	15.0	21.0	28.1	36.2			*88*
	[TWh]	64.9	100.4	141.5	191.0			*91*
	[Mtoe]	5.6	8.6	12.2	16.4	17.4	7.8	-
Total renewable electricity	[TWh]	460.2	603.0	815.5	1097.5			-
	[Mtoe]	39.6	51.8	70.1	94.4	100.0	44.8	-

[a] The percentage refers to the share of the individual technologies in total renewable electricity in the year 2020
[b] The percentage refers to the share of the individual technologies in total renewable energy (electricity, heating and cooling and transport) in the year 2020

Table 5: *Average annual growth of renewable electricity (RES-E) capacity and energy for 19 countries: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom.*

		2005 – 2010 [%/year]	2010 – 2015 [%/year]	2015 – 2020 [%/year]	*Page*
Hydropower < 1MW	Capacity	0.3	1.4	1.5	-
	Energy	-1.3	0.8	1.3	-
Hydropower 1MW – 10 MW	Capacity	1.0	2.1	2.2	-
	Energy	0.1	1.0	1.9	-
Hydropower >10MW	Capacity	0.1	1.1	1.5	-
	Energy	-0.4	0.3	0.5	-
Pumped storage hydropower	Capacity	4.6	3.1	4.8	-
	Energy	-0.5	3.4	3.4	-
Hydropower (subtotal excluding pumped storage)	Capacity	0.5	1.2	1.6	*41*
	Energy	-0.1	0.4	0.8	*44*
Geothermal	Capacity	1.9	4.8	8.4	*51*
	Energy	1.8	4.0	7.4	*53*
Solar photovoltaic	Capacity	60.3	17.1	9.3	-
	Energy	67.3	20.6	10.2	-
Concentrated solar power	Capacity	n.a.	41.2	14.5	-
	Energy	n.a.	51.0	17.2	-
Solar (subtotal)	Capacity	61.1	18.1	9.7	*59*
	Energy	69.2	23.3	11.4	*62*
Tidal, wave and ocean energy	Capacity	0.4	8.7	41.7	*69*
	Energy	-1.3	11.5	47.3	*71*
Onshore wind	Capacity	15.0	8.2	5.4	-
	Energy	17.8	9.5	6.0	-
Offshore wind	Capacity	30.0	41.3	23.0	-
	Energy	34.7	40.1	23.4	-
Wind power (subtotal)	Capacity	15.3	10.1	8.1	*77*
	Energy	17.9	12.3	9.8	*80*
Solid biomass	Capacity	5.6	6.1	5.2	-
	Energy	4.6	7.3	6.4	-
Biogas	Capacity	14.7	6.2	5.4	-
	Energy	17.9	7.3	6.4	-
Bioliquids	Capacity	23.6	6.8	3.5	-
	Energy	43.1	4.9	3.1	-
Biomass (subtotal)	Capacity	6.9	6.0	5.2	*87*
	Energy	9.1	7.1	6.2	*90*
Average renewable electricity	Energy	5.6	6.2	6.1	-

The growth rates for subcategories of technologies in this table have been calculated from the projections in Table 4

Table 6: *Total renewable transport (RES-T) energy for 19 countries: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom.*

	2005 [Mtoe]	2010 [Mtoe]	2015 [Mtoe]	2020 [Mtoe]	Share [%][a]	Share [%][b]	*Page*
Bioethanol / bio-ETBE	0.5	2.4	4.2	6.0	21.7	2.9	*122*
Biodiesel	2.4	9.4	12.2	18.2	65.8	8.6	*128*
Hydrogen from renewables	0.0	0.0	0.0	0.0	0.0	-	*132*
Renewable electricity	1.0	1.2	1.8	2.9	10.4	-	*138*
Other biofuels	0.2	0.2	0.2	0.6	2.1	0.3	*146*
Total renewable transport[c]	4.1	13.2	18.4	27.7	100.0	-	-
Total renewable transport Article 5.1[d]	3.1	12.0	16.6	24.8	89.6	11.8	-

[a] The percentage refers to the share of the individual technologies in total renewable transport in the year 2020
[b] The percentage refers to the share of the individual technologies in total renewable energy (electricity, heating and cooling and transport) in the year 2020. This value is not available for electricity and hydrogen from renewable energy, see footnote *d*.
[c] The value 'Total renewable transport' has not been corrected as indicated in Article 5.1 of Directive 2009/28/EC.
[d] The 'Total renewable transport Article 5.1' has been calculated by substracting electricity and hydrogen from renewable energy values from 'Total renewable transport'. This is to avoid double counting as indicated in Article 5.1 of Directive 2009/28/EC. The category 'other biofuels' has not been applied for the correction. The resulting values are used for determining the overall renewable energy production in Table 1.

Table 7: *Average annual growth for renewable transport (RES-T) for 19 countries: Austria, Bulgaria, Cyprus, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Sweden, Slovenia and the United Kingdom.*

	2005 – 2010 [%/year]	2010 – 2015 [%/year]	2015 – 2020 [%/year]	*Page*
Bioethanol / bio-ETBE	36.7	12.2	7.5	*121*
Biodiesel	31.9	5.3	8.4	*127*
Hydrogen from renewables	n.a.	n.a.	n.a.	*133*
Renewable electricity	3.5	8.6	9.6	*139*
Other biofuels	1.2	1.9	20.1	*145*
Average renewable transport	26.6	6.9	8.5	-

1 Introduction

The Renewable Energy Directive (2009/28/EC) discusses various subjects related to the development of renewable energies in the European Member States, among others the legally binding share of renewable energy in gross final energy consumption. In Article 4 of the Directive each Member State is requested to provide a National Renewable Energy Action Plan (NREAP) by 30 June 2010. In order to draft this plan, a template was published by the Commission. Each Member State is obliged to complete a set of tables in this template on how it expects to meet its 2020 target, including the technology mix and the trajectory to reach it.

This report makes use of the fact that these tables have been defined in a consistent way. All data have been collected from the NREAP documents and three products are available from this:

- A data report: the current document integrates and aggregates where possible data from the individual countries, presents tables in various cross-sections and presents the data graphically;
- A set of figures: all figures from the data-report are available as separate graphic files;
- A database: all data have been entered in a database for further analysis by the audience.

These products are freely available for download from http://www.ecn.nl/nreap.

This first chapter explains the characteristics of this work, the target audience, limitations, countries considered. Data types are discussed, and the chapter ends with technical notes on the process of data transfer to the database. The further chapters in the report contain the actual figures and tables. Where necessary, figure and table captions and footnotes mention important information.

1.1 Target audience

This report is difficult to digest without context. It is therefore not the intention of the authors to provide a document for the general public, but rather to facilitate specialists to evaluate the NREAPs in an aggregate way. This target audience consists of researchers, national and European policy makers, journalists of on-topic magazines or other groups. The current report provides a general overview, where some details have been omitted in order to assist the reader. The above-mentioned database is more difficult to digest. It provides the full detail of a selection of the obligatory tables from all NREAPs and requires substantial modelling or spreadsheet skills.

1.2 Limitations of this work

Most NREAP documents have been provided in the national language. For collecting the data from these documents, the focus has been on the *tables* in the documents, notably Template[3] Tables 1, 2, 3, 4a, 4b, 6, 7, 7a, 8, 9, 10a, 10b, 11 and 12. The originally submitted document can contain important additional information in the text belonging to the data tables. In the current version of the data report and the database it has not been possible to consider this information.

[3]The Template is available in all European languages from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Only NREAPs available from the Transparency Platform on Renewable Energy[4] have been included. NREAPs might be available from national websites but not (yet) from the European Transparency Platform; those have not been included in this work.

Focus in the current report on evaluating the NREAP documents has been on the numbers and figures. All other subjects addressed in the documents, such as renewable energy policies, costs and benefits and grid integration issues have not been considered in the current analysis. Also, it was not the objective of this analysis to check whether the proposed policies indeed result in the projections made.

1.3 Countries considered in this version of the report

The deadline for submitting the NREAP documents was 30 June 2010. In practice, the first NREAPs were available for download from the European transparency platform starting from 2 July 2010. On 31 July 2010 a total number of 14 documents had been officially released. At the time of releasing the current version of the data report and database (10 September 2010) a total of 19 Member State NREAP documents are available from the Transparency Platform, all of which have been taken into account in the current version of this report . Table 8 indicates the current status.

[4]The Transparency Platform on Renewable Energy results from Article 24 of the Directive on renewable energy which requires the Commission to establish a platform for the publication of a range of documents about renewable energy. The Platform can be found at http://ec.europa.eu/energy/renewables/transparency_platform/transparency_platform_en.htm.

Table 8: *Progress in the release of the National Renewable Energy Action Plans (NREAPs) and the set of countries considered in this report (version of 10 September 2010)*

Country	Country code	July 2010	August 2010	Missing	In this report
Belgium	BE			x	
Bulgaria	BG	x			x
Czech Republic	CZ			x	
Denmark	DK	x			x
Germany	DE		x		x
Estonia	EE			x	
Ireland	IE	x			x
Greece	EL	x			x
Spain	ES	x			x
France	FR		x		x
Italy	IT		x		x
Cyprus	CY	x			x
Latvia	LV			x	
Lithuania	LT	x			x
Luxembourg	LU		x		x
Hungary	HU			x	
Malta	MT	x			x
Netherlands	NL	x			x
Austria	AT	x			x
Poland	PL			x	
Portugal	PT		x		x
Romania	RO			x	
Slovenia	SI	x			x
Slovakia	SK			x	
Finland	FI	x			x
Sweden	SE	x			x
United Kingdom	UK	x			x
Number of countries		14	5	8	19

1.4 Primary and secondary data

The figures and tables in the current report present two data categories:

- Primary data: numbers directly taken from the NREAP documents, at times in a different cross-section or in a different unit;
- Secondary data: data derived from the primary data, at times using other parameters.

The report presents figures of both primary and secondary data. For secondary data, mainly grey tones are used for the bars, in order to clearly distinguish from the primary data figures, for which more colors have been used. Primary and secondary data are discussed in more detail in the following sections.

1.4.1 Primary data

The primary data directly use the numbers from the action plans. They are presented in graphical and tabular form, mostly in a five-year interval. If applicable, all data are aggregated and listed as *total* or *average* numbers.

1.4.2 Secondary data

Taking the primary data as input, various derived parameters can be obtained. These secondary data assist the reader in further evaluating the primary data and/or to compare individual countries and/or to rank them. Note that the merit of these derived indicators is not so much to underpin the NREAP projections: they rather serve to correct for differences in country size. Four examples of derived secondary indicators are discussed below.

The *indicator on full load hours* applies to electricity options only. Based on primary electricity capacity [MW] and electricity production [GWh] as available through tables 10a and 10b of the NREAPs it shows the average amount of full load hours for all renewable electricity technologies. The indicator is meant to provide a common base for comparing the way in which technology parameter assumptions have been used in the various NREAP documents. The value does not necessarily represent a reference to technology characteristics in the real world.

The *indicator on growth rates* provides information on past and future average annual growth rates, based on the renewable energy projections. In the current version of the report, these rates have been calculated for a five-year and a ten-year period, both for the past (2005 - 2010) and prospective required growth rates (starting from the year 2010). For the reader it is interesting to see the resulting growth rates based on the projections, because these indicate the level of suitability of each renewable technology to individual Member States.

The *indicator on per capita achievement* relates the projected energy yield for each renewable technology to the number of inhabitants of a country. See table 9 for the assumptions. Note that instead of using a projection of the population data for the period under consideration, a fixed value has been chosen as a reference (namely the 2008 status). For the electricity options the per capita indicator has only been calculated for *production*, not for *capacity*. This yields a more common base of comparison, without the country-specific number of full load hours blurring the indicator value.

The *indicator on per surface area achievement* relates the projected energy yield for each renewable technology to the surface area of a country. See table 9 for underlying data.

Note that for the latter two indicators a bias exists among countries depending on their population density. As can be seen in Figure 1 most countries are characterised reasonably well by the line

indicating the average European population density. A minority of countries vary significantly from this average value: countries with a higher population density are Malta, Belgium, the Netherlands, Italy, the United Kingdom and Germany. Countries with a relatively low population density are Estonia, Latvia, Lithuania, Finland and Sweden.

1.5 Technical notes on the database transfer

All available data from the abovementioned set of tables from the Template have been entered into the database. In most cases this process was straightforward, but for a few data-entries difficulties emerged. In this section these difficulties are highlighted on a per-country basis, but not further elaborated. Examples of problems that occurred:

- Changed data labels (i.e. a row has been added to the Template);
- Data split into more categories than the Template prescribes;
- Alternative units used (this has been adopted as much as possible in the database);

Another important limitation faced in the process of the data-entry transfer is that footnotes and remarks in the texts in most cases have not been processed.

In case *total* values have not been displayed in an Action Plan, but the subcategories have, this has not been corrected in the database. In the current report a total sum has been calculated for completeness. The idea behind this is to keep the database as close as possible to the original templates and not to commit errors in cases where the totals have been omitted on purpose.

Note that the table numbers in the sections below refer to the Template and not to the current report, unless otherwise stated[5].

When mentioning 'the Directive' this means Directive 2009/28/EC[6].

1.5.1 Belgium

The NREAP has not been published on the Transparency Platform on Renewable Energy yet.

1.5.2 Bulgaria

For Template Tables 7 and 7a it is not clear what the unit is in which the data have been provided. It has been entered into the database as 'Unknown'.

1.5.3 Czech Republic

The NREAP has not been published on the Transparency Platform on Renewable Energy yet.

[5]The Template is available in all European languages from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT. For the purpose of compiling the current report the version in English has been used as a reference.

[6]The Directive is available in all European languages from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0028:EN:NOT. For the purpose of compiling the current report the version in English has been used as a reference.

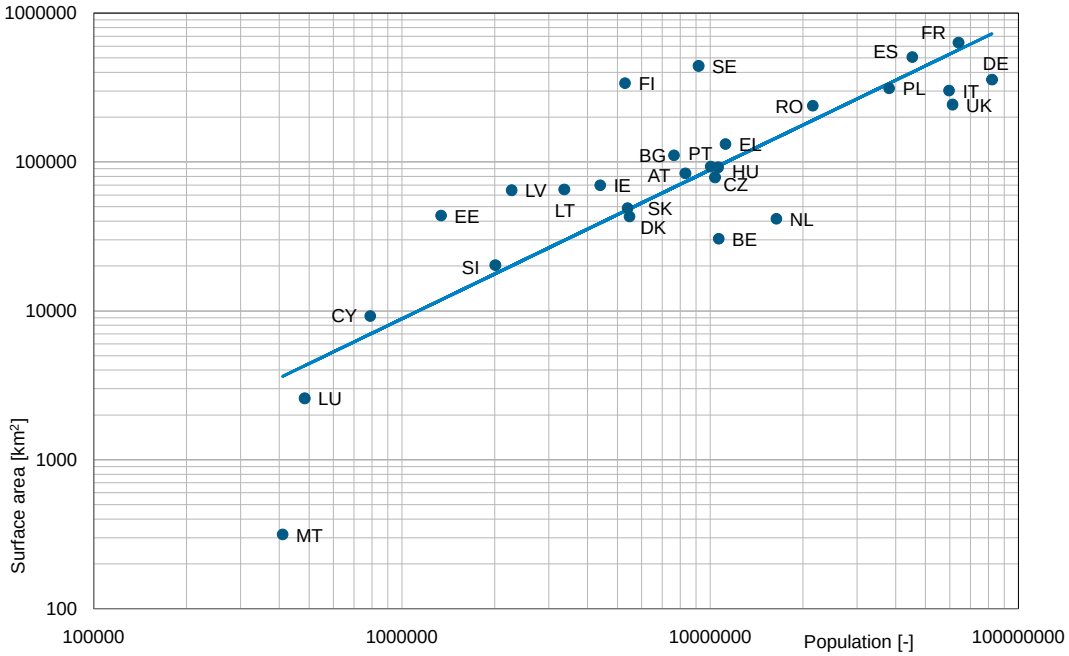


Figure 1: *Bias in countries based on population and surface area from Table 9. More densely populated countries can be found to the right of the line indicating the average population density*

Table 9: *Country data used for calculating indicators*

Country	Country code	Population 2008 [-]	Surface area [km^2]
Belgium	BE	10666866	30528
Bulgaria	BG	7640238	111002
Czech Republic	CZ	10381130	78867
Denmark	DK	5475791	43098
Germany	DE	82217837	357030
Estonia	EE	1340935	43698
Ireland	IE	4401335	69797
Greece	EL	11213785	131957
Spain	ES	45283259	505997
France	FR	63982881	632834
Italy	IT	59619290	301336
Cyprus	CY	789269	9250
Latvia	LV	2270894	64589
Lithuania	LT	3366357	65300
Luxembourg	LU	483799	2586
Hungary	HU	10045401	93030
Malta	MT	410290	316
Netherlands	NL	16405399	41528
Austria	AT	8318592	83871
Poland	PL	38115641	312685
Portugal	PT	10617575	92002
Romania	RO	21528627	238391
Slovenia	SI	2010269	20273
Slovakia	SK	5400998	49034
Finland	FI	5300484	338145
Sweden	SE	9182927	441370
United Kingdom	UK	61179256	243069
European Union (27 countries, total)	EU-27	497649125	4401582

Source: Eurostat, July 2010 (*Population on 1 January 2008* and *Area of the regions (2004)* respectively)

1.5.4 Denmark

The trajectory as depicted in Template Table 3 differs from the trajectory calculated from Annex I of the Directive. This is presented in more detail in Table 13 on page 33 of the current report. In Template Table 6 more detail is presented than prescribed by the Template. These values have not been considered in the database. Template Table 7 differs slightly from the predefined format. It is unclear what values refer to production and consumption, so the data have not been considered in the database.

1.5.5 Germany

In the German Action Plan Template Table 6 is not reported. Several issues have occured in Template Tables 7 and 7a: for th year 2006 imports from EU and non-EU countries are combined. All values have been reported in the database under 'EU'. Where in Template Table 7a ranges have been reported lower values have been entered into the database. For Template Table 8 other types of agricultural area have been specified. These however have not been considered for the database. In Template Table 12 upper and lower values have been specified for Article 21.2 fuels; lower values have been included in the database.

1.5.6 Estonia

The NREAP has not been published on the Transparency Platform on Renewable Energy yet.

1.5.7 Ireland

Row headers seem to be mixed in Template Table 1. Under 'Reduction for aviation limit' the total consumption after reduction for aviation limit seems to be reported. The aviation reduction has been recalculated and appears to be nonzero for the years 2005 and 2010 (both scenarios) only. For Table 7 and 7a the Action Plan does not report total values per subcategory. These total values have been calculated and entered into the database. For the year 2020 the subtotal specified for B1 cannot be reproduced from the low-level data. However, the value '595' has been entered into the database. In Template Table 11 the sum of the technologies do not add up to the specified total value for the years 2016 and 2017 (the specified total values are 7% and 3% higher respectively).

1.5.8 Greece

No problems encountered.

1.5.9 Spain

No data provided for Template Tables 6 and 8.

1.5.10 France

The French action plan reports values for 2008, which haven't been considered for the database and the current report. Table 4a in the first row has a typesetting problem for the year 2015: the value '8' is not considered. In Table 6 values for commercial and public sectors are aggregated under 'tertiary sector'. In the database, the aggregated values have been put under 'commercial'

in the database. In Table 7 for two values are reported for C1 (biodegradable fraction of municipal solid waste including biowaste). The value entered into the database is 50% of the waste incineration plus the amount of digestion input. In Table 7a data ranges are provided for 2015 and 2020. The values in the database are the lower values of these ranges. For category B2 (by-products and processed residues from agriculture and fisheries) a value for dry and wet mass is provided. The dry mass value has been included in the database. For 2020 in A1 (direct supply of wood biomass) ranges arereported for both forests and other wooded areas; the value reported in the database here is the sum of the lower value of both ranges. In Table 8 (land used for other energy crops) France reports the value to be negligable, which has been interpreted as *zero* in the database. In Template Tables 10a/b the capacity for pumped storage hydropower has been added to total hydropower, which is not according to the template. In Table 11 renewable energy from heat pumps aggregate values have been specified for geothermal and hydrothermal sources. In the database these values are reported under 'geothermal'. In Table 2 the value for S2005 has been adapted. According to the Directive a value of 10.3% should be reported, but a value of 9.6% is mentioned. The latter corresponds to the value provided for 2005 in Table 3. This lower value has been used as an input for calculating the indicative trajectory, which results in different reference values, see Table 18 of the current report.

1.5.11 Italy

Template Table 6 has been completed in a different way than has been done for the other countries: all categories add up to 100% instead of providing per-sector shares.

1.5.12 Cyprus

In Template Table 4b row J values reported in percentages instead of ktoe. No values have been entered into the database for this category. In Template Table 6 'industry' and 'services' are aggregated. In Template Tables 7 and 7a: in case of ranges the lower values have been entered into the database (this is the case for Table 7a categories A1, A2, C1 and C3). In Table 7 imports from EU and non-EU countries have been aggregated.

1.5.13 Latvia

The NREAP has not been published on the Transparency Platform on Renewable Energy yet.

1.5.14 Lithuania

Template Table 6 is not reported on. For Template Table 7 it is unclear in what unit is reported for 'Amount of domestic resource'. It is assumed for the database that all data are in m^3. In Template Table 10a/b there is no subdivision made for hydropower below 10 MW. In the database the reported category '<10 MW' is entered in the database category '1 – 10 MW' and the category '<1 MW' is reported 'not available'. In Template Table 11 no subcategorisation is specified for heat pumps. In Template Table 12 total values differ slightly from the sum of the individual contributions. Only for the year 2019 this is large: the value reported is 19% higher than calculated. In the database, the reported value has been entered.

1.5.15 Luxembourg

In Template Table 7 EU-import and non-EU-import have been aggregated.

1.5.16 Hungary

The NREAP has not been published on the Transparency Platform on Renewable Energy yet.

1.5.17 Malta

Template Table 6 could not be entered into the database as the categorisation doesn't correspond to Template. Template Table 10a/b specify 'small wind' separately. The values have been added to 'onshore wind' in the database.

1.5.18 Netherlands

In Template Tables 7, 10a/b, 11 and 12 only subcategories have been reported, these have been added for the database. In Template Table 7 category C1 also specifies an additional amount of landfill gas (1.9 TJ) which has not been covered in the subtotal in *ton ns* (wet basis). In Table 7a data have been reported in ranges for most subcategories. These data ranges have not been processed. In Template Table 11 an additional energy carrier is introduced: bio-SNG for grid feed-in. This option has been entered under the same name in the database.

1.5.19 Austria

The in NREAP calculated historic overal share of renewables for 2005 differs from the value in Annex I of the Directive. For the year 2005 the value from Template Tables 2 is thus not equal to the value in Template Table 3.

1.5.20 Poland

The NREAP has not been published on the Transparency Platform on Renewable Energy yet.

1.5.21 Portugal

Most table numbers in the Action Plan do not correspond to the numbers in the Template.In Template Table 2 the 2005 share of renewable energy does not correspond to the value in Annex A of the Directive (for example reported is 19.8% while Annex I mentions 20.5%). Also the trajectory from the Template Table 3 differs from the calucalated trajectory. For details see Table 26 on page 36 in the current report.

1.5.22 Romania

The NREAP has not been published on the Transparency Platform on Renewable Energy yet.

1.5.23 Slovenia

Minor deviations from Annex I of the Directive for the calculated renewable share in 2005 and the trajectory (2015 – 2019, see Table 27 on page 36 in the current report).

1.5.24 Slovakia

The NREAP has not been published on the Transparency Platform on Renewable Energy yet.

1.5.25 Finland

For Template Table 1 only one scenario is reported. The data are assumed to refer to the 'Additional energy efficiency scenario'. Template Tables 7a and 8 are not reported on.

1.5.26 Sweden

In Template Tables 7 different units have been applied. In Template Table 8, the category 'Land used for other energy crops' a nonnumerical value of 'less than 1000 ha' (<1000) has been entered into the database. In Template Tables 10a/b the capacity and energy for pumped storage hydropower has been added to total hydropower, which is not according to the template. In Template Tables 10a/b and 11 the values for liquid biomass seem not to to be added to the 'total biomass' category. Because they do appear to be included in the total value, no changes have been made regarding the database.

1.5.27 United Kingdom

Subcategorisation for hydropower differs from Template Table 10a/b, the breakdown has 20 MW as a reference value for most hydropower plants. This different subcategorisation cannot be considered in the database. Total values have been calculated for the period 2010 – 2020 by adding both provided categories. In Template Table 9 a deficit is reported, is which probably defined for a two-year period. As this does not meet the database format, the values have been attributed to the first years of the period mentioned (2011, 2013 and 2015). A formatting issue gives several values defined under 'district heating' and 'biomass in households' in Template Table 11 (2016 and 2020).

1.6 A living document

The current document will be revised in the period to come, possibly until all NREAPs have been released. At every update of the document it is possible that additional graphs, tables or indicators will be added. The reader might recognise that the graphs in the current report are not available on the level of individual technologies (for example *onshore* and *offshore* wind power) but only address the aggregate technologies (*wind power* in this example). The breakdown tables however do specify on the individual technologies for primary data, but not (yet) for secondary data, the derived indicators. Requests for additional cross-sections of the database or new indicators can be communicated to nreap@ecn.nl. Also corrections or other remarks are welcome.

2 Targets and trajectories

Annex I of Directive 2009/28/EC on the promotion of the use of energy from renewable sources (23 April 2009)[7] is composed of two important parts. Part A specifies the national overall targets for the share of energy from renewable sources for the year 2020 and a reference value for the year 2005. Part B defines by means of formulas an indicative trajectory for each Member State, that must be attained or exceeded in the reference years specified. As mentioned in Article 3.1 of the Directive, these mandatory national overall targets are consistent with a target of at least a 20% share of energy from renewable sources in the European Community's gross final consumption of energy in 2020.

In the current section the country-specific values for the reference values, the intermediate values and the final 2020 target for the individual Member States are presented. Table 10 shows the data from Annex I for all countries explicitly. Table 11 compares the 2005 and 2020 data from Annex I to the values from the NREAP documents. Both 2005 and 2020 values may vary; the first due to problems in reproducing the historic value and the latter for example by not reaching or by exceeding the target. Data from Table 11 are graphically displayed in Figure 2.

In Tables 12 to 30 the information from the abovementioned tables is compared on a per-country basis. It allows to see whether the trajectory is being met according to the NREAP documents.

[7]Directive 2009/28/EC is available from the Transparency Platform on renewable energy (http://ec.europa.eu/energy/renewables/transparency_platform/transparency_platform_en.htm). The direct link to the document in all European languages is http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0028:EN:NOT

Table 10: *Renewable energy shares from Annex I of the Directive [%]*

	Reference	Indicative trajectory				Target
	2005 [%]	2011-2012 [%]	2013-2014 [%]	2015-2016 [%]	2017-2018 [%]	2020 [%]
Belgium	2.2	4.4	5.4	7.1	9.2	13
Bulgaria	9.4	10.7	11.4	12.4	13.7	16
Czech Republic	6.1	7.5	8.2	9.2	10.6	13
Denmark	17.0	19.6	20.9	22.9	25.5	30
Germany	5.8	8.2	9.5	11.3	13.7	18
Estonia	18.0	19.4	20.1	21.2	22.6	25
Ireland	3.1	5.7	7.0	8.9	11.5	16
Greece	6.9	9.1	10.2	11.9	14.1	18
Spain	8.7	11.0	12.1	13.8	16.0	20
France	10.3	12.8	14.1	16.0	18.6	23
Italy	5.2	7.6	8.7	10.5	12.9	17
Cyprus	2.9	4.9	5.9	7.4	9.5	13
Latvia	32.6	34.1	34.8	35.9	37.4	40
Lithuania	15.0	16.6	17.4	18.6	20.2	23
Luxembourg	0.9	2.9	3.9	5.4	7.5	11
Hungary	4.3	6.0	6.9	8.2	10.0	13
Malta	0.0	2.0	3.0	4.5	6.5	10
Netherlands	2.4	4.7	5.9	7.6	9.9	14
Austria	23.3	25.4	26.5	28.1	30.3	34
Poland	7.2	8.8	9.5	10.7	12.3	15
Portugal	20.5	22.6	23.7	25.2	27.3	31
Romania	17.8	19.0	19.7	20.6	21.8	24
Slovenia	16.0	17.8	18.7	20.1	21.9	25
Slovakia	6.7	8.2	8.9	10.0	11.4	14
Finland	28.5	30.4	31.4	32.8	34.7	38
Sweden	39.8	41.6	42.6	43.9	45.8	49
United Kingdom	1.3	4.0	5.4	7.5	10.2	15

All percentages originate from Annex I of Directive 2009/28/EC. The indicative trajectory has been calculated from Part B of the Annex

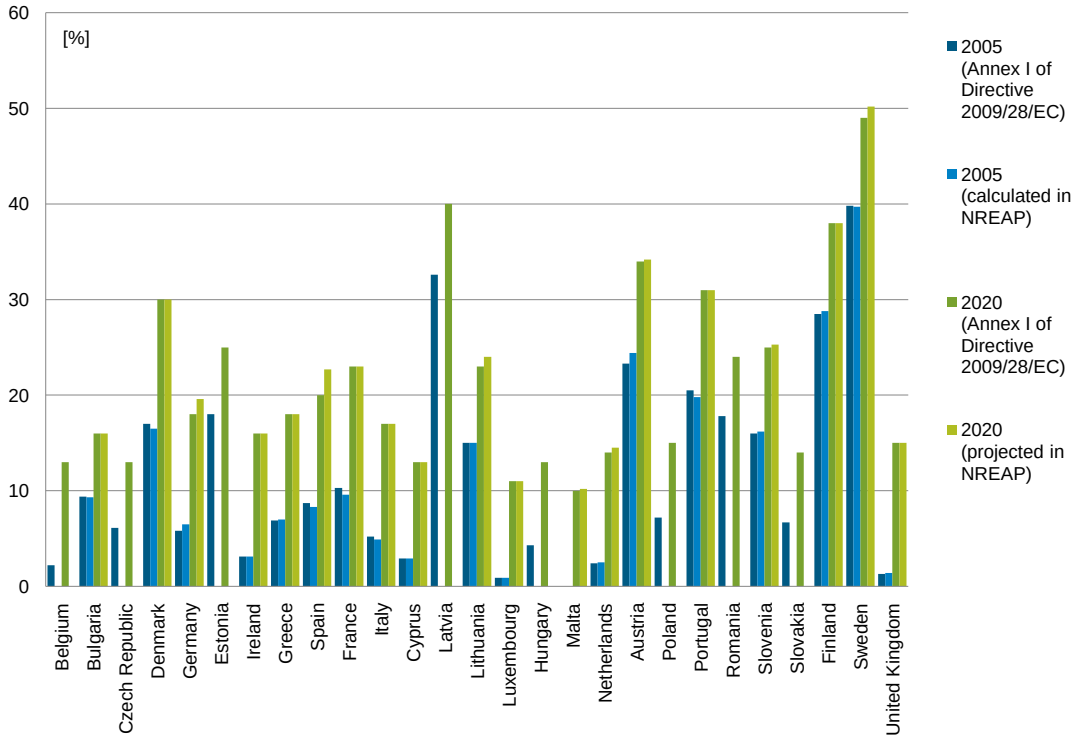


Figure 2: *Renewable energy shares according to Annex I of Directive 2009/28/EC and according to the NREAP documents (Table 3 of the Template)*

Table 11: *Renewable energy shares according to Annex I of Directive 2009/28/EC and according to the NREAP documents (Table 3 of the Template)*

	2005		2020	
	Target [%]	NREAP [%]	Target [%]	NREAP [%]
Belgium	2.2	n.a.	13.0	n.a.
Bulgaria	9.4	9.3	16.0	16.0
Czech Republic	6.1	n.a.	13.0	n.a.
Denmark	17.0	16.5	30.0	30.0
Germany	5.8	6.5	18.0	19.6
Estonia	18.0	n.a.	25.0	n.a.
Ireland	3.1	3.1	16.0	16.0
Greece	6.9	7.0	18.0	18.0
Spain	8.7	8.3	20.0	22.7
France	10.3	9.6	23.0	23.0
Italy	5.2	4.9	17.0	17.0
Cyprus	2.9	2.9	13.0	13.0
Latvia	32.6	n.a.	40.0	n.a.
Lithuania	15.0	15.0	23.0	24.0
Luxembourg	0.9	0.9	11.0	11.0
Hungary	4.3	n.a.	13.0	n.a.
Malta	0.0	n.a.	10.0	10.2
Netherlands	2.4	2.5	14.0	14.5
Austria	23.3	24.4	34.0	34.2
Poland	7.2	n.a.	15.0	n.a.
Portugal	20.5	19.8	31.0	31.0
Romania	17.8	n.a.	24.0	n.a.
Slovenia	16.0	16.2	25.0	25.3
Slovakia	6.7	n.a.	14.0	n.a.
Finland	28.5	28.8	38.0	38.0
Sweden	39.8	39.7	49.0	50.2
United Kingdom	1.3	1.4	15.0	15.0

Both reference (due to problems in reproduing the historic value) and target (for example by not reaching or by exceeding it) may vary between Annex I of the Directive and the data from the NREAP documents

Table 12: *Bulgaria: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	10.7	10.7	10.7	10.7	10.7
2013-2014	11.4	11.4	11.4	11.4	11.4
2015-2016	12.4	12.4	12.4	12.4	12.4
2017-2018	13.7	13.7	13.7	13.7	13.7
2020	16.0	16.0	16.0		16.0

For more detail on Bulgaria see the country factsheet on page 151. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 13: *Denmark: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	19.6	19.6	19.2	19.2	19.2
2013-2014	20.9	20.9	20.5	20.5	20.5
2015-2016	22.9	22.9	22.6	22.6	22.6
2017-2018	25.5	25.5	25.3	25.3	25.3
2020	30.0	30.0	30.0		30.0

For more detail on Denmark see the country factsheet on page 153. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 14: *Germany: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	8.2	8.2	10.8	11.4	11.1
2013-2014	9.5	9.5	12.0	12.8	12.4
2015-2016	11.3	11.3	13.5	14.4	14.0
2017-2018	13.7	13.7	15.7	16.7	16.2
2020	18.0	18.0	19.6		19.6

For more detail on Germany see the country factsheet on page 155. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 15: *Ireland: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	5.7	5.7	8.1	9.0	8.6
2013-2014	7.0	7.0	10.5	11.0	10.8
2015-2016	8.9	8.9	11.8	12.2	12.0
2017-2018	11.5	11.5	12.9	14.0	13.5
2020	16.0	16.0	16.0		16.0

For more detail on Ireland see the country factsheet on page 157. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 16: *Greece: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	9.1	9.1	8.8	9.5	9.2
2013-2014	10.2	10.2	9.9	10.5	10.2
2015-2016	11.9	11.9	11.4	12.4	11.9
2017-2018	14.1	14.1	13.7	14.6	14.2
2020	18.0	18.0	18.0		18.0

For more detail on Greece see the country factsheet on page 159. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 17: *Spain: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	11.0	11.0	14.2	14.8	14.5
2013-2014	12.1	12.1	15.4	16.5	16.0
2015-2016	13.8	13.8	17.4	18.3	17.9
2017-2018	16.0	16.1	19.4	20.4	19.9
2020	20.0	20.0	22.7		22.7

For more detail on Spain see the country factsheet on page 161. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 18: *France: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	12.8	12.2	13.5	14.0	13.8
2013-2014	14.1	13.5	15.0	16.0	15.5
2015-2016	16.0	15.5	17.0	18.0	17.5
2017-2018	18.6	18.3	19.5	20.5	20.0
2020	23.0	23.0	23.0		23.0

For more detail on France see the country factsheet on page 163. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 19: *Italy: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	7.6	7.6	8.7	9.2	9.0
2013-2014	8.7	8.7	9.9	10.5	10.2
2015-2016	10.5	10.5	11.2	12.0	11.6
2017-2018	12.9	12.9	12.9	13.8	13.4
2020	17.0	17.0	17.0		17.0

For more detail on Italy see the country factsheet on page 165. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 20: *Cyprus: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	4.9	4.9	6.8	7.1	7.0
2013-2014	5.9	5.9	7.8	8.4	8.1
2015-2016	7.4	7.5	9.0	9.7	9.4
2017-2018	9.5	9.5	10.4	11.2	10.8
2020	13.0	13.0	13.0		13.0

For more detail on Cyprus see the country factsheet on page 167. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 21: *Lithuania: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	16.6	16.6	17.0	18.0	17.5
2013-2014	17.4	17.4	19.0	20.0	19.5
2015-2016	18.6	18.6	21.0	22.0	21.5
2017-2018	20.2	20.2	24.0	24.0	24.0
2020	23.0	23.0	24.0		24.0

For more detail on Lithuania see the country factsheet on page 169. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 22: *Luxembourg: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	2.9	2.9	2.9	2.9	2.9
2013-2014	3.9	3.9	3.9	3.9	3.9
2015-2016	5.4	5.5	5.4	5.4	5.4
2017-2018	7.5	7.5	7.5	7.5	7.5
2020	11.0	11.0	11.0		11.0

For more detail on Luxembourg see the country factsheet on page 171. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 23: *Malta: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	2.0	2.0	2.3	2.6	2.5
2013-2014	3.0	3.0	3.8	5.4	4.6
2015-2016	4.5	4.5	5.5	6.8	6.2
2017-2018	6.5	6.5	9.7	9.6	9.7
2020	10.0	10.0	10.2		10.2

For more detail on Malta see the country factsheet on page 173. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 24: *Netherlands: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	4.7	4.7	4.6	5.6	5.1
2013-2014	5.9	5.9	6.6	7.7	7.2
2015-2016	7.6	7.6	8.5	9.7	9.1
2017-2018	9.9	9.9	10.9	12.1	11.5
2020	14.0	14.0	14.5		14.5

For more detail on Netherlands see the country factsheet on page 175. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 25: *Austria: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	25.4	25.4	31.1	31.4	31.3
2013-2014	26.5	26.5	31.6	31.9	31.8
2015-2016	28.1	28.1	32.1	32.4	32.3
2017-2018	30.3	30.3	32.8	33.2	33.0
2020	34.0	34.0	34.2		34.2

For more detail on Austria see the country factsheet on page 177. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 26: *Portugal: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	22.6	22.0	25.2	26.9	26.1
2013-2014	23.7	23.1	27.1	27.4	27.3
2015-2016	25.2	24.8	28.4	28.9	28.7
2017-2018	27.3	27.1	29.7	30.6	30.2
2020	31.0	31.0	31.0		31.0

For more detail on Portugal see the country factsheet on page 179. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 27: *Slovenia: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	17.8	17.8	18.2	18.7	18.5
2013-2014	18.7	18.7	19.5	20.1	19.8
2015-2016	20.1	20.0	21.2	21.8	21.5
2017-2018	21.9	21.8	22.4	23.6	23.0
2020	25.0	25.0	25.3		25.3

For more detail on Slovenia see the country factsheet on page 181. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 28: *Finland: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	30.4	30.4	30.1	31.0	30.6
2013-2014	31.4	31.4	31.6	32.2	31.9
2015-2016	32.8	32.8	32.6	33.6	33.1
2017-2018	34.7	34.7	34.7	35.7	35.2
2020	38.0	38.0	38.0		38.0

For more detail on Finland see the country factsheet on page 183. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 29: *Sweden: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	41.6	41.6	44.2	44.9	44.6
2013-2014	42.6	42.6	45.6	46.3	46.0
2015-2016	43.9	43.9	47.0	47.7	47.4
2017-2018	45.8	45.8	48.3	49.0	48.7
2020	49.0	49.0	50.2		50.2

For more detail on Sweden see the country factsheet on page 185. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Table 30: *United Kingdom: indicative trajectory for the overall renewable energy share [%] for the reference years as mentioned in Annex I part B of Directive 2009/28/EC*

Period	Annex I part B	NREAP			
		Template Table 3	First year	Second year	Average
	[%]	[%]	[%]	[%]	[%]
2011-2012	4.0	4.0	4.0	4.0	4.0
2013-2014	5.4	5.4	5.0	6.0	5.5
2015-2016	7.5	7.5	7.0	8.0	7.5
2017-2018	10.2	10.2	9.0	11.0	10.0
2020	15.0	15.0	15.0		15.0

For more detail on United Kingdom see the country factsheet on page 187. The reference to Table 3 is to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Hydropower

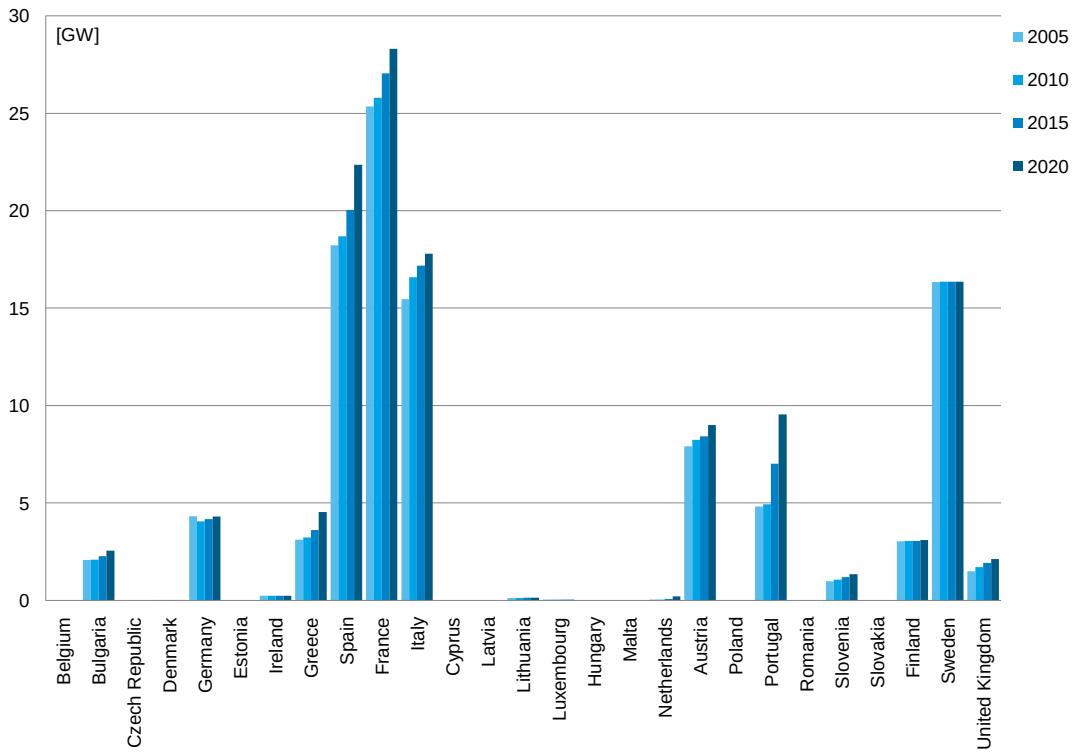


Figure 3: *Projected total hydropower electric capacity [GW] for the period 2005 - 2020, all capacity ranges excluding pumped storage*

Table 31: *Projected total hydropower electric capacity [MW] for the period 2005 - 2020, all capacity ranges excluding pumped storage*

	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	2078	2090	2280	2549	2
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	10	10	10	10	0
Germany	4329	4052	4165	4309	4
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	234	234	234	234	0
Greece	3107	3237	3615	4531	4
Spain	18220	18687	20049	22362	18
France	25349	25800	27050	28300	23
Italy	15466	16580	17190	17800	15
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	128	127	133	141	0
Luxembourg	34	38	38	44	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	37	47	68	203	0
Austria	7907	8235	8423	8997	7
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	4816	4934	7017	9548	8
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	981	1071	1193	1354	1
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	3040	3050	3050	3100	3
Sweden	16345	16350	16355	16360	13
United Kingdom	1501	1710	1920	2130	2
All Member States (total)	103582	106252	112790	121972	**100**

More information on subcategories for hydropower capacity is presented in Table 33 on page 42.
See Table 34 on page 43 for corresponding hydropower electricity production data.
Country information: *Total hydropower* in the NREAP for France and Sweden includes pumped storage capacity. The value for *All Member States (total)* should thus be lowered with approximately 4.3 GW in 2005 to 6.8 GW in 2020.

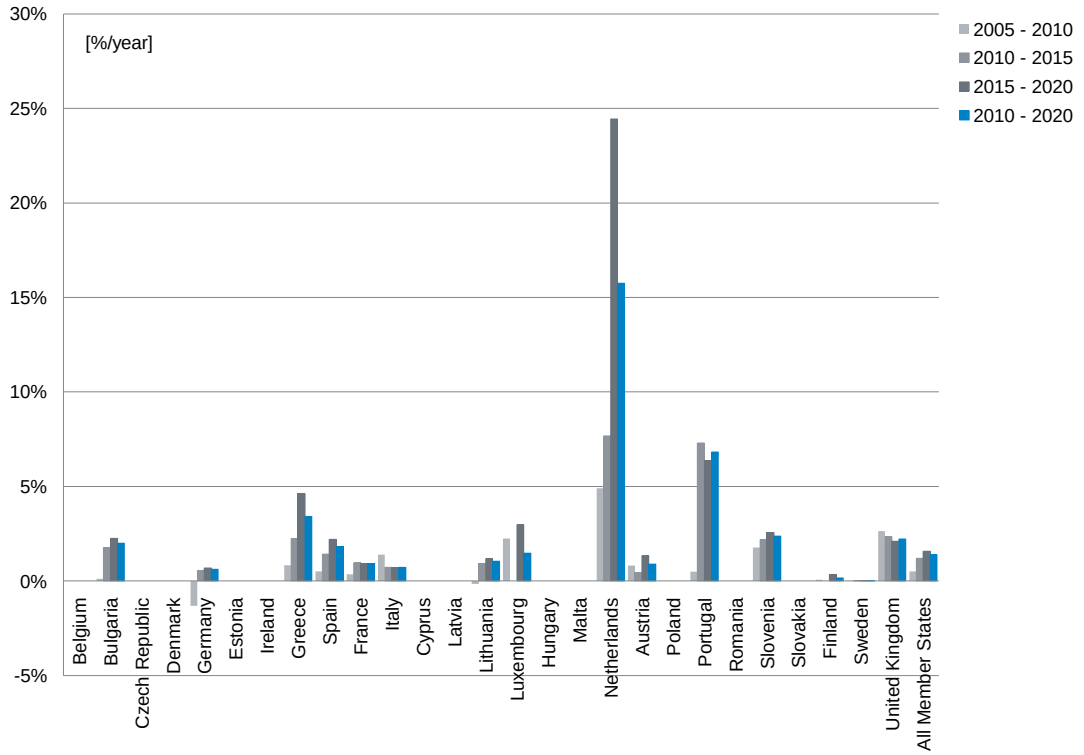


Figure 4: *Calculated average annual growth for electric capacity from hydropower [%/year] for four periods, all capacity ranges excluding pumped storage*

Table 32: *Calculated average annual growth for electric capacity from hydropower [%/year] for four periods, all capacity ranges excluding pumped storage*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0.1	1.8	2.3	2.0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0.0	0.0	0.0	0.0
Germany	-1.3	0.6	0.7	0.6
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0.0	0.0	0.0	0.0
Greece	0.8	2.2	4.6	3.4
Spain	0.5	1.4	2.2	1.8
France	0.4	1.0	0.9	0.9
Italy	1.4	0.7	0.7	0.7
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	-0.2	0.9	1.2	1.1
Luxembourg	2.2	0.0	3.0	1.5
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	4.9	7.7	24.5	15.8
Austria	0.8	0.5	1.3	0.9
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0.5	7.3	6.4	6.8
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	1.8	2.2	2.6	2.4
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0.1	0.0	0.3	0.2
Sweden	0.0	0.0	0.0	0.0
United Kingdom	2.6	2.3	2.1	2.2
All Member States (average)	0.5	1.2	1.6	1.4

0

Table 33: *Projected hydropower electric capacity [MW] for the period 2005 - 2020, broken down into capacity ranges and pumped storage capacity*

	Hydropower < 1MW				Hydropower 1MW – 10 MW				Hydropower >10MW				Pumped storage hydropower				Total hydropower			
	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2078	2090	2280	2549
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	10	10	10	10	0	0	0	0	0	0	0	0	10	10	10	10
Germany	641	507	534	564	1073	987	1012	1043	2615	2558	2620	2702	4012	6494	6494	7900	4329	4052	4165	4309
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	18	18	18	18	20	20	20	20	196	196	196	196	0	0	0	0	234	234	234	234
Greece	26	29	34	39	63	154	185	216	3018	3054	3396	4276	700	700	700	1580	3107	3237	3615	4531
Spain	239	242	253	268	1534	1603	1764	1917	16447	16842	18032	20177	2727	2546	3700	5700	18220	18687	20049	22362
France	433	441	462	483	1618	1647	1727	1897	18995	19333	20269	21206	4303	4800	5800	6800	25349	25800	27050	28300
Italy	391	444	547	650	1947	2250	2750	3250	13128	13886	13893	13900	1334	2399	2499	2600	15466	16580	17190	17800
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.	27	26	32	40	101	101	101	101	0	0	0	0	128	127	133	141
Luxembourg	2	2	2	3	32	36	36	41	0	0	0	0	1100	1100	1300	1300	34	38	38	44
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	0	0	37	47	68	203
Austria	308	455	465	497	692	726	743	794	6907	7053	7215	7707	3929	4285	4285	4285	7907	8235	8423	8997
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	n.a.	n.a.	n.a.	323	410	550	750	4496	4524	6467	8798	537	1036	2454	4302	4816	4934	7017	9548
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	108	118	120	120	37	37	52	57	836	916	1021	1194	0	0	0	0	981	1071	1193	1354
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	30	30	30	30	280	280	280	280	2730	2750	2750	2790	0	0	0	0	3040	3050	3050	3100
Sweden	140	140	140	140	765	765	765	765	15397	15402	15407	15412	43	43	43	43	16345	16350	16355	16360
United Kingdom	56	n.a.	n.a.	n.a.	102	n.a.	n.a.	n.a.	1343	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1501	1710	1920	2130
All Member States (total)	2392	2426	2605	2812	8523	8951	9926	11080	86209	86615	91367	98459	18685	23403	27275	34510	103582	106252	112790	121972

See Table 36 on page 45 for corresponding hydropower electricity production data.

Country information: *Total hydropower* in the NREAP for France and Sweden includes pumped storage capacity. The value for *All Member States (total)* should thus be lowered with approximately 4.3 GW in 2005 to 6.8 GW in 2020.

A breakdown in capacity ranges has not been provided for Bulgaria, the Netherlands and the United Kingdom. Therefore, the sum of all categories is lower than the value for *All Member States (total)*.

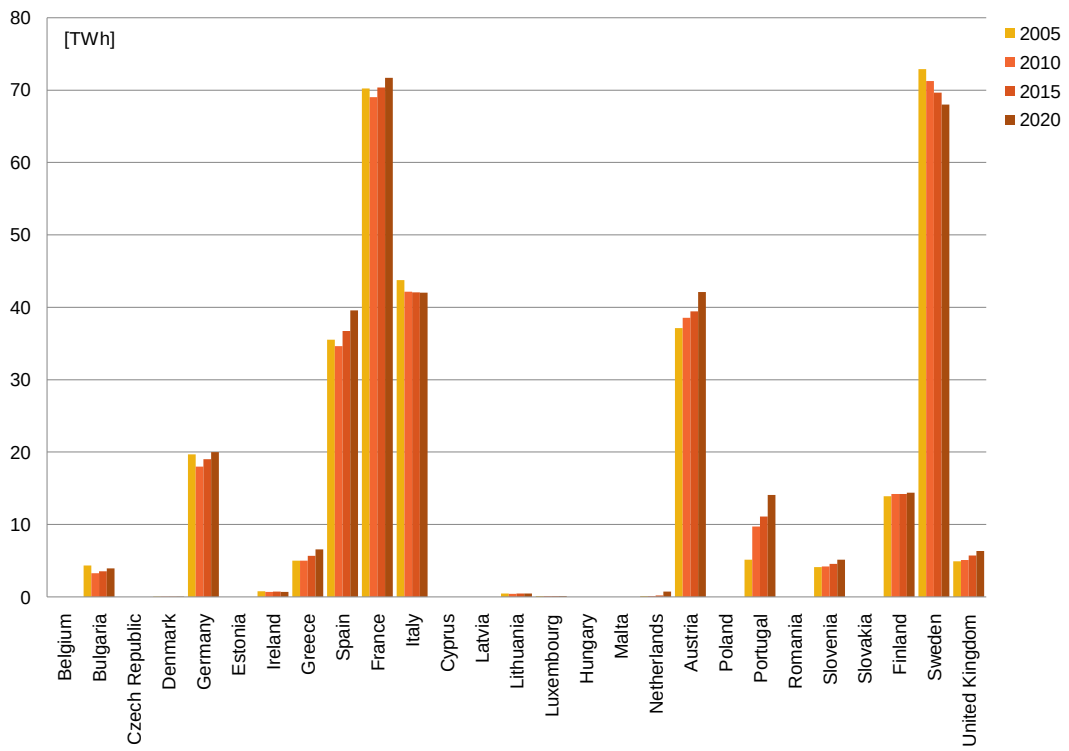


Figure 5: *Projected total hydropower electricity generation [TWh] for the period 2005 - 2020, all capacity ranges excluding pumped storage*

Table 34: *Projected total hydropower electricity generation [GWh] for the period 2005 - 2020, all capacity ranges excluding pumped storage*

	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	4336	3260	3534	3951	1
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	23	31	31	31	0
Germany	19687	18000	19000	20000	6
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	760	701	714	701	0
Greece	5017	4988	5684	6576	2
Spain	35503	34617	36732	39593	12
France	70240	69024	70363	71703	21
Italy	43768	42141	42070	42000	13
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	451	432	446	470	0
Luxembourg	98	107	107	124	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	89	128	200	714	0
Austria	37125	38542	39423	42112	13
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	5118	9742	11101	14074	4
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	4099	4198	4559	5121	2
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	13910	14210	14210	14410	4
Sweden	72874	71249	69625	68000	20
United Kingdom	4921	5100	5730	6360	2
All Member States (total)	318019	316470	323529	335940	**100**

More information on subcategories for hydropower electricity generation is presented in Table 36 on page 45.
See Table 31 on page 40 for corresponding hydropower capacity data.
Country information: *Total hydropower* in the NREAP for Sweden includes energy production from pumped storage. The value for *All Member States (total)* should thus be lowered with 71 GWh (all years, see Table 36).

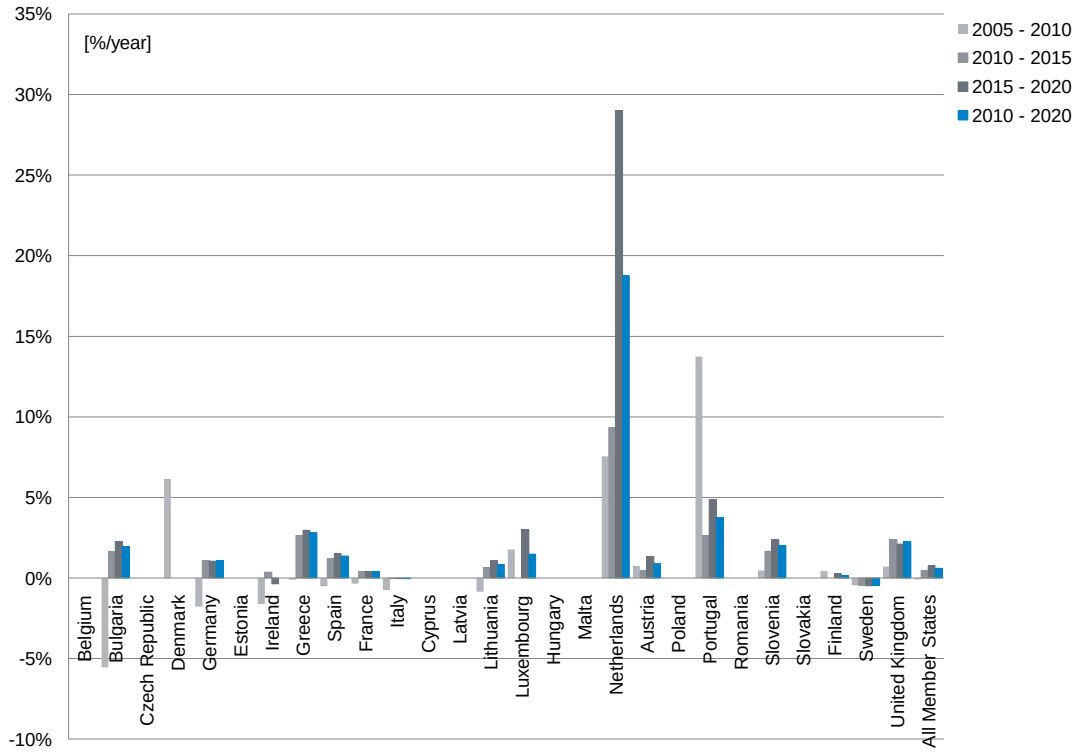


Figure 6: *Calculated average annual growth for electricity generation from hydropower [%/year] for four periods, all capacity ranges excluding pumped storage*

Table 35: *Calculated average annual growth for electricity generation from hydropower [%/year] for four periods, all capacity ranges excluding pumped storage*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	-5.5	1.6	2.3	1.9
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	6.2	0.0	0.0	0.0
Germany	-1.8	1.1	1.0	1.1
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	-1.6	0.4	-0.4	0.0
Greece	-0.1	2.6	3.0	2.8
Spain	-0.5	1.2	1.5	1.4
France	-0.3	0.4	0.4	0.4
Italy	-0.8	0.0	0.0	0.0
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	-0.9	0.6	1.1	0.8
Luxembourg	1.8	0.0	3.0	1.5
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	7.5	9.3	29.0	18.8
Austria	0.8	0.5	1.3	0.9
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	13.7	2.6	4.9	3.7
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0.5	1.7	2.4	2.0
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0.4	0.0	0.3	0.1
Sweden	-0.5	-0.5	-0.5	-0.5
United Kingdom	0.7	2.4	2.1	2.2
All Member States (average)	-0.1	0.4	0.8	0.6

No footnote

Table 36: *Projected hydropower electricity generation [GWh] for the period 2005 - 2020, broken down into capacity ranges and pumped storage capacity*

	Hydropower < 1MW				Hydropower 1MW – 10 MW				Hydropower >10MW				Pumped storage hydropower				Total hydropower			
	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4336	3260	3534	3951
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	23	31	31	31	0	0	0	0	0	0	0	0	23	31	31	31
Germany	3157	2300	2450	2550	3560	4050	4250	4500	12971	11650	12300	12950	7786	6989	6989	8395	19687	18000	19000	20000
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	0	0	760	701	714	701
Greece	106	112	131	150	218	593	713	833	4693	4283	4840	5593	593	776	774	1703	5017	4988	5684	6576
Spain	893	831	715	803	5719	4973	4617	5477	28891	28813	31399	33314	5153	3640	6577	8023	35503	34617	36732	39593
France	1796	1694	1727	1759	6111	5766	5878	5990	62332	61563	62758	63953	4705	5130	6199	7268	70240	69024	70363	71703
Italy	1851	1737	2009	2281	7391	7459	8627	9796	34525	32946	31434	29923	1268	2739	2734	2730	43768	42141	42070	42000
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.	66	79	93	117	385	353	353	353	0	0	0	0	451	432	446	470
Luxembourg	5	6	6	7	93	100	100	117	0	0	0	0	785	785	928	928	98	107	107	124
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	0	0	89	128	200	714
Austria	1448	2129	2178	2326	3247	3400	3477	3715	32430	33013	33768	36071	2738	2732	2732	2732	37125	38542	39423	42112
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	n.a.	n.a.	n.a.	381	827	1108	1511	4737	8916	9993	12562	387	0	0	0	5118	9742	11101	14074
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	451	262	270	270	155	192	247	270	3493	3744	4042	4581	0	0	0	0	4099	4198	4559	5121
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	140	150	150	150	1260	1290	1290	1310	12510	12780	12780	12960	0	0	0	0	13910	14210	14210	14410
Sweden	458	458	458	458	3027	3027	3027	3027	69318	67693	66069	64444	71	71	71	71	72874	71249	69625	68000
United Kingdom	44	n.a.	n.a.	n.a.	399	n.a.	n.a.	n.a.	4478	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4921	5100	5730	6360
All Member States (total)	10349	9679	10094	10754	31650	31787	33458	36694	270763	265754	269736	276704	23486	22862	27004	31850	318019	316470	323529	335940

See Table 33 on page 42 for corresponding hydropower capacity data.

Country information: *Total hydropower* in the NREAP for Sweden includes energy production from pumped storage. The value for *All Member States (total)* should thus be lowered with 71 GWh (all years, see Table 36).

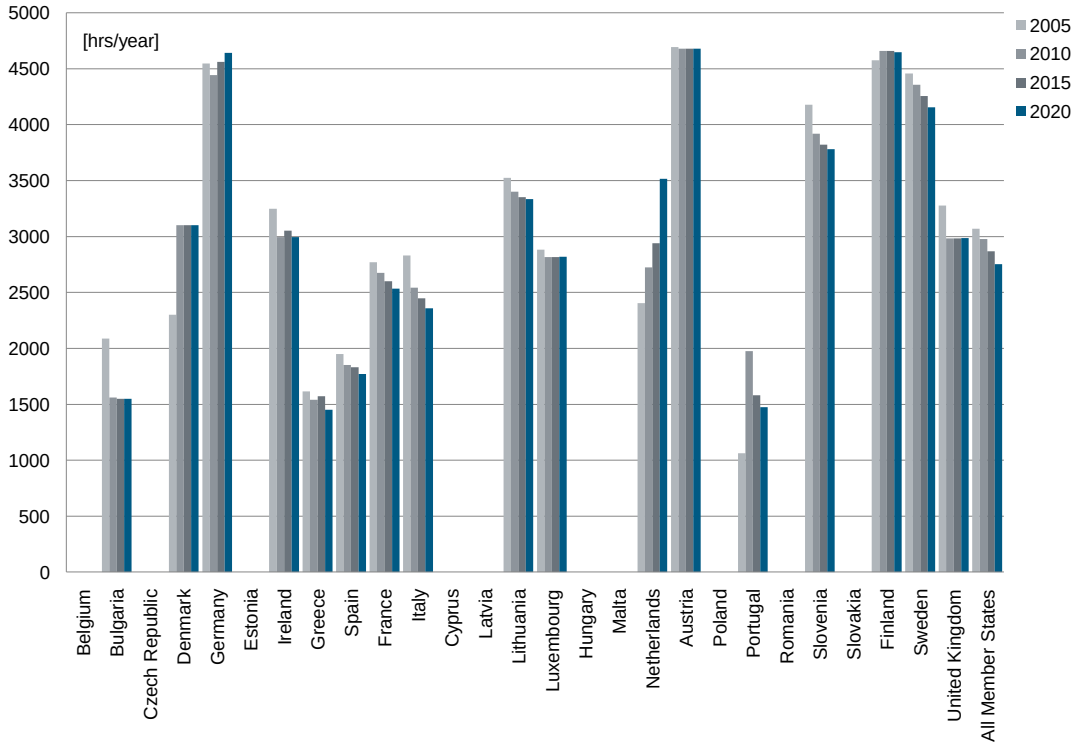


Figure 7: *Calculated average number of full load hours for total hydropower [hrs/year] for the period 2005 - 2020*

Table 37: *Calculated average number of full load hours for total hydropower [hrs/year] for the period 2005 - 2020*

	2005 [hrs/year]	2010 [hrs/year]	2015 [hrs/year]	2020 [hrs/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	2087	1560	1550	1550
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	2300	3100	3100	3100
Germany	4548	4442	4562	4641
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	3248	2996	3051	2996
Greece	1615	1541	1572	1451
Spain	1949	1852	1832	1771
France	2771	2675	2601	2534
Italy	2830	2542	2447	2360
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	3523	3402	3353	3333
Luxembourg	2882	2816	2816	2818
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	2405	2723	2941	3517
Austria	4695	4680	4680	4681
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	1063	1974	1582	1474
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	4178	3920	3821	3782
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	4576	4659	4659	4648
Sweden	4458	4358	4257	4156
United Kingdom	3278	2982	2984	2986
All Member States (average)	3070	2978	2868	2754

The capacity [MW] used for the calculation refers to the capacity data without pumped storage and also the electricity production [GWh] is excluding pumped storage

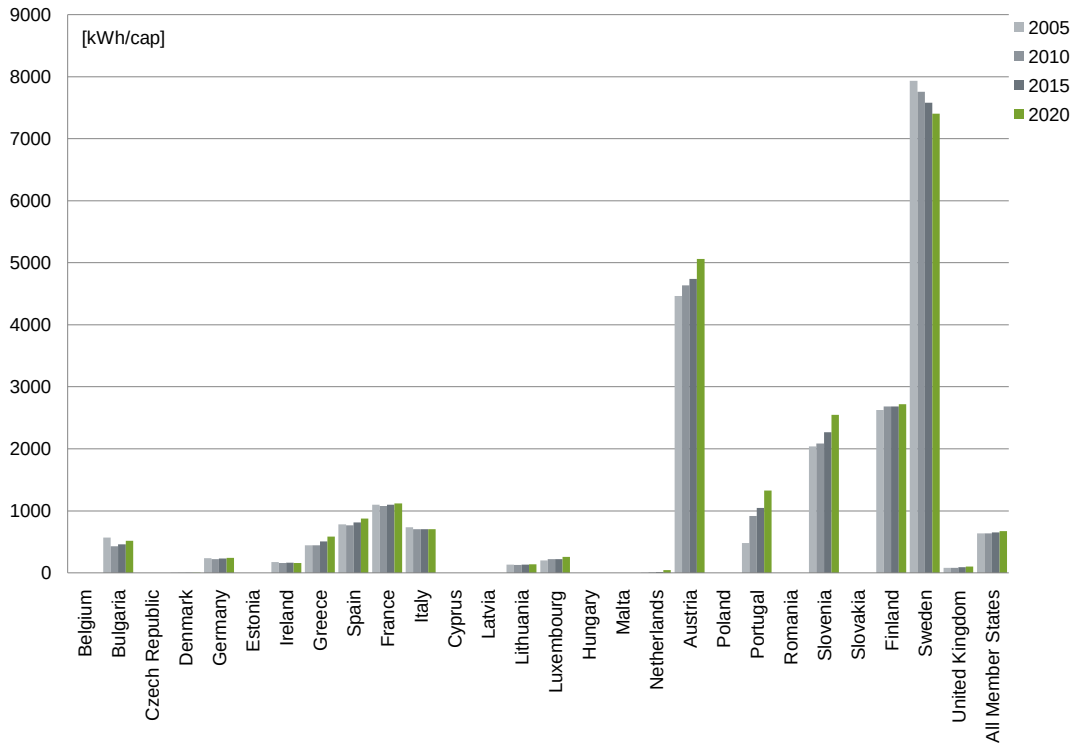


Figure 8: *Calculated per capita (2008) electricity generation for total hydropower [kWh/cap] for the period 2005 - 2020*

Table 38: *Calculated per capita (2008) electricity generation for total hydropower [kWh/cap] for the period 2005 - 2020*

	2005 [kWh/cap]	2010 [kWh/cap]	2015 [kWh/cap]	2020 [kWh/cap]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	568	427	463	517
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	4	6	6	6
Germany	239	219	231	243
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	173	159	162	159
Greece	447	445	507	586
Spain	784	764	811	874
France	1098	1079	1100	1121
Italy	734	707	706	704
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	134	128	132	140
Luxembourg	203	221	221	256
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	5	8	12	44
Austria	4463	4633	4739	5062
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	482	918	1046	1326
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	2039	2088	2268	2547
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	2624	2681	2681	2719
Sweden	7936	7759	7582	7405
United Kingdom	80	83	94	104
All Member States (average)	639	636	650	675

The electricity production [GWh] used for the calculation is excluding pumped storage.
The population data can be viewed in Table 9 (page 25)

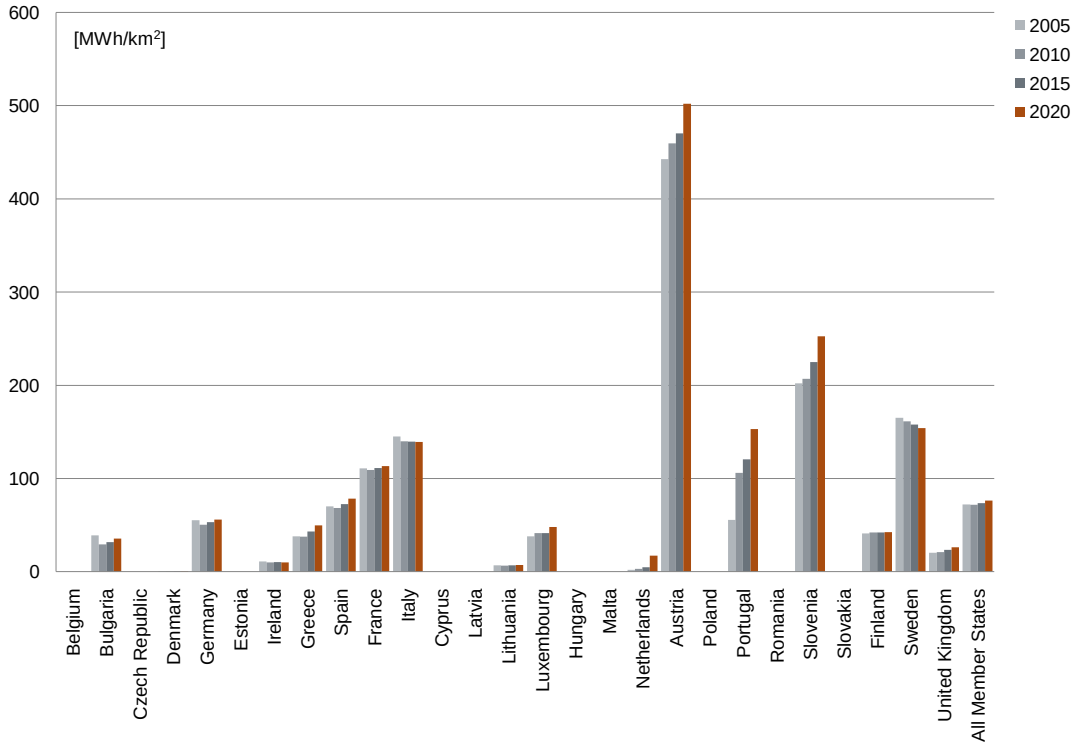


Figure 9: *Calculated per surface area (2004) electricity generation for total hydropower [MWh/km^2] for the period 2005 - 2020*

Table 39: *Calculated per surface area (2004) electricity generation for total hydropower [MWh/km^2] for the period 2005 - 2020*

	2005 [MWh/km^2]	2010 [MWh/km^2]	2015 [MWh/km^2]	2020 [MWh/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	39.1	29.4	31.8	35.6
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0.5	0.7	0.7	0.7
Germany	55.1	50.4	53.2	56.0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	10.9	10.0	10.2	10.0
Greece	38.0	37.8	43.1	49.8
Spain	70.2	68.4	72.6	78.2
France	111.0	109.1	111.2	113.3
Italy	145.2	139.8	139.6	139.4
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	6.9	6.6	6.8	7.2
Luxembourg	37.9	41.4	41.4	48.0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	2.1	3.1	4.8	17.2
Austria	442.6	459.5	470.0	502.1
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	55.6	105.9	120.7	153.0
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	202.2	207.1	224.9	252.6
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	41.1	42.0	42.0	42.6
Sweden	165.1	161.4	157.7	154.1
United Kingdom	20.2	21.0	23.6	26.2
All Member States (average)	72.3	71.9	73.5	76.3

The electricity production [GWh] used for the calculation is excluding pumped storage.
The surface area data can be viewed in Table 9 (page 25)

Deep geothermal electricity

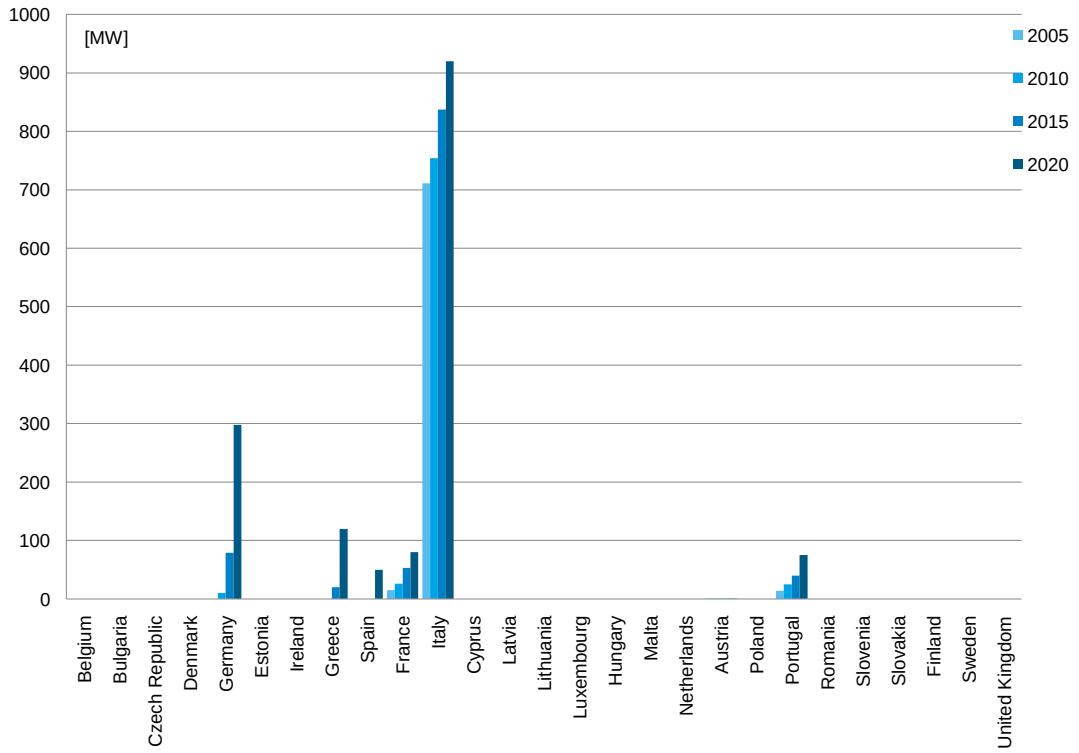


Figure 10: *Projected geothermal electric capacity [MW] for the period 2005 - 2020*

Table 40: *Projected geothermal electric capacity [MW] for the period 2005 - 2020*

	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	0
Germany	0	10	79	298	19
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0	0
Greece	0	0	20	120	8
Spain	0	0	0	50	3
France	15	26	53	80	5
Italy	711	754	837	920	60
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0
Luxembourg	0	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0	0
Austria	1	1	1	1	0
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	14	25	40	75	5
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	0	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0
Sweden	n.a.	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.	n.a.
All Member States (total)	741	816	1030	1544	**100**

See Table 42 on page 52 for corresponding geothermal electricity production data.

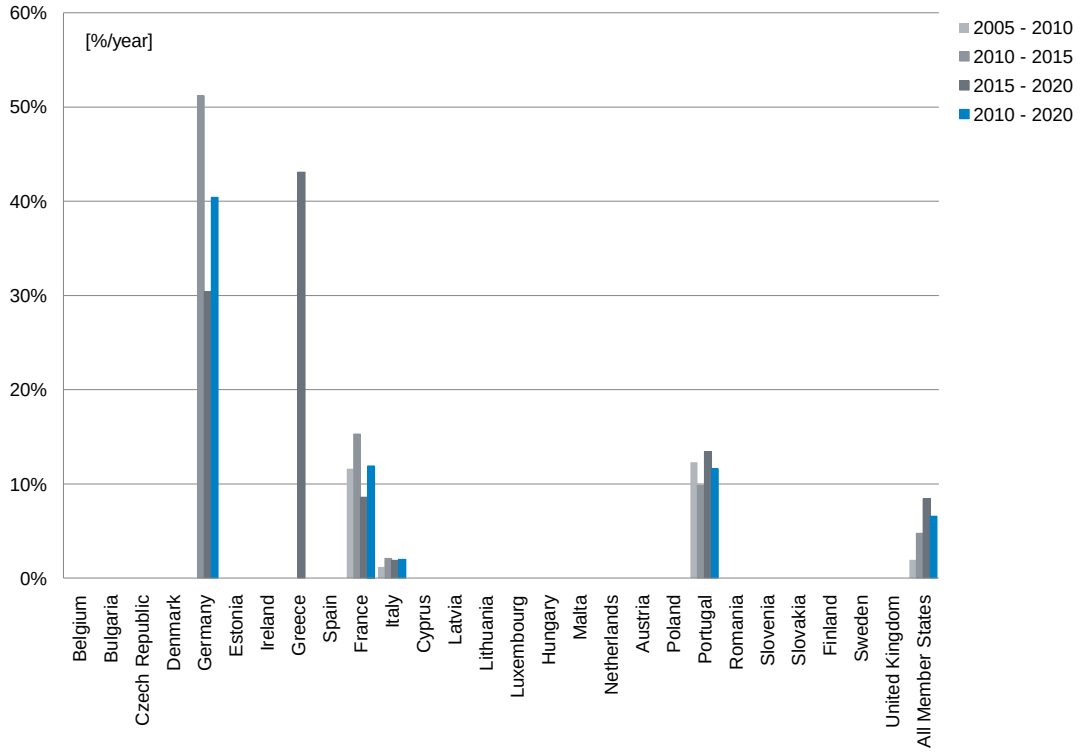


Figure 11: *Calculated average annual growth for capacity of geothermal electricity [%/year] for four periods*

Table 41: *Calculated average annual growth for capacity of geothermal electricity [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	n.a.	51.2	30.4	40.4
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	n.a.	n.a.	43.1	n.a.
Spain	n.a.	n.a.	n.a.	n.a.
France	11.6	15.3	8.6	11.9
Italy	1.2	2.1	1.9	2.0
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	0.0	0.0	0.0	0.0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	12.3	9.9	13.4	11.6
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	1.9	4.8	8.4	6.6

Note that a step from 0 MW to a nonzero value in the next period will result in an 'n.a.' entry in the table.

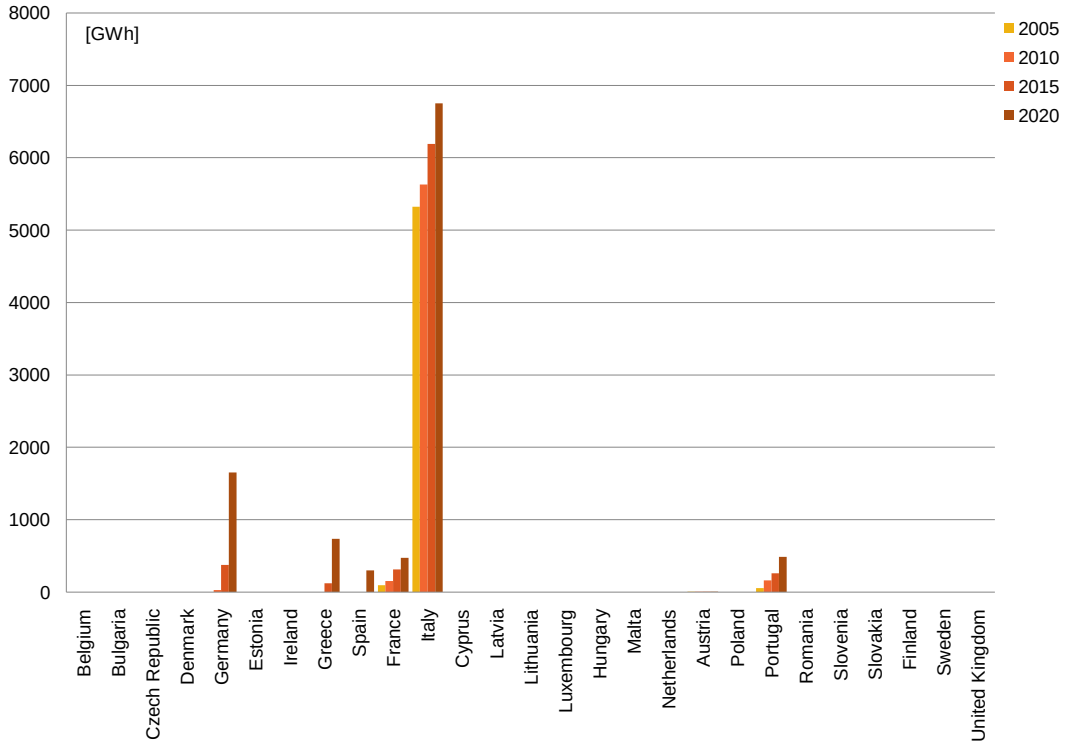


Figure 12: *Projected geothermal electricity generation [GWh] for the period 2005 - 2020, all capacity ranges excluding pumped storage*

Table 42: *Projected geothermal electricity generation [GWh] for the period 2005 - 2020*

	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	0
Germany	0	27	377	1654	16
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0	0
Greece	n.a.	0	123	736	7
Spain	0	0	0	300	3
France	95	153	314	475	5
Italy	5325	5632	6191	6750	65
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0
Luxembourg	0	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0	0
Austria	2	2	2	2	0
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	55	163	260	488	5
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	0	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0
Sweden	n.a.	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.	n.a.
All Member States (total)	5477	5977	7267	10405	**100**

See Table 40 on page 50 for corresponding geothermal electricity capacity data.

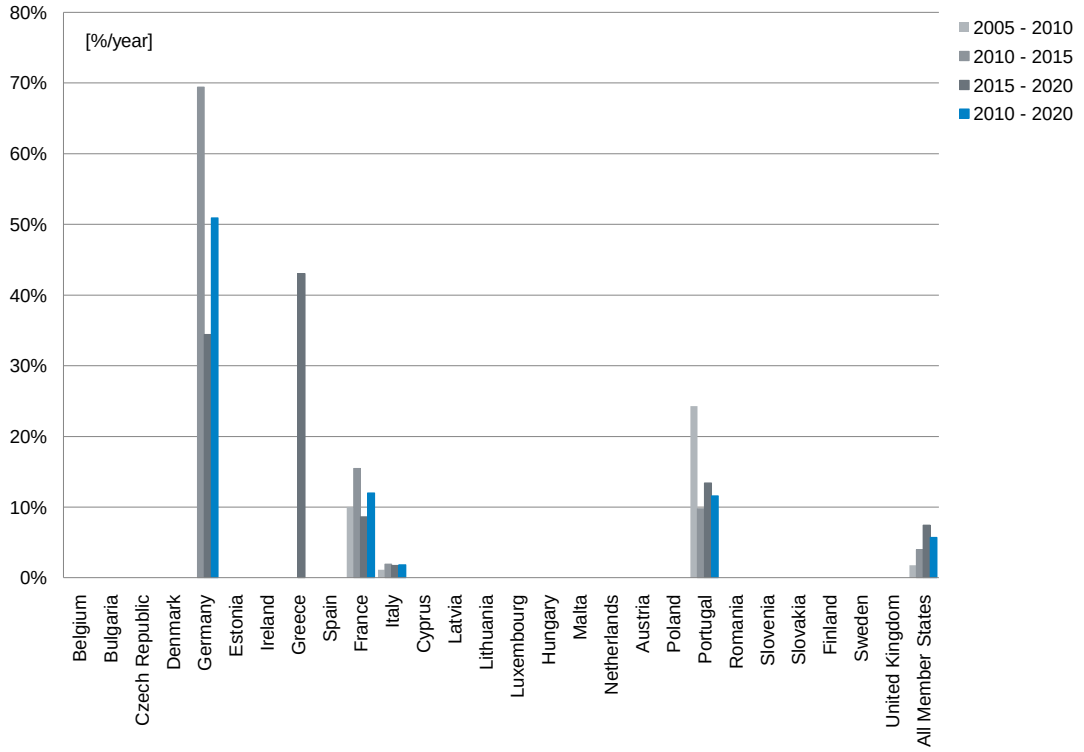


Figure 13: *Calculated average annual growth for generation of geothermal electricity [%/year] for four periods*

Table 43: *Calculated average annual growth for generation of geothermal electricity [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	n.a.	69.4	34.4	50.9
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	n.a.	n.a.	43.0	n.a.
Spain	n.a.	n.a.	n.a.	n.a.
France	10.0	15.5	8.6	12.0
Italy	1.1	1.9	1.7	1.8
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	0.0	0.0	0.0	0.0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	24.3	9.8	13.4	11.6
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	1.8	4.0	7.4	5.7

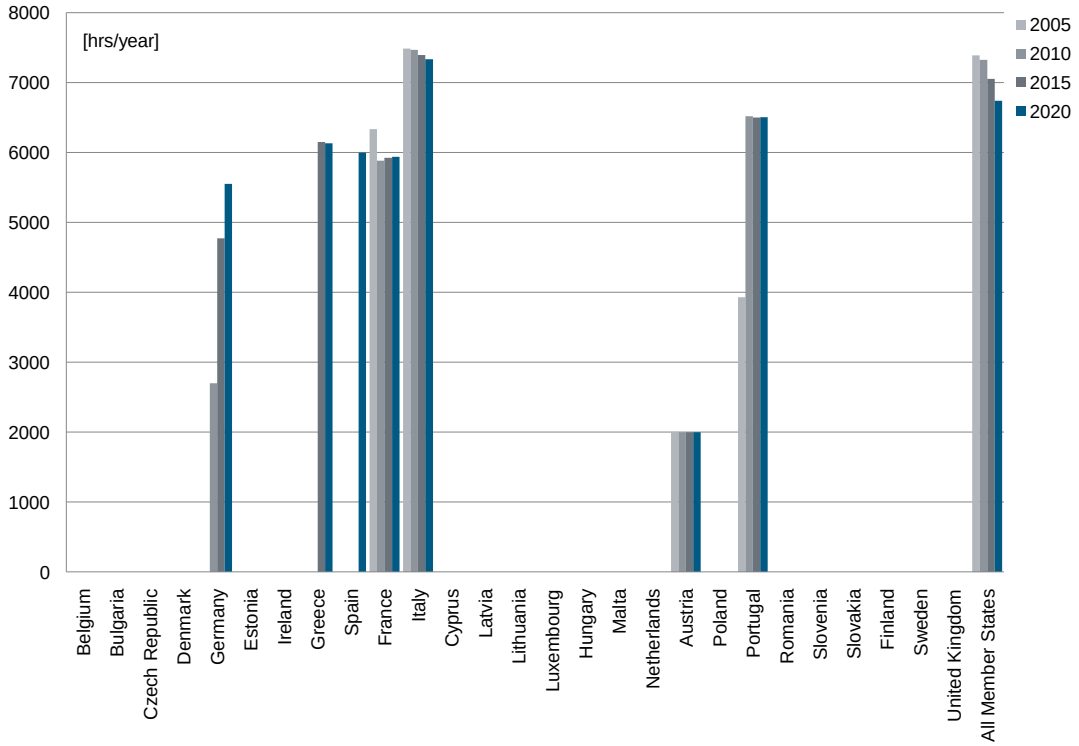


Figure 14: *Calculated average number of full load hours for geothermal electricity [hrs/year] for the period 2005 - 2020*

Table 44: *Calculated average number of full load hours for geothermal electricity [hrs/year] for the period 2005 - 2020*

	2005 [hrs/year]	2010 [hrs/year]	2015 [hrs/year]	2020 [hrs/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	n.a.	2700	4772	5550
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	n.a.	n.a.	6150	6133
Spain	n.a.	n.a.	n.a.	6000
France	6333	5885	5925	5938
Italy	7489	7469	7397	7337
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	2000	2000	2000	2000
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	3929	6520	6500	6507
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	7391	7325	7055	6739

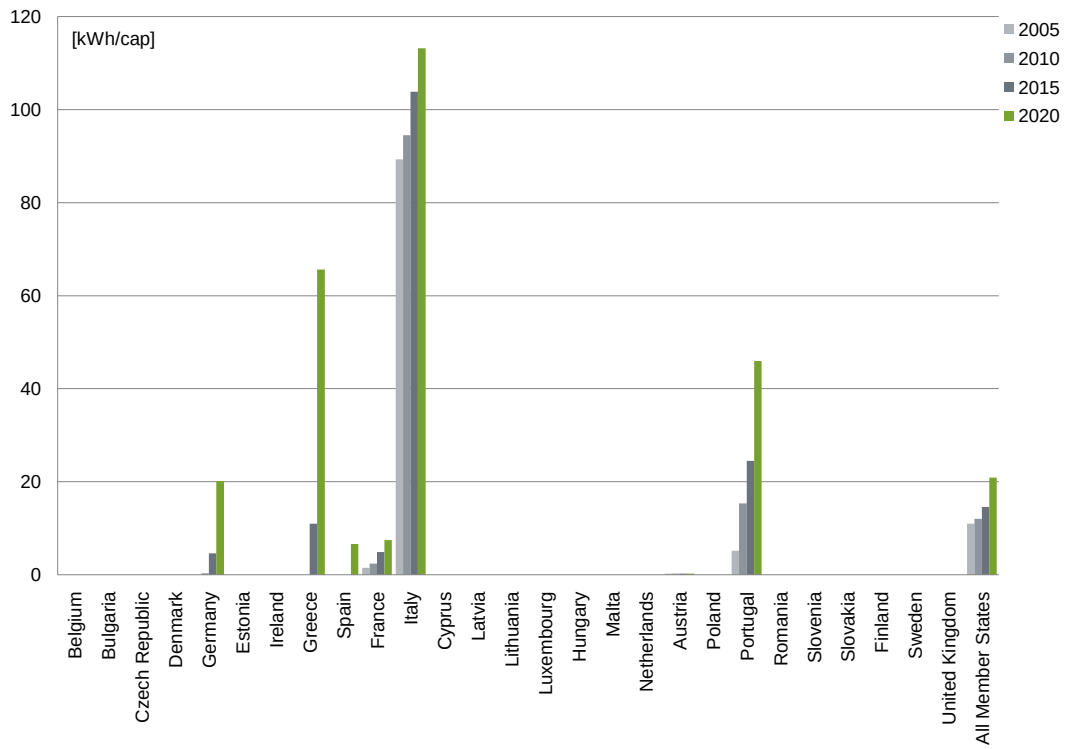


Figure 15: *Calculated per capita (2008) generation of geothermal electricity [kWh/cap] for the period 2005 - 2020*

Table 45: *Calculated per capita (2008) generation of geothermal electricity [kWh/cap] for the period 2005 - 2020*

	2005 [kWh/cap]	2010 [kWh/cap]	2015 [kWh/cap]	2020 [kWh/cap]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	0	0	5	20
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0
Greece	n.a.	0	11	66
Spain	0	0	0	7
France	1	2	5	7
Italy	89	94	104	113
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0
Austria	0	0	0	0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	5	15	24	46
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	0
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	11	12	15	21

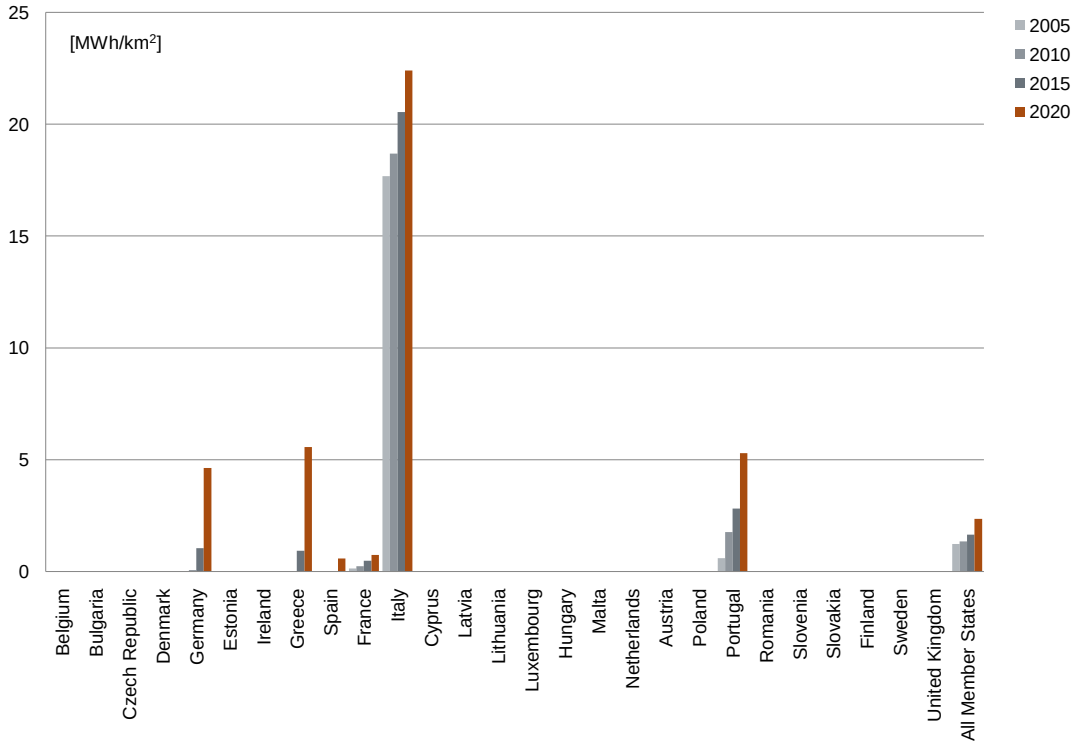


Figure 16: *Calculated per surface area (2004) generation of geothermal electricity [MWh/km^2] for the period 2005 - 2020*

Table 46: *Calculated per surface area (2004) generation of geothermal electricity [MWh/km^2] for the period 2005 - 2020*

	2005 [MWh/km^2]	2010 [MWh/km^2]	2015 [MWh/km^2]	2020 [MWh/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0.0	0.0	0.0	0.0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0.0	0.0	0.0	0.0
Germany	0.0	0.1	1.1	4.6
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0.0	0.0	0.0	0.0
Greece	n.a.	0.0	0.9	5.6
Spain	0.0	0.0	0.0	0.6
France	0.2	0.2	0.5	0.8
Italy	17.7	18.7	20.5	22.4
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0.0	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0.0	0.0	0.0	0.0
Austria	0.0	0.0	0.0	0.0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0.6	1.8	2.8	5.3
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0.0	0.0	0.0	0.0
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0.0	0.0	0.0	0.0
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	1.2	1.4	1.7	2.4

Solar electricity

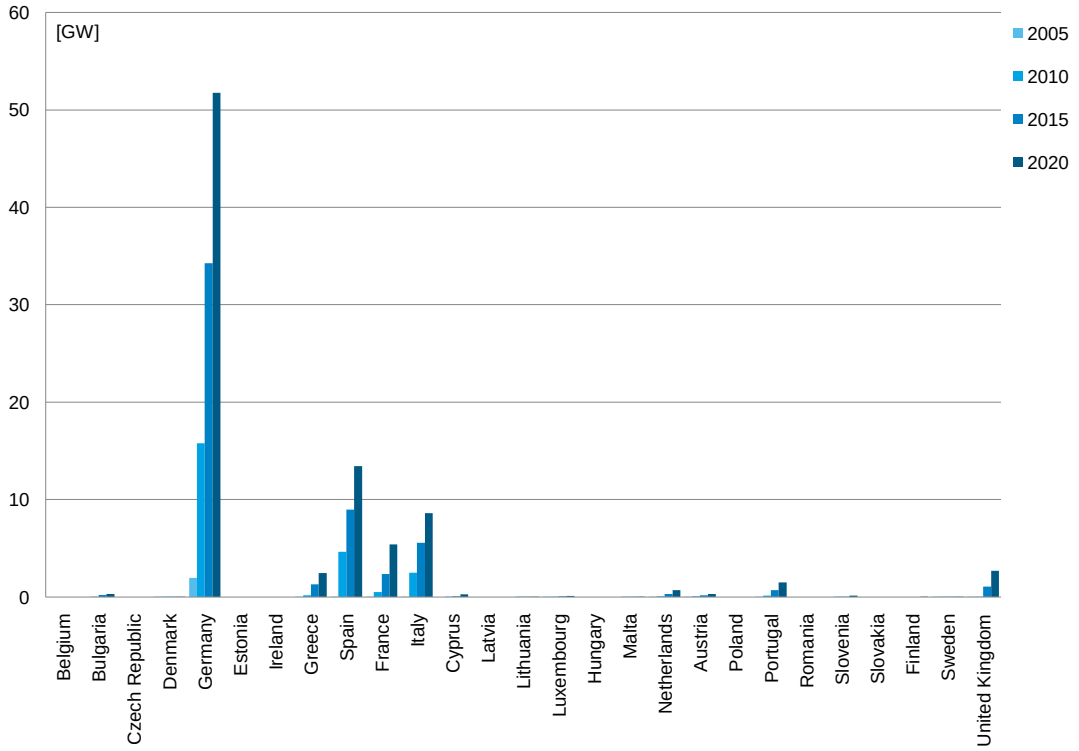


Figure 17: *Projected total solar electric capacity [GW] for the period 2005 - 2020, including photovoltaic (PV) and concentrated solar power (CSP)*

Table 47: *Projected total solar electric capacity [MW] for the period 2005 - 2020, including photovoltaic (PV) and concentrated solar power (CSP)*

	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	9	220	303	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	3	3	4	6	0
Germany	1980	15784	34279	51753	59
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0	0
Greece	1	184	1300	2450	3
Spain	60	4653	8966	13445	15
France	25	504	2353	5400	6
Italy	34	2505	5562	8600	10
Cyprus	0	6	87	267	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	1	10	10	0
Luxembourg	24	27	88	113	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	0	4	27	28	0
Netherlands	51	92	317	722	1
Austria	22	90	179	322	0
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	3	156	720	1500	2
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	12	37	139	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	10	0
Sweden	4	5	7	8	0
United Kingdom	11	50	1070	2680	3
All Member States (total)	2218	24085	55226	87756	**100**

More information on subcategories for solar electricity capacity is presented in Table 49 on page 60.
See Table 50 on page 61 for corresponding solar electricity production data.

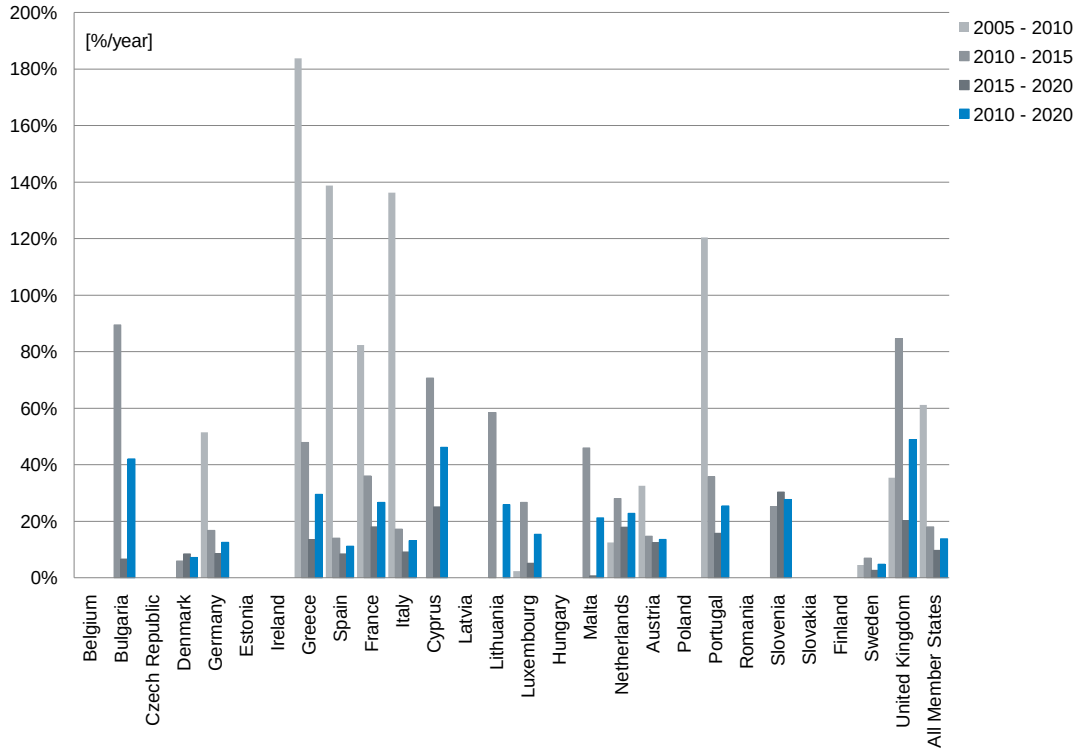


Figure 18: *Calculated average annual growth for capacity of solar electricity [%/year] for four periods*

Table 48: *Calculated average annual growth for capacity of solar electricity [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	89.5	6.6	42.1
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0.0	5.9	8.4	7.2
Germany	51.5	16.8	8.6	12.6
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	183.8	47.9	13.5	29.5
Spain	138.7	14.0	8.4	11.2
France	82.3	36.1	18.1	26.8
Italy	136.3	17.3	9.1	13.1
Cyprus	n.a.	70.7	25.1	46.2
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	58.5	0.0	25.9
Luxembourg	2.4	26.7	5.1	15.4
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	45.9	0.8	21.3
Netherlands	12.5	28.1	17.9	22.9
Austria	32.5	14.7	12.5	13.6
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	120.4	35.8	15.8	25.4
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	25.3	30.3	27.8
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	4.6	7.0	2.7	4.8
United Kingdom	35.4	84.5	20.2	48.9
All Member States (average)	61.1	18.1	9.7	13.8

The annual growth indicator has been calculated based total solar electricity (photovoltaic (PV) and concentrated solar power (CSP))

Table 49: *Projected solar electric capacity [MW] for the period 2005 - 2020, broken down into photovoltaic (PV) and concentrated solar power (CSP)*

	Solar photovoltaic				Concentrated solar power				Total solar electricity			
	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	9	220	303	0	0	0	0	0	9	220	303
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	3	3	4	6	0	0	0	0	3	3	4	6
Germany	1980	15784	34279	51753	0	0	0	0	1980	15784	34279	51753
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	0	0	n.a.	n.a.	0	0	0	0	0	0
Greece	1	184	1270	2200	n.a.	0	30	250	1	184	1300	2450
Spain	60	4021	5918	8367	0	632	3048	5079	60	4653	8966	13445
France	25	504	2151	4860	0	0	203	540	25	504	2353	5400
Italy	34	2500	5500	8000	0	5	62	600	34	2505	5562	8600
Cyprus	0	6	37	192	0	0	50	75	0	6	87	267
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	1	10	10	0	0	0	0	0	1	10	10
Luxembourg	24	27	88	113	0	0	0	0	24	27	88	113
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	4	27	28	n.a.	n.a.	n.a.	n.a.	0	4	27	28
Netherlands	51	92	317	722	0	0	0	0	51	92	317	722
Austria	22	90	179	322	0	0	0	0	22	90	179	322
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	3	156	540	1000	0	0	180	500	3	156	720	1500
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	12	37	139	0	0	0	0	0	12	37	139
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	10	0	0	0	0	0	0	0	10
Sweden	4	5	7	8	n.a.	n.a.	n.a.	n.a.	4	5	7	8
United Kingdom	11	50	1070	2680	n.a.	0	0	0	11	50	1070	2680
All Member States (total)	2218	23448	51654	80713	0	637	3573	7044	2218	24085	55226	87756

See Table 52 on page 63 for corresponding solar electricity production data.

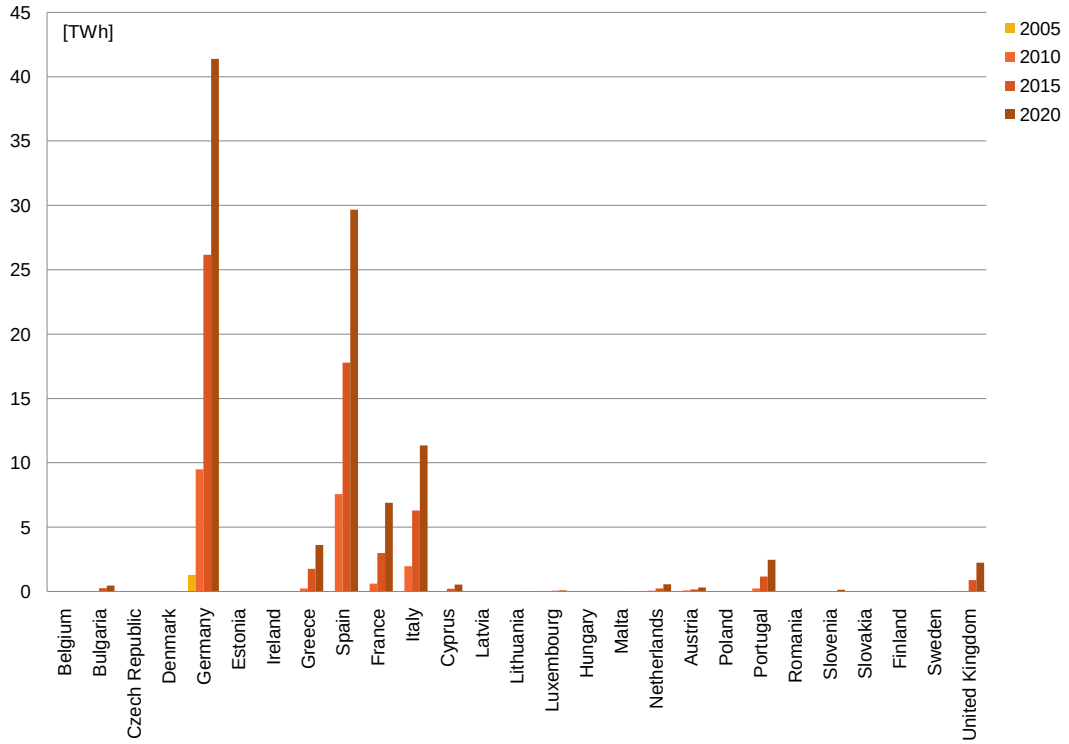


Figure 19: *Projected total solar electricity generation [TWh] for the period 2005 - 2020, including photovoltaic (PV) and concentrated solar power (CSP)*

Table 50: *Projected total solar electricity generation [GWh] for the period 2005 - 2020, including photovoltaic (PV) and concentrated solar power (CSP)*

	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	12	263	454	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	2	2	3	4	0
Germany	1282	9499	26161	41389	41
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0	0
Greece	1	242	1754	3605	4
Spain	41	7561	17785	29669	30
France	22	613	2987	6885	7
Italy	31	1976	6292	11350	11
Cyprus	0	6	208	533	1
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	13	15	0
Luxembourg	18	20	65	84	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	0	6	41	43	0
Netherlands	40	73	250	570	1
Austria	21	85	170	306	0
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	3	230	1157	2475	2
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	12	37	139	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0
Sweden	0	1	3	4	0
United Kingdom	8	40	890	2240	2
All Member States (total)	1469	20378	58079	99765	**100**

More information on subcategories for solar electricity generation is presented in Table 52 on page 63.
See Table 47 on page 58 for corresponding solar electric capacity data.

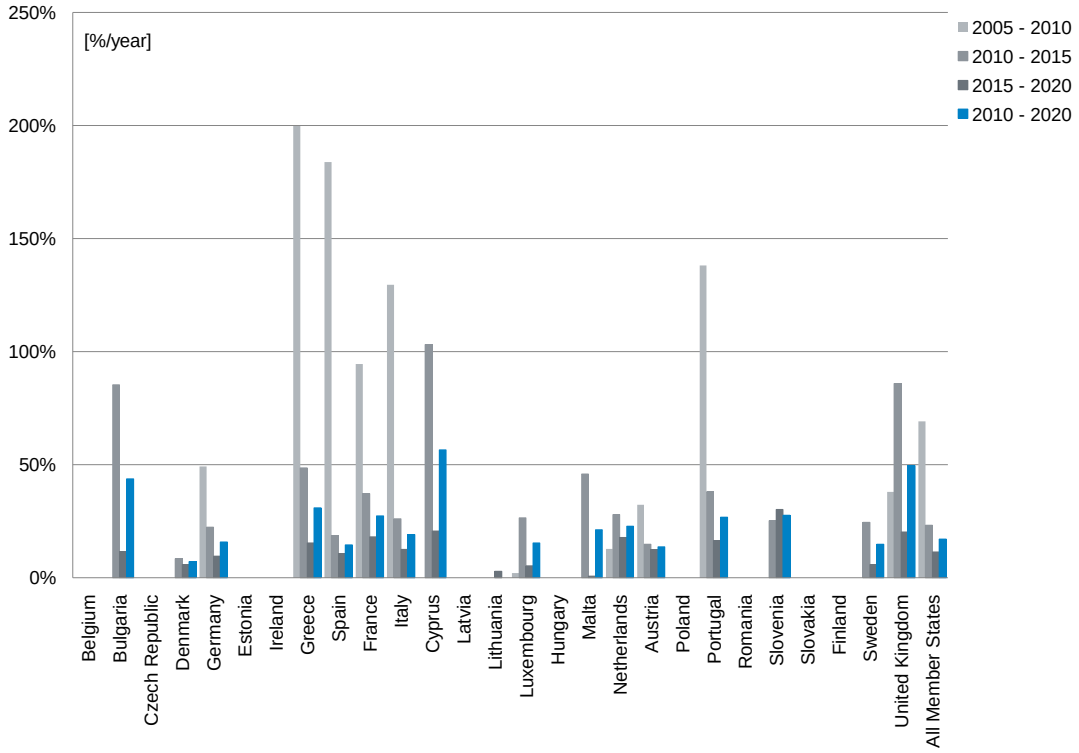


Figure 20: *Calculated average annual growth for generation from solar electricity [%/year] for four periods*

Table 51: *Calculated average annual growth for generation from solar electricity [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	85.4	11.5	43.8
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0.0	8.4	5.9	7.2
Germany	49.3	22.5	9.6	15.9
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	199.8	48.6	15.5	31.0
Spain	183.9	18.7	10.8	14.6
France	94.5	37.3	18.2	27.4
Italy	129.6	26.1	12.5	19.1
Cyprus	n.a.	103.2	20.7	56.6
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	2.9	n.a.
Luxembourg	2.1	26.6	5.3	15.4
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	46.0	0.8	21.3
Netherlands	12.8	27.9	17.9	22.8
Austria	32.3	14.9	12.5	13.7
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	138.2	38.1	16.4	26.8
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	25.3	30.3	27.8
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	n.a.	24.6	5.9	14.9
United Kingdom	38.0	86.0	20.3	49.6
All Member States (average)	69.2	23.3	11.4	17.2

The annual growth indicator has been calculated based total solar electricity (photovoltaic (PV) and concentrated solar power (CSP))

Table 52: *Projected solar electricity generation [GWh] for the period 2005 - 2020, broken down into photovoltaic (PV) and concentrated solar power (CSP)*

	Solar photovoltaic				Concentrated solar power				Total solar electricity			
	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	12	263	454	0	0	0	0	0	12	263	454
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	2	2	3	4	0	0	0	0	2	2	3	4
Germany	1282	9499	26161	41389	0	0	0	0	1282	9499	26161	41389
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	0	0	n.a.	n.a.	0	0	0	0	0	0
Greece	1	242	1668	2891	n.a.	0	86	714	1	242	1754	3605
Spain	41	6417	9872	14316	0	1144	7913	15353	41	7561	17785	29669
France	22	613	2617	5913	0	0	365	972	22	613	2987	6885
Italy	31	1967	6122	9650	0	9	170	1700	31	1976	6292	11350
Cyprus	0	6	59	309	0	0	149	224	0	6	208	533
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	13	15	0	0	0	0	0	0	13	15
Luxembourg	18	20	65	84	0	0	0	0	18	20	65	84
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	6	41	43	n.a.	n.a.	n.a.	n.a.	0	6	41	43
Netherlands	40	73	250	570	0	0	0	0	40	73	250	570
Austria	21	85	170	306	0	0	0	0	21	85	170	306
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	3	230	797	1475	0	0	360	1000	3	230	1157	2475
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	12	37	139	0	0	0	0	0	12	37	139
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0	0	0	0	0	0	0	0
Sweden	0	1	3	4	n.a.	n.a.	n.a.	n.a.	0	1	3	4
United Kingdom	8	40	890	2240	n.a.	0	0	0	8	40	890	2240
All Member States (total)	1469	19225	49031	79802	0	1153	9043	19963	1469	20378	58079	99765

See Table 49 on page 60 for corresponding solar electric capacity data.

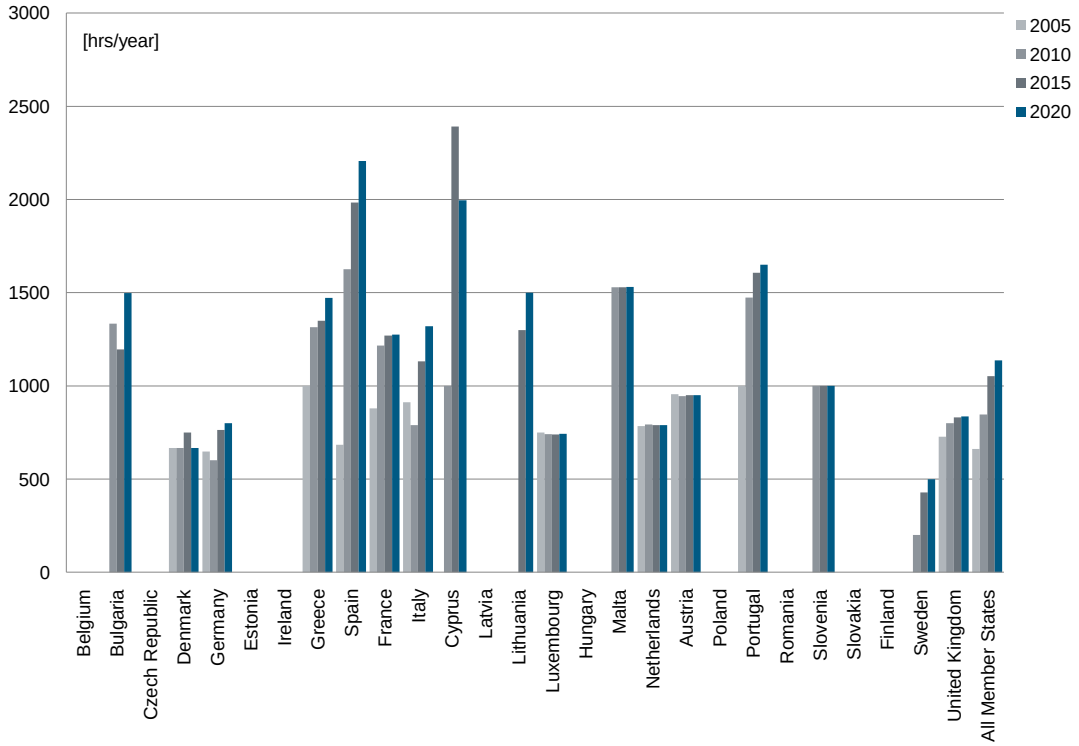


Figure 21: *Calculated average number of full load hours for total solar electricity [hrs/year] for the period 2005 - 2020*

Table 53: *Calculated average number of full load hours for total solar electricity [hrs/year] for the period 2005 - 2020*

	2005 [hrs/year]	2010 [hrs/year]	2015 [hrs/year]	2020 [hrs/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	1333	1195	1498
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	667	667	750	667
Germany	647	602	763	800
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	1000	1315	1349	1471
Spain	683	1625	1984	2207
France	880	1216	1269	1275
Italy	912	789	1131	1320
Cyprus	n.a.	1000	2391	1996
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	0	1300	1500
Luxembourg	750	741	739	743
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	1528	1530	1530
Netherlands	784	793	789	789
Austria	955	944	950	950
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	1000	1474	1607	1650
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	1000	1000	1000
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	0
Sweden	0	200	429	500
United Kingdom	727	800	832	836
All Member States (average)	662	846	1052	1137

The full load hours have been calculated based total solar electricity (photovoltaic (PV) and concentrated solar power (CSP))

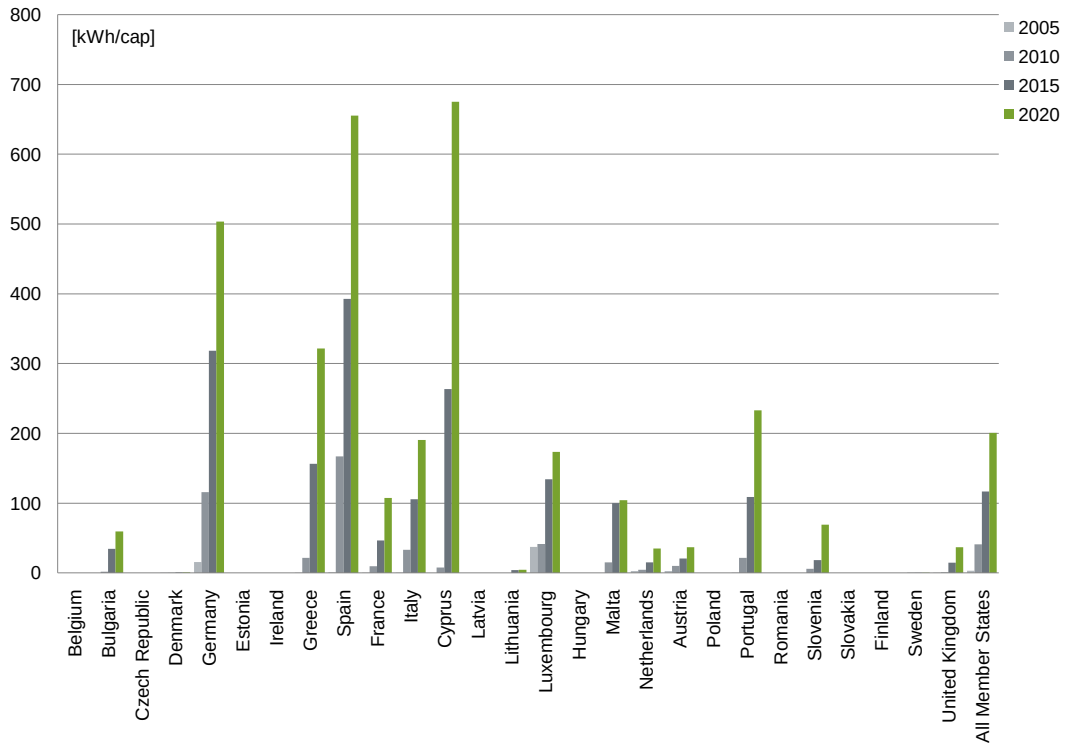


Figure 22: *Calculated per capita (2008) generation for total solar electricity [kWh/cap] for the period 2005 - 2020*

Table 54: *Calculated per capita (2008) generation for total solar electricity [kWh/cap] for the period 2005 - 2020*

	2005 [kWh/cap]	2010 [kWh/cap]	2015 [kWh/cap]	2020 [kWh/cap]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	2	34	59
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	1	1
Germany	16	116	318	503
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0
Greece	0	22	156	321
Spain	1	167	393	655
France	0	10	47	108
Italy	1	33	106	190
Cyprus	0	8	264	675
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	4	4
Luxembourg	37	41	134	174
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	0	15	100	104
Netherlands	2	4	15	35
Austria	3	10	20	37
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	22	109	233
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	6	18	69
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	0	0	0	0
United Kingdom	0	1	15	37
All Member States (average)	3	41	117	200

The per capita indicator has been calculated based on total solar electricity (photovoltaic (PV) and concentrated solar power (CSP))

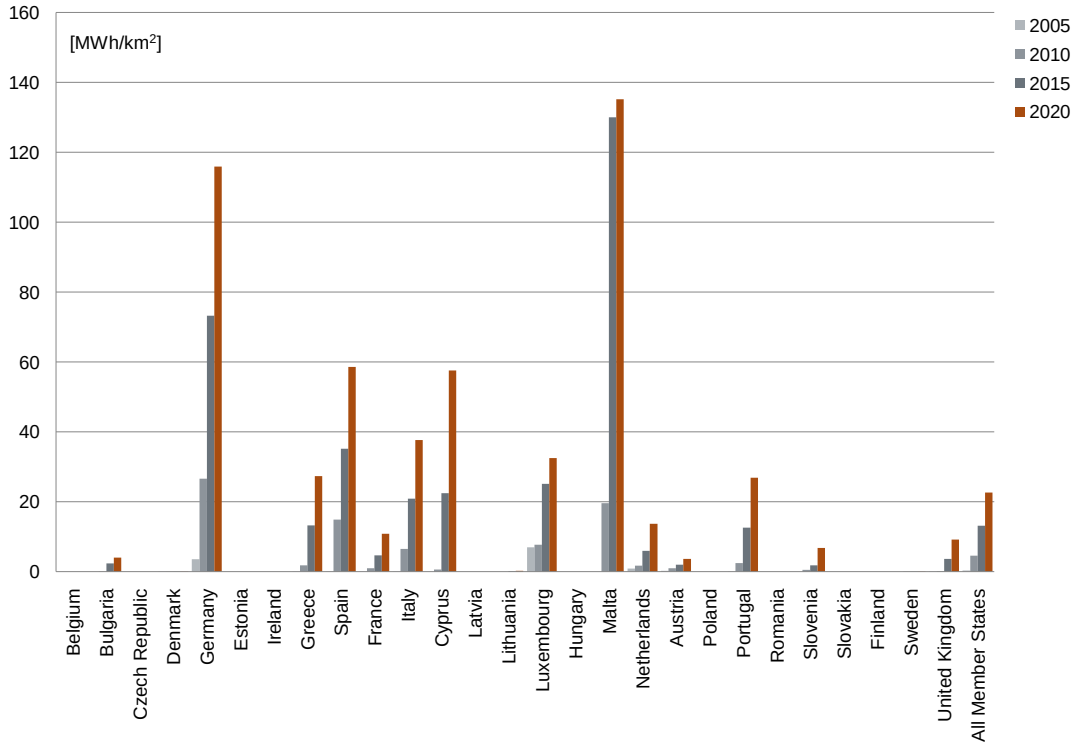


Figure 23: *Calculated per surface area (2004) generation for total solar electricity [MWh/km^2] for the period 2005 - 2020*

Table 55: *Calculated per surface area (2004) generation for total solar electricity [MWh/km^2] for the period 2005 - 2020*

	2005 [MWh/km^2]	2010 [MWh/km^2]	2015 [MWh/km^2]	2020 [MWh/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0.0	0.1	2.4	4.1
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0.0	0.0	0.1	0.1
Germany	3.6	26.6	73.3	115.9
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0.0	0.0	0.0	0.0
Greece	0.0	1.8	13.3	27.3
Spain	0.1	14.9	35.1	58.6
France	0.0	1.0	4.7	10.9
Italy	0.1	6.6	20.9	37.7
Cyprus	0.0	0.6	22.5	57.6
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0.0	0.0	0.2	0.2
Luxembourg	7.0	7.7	25.1	32.5
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	0.0	19.6	130.0	135.2
Netherlands	1.0	1.8	6.0	13.7
Austria	0.3	1.0	2.0	3.6
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0.0	2.5	12.6	26.9
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0.0	0.6	1.8	6.9
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0.0	0.0	0.0	0.0
Sweden	0.0	0.0	0.0	0.0
United Kingdom	0.0	0.2	3.7	9.2
All Member States (average)	0.3	4.6	13.2	22.7

The per area indicator has been calculated based on total solar electricity (photovoltaic (PV) and concentrated solar power (CSP))

Tidal, wave and ocean energy

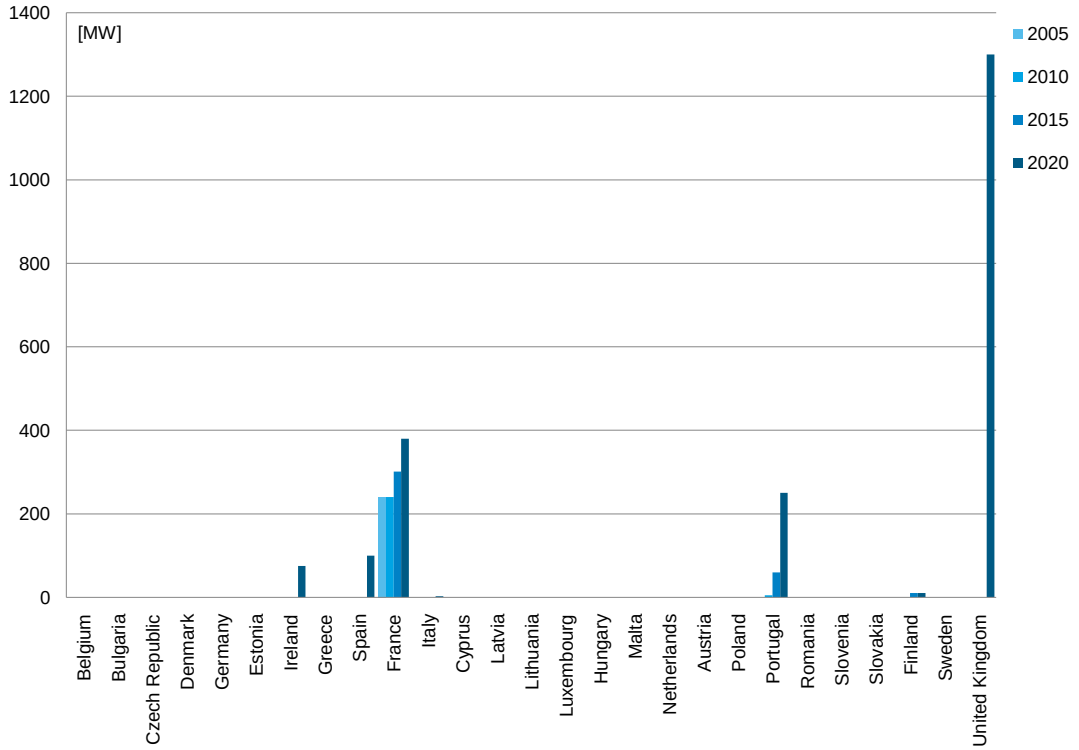


Figure 24: *Projected tidal, wave and ocean energy electric capacity [MW] for the period 2005 - 2020*

Table 56: *Projected tidal, wave and ocean energy electric capacity [MW] for the period 2005 - 2020*

	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	0
Germany	0	0	0	0	0
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	75	4
Greece	n.a.	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	100	5
France	240	240	301	380	18
Italy	0	0	0	3	0
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0
Luxembourg	0	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0	0
Austria	n.a.	n.a.	n.a.	n.a.	n.a.
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	5	60	250	12
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	0	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	10	10	0
Sweden	n.a.	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	0	0	1300	61
All Member States (total)	240	245	371	2118	**100**

See Table 58 on page 70 for corresponding tidal, wave and ocean energy electricity production data.

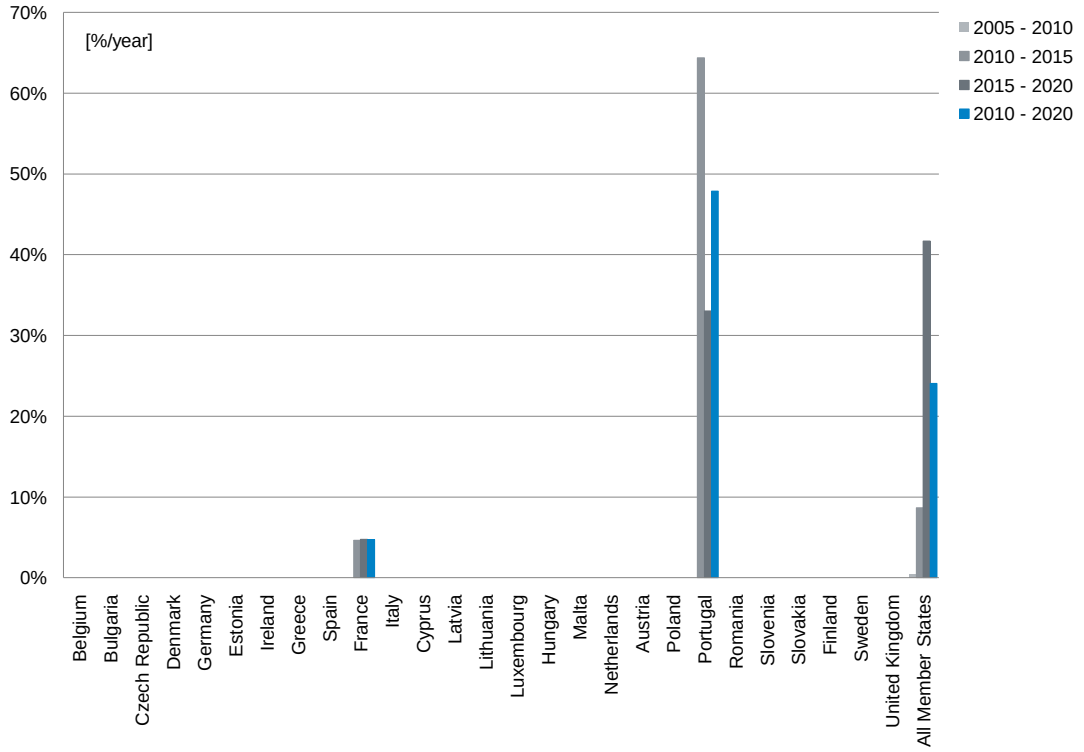


Figure 25: *Calculated average annual growth for electric capacity from tidal, wave and ocean energy [%/year] for four periods*

Table 57: *Calculated average annual growth for electric capacity from tidal, wave and ocean energy [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	n.a.	n.a.	n.a.	n.a.
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	n.a.	n.a.	n.a.	n.a.
Spain	n.a.	n.a.	n.a.	n.a.
France	0.0	4.6	4.8	4.7
Italy	n.a.	n.a.	n.a.	n.a.
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	n.a.	n.a.	n.a.	n.a.
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	64.4	33.0	47.9
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	0.0	n.a.
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	0.4	8.7	41.7	24.1

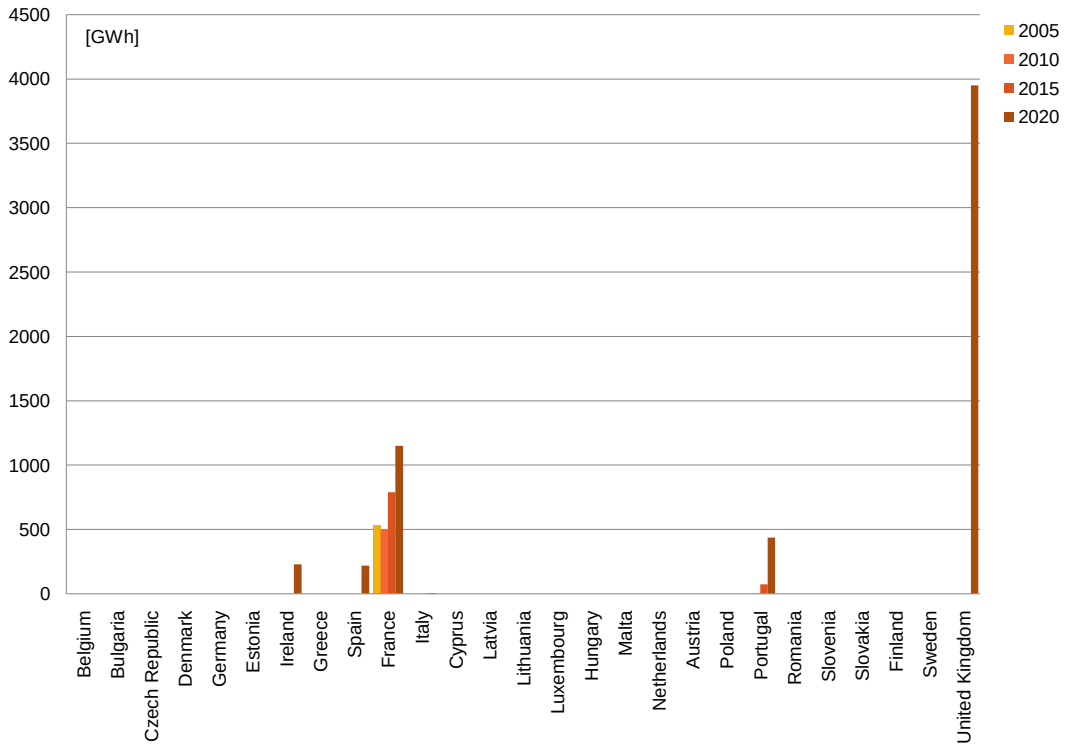


Figure 26: *Projected tidal, wave and ocean energy electricity generation [GWh] for the period 2005 - 2020, all capacity ranges excluding pumped storage*

Table 58: *Projected tidal, wave and ocean energy electricity generation [GWh] for the period 2005 - 2020*

	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	0
Germany	0	0	0	0	0
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	230	4
Greece	n.a.	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	220	4
France	535	500	789	1150	19
Italy	0	0	1	5	0
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0
Luxembourg	0	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0	0
Austria	n.a.	n.a.	n.a.	n.a.	n.a.
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	1	75	437	7
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	0	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0
Sweden	n.a.	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	0	0	3950	66
All Member States (total)	535	501	865	5992	**100**

See Table 56 on page 68 for corresponding tidal, wave and ocean energy capacity data.

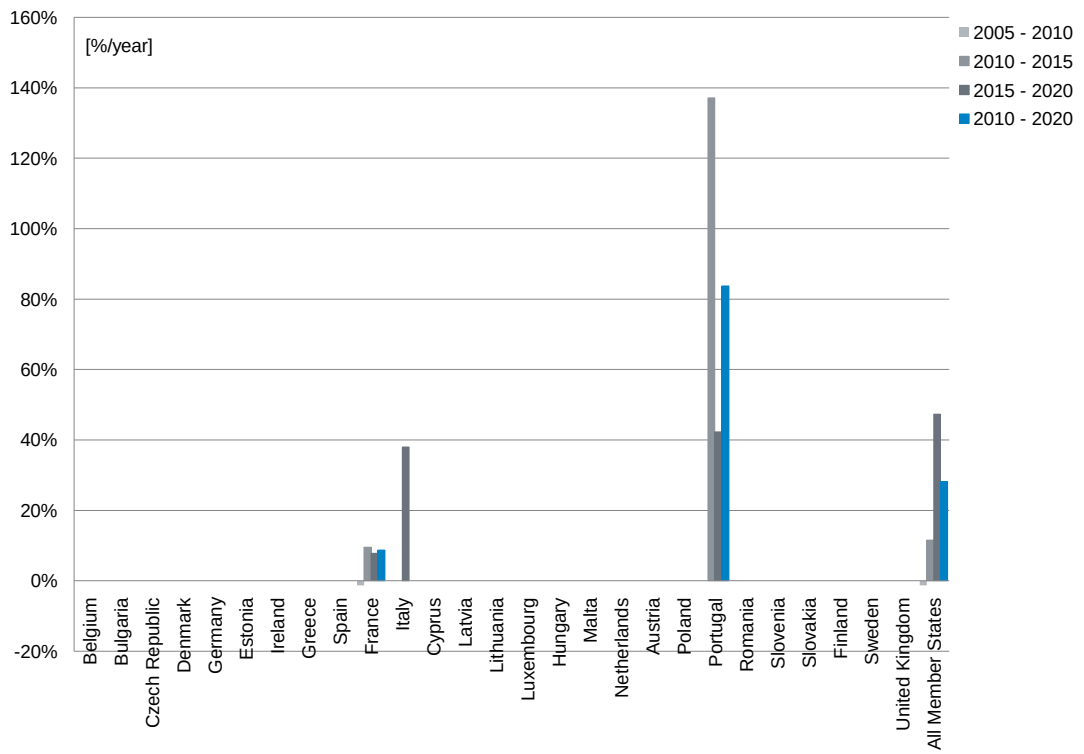


Figure 27: *Calculated average annual growth for electricity generation from tidal, wave and ocean energy [%/year] for four periods*

Table 59: *Calculated average annual growth for electricity generation from tidal, wave and ocean energy [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	n.a.	n.a.	n.a.	n.a.
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	n.a.	n.a.	n.a.	n.a.
Spain	n.a.	n.a.	n.a.	n.a.
France	-1.3	9.6	7.8	8.7
Italy	n.a.	n.a.	38.0	n.a.
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	n.a.	n.a.	n.a.	n.a.
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	137.1	42.3	83.7
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	-1.3	11.5	47.3	28.2

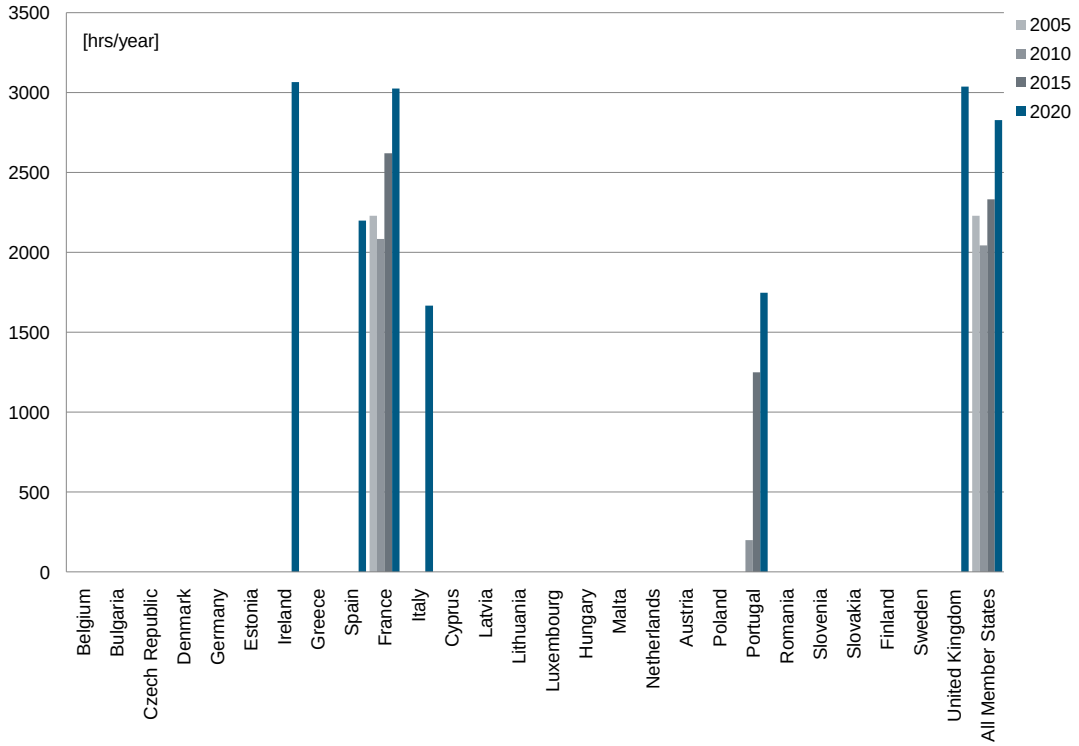


Figure 28: *Calculated average number of full load hours for tidal, wave and ocean energy [hrs/year] for the period 2005 - 2020*

Table 60: *Calculated average number of full load hours for tidal, wave and ocean energy [hrs/year] for the period 2005 - 2020*

	2005 [hrs/year]	2010 [hrs/year]	2015 [hrs/year]	2020 [hrs/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	n.a.	n.a.	n.a.	n.a.
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	3067
Greece	n.a.	n.a.	n.a.	n.a.
Spain	n.a.	n.a.	n.a.	2200
France	2229	2083	2621	3026
Italy	n.a.	n.a.	n.a.	1667
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	n.a.	n.a.	n.a.	n.a.
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	200	1250	1748
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	0	0
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	3038
All Member States (average)	2229	2045	2332	2829

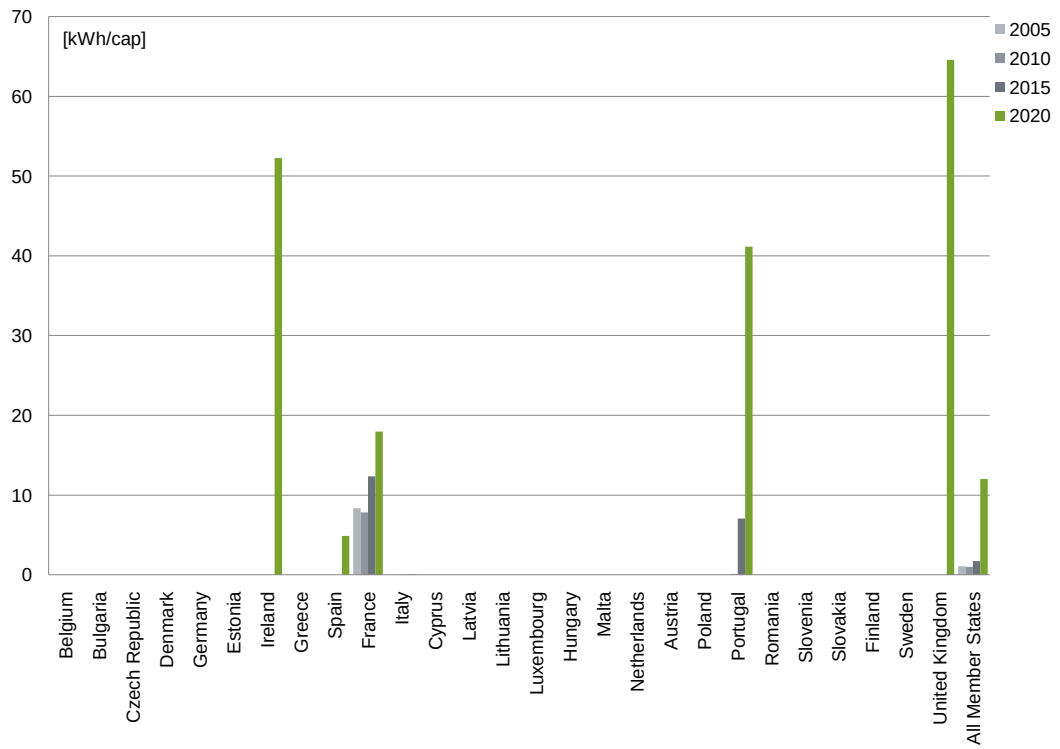


Figure 29: *Calculated per capita (2008) electricity generation for tidal, wave and ocean energy [kWh/cap] for the period 2005 - 2020*

Table 61: *Calculated per capita (2008) electricity generation for tidal, wave and ocean energy [kWh/cap] for the period 2005 - 2020*

	2005 [kWh/cap]	2010 [kWh/cap]	2015 [kWh/cap]	2020 [kWh/cap]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	0	0	0	0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	52
Greece	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	5
France	8	8	12	18
Italy	0	0	0	0
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0
Austria	n.a.	n.a.	n.a.	n.a.
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	7	41
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	0
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	0	0	65
All Member States (average)	1	1	2	12

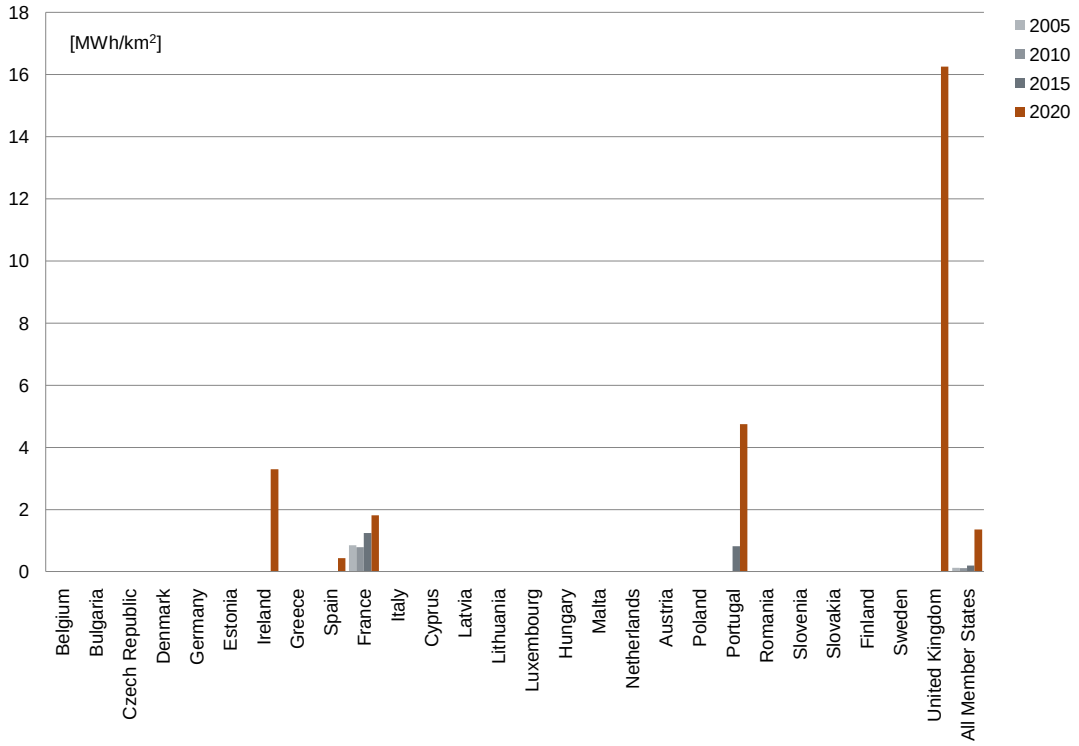


Figure 30: *Calculated per surface area (2004) electricity generation for tidal, wave and ocean energy [MWh/km^2] for the period 2005 - 2020*

Table 62: *Calculated per surface area (2004) electricity generation for tidal, wave and ocean energy [MWh/km^2] for the period 2005 - 2020*

	2005 [MWh/km^2]	2010 [MWh/km^2]	2015 [MWh/km^2]	2020 [MWh/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0.0	0.0	0.0	0.0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0.0	0.0	0.0	0.0
Germany	0.0	0.0	0.0	0.0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0.0	0.0	0.0	3.3
Greece	n.a.	n.a.	n.a.	n.a.
Spain	0.0	0.0	0.0	0.4
France	0.8	0.8	1.2	1.8
Italy	0.0	0.0	0.0	0.0
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0.0	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0.0	0.0	0.0	0.0
Austria	n.a.	n.a.	n.a.	n.a.
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0.0	0.0	0.8	4.7
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0.0	0.0	0.0	0.0
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0.0	0.0	0.0	0.0
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	0.0	0.0	16.3
All Member States (average)	0.1	0.1	0.2	1.4

Wind power

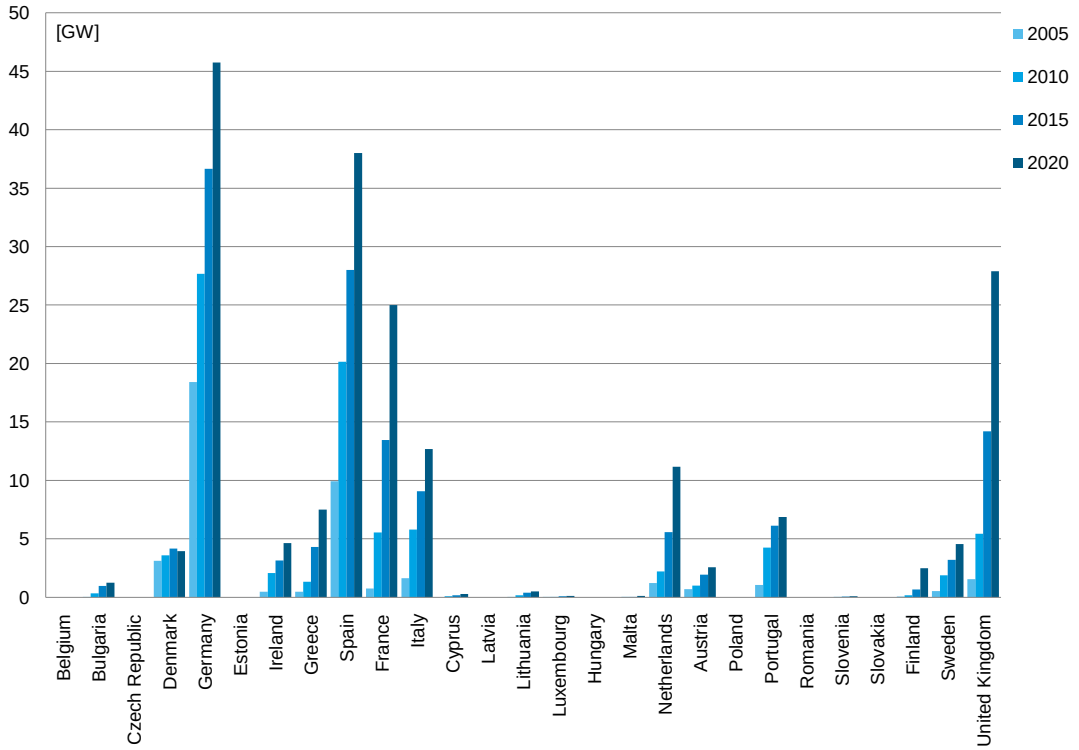


Figure 31: *Projected total wind power electric capacity [GW] for the period 2005 - 2020, including both onshore and offshore wind power*

Table 63: *Projected total wind power electric capacity [MW] for the period 2005 - 2020, including both onshore and offshore wind power*

	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	8	336	984	1256	1
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	3129	3584	4180	3960	2
Germany	18415	27676	36647	45750	23
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	494	2088	3151	4649	2
Greece	491	1327	4303	7500	4
Spain	9918	20155	27997	38000	19
France	752	5542	13445	25000	13
Italy	1639	5800	9068	12680	6
Cyprus	0	82	180	300	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	1	179	389	500	0
Luxembourg	35	35	105	131	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	0	0	7	110	0
Netherlands	1224	2221	5578	11178	6
Austria	694	1011	1951	2578	1
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	1063	4256	6125	6875	4
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	2	60	106	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	80	170	670	2500	1
Sweden	536	1873	3210	4547	2
United Kingdom	1565	5430	14210	27880	14
All Member States (total)	40044	81767	132260	195500	**100**

See Table 66 on page 79 for corresponding wind power electricity production data.

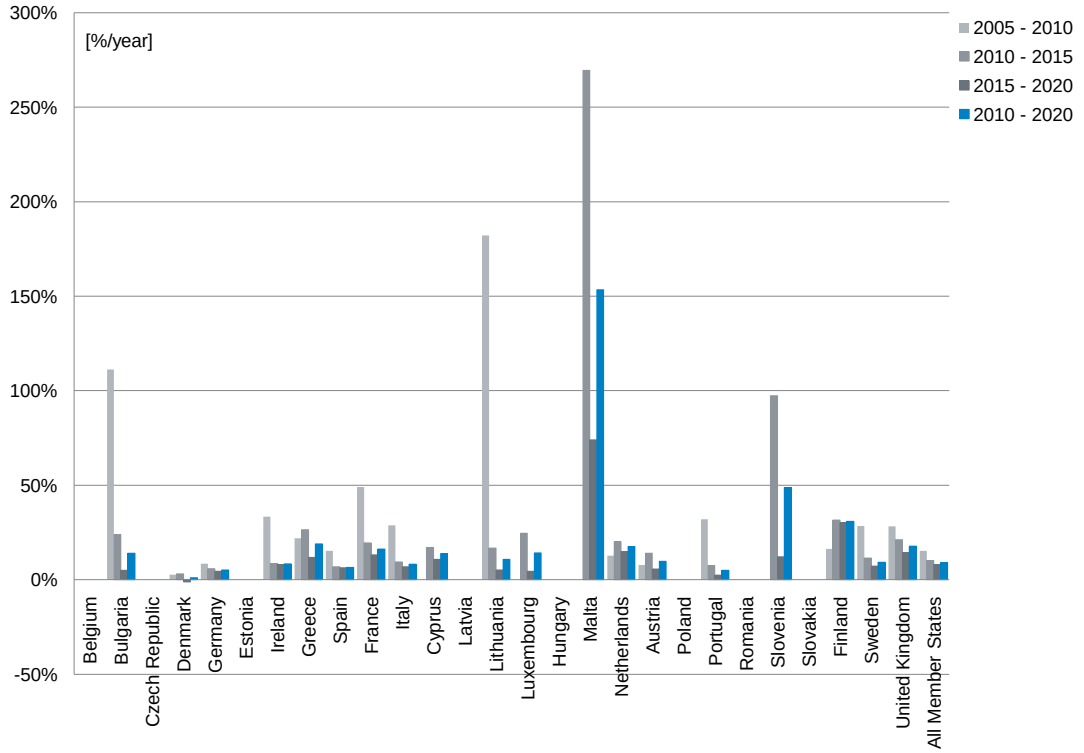


Figure 32: *Calculated average annual growth for electric capacity from wind power [%/year] for four periods*

Table 64: *Calculated average annual growth for electric capacity from wind power [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	111.2	24.0	5.0	14.1
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	2.8	3.1	-1.1	1.0
Germany	8.5	5.8	4.5	5.2
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	33.4	8.6	8.1	8.3
Greece	22.0	26.5	11.8	18.9
Spain	15.2	6.8	6.3	6.5
France	49.1	19.4	13.2	16.3
Italy	28.8	9.3	6.9	8.1
Cyprus	n.a.	17.0	10.8	13.8
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	182.2	16.8	5.1	10.8
Luxembourg	0.0	24.6	4.5	14.1
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	269.4	74.0	153.5
Netherlands	12.7	20.2	14.9	17.5
Austria	7.8	14.1	5.7	9.8
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	32.0	7.6	2.3	4.9
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	97.4	12.1	48.7
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	16.3	31.6	30.1	30.8
Sweden	28.4	11.4	7.2	9.3
United Kingdom	28.2	21.2	14.4	17.8
All Member States (average)	15.3	10.1	8.1	9.1

The annual growth indicator has been calculated based total wind power (onshore and offshore wind power)

Table 65: *Projected wind power electric capacity [MW] for the period 2005 - 2020, broken down into onshore and offshore wind*

	Onshore wind				Offshore wind				Total wind power			
	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	8	336	984	1256	0	0	0	0	8	336	984	1256
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	2706	2923	2929	2621	423	661	1251	1339	3129	3584	4180	3960
Germany	18415	27526	33647	35750	0	150	3000	10000	18415	27676	36647	45750
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	469	2052	2899	4094	25	36	252	555	494	2088	3151	4649
Greece	491	1327	4303	7200	n.a.	n.a.	n.a.	300	491	1327	4303	7500
Spain	9918	20155	27847	35000	0	0	150	3000	9918	20155	27997	38000
France	752	5542	10778	19000	0	0	2667	6000	752	5542	13445	25000
Italy	1639	5800	8900	12000	0	0	168	680	1639	5800	9068	12680
Cyprus	0	82	180	300	n.a.	n.a.	n.a.	n.a.	0	82	180	300
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	1	179	389	500	0	0	0	0	1	179	389	500
Luxembourg	35	35	105	131	0	0	0	0	35	35	105	131
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	0	7	15	n.a.	0	0	95	0	0	7	110
Netherlands	1224	1993	4400	6000	0	228	1178	5178	1224	2221	5578	11178
Austria	694	1011	1951	2578	0	0	0	0	694	1011	1951	2578
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	1063	4256	6100	6800	0	0	25	75	1063	4256	6125	6875
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	2	60	106	0	0	0	0	0	2	60	106
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	80	n.a.	n.a.	n.a.	0	n.a.	n.a.	n.a.	80	170	670	2500
Sweden	513	1797	3081	4365	23	76	129	182	536	1873	3210	4547
United Kingdom	1351	4040	8710	14890	214	1390	5500	12990	1565	5430	14210	27880
All Member States (total)	39359	79056	117270	152606	685	2541	14320	40394	40044	81767	132260	195500

See Table 68 on page 81 for corresponding wind power electricity production data.

Because for Finland no breakdown into onshore and offshore wind power has been specified after 2005 the sum of the subcategories in 2010, 2015 and 2020 is lower than the value for *All Member States (total)*.

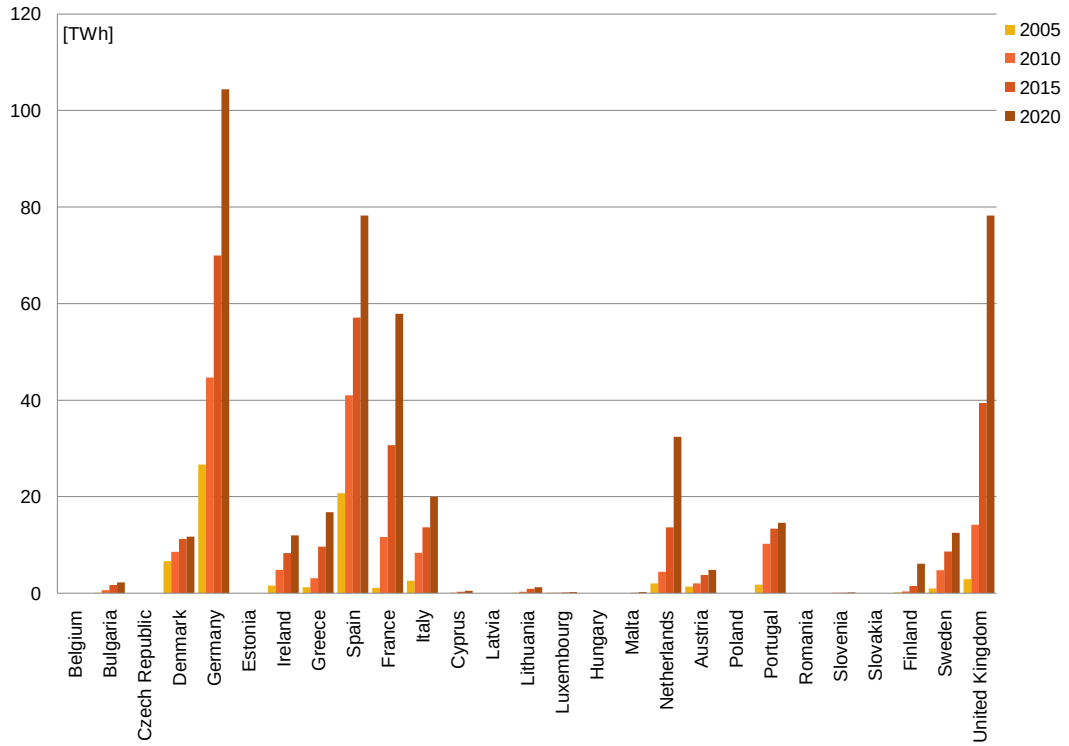


Figure 33: *Projected total wind power electricity generation [TWh] for the period 2005 - 2020, all capacity ranges excluding pumped storage, including onshore and offshore wind power*

Table 66: *Projected total wind power electricity generation [GWh] for the period 2005 - 2020, including onshore and offshore wind power*

	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	5	605	1672	2260	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	6614	8606	11242	11713	3
Germany	26658	44668	69994	104435	23
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	1588	4817	8339	11970	3
Greece	1267	3129	9674	16797	4
Spain	20729	40978	57086	78254	17
France	1128	11638	30634	57900	13
Italy	2558	8398	13652	20000	4
Cyprus	0	31	300	499	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	2	297	924	1250	0
Luxembourg	52	60	192	239	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	0	0	17	255	0
Netherlands	2067	4470	13655	32408	7
Austria	1343	2034	3780	4811	1
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	1773	10214	13400	14596	3
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	2	109	191	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	150	360	1520	6090	1
Sweden	939	4793	8646	12500	3
United Kingdom	2904	14150	39430	78270	17
All Member States (total)	69777	159250	284266	454438	**100**

More information on subcategories for wind power electricity generation is presented in Table 68 on page 81.
See Table 63 on page 76 for corresponding wind power capacity data.

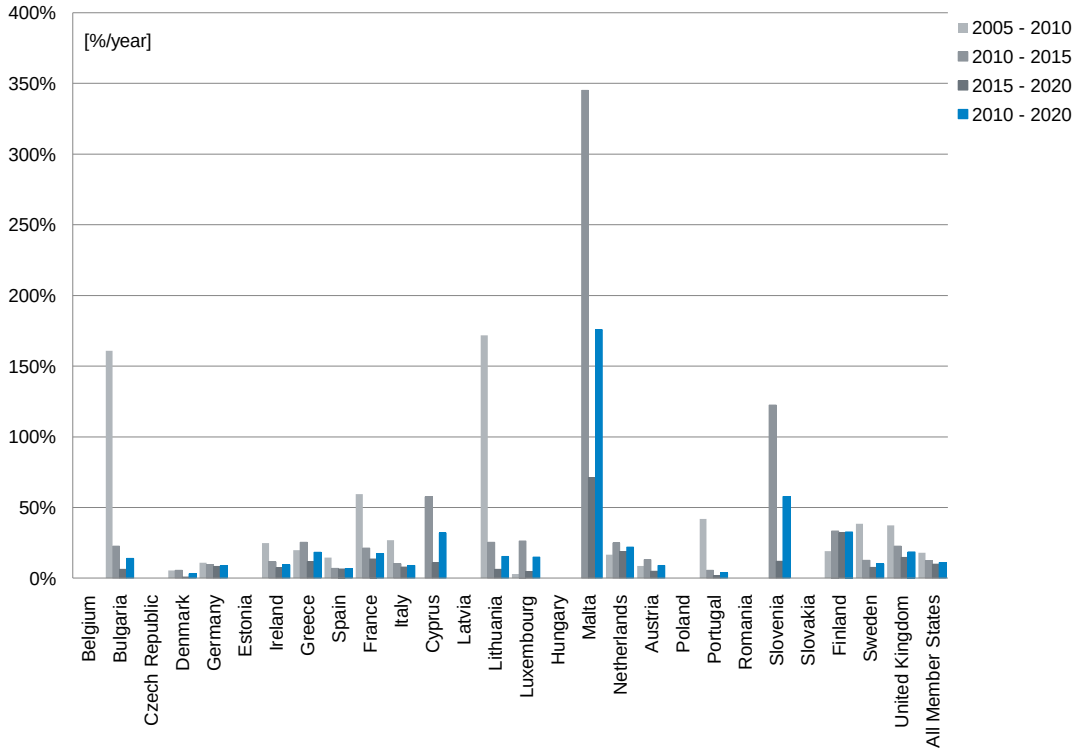


Figure 34: *Calculated average annual growth for electricity generation from wind power [%/year] for four periods*

Table 67: *Calculated average annual growth for electricity generation from wind power [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	160.9	22.5	6.2	14.1
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	5.4	5.5	0.8	3.1
Germany	10.9	9.4	8.3	8.9
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	24.8	11.6	7.5	9.5
Greece	19.8	25.3	11.7	18.3
Spain	14.6	6.9	6.5	6.7
France	59.5	21.4	13.6	17.4
Italy	26.8	10.2	7.9	9.1
Cyprus	n.a.	57.5	10.7	32.0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	171.9	25.5	6.2	15.5
Luxembourg	2.9	26.2	4.5	14.8
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	345.1	70.9	175.8
Netherlands	16.7	25.0	18.9	21.9
Austria	8.7	13.2	4.9	9.0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	41.9	5.6	1.7	3.6
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	122.5	11.9	57.8
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	19.1	33.4	32.0	32.7
Sweden	38.5	12.5	7.7	10.1
United Kingdom	37.3	22.7	14.7	18.7
All Member States (average)	17.9	12.3	9.8	11.1

The annual growth indicator has been calculated based total wind power (onshore and offshore wind power)

Table 68: *Projected wind power electricity generation [GWh] for the period 2005 - 2020, broken down into onshore wind and offshore wind*

	Onshore wind				Offshore wind				Total wind power			
	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	5	605	1672	2260	0	0	0	0	5	605	1672	2260
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	5158	6121	6322	6391	1456	2485	4920	5322	6614	8606	11242	11713
Germany	26658	44397	61990	72664	0	271	8004	31771	26658	44668	69994	104435
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	4701	7525	10228	n.a.	116	814	1742	1588	4817	8339	11970
Greece	1267	3129	9674	16125	n.a.	n.a.	n.a.	672	1267	3129	9674	16797
Spain	20729	40978	56786	70502	0	0	300	7753	20729	40978	57086	78254
France	1128	11638	22634	39900	0	0	8000	18000	1128	11638	30634	57900
Italy	2558	8398	13199	18000	0	0	453	2000	2558	8398	13652	20000
Cyprus	0	31	300	499	n.a.	n.a.	n.a.	n.a.	0	31	300	499
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	2	297	924	1250	0	0	0	0	2	297	924	1250
Luxembourg	52	60	192	239	0	0	0	0	52	60	192	239
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	0	17	38	n.a.	0	0	216	0	0	17	255
Netherlands	2067	3667	9508	13372	0	803	4147	19036	2067	4470	13655	32408
Austria	1343	2034	3780	4811	0	0	0	0	1343	2034	3780	4811
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	1773	10214	13420	14416	0	0	60	180	1773	10214	13400	14596
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	2	109	191	0	0	0	0	0	2	109	191
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	150	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	150	360	1520	6090
Sweden	877	4585	8292	12000	62	208	354	500	939	4793	8646	12500
United Kingdom	2501	9520	20610	34150	403	4630	18820	44120	2904	14150	39430	78270
All Member States (total)	66268	150377	236954	317036	1921	8513	45872	131312	69777	159250	284266	454438

See Table 65 on page 78 for corresponding wind power capacity data.

For Finland no breakdown into onshore and offshore wind power has been specified after 2005. For Ireland the energy production has not been allocated to either onshore or offshore wind power for the year 2005. Therefore, the sum of the subcategories is lower than the value for *All Member States (total)* .

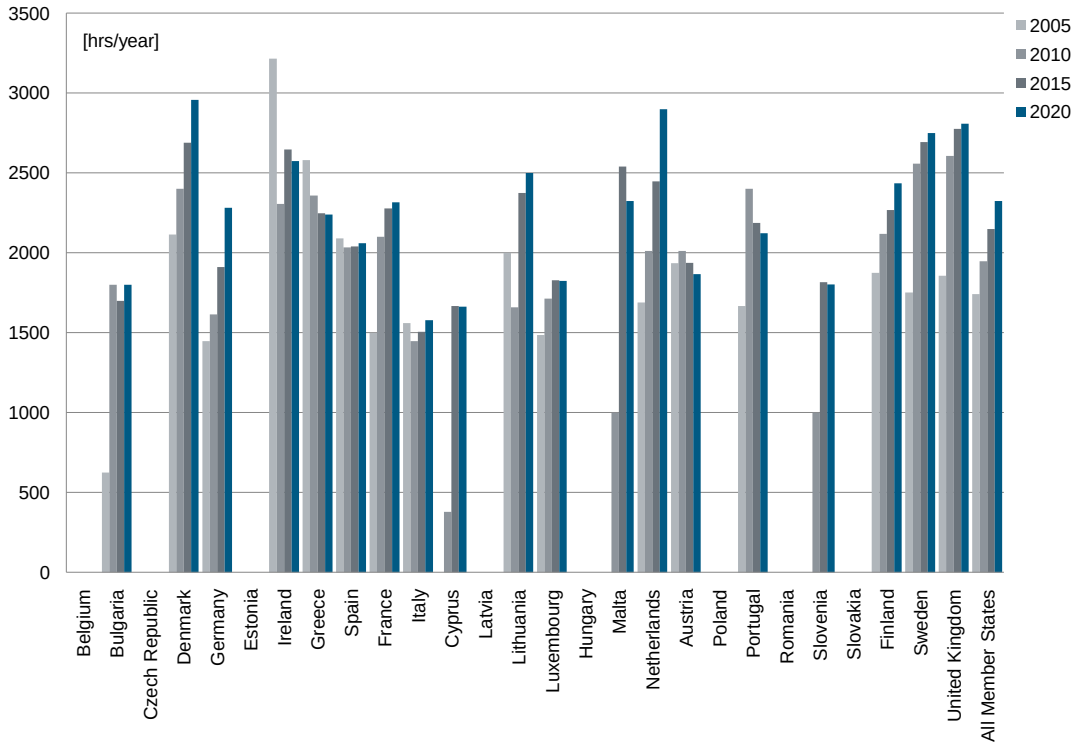


Figure 35: *Calculated average number of full load hours for total wind power [hrs/year] for the period 2005 - 2020*

Table 69: *Calculated average number of full load hours for total wind power [hrs/year] for the period 2005 - 2020*

	2005 [hrs/year]	2010 [hrs/year]	2015 [hrs/year]	2020 [hrs/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	625	1801	1699	1799
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	2114	2401	2689	2958
Germany	1448	1614	1910	2283
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	3215	2307	2646	2575
Greece	2580	2358	2248	2240
Spain	2090	2033	2039	2059
France	1500	2100	2278	2316
Italy	1561	1448	1506	1577
Cyprus	n.a.	378	1667	1663
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	2000	1659	2375	2500
Luxembourg	1486	1714	1829	1824
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	1000	2539	2324
Netherlands	1689	2013	2448	2899
Austria	1935	2012	1937	1866
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	1668	2400	2188	2123
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	1000	1817	1802
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	1875	2118	2269	2436
Sweden	1752	2559	2693	2749
United Kingdom	1856	2606	2775	2807
All Member States (average)	1743	1948	2149	2324

The full load hours have been calculated based total wind power (onshore and offshore wind power)

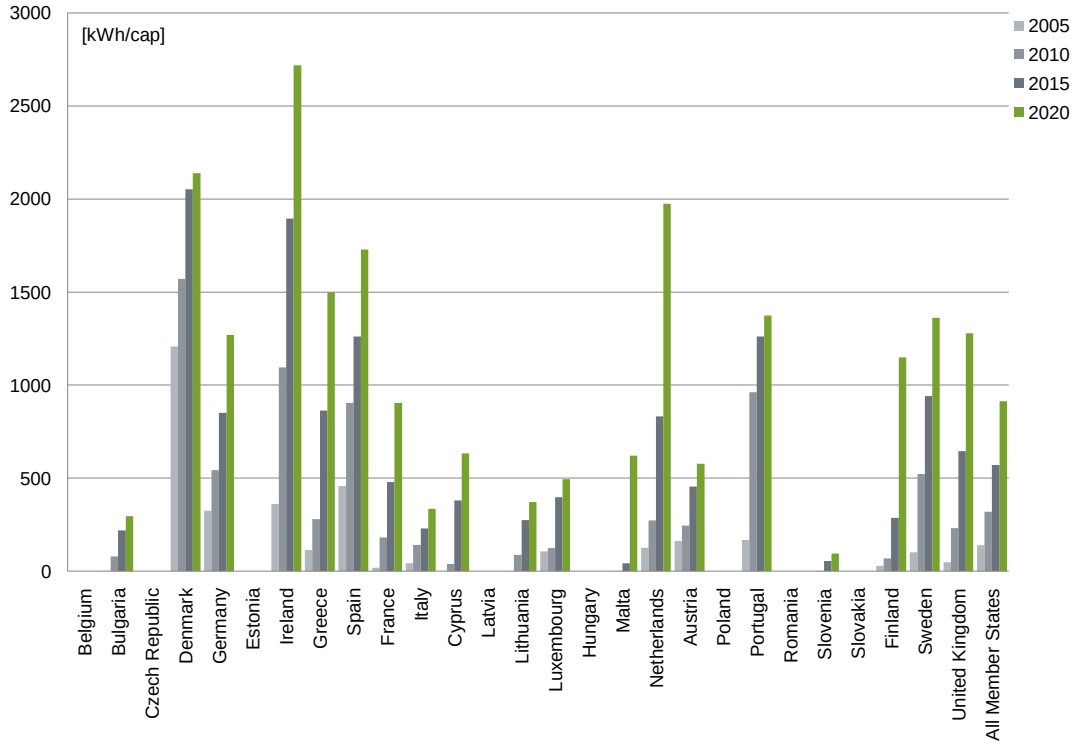


Figure 36: *Calculated per capita (2008) electricity generation for total wind power [kWh/cap] for the period 2005 - 2020*

Table 70: *Calculated per capita (2008) electricity generation for total wind power [kWh/cap] for the period 2005 - 2020*

	2005 [kWh/cap]	2010 [kWh/cap]	2015 [kWh/cap]	2020 [kWh/cap]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	1	79	219	296
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	1208	1572	2053	2139
Germany	324	543	851	1270
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	361	1094	1895	2720
Greece	113	279	863	1498
Spain	458	905	1261	1728
France	18	182	479	905
Italy	43	141	229	335
Cyprus	0	39	380	632
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	1	88	274	371
Luxembourg	107	124	397	494
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	0	0	43	621
Netherlands	126	272	832	1975
Austria	161	245	454	578
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	167	962	1262	1375
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	1	54	95
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	28	68	287	1149
Sweden	102	522	942	1361
United Kingdom	47	231	644	1279
All Member States (average)	140	320	571	913

The per capita indicator has been calculated based total wind power (onshore and offshore wind power)

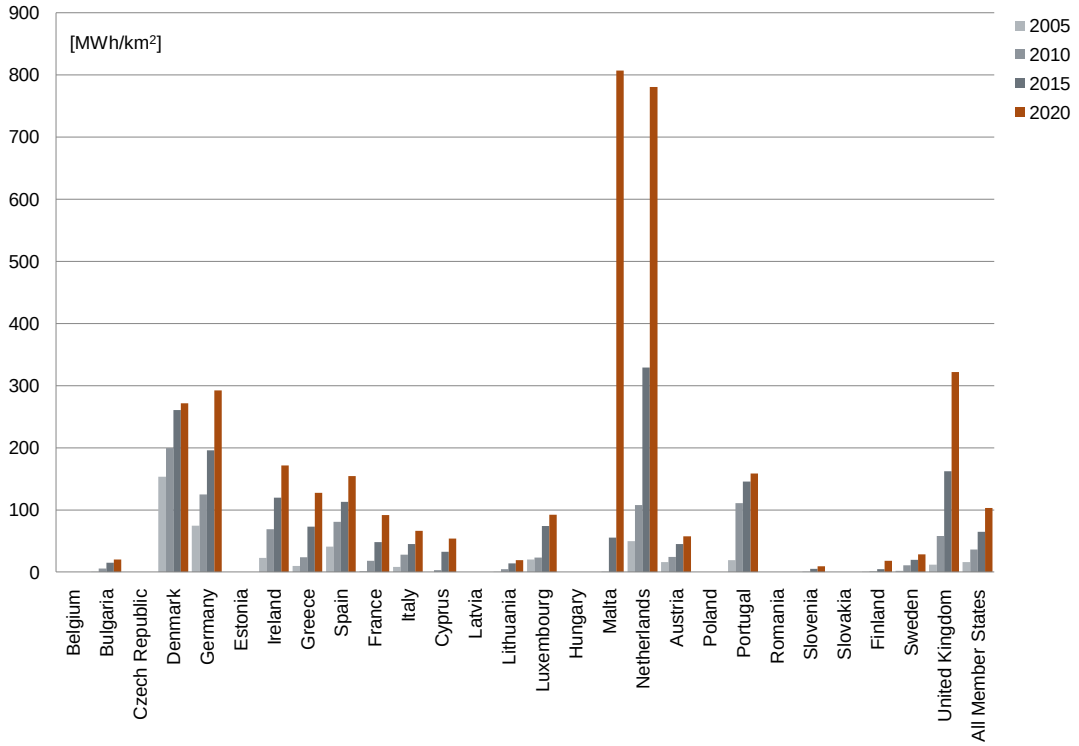


Figure 37: *Calculated per surface area (2004) electricity generation for total wind power [MWh/km^2] for the period 2005 - 2020*

Table 71: *Calculated per surface area (2004) electricity generation for total wind power [MWh/km^2] for the period 2005 - 2020*

	2005 [MWh/km^2]	2010 [MWh/km^2]	2015 [MWh/km^2]	2020 [MWh/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0.0	5.5	15.1	20.4
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	153.5	199.7	260.8	271.8
Germany	74.7	125.1	196.0	292.5
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	22.8	69.0	119.5	171.5
Greece	9.6	23.7	73.3	127.3
Spain	41.0	81.0	112.8	154.7
France	1.8	18.4	48.4	91.5
Italy	8.5	27.9	45.3	66.4
Cyprus	0.0	3.4	32.4	53.9
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0.0	4.5	14.2	19.1
Luxembourg	20.1	23.2	74.2	92.4
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	0.0	0.0	55.4	807.0
Netherlands	49.8	107.6	328.8	780.4
Austria	16.0	24.3	45.1	57.4
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	19.3	111.0	145.6	158.6
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0.0	0.1	5.4	9.4
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0.4	1.1	4.5	18.0
Sweden	2.1	10.9	19.6	28.3
United Kingdom	11.9	58.2	162.2	322.0
All Member States (average)	15.9	36.2	64.6	103.2

The per area indicator has been calculated based total wind power (onshore and offshore wind power)

Biomass electricity

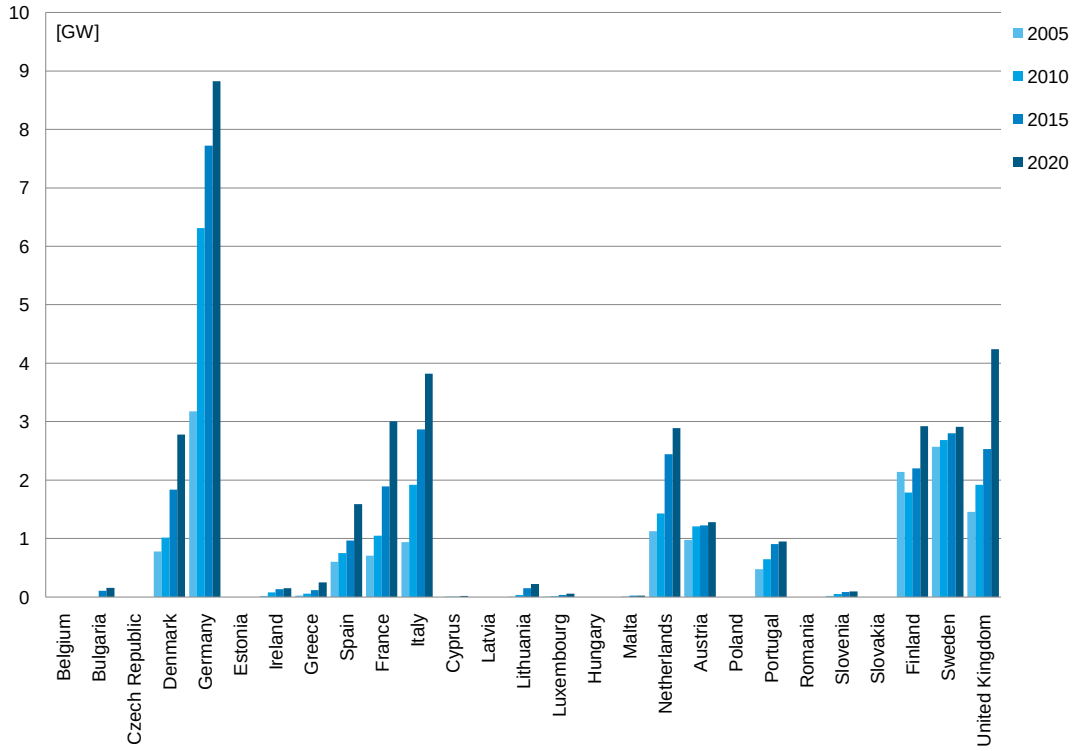


Figure 38: *Projected total biomass electric capacity [GW] for the period 2005 - 2020, all biomass input categories*

Table 72: *Projected total biomass electric capacity [MW] for the period 2005 - 2020, all biomass input categories*

	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	109	158	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	777	1017	1837	2779	8
Germany	3174	6312	7721	8825	24
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	20	77	137	153	0
Greece	24	60	120	250	1
Spain	601	752	965	1587	4
France	707	1052	1895	3007	8
Italy	937	1918	2869	3820	11
Cyprus	0	6	10	17	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	5	34	150	224	1
Luxembourg	9	13	36	59	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	0	3	23	23	0
Netherlands	1128	1430	2443	2892	8
Austria	976	1211	1228	1281	4
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	476	647	907	952	3
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	18	51	83	96	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	2140	1790	2200	2920	8
Sweden	2568	2683	2799	2914	8
United Kingdom	1458	1920	2530	4240	12
All Member States (total)	15018	20976	28062	36197	**100**

More information on subcategories for biomass electric capacity is presented in Table 74 on page 88.
See Table 75 on page 89 for corresponding biomass electricity electricity production data.

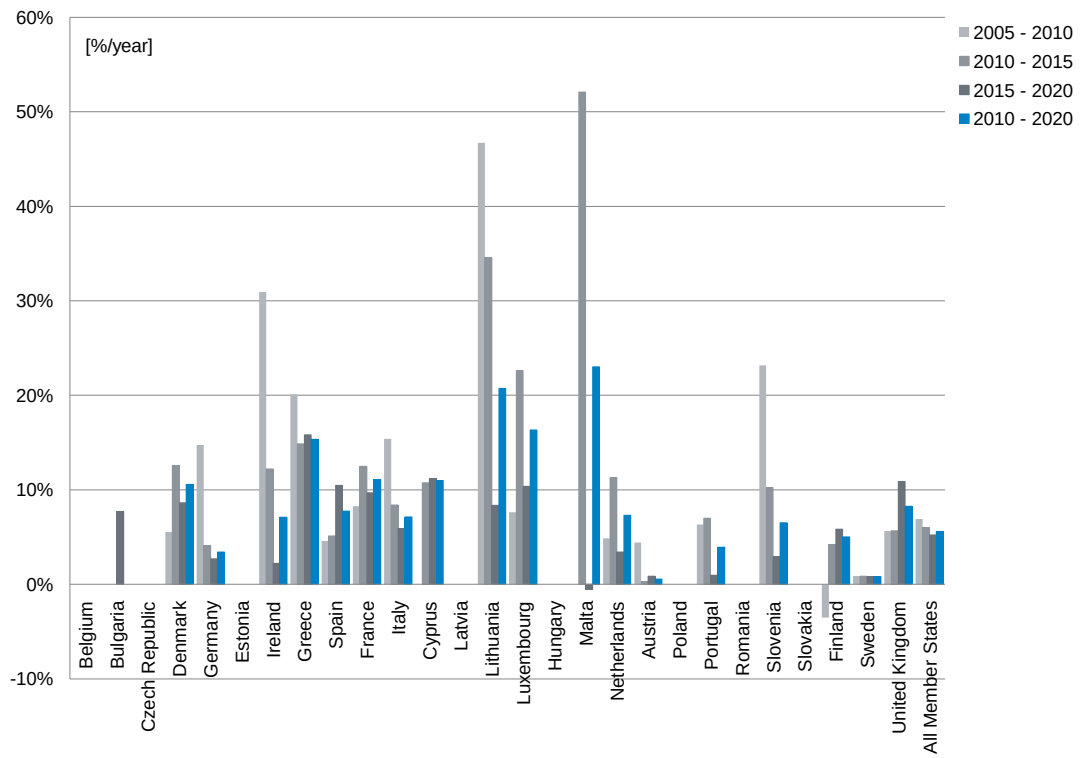


Figure 39: *Calculated average annual growth for capacity of biomass electricity [%/year] for four periods, all biomass input categories*

Table 73: *Calculated average annual growth for capacity of biomass electricity [%/year] for four periods, all biomass input categories*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	7.7	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	5.5	12.6	8.6	10.6
Germany	14.7	4.1	2.7	3.4
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	30.9	12.2	2.2	7.1
Greece	20.1	14.9	15.8	15.3
Spain	4.6	5.1	10.5	7.8
France	8.3	12.5	9.7	11.1
Italy	15.4	8.4	5.9	7.1
Cyprus	n.a.	10.8	11.2	11.0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	46.7	34.6	8.4	20.7
Luxembourg	7.6	22.6	10.4	16.3
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	52.1	-0.5	23.0
Netherlands	4.9	11.3	3.4	7.3
Austria	4.4	0.3	0.8	0.6
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	6.3	7.0	1.0	3.9
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	23.2	10.2	3.0	6.5
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	-3.5	4.2	5.8	5.0
Sweden	0.9	0.9	0.8	0.8
United Kingdom	5.7	5.7	10.9	8.2
All Member States (average)	6.9	6.0	5.2	5.6

Table 74: *Projected biomass electric capacity [MW] for the period 2005 - 2020, all biomass input categories*

	Solid biomass				Biogas				Bioliquids				Total biomass			
	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]	2005 [MW]	2010 [MW]	2015 [MW]	2020 [MW]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	65	93	0	0	45	65	0	0	0	0	0	0	109	158
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	740	991	1717	2404	37	26	95	349	0	0	26	26	777	1017	1837	2779
Germany	2427	3707	4358	4792	693	2368	3126	3796	54	237	237	237	3174	6312	7721	8825
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	2	15	75	91	18	62	62	62	0	0	0	0	20	77	137	153
Greece	n.a.	20	20	40	24	40	100	210	n.a.	n.a.	n.a.	n.a.	24	60	120	250
Spain	449	596	745	1187	152	156	220	400	0	0	0	0	601	752	965	1587
France	623	888	1531	2382	84	164	363	625	0	0	0	0	707	1052	1895	3007
Italy	653	1026	1333	1640	284	453	826	1200	0	439	710	980	937	1918	2869	3820
Cyprus	n.a.	n.a.	n.a.	n.a.	0	6	10	17	n.a.	n.a.	n.a.	n.a.	0	6	10	17
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	2	22	115	162	3	12	35	62	0	0	0	0	5	34	150	224
Luxembourg	4	5	13	30	5	8	23	29	n.a.	0	0	0	9	13	36	59
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	0	15	15	n.a.	3	8	7	n.a.	n.a.	n.a.	n.a.	0	3	23	23
Netherlands	966	1214	2062	2253	162	216	381	639	0	0	0	0	1128	1430	2443	2892
Austria	892	1099	1114	1164	72	97	100	102	12	15	15	15	976	1211	1228	1281
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	178	273	367	367	9	37	105	150	289	334	435	435	476	647	907	952
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	15	22	24	34	3	30	58	61	0	0	n.a.	n.a.	18	51	83	96
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2140	1790	2200	2920
Sweden	2526	2641	2757	2872	42	42	42	42	n.a.	n.a.	n.a.	n.a.	2568	2683	2799	2914
United Kingdom	501	580	1290	3140	957	1340	1240	1100	n.a.	n.a.	n.a.	n.a.	1458	1920	2530	4240
All Member States (total)	9978	13099	17601	22666	2545	5060	6839	8916	355	1025	1423	1693	15018	20976	28062	36197

See Table 77 on page 91 for corresponding biomass electricity electricity production data.
For Finland no breakdown into biomass input types has been provided. Therefore, the sum of all categories is lower than the value for *All Member States (total)*.

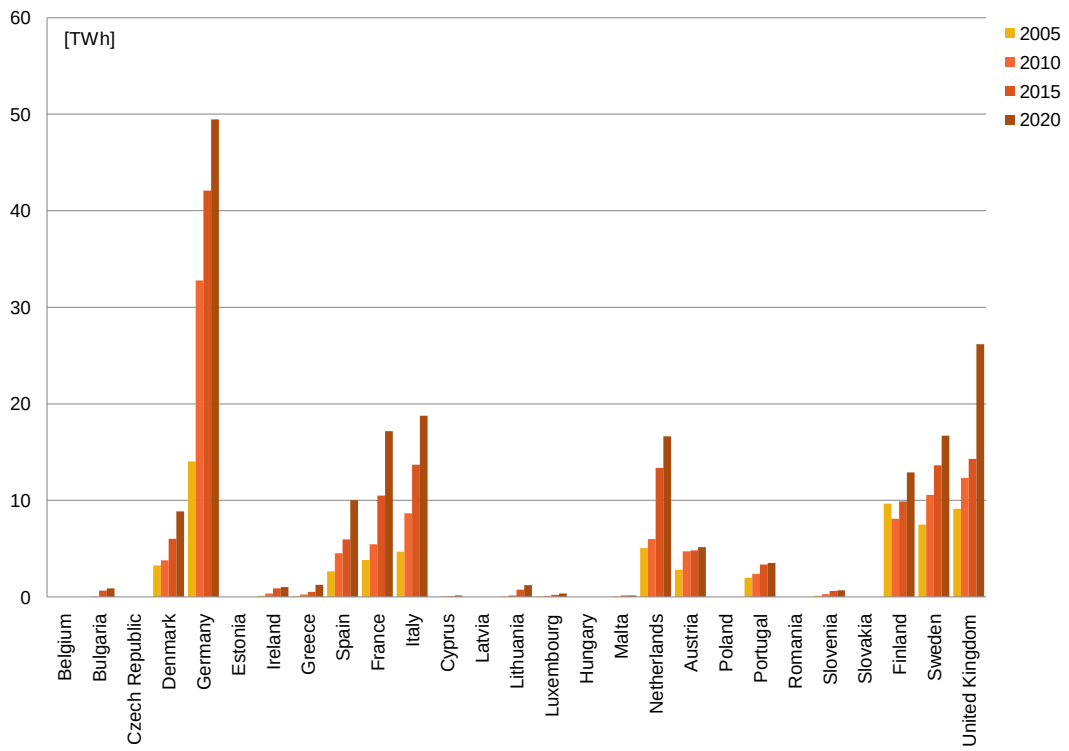


Figure 40: *Projected total biomass electricity generation [TWh] for the period 2005 - 2020, all biomass input categories*

Table 75: *Projected total biomass electricity generation [GWh] for the period 2005 - 2020, all biomass input categories*

	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	2	656	871	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	3243	3772	6035	8846	5
Germany	14025	32778	42090	49457	26
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	116	347	887	1006	1
Greece	94	254	504	1259	1
Spain	2653	4517	5962	10017	5
France	3819	5441	10496	17171	9
Italy	4675	8645	13712	18780	10
Cyprus	0	30	84	143	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	7	147	761	1223	1
Luxembourg	46	70	200	334	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	0	9	140	135	0
Netherlands	5041	5975	13350	16639	9
Austria	2823	4720	4826	5147	3
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	1976	2400	3358	3516	2
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	114	298	623	676	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	9660	8090	9880	12910	7
Sweden	7506	10567	13628	16689	9
United Kingdom	9109	12330	14290	26160	14
All Member States (total)	64907	100392	141482	190979	**100**

More information on subcategories for biomass electricity generation is presented in Table 77 on page 91.
See Table 72 on page 86 for corresponding biomass electricity capacity data.
As indicated in section 1.5.26 the subtotal for *Biomass* in Sweden does not include liquid energy carriers. For this reason the sum of all subcategories is 65 GWh higher than the value for *All Member States (total)*.

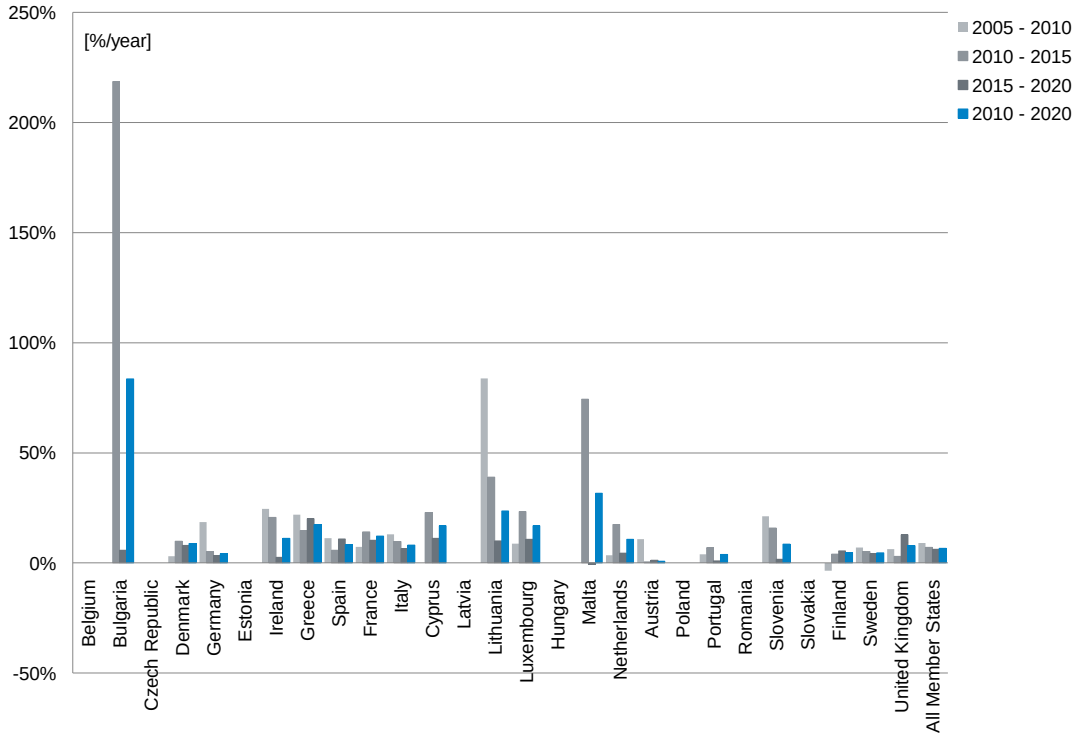


Figure 41: *Calculated average annual growth for generation from biomass electricity [%/year] for four periods, all biomass input categories*

Table 76: *Calculated average annual growth for generation from biomass electricity [%/year] for four periods, all biomass input categories*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	218.5	5.8	83.6
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	3.1	9.9	7.9	8.9
Germany	18.5	5.1	3.3	4.2
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	24.5	20.6	2.5	11.2
Greece	22.0	14.7	20.1	17.4
Spain	11.2	5.7	10.9	8.3
France	7.3	14.0	10.3	12.2
Italy	13.1	9.7	6.5	8.1
Cyprus	n.a.	22.9	11.2	16.9
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	83.8	38.9	10.0	23.6
Luxembourg	8.8	23.4	10.8	16.9
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	74.3	-0.6	31.6
Netherlands	3.5	17.4	4.5	10.8
Austria	10.8	0.4	1.3	0.9
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	4.0	6.9	0.9	3.9
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	21.2	15.9	1.6	8.5
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	-3.5	4.1	5.5	4.8
Sweden	7.1	5.2	4.1	4.7
United Kingdom	6.2	3.0	12.9	7.8
All Member States (average)	9.1	7.1	6.2	6.6

Table 77: *Projected biomass electricity generation [GWh] for the period 2005 - 2020, broken down into biomass input categories*

	Solid biomass				Biogas				Bioliquids				Total biomass			
	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]	2005 [GWh]	2010 [GWh]	2015 [GWh]	2020 [GWh]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	387	514	0	2	269	357	0	0	0	0	0	2	656	871
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	2960	3578	5312	6345	283	194	721	2493	0	0	1	8	3243	3772	6035	8846
Germany	10044	17498	21695	24569	3652	13829	18946	23438	329	1450	1450	1450	14025	32778	42090	49457
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	8	28	567	687	108	320	320	319	0	0	0	0	116	347	887	1006
Greece	n.a.	73	73	364	94	181	431	895	n.a.	n.a.	n.a.	n.a.	94	254	504	1259
Spain	2029	3719	4660	7400	623	799	1302	2617	0	0	0	0	2653	4517	5962	10017
France	3341	4506	8366	13470	478	935	2129	3701	0	0	0	0	3819	5441	10496	17171
Italy	3477	4758	6329	7900	1198	2129	4074	6020	0	1758	3309	4860	4675	8645	13712	18780
Cyprus	n.a.	n.a.	n.a.	n.a.	0	30	84	143	n.a.	n.a.	n.a.	n.a.	0	30	84	143
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	3	98	533	810	4	50	228	413	0	0	0	0	7	147	761	1223
Luxembourg	19	25	77	190	27	44	123	144	n.a.	0	0	0	46	70	200	334
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	0	86	86	n.a.	9	54	50	n.a.	n.a.	n.a.	n.a.	0	9	140	135
Netherlands	4758	5103	11189	11975	283	872	2161	4664	0	0	0	0	5041	5975	13350	16639
Austria	2507	4131	4223	4530	283	553	567	581	33	36	36	36	2823	4720	4826	5147
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	934	1092	1468	1468	34	130	368	525	1008	1170	1523	1523	1976	2400	3358	3516
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	82	150	272	309	32	148	351	367	0	0	n.a.	n.a.	114	298	623	676
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	9640	3930	5300	7860	20	40	50	270	n.a.	4120	4530	4780	9660	8090	9880	12910
Sweden	7452	10513	13574	16635	53	53	53	53	65	65	65	65	7506	10567	13628	16689
United Kingdom	4347	5500	7990	20590	4762	6830	6300	5570	n.a.	n.a.	n.a.	n.a.	9109	12330	14290	26160
All Member States (total)	51601	64702	92101	125702	11934	27148	38531	52620	1435	8599	10914	12722	64907	100392	141482	190979

See Table 74 on page 88 for corresponding biomass electricity capacity data.

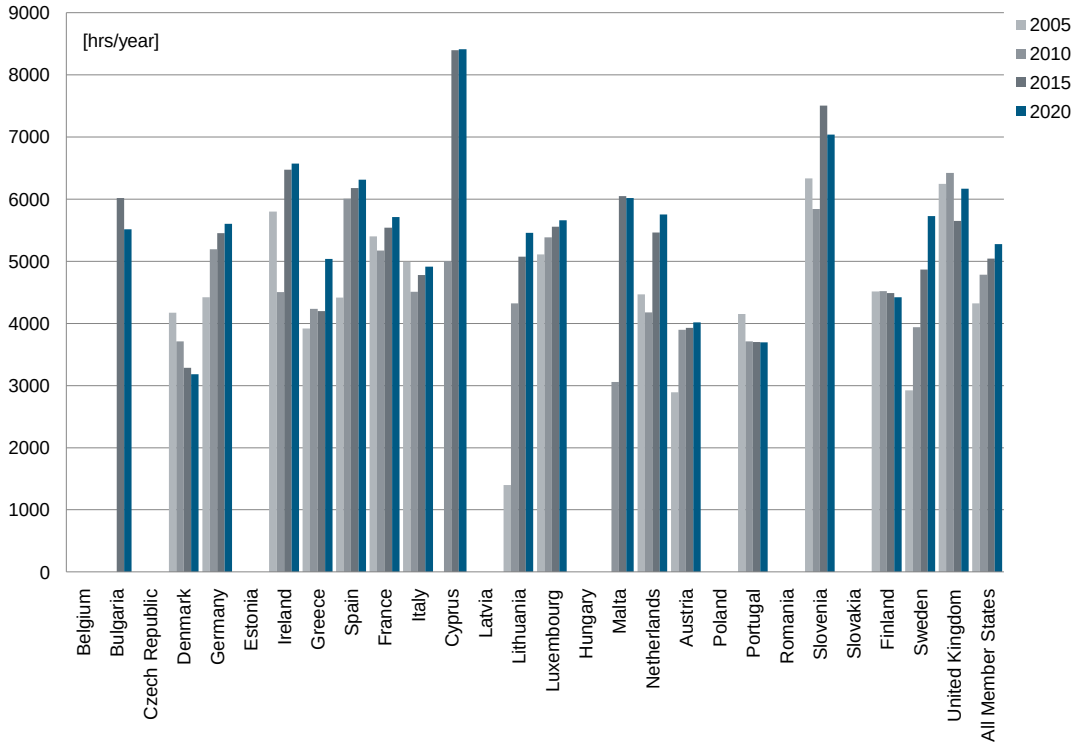


Figure 42: *Calculated average number of full load hours for total biomass electricity [hrs/year] for the period 2005 - 2020, all biomass input categories*

Table 78: *Calculated average number of full load hours for total biomass electricity [hrs/year] for the period 2005 - 2020, all biomass input categories*

	2005 [hrs/year]	2010 [hrs/year]	2015 [hrs/year]	2020 [hrs/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	6018	5513
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	4174	3709	3285	3183
Germany	4419	5193	5451	5604
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	5800	4506	6474	6575
Greece	3917	4233	4200	5036
Spain	4414	6007	6178	6312
France	5402	5172	5539	5710
Italy	4989	4507	4779	4916
Cyprus	n.a.	5000	8400	8412
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	1400	4324	5073	5460
Luxembourg	5111	5385	5556	5661
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	3056	6047	6016
Netherlands	4469	4178	5465	5753
Austria	2892	3898	3930	4018
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	4151	3709	3702	3693
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	6333	5843	7506	7042
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	4514	4520	4491	4421
Sweden	2923	3939	4869	5727
United Kingdom	6248	6422	5648	6170
All Member States (average)	4322	4786	5042	5276

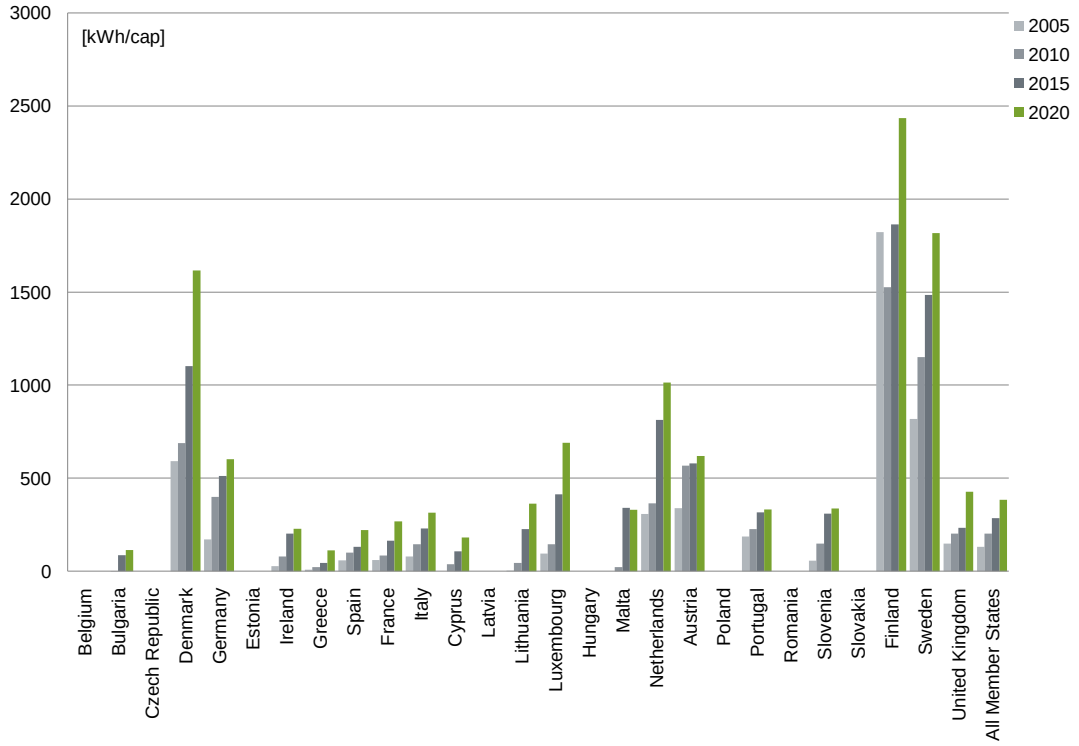


Figure 43: *Calculated per capita (2008) generation for total biomass electricity [kWh/cap] for the period 2005 - 2020, all biomass input categories*

Table 79: *Calculated per capita (2008) generation for total biomass electricity [kWh/cap] for the period 2005 - 2020, all biomass input categories*

	2005 [kWh/cap]	2010 [kWh/cap]	2015 [kWh/cap]	2020 [kWh/cap]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	86	114
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	592	689	1102	1615
Germany	171	399	512	602
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	26	79	202	229
Greece	8	23	45	112
Spain	59	100	132	221
France	60	85	164	268
Italy	78	145	230	315
Cyprus	0	38	106	181
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	2	44	226	363
Luxembourg	95	145	413	690
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	0	21	341	330
Netherlands	307	364	814	1014
Austria	339	567	580	619
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	186	226	316	331
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	57	148	310	336
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	1822	1526	1864	2436
Sweden	817	1151	1484	1817
United Kingdom	149	202	234	428
All Member States (average)	130	202	284	384

The population data can be viewed in Table 9 (page 25)

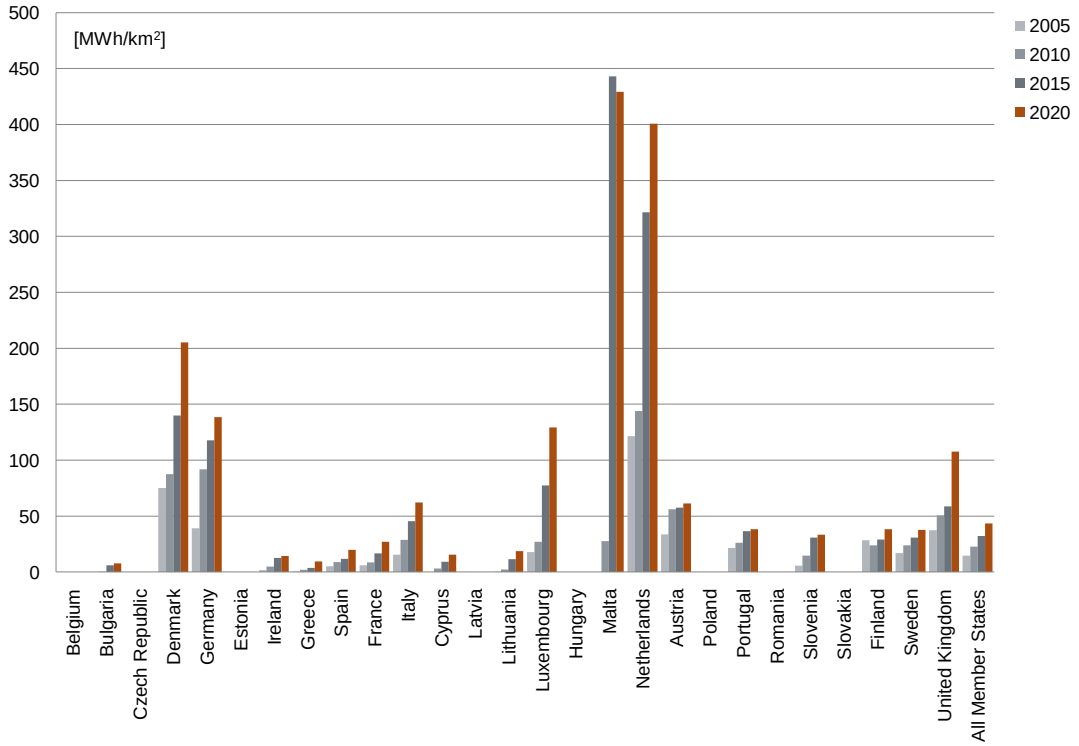


Figure 44: *Calculated per surface area (2004) generation for total biomass electricity [MWh/km^2] for the period 2005 - 2020*

Table 80: *Calculated per surface area (2004) generation for total biomass electricity [MWh/km^2] for the period 2005 - 2020*

	2005 [MWh/km^2]	2010 [MWh/km^2]	2015 [MWh/km^2]	2020 [MWh/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0.0	0.0	5.9	7.8
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	75.2	87.5	140.0	205.3
Germany	39.3	91.8	117.9	138.5
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	1.7	5.0	12.7	14.4
Greece	0.7	1.9	3.8	9.5
Spain	5.2	8.9	11.8	19.8
France	6.0	8.6	16.6	27.1
Italy	15.5	28.7	45.5	62.3
Cyprus	0.0	3.2	9.1	15.5
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0.1	2.3	11.7	18.7
Luxembourg	17.8	27.1	77.3	129.2
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	0.0	27.5	443.0	429.3
Netherlands	121.4	143.9	321.5	400.7
Austria	33.7	56.3	57.5	61.4
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	21.5	26.1	36.5	38.2
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	5.6	14.7	30.7	33.3
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	28.6	23.9	29.2	38.2
Sweden	17.0	23.9	30.9	37.8
United Kingdom	37.5	50.7	58.8	107.6
All Member States (average)	14.7	22.8	32.1	43.4

The surface area data can be viewed in Table 9 (page 25)

Deep geothermal thermal energy

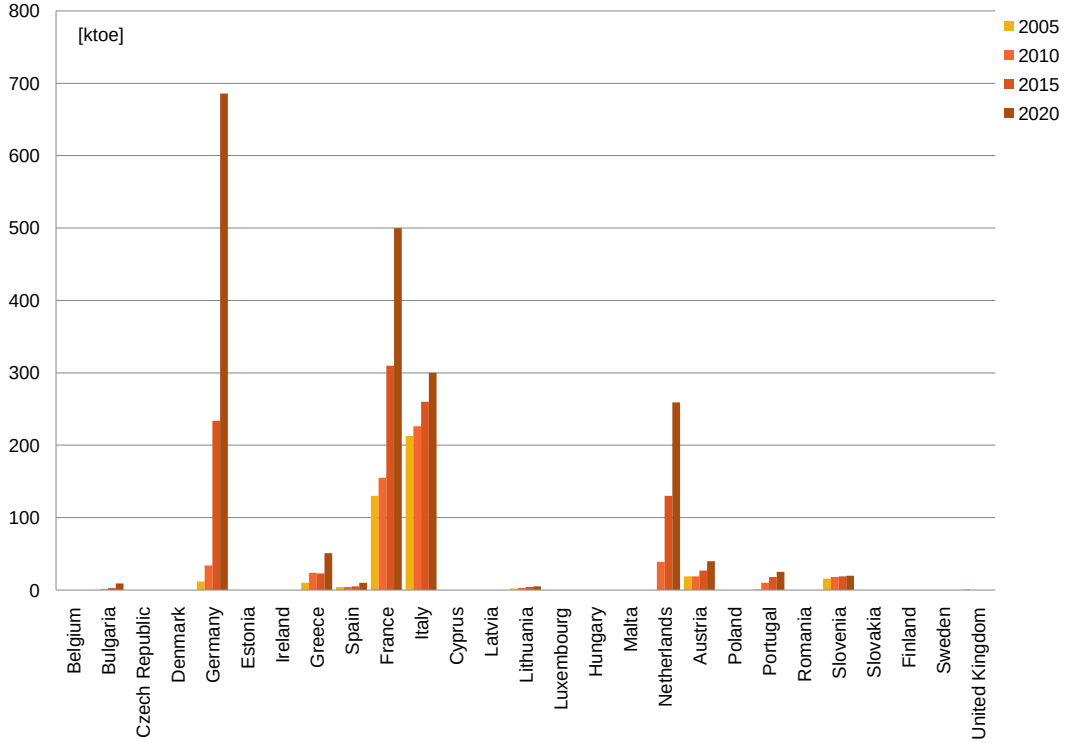


Figure 45: *Projected total geothermal heat energy [ktoe] for the period 2005 - 2020*

Table 81: *Projected total geothermal heat energy [ktoe] for the period 2005 - 2020*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	1	3	9	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	0
Germany	12	34	234	686	36
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0	0
Greece	10	24	23	51	3
Spain	4	4	5	10	1
France	130	155	310	500	26
Italy	213	226	260	300	16
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	2	3	4	5	0
Luxembourg	n.a.	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	39	130	259	14
Austria	19	19	27	40	2
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	1	10	18	25	1
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	16	18	19	20	1
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0
Sweden	n.a.	n.a.	n.a.	n.a.	n.a.
United Kingdom	1	n.a.	n.a.	n.a.	n.a.
All Member States (total)	408	533	1033	1905	**100**

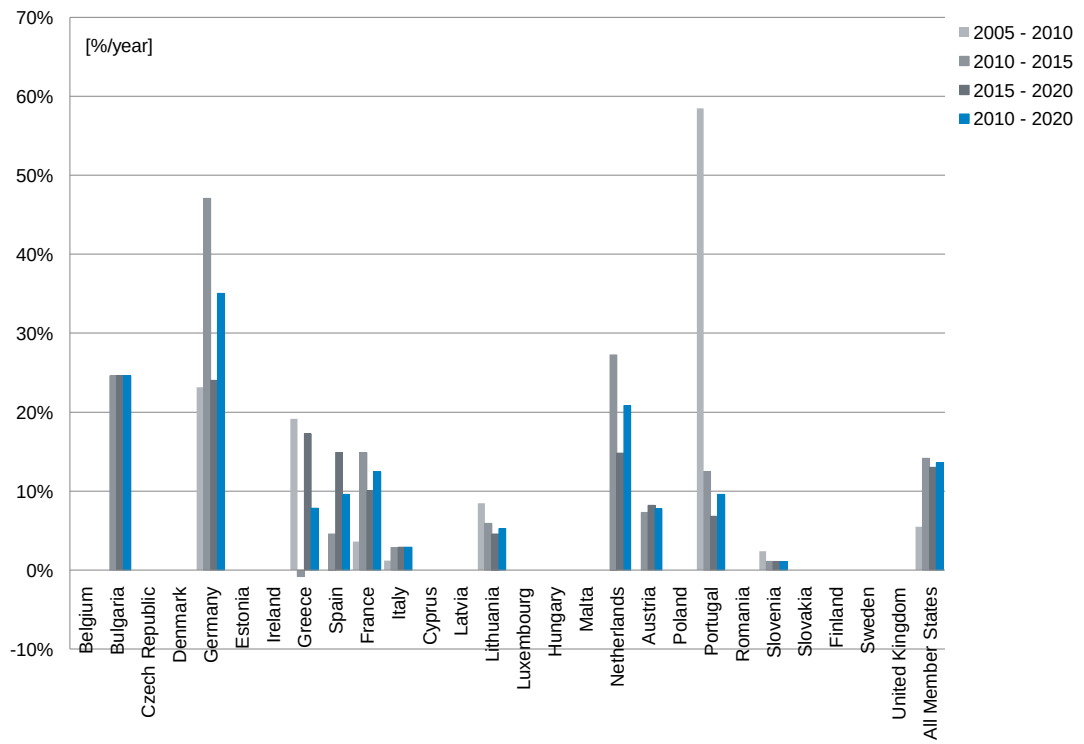


Figure 46: *Calculated average annual growth for energy from geothermal heat [%/year] for four periods*

Table 82: *Calculated average annual growth for energy from geothermal heat [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	24.6	24.6	24.6
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	23.2	47.1	24.0	35.0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	19.1	-0.8	17.3	7.8
Spain	0.0	4.6	14.9	9.6
France	3.6	14.9	10.0	12.4
Italy	1.2	2.8	2.9	2.9
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	8.4	5.9	4.6	5.2
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	27.2	14.8	20.8
Austria	0.0	7.3	8.2	7.7
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	58.5	12.5	6.8	9.6
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	2.4	1.1	1.0	1.1
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	5.5	14.1	13.0	13.6

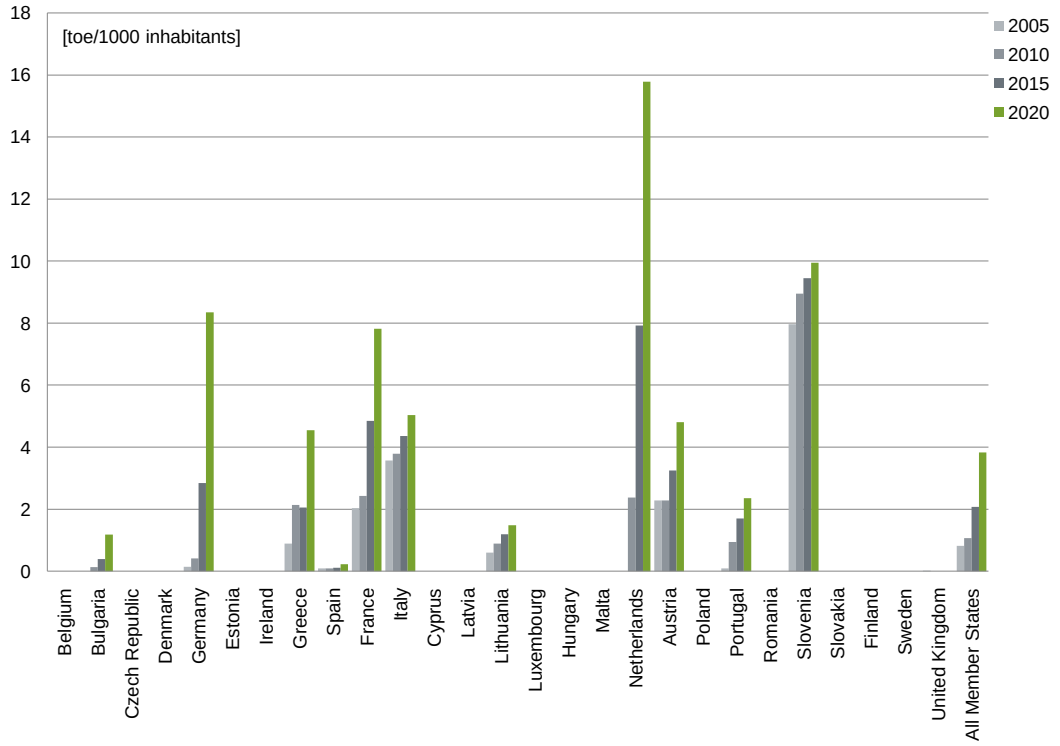


Figure 47: *Calculated per capita (2008) energy for total geothermal heat [toe/1000 inhabitants] for the period 2005 - 2020*

Table 83: *Calculated per capita (2008) energy for total geothermal heat [toe/1000 inhabitants] for the period 2005 - 2020*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	0	0	1
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	0	0	3	8
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0
Greece	1	2	2	5
Spain	0	0	0	0
France	2	2	5	8
Italy	4	4	4	5
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	1	1	1	1
Luxembourg	n.a.	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	2	8	16
Austria	2	2	3	5
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	1	2	2
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	8	9	9	10
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	0	n.a.	n.a.	n.a.
All Member States (average)	1	1	2	4

The population data can be viewed in Table 9 (page 25)

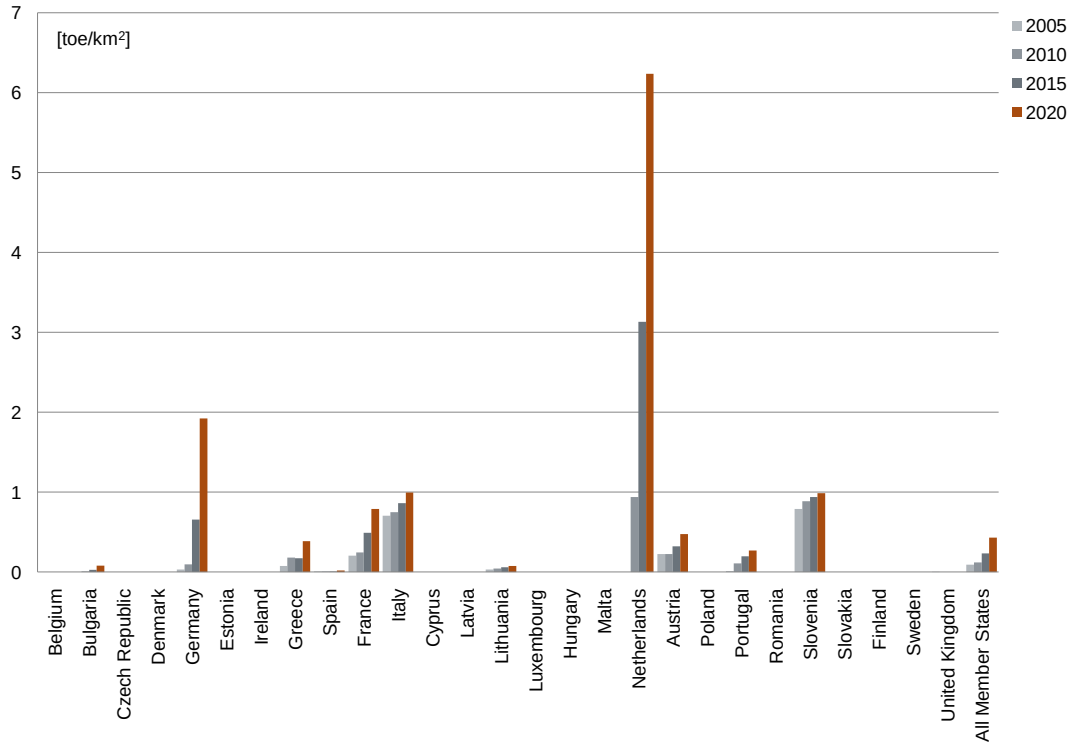


Figure 48: *Calculated per surface area (2004) energy for total geothermal heat [toe/km^2] for the period 2005 - 2020*

Table 84: *Calculated per surface area (2004) energy for total geothermal heat [toe/km^2] for the period 2005 - 2020*

	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	0	0	1	2
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0
Greece	0	0	0	0
Spain	0	0	0	0
France	0	0	0	1
Italy	1	1	1	1
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	n.a.	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	1	3	6
Austria	0	0	0	0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	1	1	1	1
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	0	n.a.	n.a.	n.a.
All Member States (average)	0	0	0	0

The surface area data can be viewed in Table 9 (page 25)

Solar thermal energy

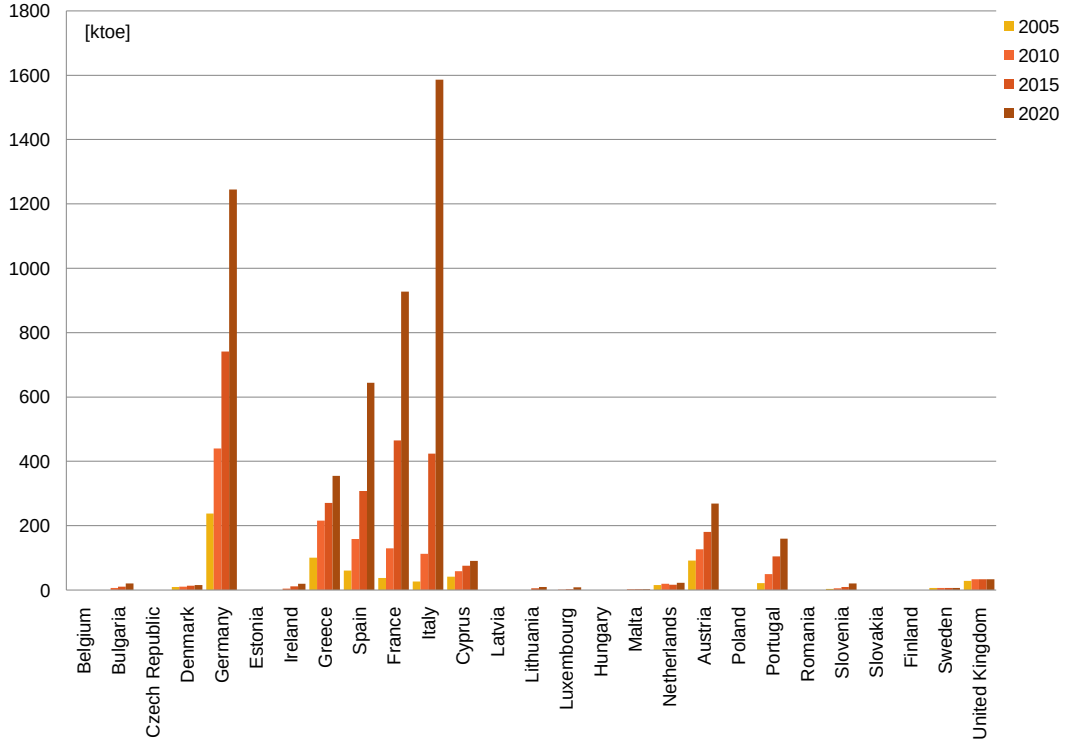


Figure 49: *Projected total solar thermal energy [ktoe] for the period 2005 - 2020*

Table 85: *Projected total solar thermal energy [ktoe] for the period 2005 - 2020*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	6	11	21	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	10	11	14	16	0
Germany	238	440	741	1245	23
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	4	12	20	0
Greece	101	216	271	355	7
Spain	61	159	308	644	12
France	38	130	465	927	17
Italy	27	113	424	1586	29
Cyprus	41	59	75	90	2
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	5	9	0
Luxembourg	0	1	2	8	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	3	3	3	0
Netherlands	16	20	17	23	0
Austria	92	127	181	269	5
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	22	50	105	160	3
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	3	5	10	21	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0
Sweden	6	6	6	6	0
United Kingdom	29	34	34	34	1
All Member States (total)	684	1384	2684	5437	**100**

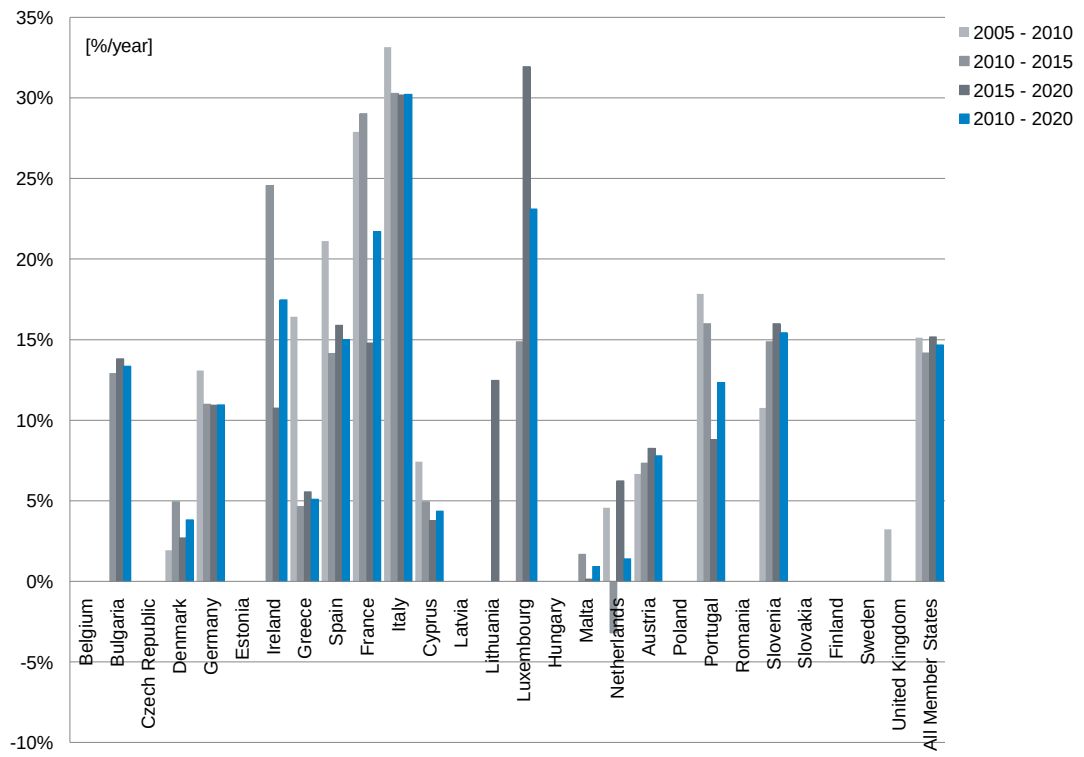


Figure 50: *Calculated average annual growth for energy from solar thermal [%/year] for four periods*

Table 86: *Calculated average annual growth for energy from solar thermal [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	12.9	13.8	13.3
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	1.9	4.9	2.7	3.8
Germany	13.1	11.0	10.9	11.0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	24.6	10.8	17.5
Greece	16.4	4.6	5.5	5.1
Spain	21.1	14.1	15.9	15.0
France	27.9	29.0	14.8	21.7
Italy	33.2	30.3	30.2	30.2
Cyprus	7.4	4.9	3.8	4.4
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	12.5	n.a.
Luxembourg	n.a.	14.9	32.0	23.1
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	1.7	0.1	0.9
Netherlands	4.6	-3.2	6.2	1.4
Austria	6.7	7.3	8.2	7.8
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	17.8	16.0	8.8	12.3
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	10.8	14.9	16.0	15.4
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	0.0	0.0	0.0	0.0
United Kingdom	3.2	0.0	0.0	0.0
All Member States (average)	15.1	14.2	15.2	14.7

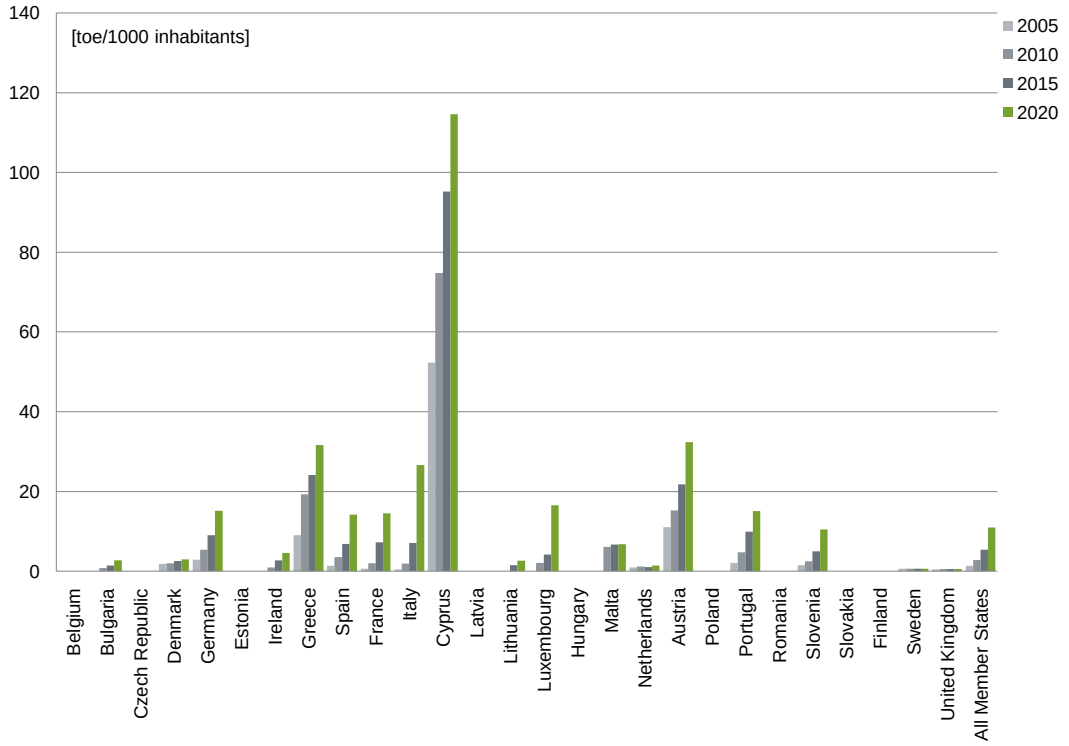


Figure 51: *Calculated per capita (2008) energy for total solar thermal [toe/1000 inhabitants] for the period 2005 - 2020*

Table 87: *Calculated per capita (2008) energy for total solar thermal [toe/1000 inhabitants] for the period 2005 - 2020*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	1	1	3
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	2	2	3	3
Germany	3	5	9	15
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	1	3	5
Greece	9	19	24	32
Spain	1	4	7	14
France	1	2	7	14
Italy	0	2	7	27
Cyprus	52	75	95	115
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	1	3
Luxembourg	0	2	4	17
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	6	7	7
Netherlands	1	1	1	1
Austria	11	15	22	32
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	2	5	10	15
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	1	2	5	10
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	1	1	1	1
United Kingdom	0	1	1	1
All Member States (average)	1	3	5	11

The population data can be viewed in Table 9 (page 25)

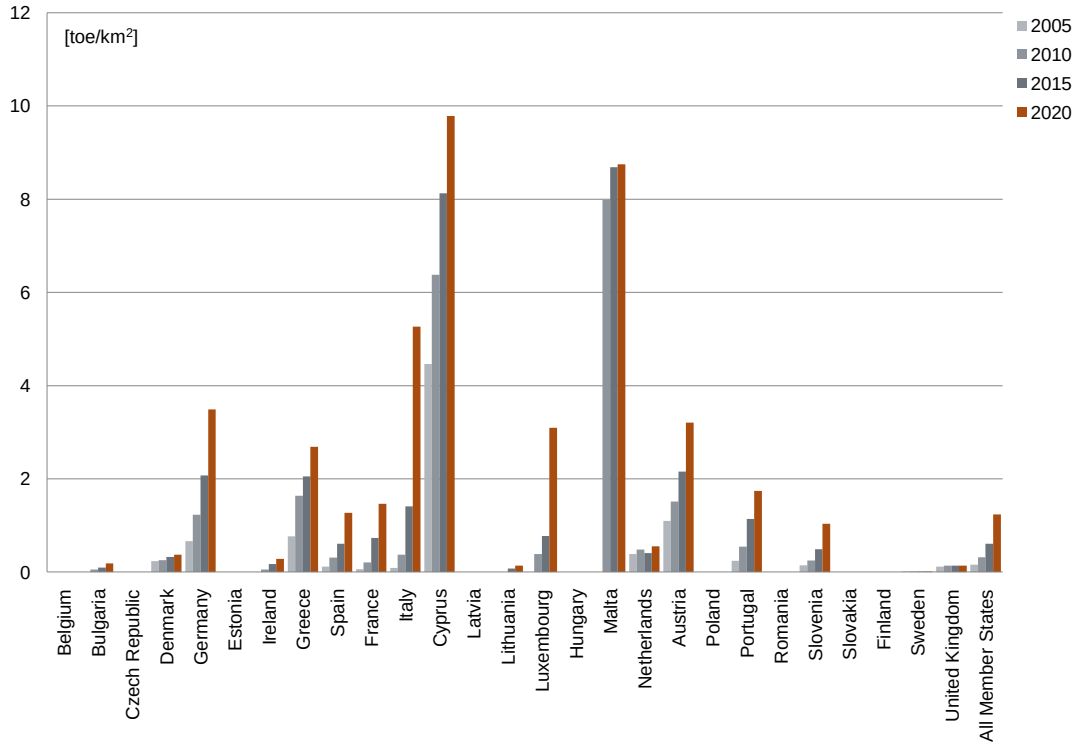


Figure 52: *Calculated per surface area (2004) energy for total solar thermal [toe/km^2] for the period 2005 - 2020*

Table 88: *Calculated per surface area (2004) energy for total solar thermal [toe/km^2] for the period 2005 - 2020*

	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	1	1	2	3
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0
Greece	1	2	2	3
Spain	0	0	1	1
France	0	0	1	1
Italy	0	0	1	5
Cyprus	4	6	8	10
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	0	1	3
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	8	9	9
Netherlands	0	0	0	1
Austria	1	2	2	3
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	1	1	2
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	1
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	0	0	0	0
United Kingdom	0	0	0	0
All Member States (average)	0	0	1	1

The surface area data can be viewed in Table 9 (page 25)

Biomass thermal energy

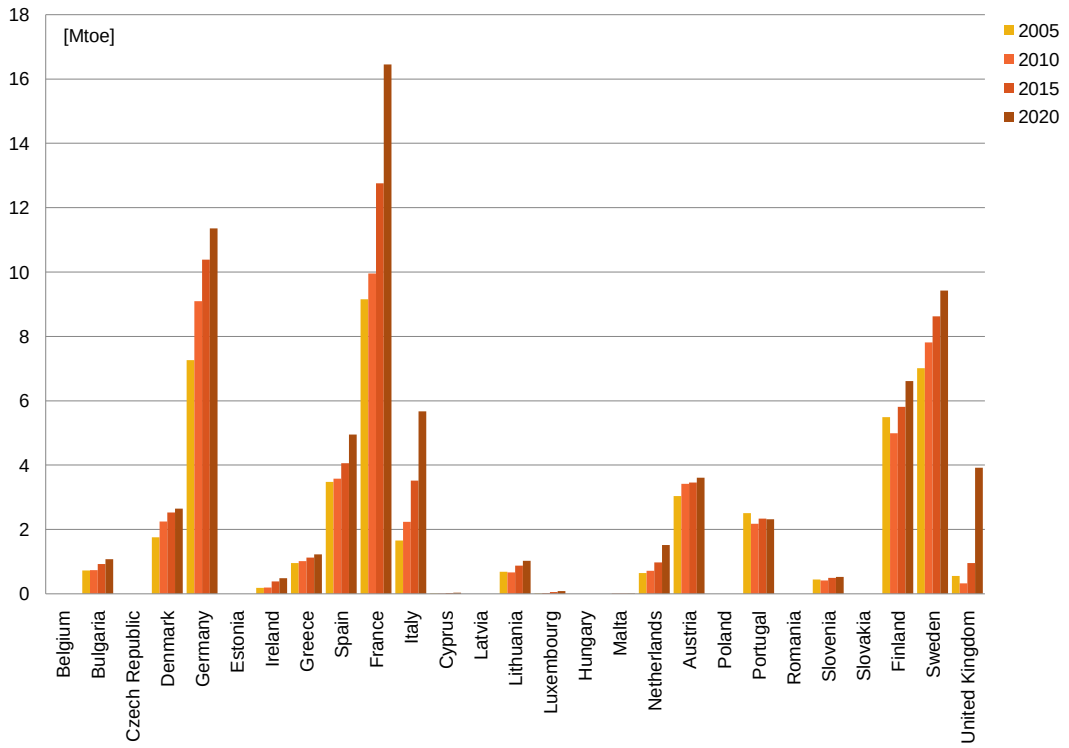


Figure 53: *Projected total biomass heat energy [Mtoe] for the period 2005 - 2020, all biomass input categories*

Table 89: *Projected total biomass heat energy [ktoe] for the period 2005 - 2020, all biomass input categories*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	724	734	929	1073	1
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	1759	2245	2526	2643	4
Germany	7260	9092	10388	11355	16
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	183	198	388	486	1
Greece	951	1012	1128	1222	2
Spain	3477	3583	4060	4950	7
France	9153	9953	12760	16455	23
Italy	1655	2239	3521	5670	8
Cyprus	4	18	24	30	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	686	663	879	1023	1
Luxembourg	19	24	51	83	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	0	1	2	2	0
Netherlands	647	715	980	1520	2
Austria	3033	3415	3463	3607	5
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	2507	2179	2339	2322	3
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	445	415	495	526	1
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	5490	4990	5810	6610	9
Sweden	7013	7817	8622	9426	13
United Kingdom	560	323	958	3914	5
All Member States (total)	45566	49616	59323	72917	**100**

More information on subcategories for biomass heat energy is presented in Table 91 on page 110.

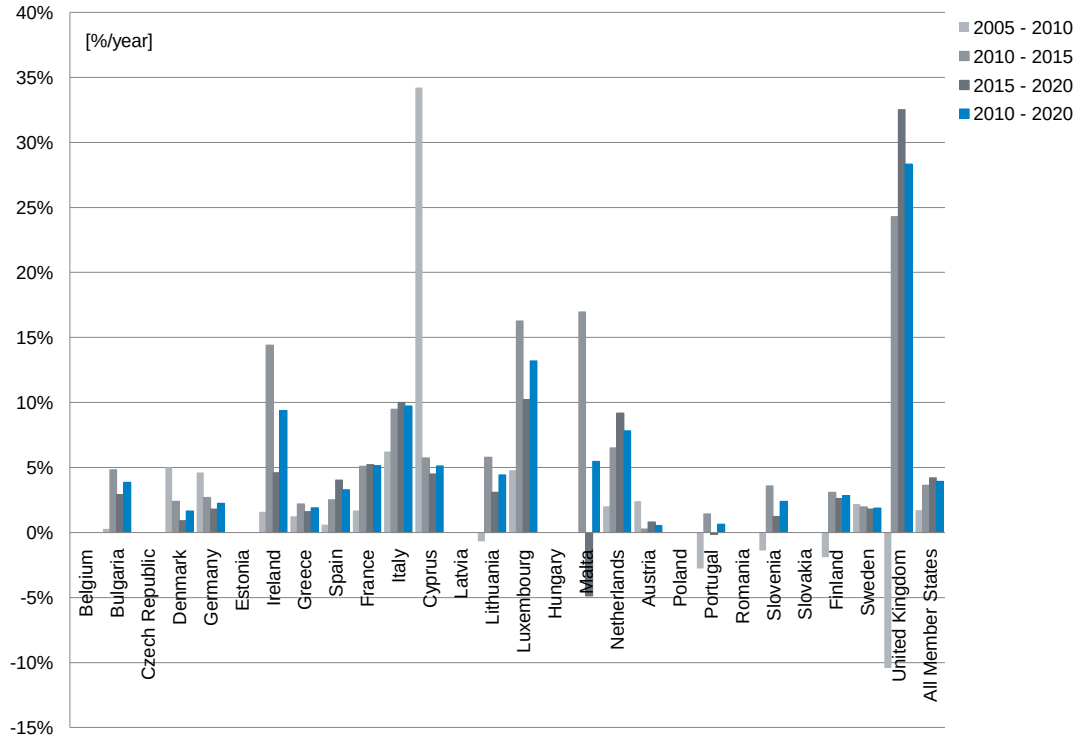


Figure 54: *Calculated average annual growth for energy from biomass heat [%/year] for four periods, all biomass input categories*

Table 90: *Calculated average annual growth for energy from biomass heat [%/year] for four periods, all biomass input categories*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0.3	4.8	2.9	3.9
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	5.0	2.4	0.9	1.6
Germany	4.6	2.7	1.8	2.2
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	1.6	14.4	4.6	9.4
Greece	1.3	2.2	1.6	1.9
Spain	0.6	2.5	4.0	3.3
France	1.7	5.1	5.2	5.2
Italy	6.2	9.5	10.0	9.7
Cyprus	34.2	5.7	4.5	5.1
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	-0.7	5.8	3.1	4.4
Luxembourg	4.8	16.3	10.2	13.2
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	17.0	-4.9	5.5
Netherlands	2.0	6.5	9.2	7.8
Austria	2.4	0.3	0.8	0.5
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	-2.8	1.4	-0.1	0.6
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	-1.4	3.6	1.2	2.4
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	-1.9	3.1	2.6	2.9
Sweden	2.2	2.0	1.8	1.9
United Kingdom	-10.4	24.3	32.5	28.3
All Member States (average)	1.7	3.6	4.2	3.9

Table 91: *Projected biomass heat energy [ktoe] for the period 2005 - 2020, broken down into biomass input categories*

	Solid biomass				Biogas				Bioliquids				Bio-SNG for grid feed-in				Total biomass thermal energy			
	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	724	734	916	1053	0	0	13	20	0	0	0	0	n.a.	n.a.	n.a.	n.a.	724	734	929	1073
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	1714	2178	2426	2470	45	59	92	165	0	8	8	8	n.a.	n.a.	n.a.	n.a.	1759	2245	2526	2643
Germany	6794	7516	8389	8952	154	912	1312	1692	313	664	688	711	n.a.	n.a.	n.a.	n.a.	7260	9092	10388	11355
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	176	188	362	453	7	10	26	33	0	0	0	0	n.a.	n.a.	n.a.	n.a.	183	198	388	486
Greece	951	1012	1128	1222	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	951	1012	1128	1222
Spain	3441	3550	3997	4850	36	33	63	100	0	0	0	0	n.a.	n.a.	n.a.	n.a.	3477	3583	4060	4950
France	9067	9870	12500	15900	86	83	260	555	0	0	0	0	n.a.	n.a.	n.a.	n.a.	9153	9953	12760	16455
Italy	1629	2206	3404	5254	26	26	83	266	0	7	33	150	n.a.	n.a.	n.a.	n.a.	1655	2239	3521	5670
Cyprus	4	18	24	30	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4	18	24	30
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	685	657	851	973	1	6	28	50	0	0	0	0	n.a.	n.a.	n.a.	n.a.	686	663	879	1023
Luxembourg	16	19	39	70	3	5	12	13	n.a.	0	0	0	n.a.	n.a.	n.a.	n.a.	19	24	51	83
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	0	0	0	n.a.	1	2	2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	1	2	2
Netherlands	540	573	604	650	69	111	174	288	0	0	0	0	38	31	202	582	647	715	980	1520
Austria	3025	3400	3447	3591	8	15	16	16	0	0	0	0	n.a.	n.a.	n.a.	n.a.	3033	3415	3463	3607
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	1785	1514	1515	1484	10	10	23	37	713	655	801	801	n.a.	n.a.	n.a.	n.a.	2507	2179	2339	2322
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	401	415	483	497	0	0	0	0	43	0	12	28	n.a.	n.a.	n.a.	n.a.	445	415	495	526
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	5450	2710	3300	3940	40	30	30	60	n.a.	2240	2470	2610	n.a.	n.a.	n.a.	n.a.	5490	4990	5810	6610
Sweden	6992	7800	8607	9415	21	18	14	11	65	65	65	65	n.a.	n.a.	n.a.	n.a.	7013	7817	8622	9426
United Kingdom	493	305	904	3612	67	18	54	302	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	560	323	958	3914
All Member States (total)	43887	44665	52896	64416	573	1337	2202	3610	1134	3639	4077	4373	38	31	202	582	45566	49616	59323	72917

As indicated in section 1.5.26 the subtotal for *Biomass* in Sweden does not include liquid energy carriers. For this reason the sum of all subcategories is 65 GWh higher than the value for *All Member States (total)*.

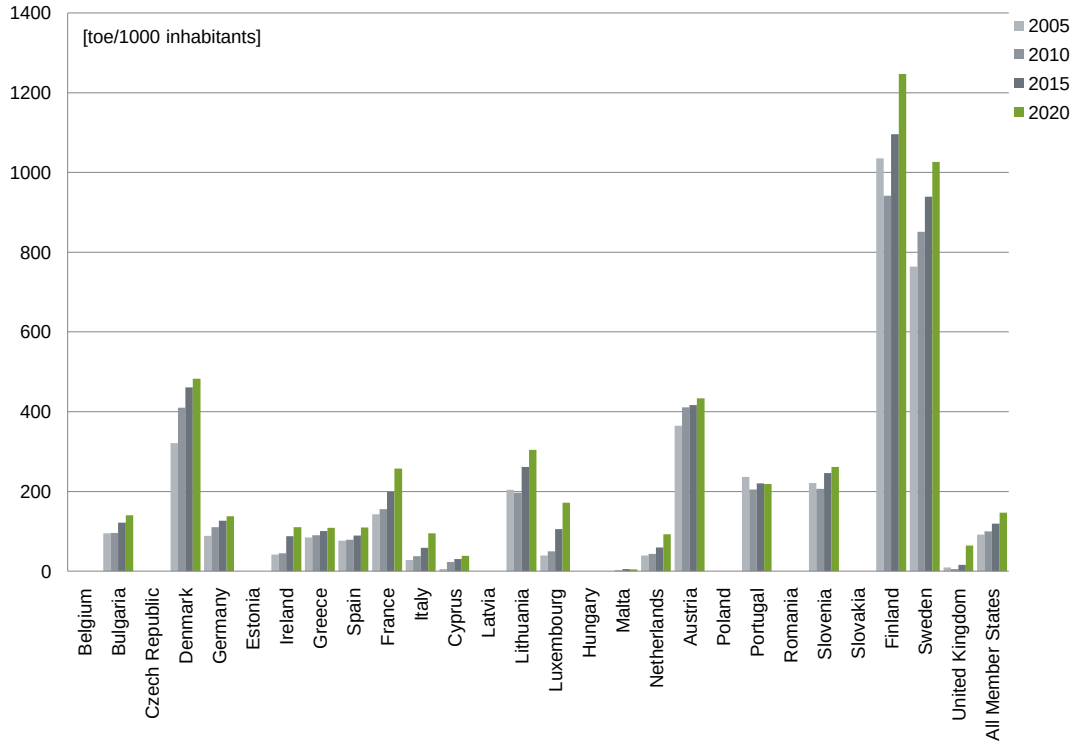


Figure 55: *Calculated per capita (2008) energy for total biomass heat [toe/1000 inhabitants] for the period 2005 - 2020, all biomass input categories*

Table 92: *Calculated per capita (2008) energy for total biomass heat [toe/1000 inhabitants] for the period 2005 - 2020, all biomass input categories*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	95	96	122	140
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	321	410	461	483
Germany	88	111	126	138
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	42	45	88	110
Greece	85	90	101	109
Spain	77	79	90	109
France	143	156	199	257
Italy	28	38	59	95
Cyprus	5	23	31	38
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	204	197	261	304
Luxembourg	39	50	105	172
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	0	2	5	4
Netherlands	39	44	60	93
Austria	365	411	416	434
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	236	205	220	219
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	221	206	246	262
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	1036	941	1096	1247
Sweden	764	851	939	1026
United Kingdom	9	5	16	64
All Member States (average)	92	100	119	147

The population data can be viewed in Table 9 (page 25)

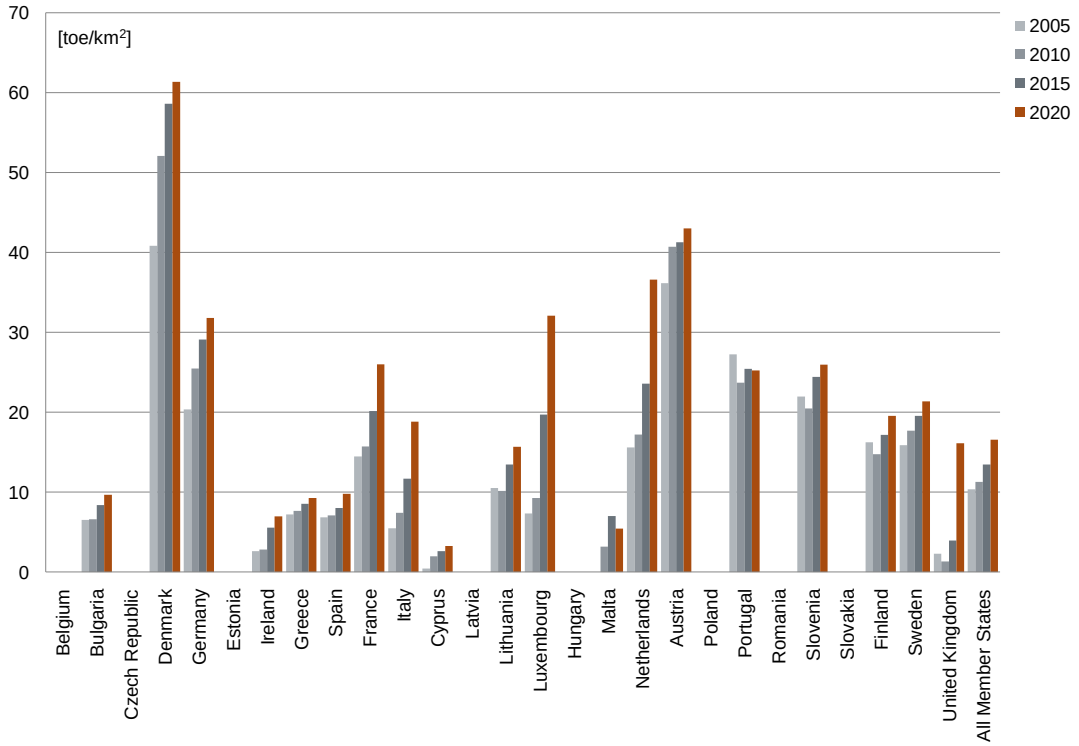


Figure 56: *Calculated per surface area (2004) energy for total biomass heat [toe/km^2] for the period 2005 - 2020*

Table 93: *Calculated per surface area (2004) energy for total biomass heat [toe/km^2] for the period 2005 - 2020*

	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	7	7	8	10
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	41	52	59	61
Germany	20	25	29	32
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	3	3	6	7
Greece	7	8	9	9
Spain	7	7	8	10
France	14	16	20	26
Italy	5	7	12	19
Cyprus	0	2	3	3
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	11	10	13	16
Luxembourg	7	9	20	32
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	0	3	7	5
Netherlands	16	17	24	37
Austria	36	41	41	43
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	27	24	25	25
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	22	20	24	26
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	16	15	17	20
Sweden	16	18	20	21
United Kingdom	2	1	4	16
All Member States (average)	10	11	13	17

The surface area data can be viewed in Table 9 (page 25)

Renewable energy from heat pumps

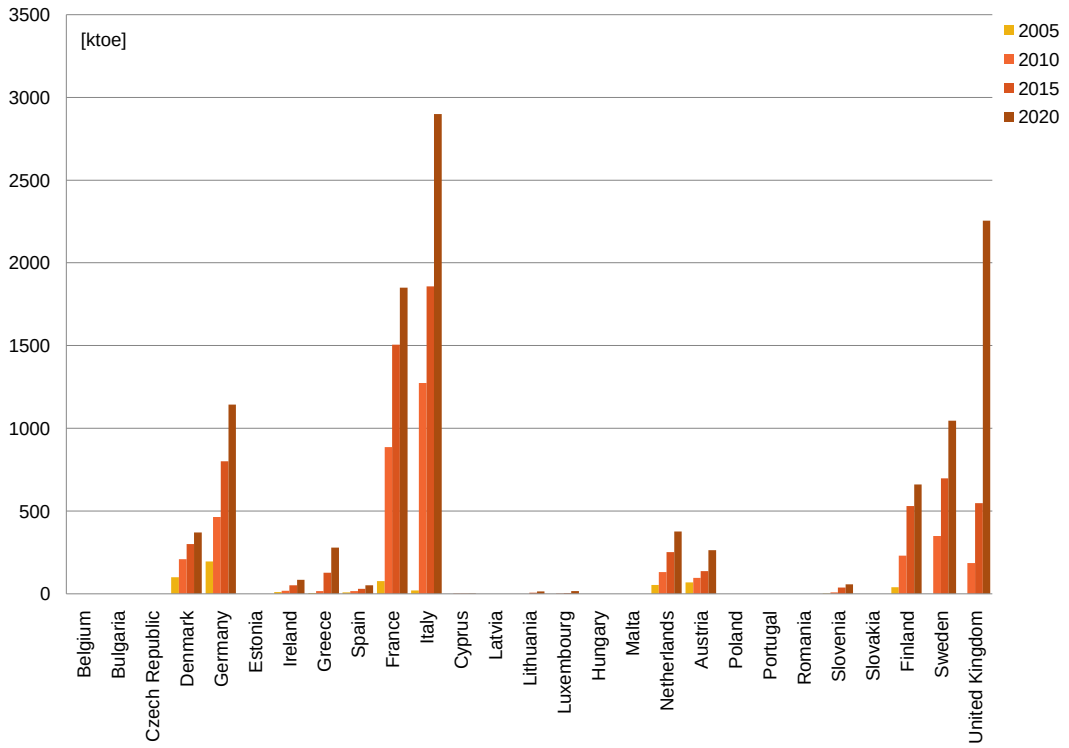


Figure 57: *Projected total heat pump thermal energy [ktoe] for the period 2005 - 2020, all source types*

Table 94: *Projected total heat pump thermal energy [ktoe] for the period 2005 - 2020, all source types*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	100	210	301	370	3
Germany	196	465	800	1144	10
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	10	18	51	84	1
Greece	4	17	127	279	2
Spain	8	17	31	51	0
France	76	886	1505	1850	16
Italy	21	1273	1857	2900	26
Cyprus	0	0.34	1.61	2.97	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	6	14	0
Luxembourg	0	1	4	17	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	54	132	252	377	3
Austria	69	96	137	263	2
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	n.a.	n.a.	n.a.
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	2	8	37	58	1
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	40	230	530	660	6
Sweden	0	349	697	1046	9
United Kingdom	0	186	548	2254	20
All Member States (total)	580	3888.34	6884.61	11369.97	**100**

More information on subcategories for heat pump thermal energy is presented in Table 96 on page 116.

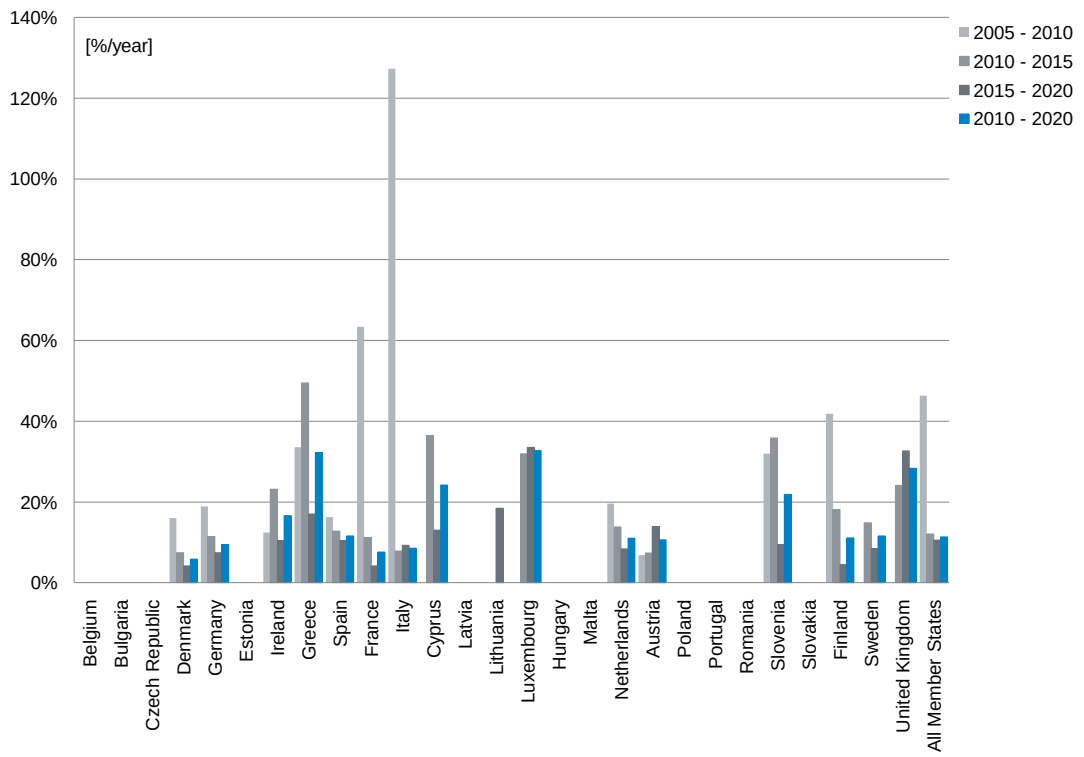


Figure 58: *Calculated average annual growth for thermal energy from heat pump [%/year] for four periods, all source type*

Table 95: *Calculated average annual growth for thermal energy from heat pump [%/year] for four periods, all source type*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	16.0	7.5	4.2	5.8
Germany	18.9	11.5	7.4	9.4
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	12.5	23.2	10.5	16.7
Greece	33.6	49.5	17.0	32.3
Spain	16.3	12.8	10.5	11.6
France	63.4	11.2	4.2	7.6
Italy	127.3	7.8	9.3	8.6
Cyprus	n.a.	36.5	13.0	24.2
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	18.5	n.a.
Luxembourg	n.a.	32.0	33.6	32.8
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	19.6	13.8	8.4	11.1
Austria	6.8	7.4	13.9	10.6
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	n.a.	n.a.	n.a.
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	32.0	35.8	9.4	21.9
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	41.9	18.2	4.5	11.1
Sweden	n.a.	14.8	8.5	11.6
United Kingdom	n.a.	24.1	32.7	28.3
All Member States (average)	46.3	12.1	10.6	11.3

Table 96: *Projected heat pump thermal energy [ktoe] for the period 2005 - 2020, broken down into source type*

	Aerothermal heat pumps				Geothermal heat pumps				Hydrothermal heat pumps				Total renewable energy from heat pumps,			
	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	48	91	135	170	52	119	166	199	0	0	0	0	100	210	301	370
Germany	39	165	338	547	130	258	400	521	27	42	62	77	196	465	800	1144
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	10	18	51	84
Greece	3	14	104	229	1	3	23	50	n.a.	n.a.	n.a.	n.a.	4	17	127	279
Spain	4	5	7	10	4	12	23	41	0	0	0	0	8	17	31	51
France	27	664	1080	1280	49	222	425	570	n.a.	n.a.	n.a.	n.a.	76	886	1505	1850
Italy	16	1127	1566	2175	4	40	145	522	2	105	146	203	21	1273	1857	2900
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0.34	1.61	2.97
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	6	14
Luxembourg	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	1	4	17
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	35	81	117	n.a.	90	161	242	n.a.	0	3	11	54	132	252	377
Austria	0	38	55	105	0	10	14	26	0	48	68	131	69	96	137	263
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	n.a.	n.a.
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	1	7	14	0	4	26	38	0	2	5	5	2	8	37	58
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	40	230	530	660
Sweden	0	50	100	150	0	272	544	815	0	27	54	80	0	349	697	1046
United Kingdom	n.a.	66	194	1301	n.a.	120	354	953	n.a.	n.a.	n.a.	n.a.	0	186	548	2254
All Member States (total)	137	2256	3667	6098	240	1150	2281	3977	29	224	338	507	580	3888.34	6884.61	11369.97

For Ireland, Lithuania, Luxembourg and Finland (and the Netherlands and Austria in 2005) no breakdown into source types has been provided. Therefore, the sum of all categories is lower than the value for *All Member States (total)*.

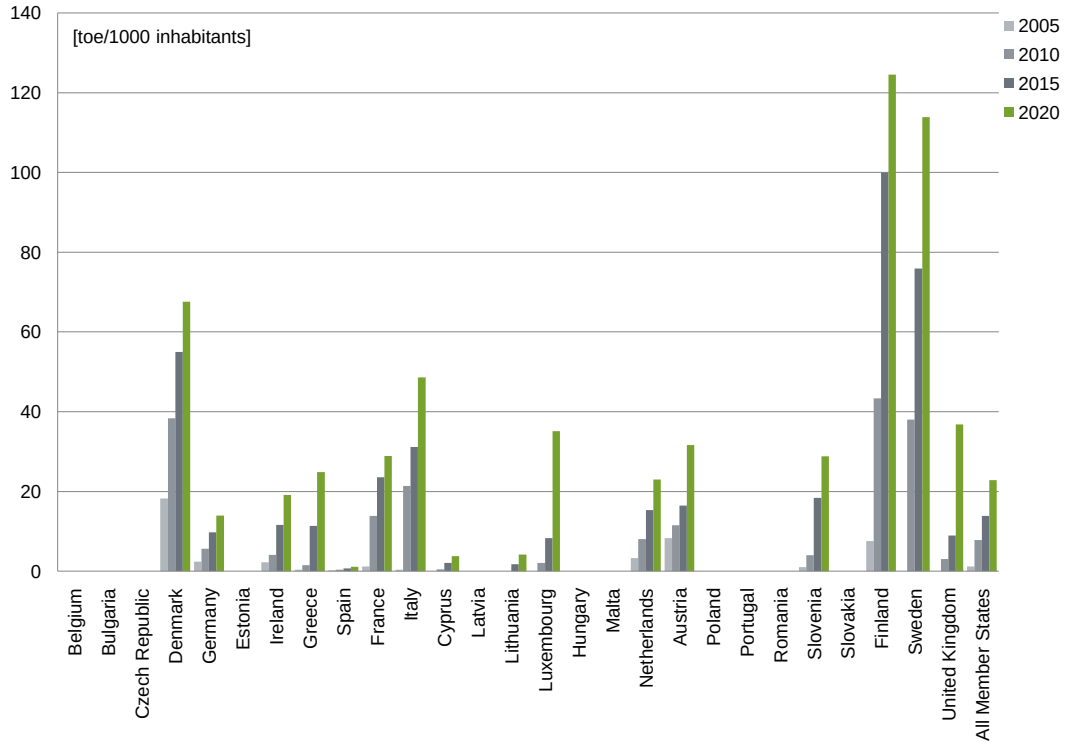


Figure 59: *Calculated per capita (2008) thermal energy for total heat pump [toe/1000 inhabitants] for the period 2005 - 2020, all source types*

Table 97: *Calculated per capita (2008) thermal energy for total heat pump [toe/1000 inhabitants] for the period 2005 - 2020, all source types*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	18	38	55	68
Germany	2	6	10	14
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	2	4	12	19
Greece	0	2	11	25
Spain	0	0	1	1
France	1	14	24	29
Italy	0	21	31	49
Cyprus	0	0	2	4
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	2	4
Luxembourg	0	2	8	35
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	3	8	15	23
Austria	8	12	16	32
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	n.a.	n.a.
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	1	4	18	29
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	8	43	100	125
Sweden	0	38	76	114
United Kingdom	0	3	9	37
All Member States (average)	1	8	14	23

The population data can be viewed in Table 9 (page 25)

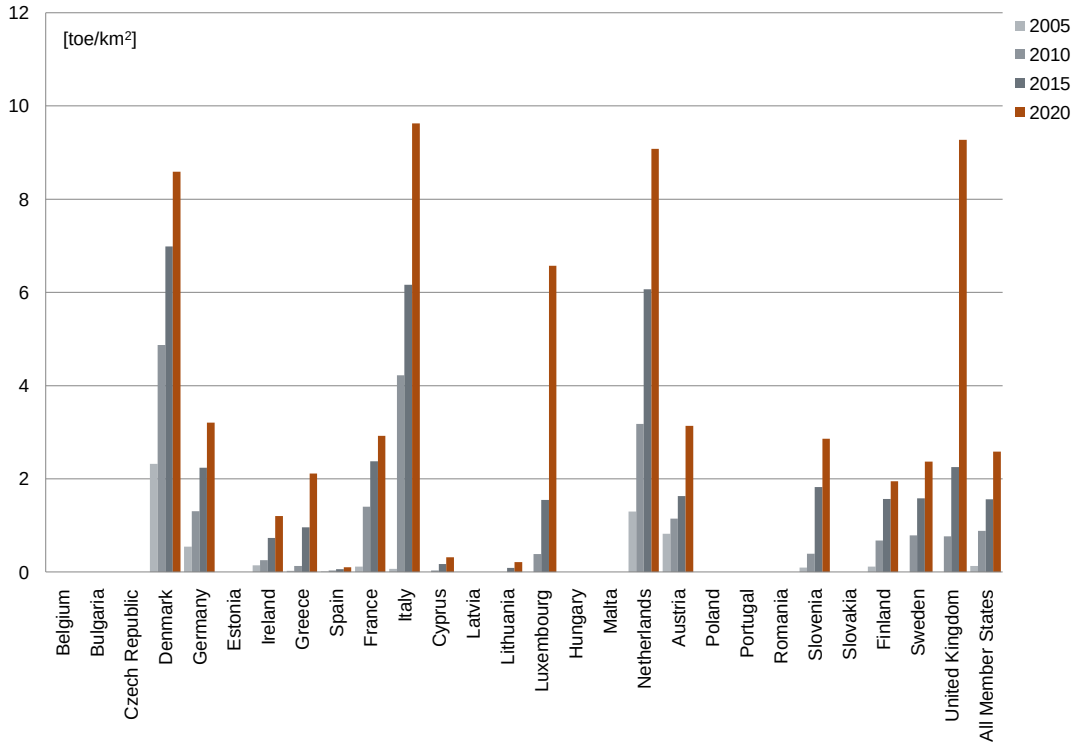


Figure 60: *Calculated per surface area (2004) thermal energy for total heat pumps [toe/km^2] for the period 2005 - 2020, all source types*

Table 98: *Calculated per surface area (2004) thermal energy for total heat pumps [toe/km^2] for the period 2005 - 2020, all source types*

	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	2	5	7	9
Germany	1	1	2	3
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	1	1
Greece	0	0	1	2
Spain	0	0	0	0
France	0	1	2	3
Italy	0	4	6	10
Cyprus	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	0	2	7
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	1	3	6	9
Austria	1	1	2	3
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	n.a.	n.a.
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	2	3
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	1	2	2
Sweden	0	1	2	2
United Kingdom	0	1	2	9
All Member States (average)	0	1	2	3

The surface area data can be viewed in Table 9 (page 25)

Bioethanol / bio-ETBE in transport

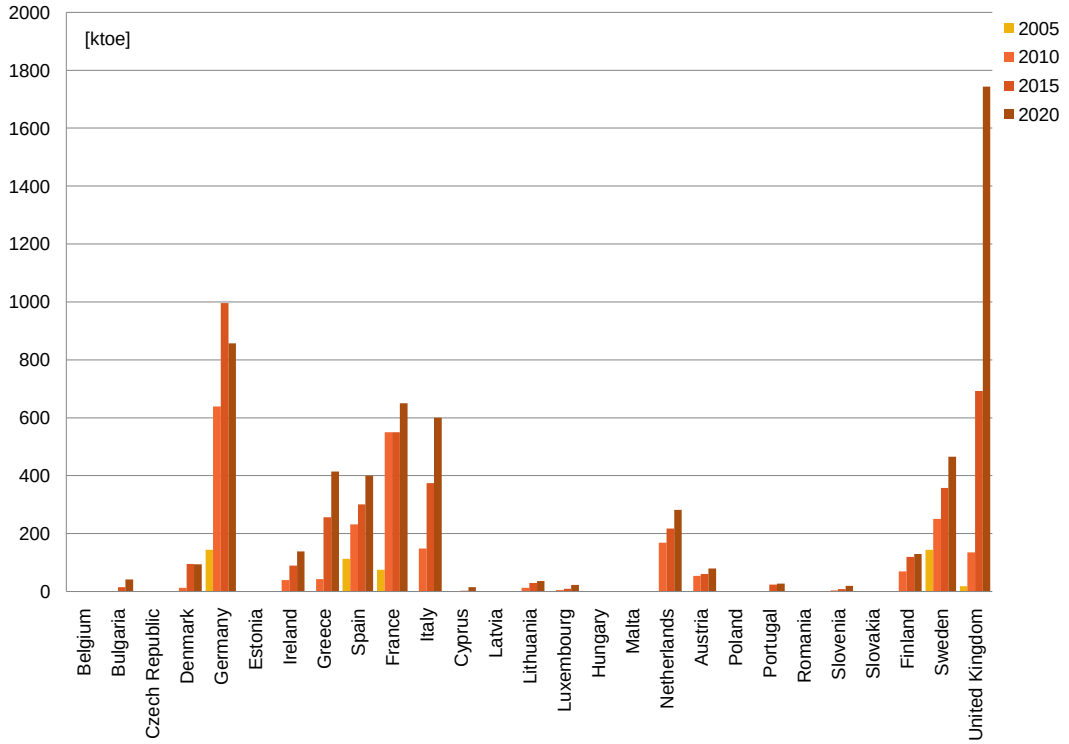


Figure 61: *Projected total bioethanol / bio-ETBE in renewable transport [ktoe] for the period 2005 - 2020*

Table 99: *Projected total bioethanol / bio-ETBE in renewable transport [ktoe] for the period 2005 - 2020*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	15	42	1
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	13	95	94	2
Germany	144	639	996	857	14
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	0	40	90	139	2
Greece	n.a.	43	256	414	7
Spain	113	232	301	400	7
France	75	550	550	650	11
Italy	0	148	374	600	10
Cyprus	0	0	3	15	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	1	13	30	36	1
Luxembourg	0	5	9	23	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	168	217	282	5
Austria	0	54	61	80	1
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	24	27	0
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	4	8	19	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	70	120	130	2
Sweden	144	251	358	465	8
United Kingdom	18	135	692	1743	29
All Member States (total)	495	2365	4199	6016	**100**

More information on additional information on bioethanol / bio-ETBE in renewable transport (Article 21.2 and imported bioethanol / bio-ETBE) is presented in Table 101 on page 122.

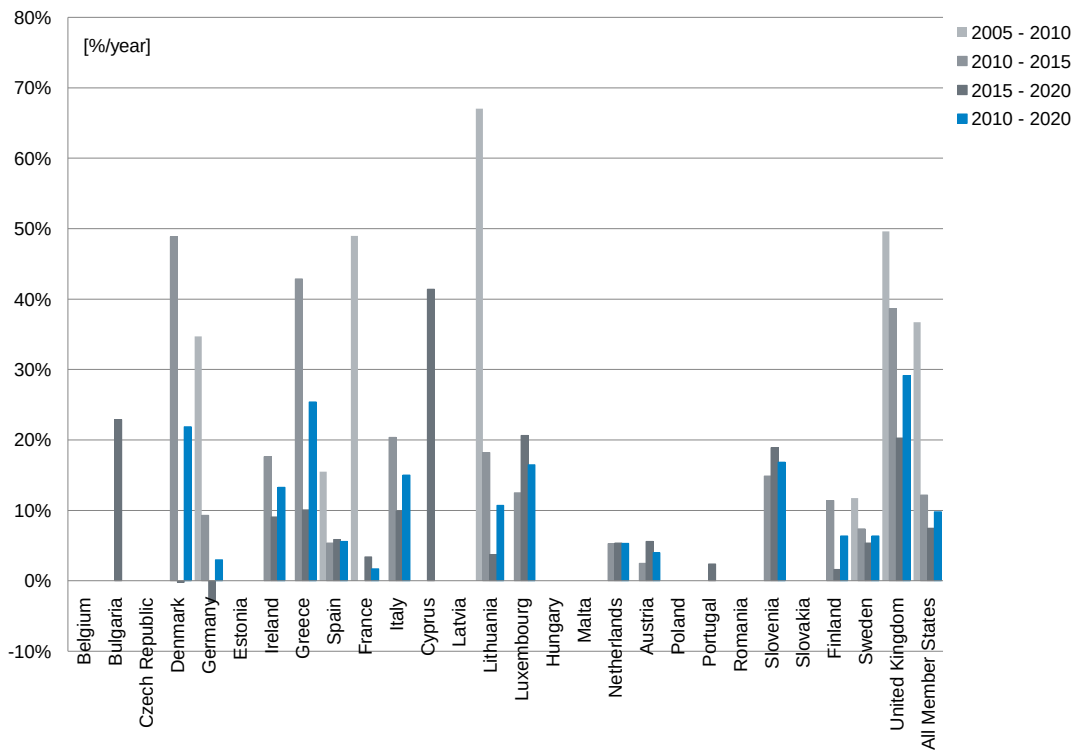


Figure 62: *Calculated average annual growth for bioethanol / bio-ETBE in renewable transport [%/year] for four periods*

Table 100: *Calculated average annual growth for bioethanol / bio-ETBE in renewable transport [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	22.9	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	48.9	-0.2	21.9
Germany	34.7	9.3	-3.0	3.0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	17.6	9.1	13.3
Greece	n.a.	42.9	10.1	25.4
Spain	15.5	5.3	5.9	5.6
France	49.0	0.0	3.4	1.7
Italy	n.a.	20.4	9.9	15.0
Cyprus	n.a.	n.a.	41.4	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	67.0	18.2	3.7	10.7
Luxembourg	n.a.	12.5	20.6	16.5
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	5.3	5.4	5.3
Austria	n.a.	2.5	5.6	4.0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	n.a.	2.4	n.a.
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	14.9	18.9	16.9
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	11.4	1.6	6.4
Sweden	11.8	7.4	5.4	6.4
United Kingdom	49.6	38.7	20.3	29.2
All Member States (average)	36.7	12.2	7.5	9.8

Table 101: *Projected bioethanol / bio-ETBE in renewable transport [ktoe] for the period 2005 - 2020, indicating the contribution of Article 21.2 and imported bioethanol / bio-ETBE*

	Bioethanol / bio-ETBE Article 21.2				Bioethanol / bio-ETBE imported				Total bioethanol / bio-ETBE			
	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	15	32	0	0	0	10	0	0	15	42
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	13	95	94	0	13	95	94	0	13	95	94
Germany	0	0	32	32	0	189	482	278	144	639	996	857
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	21	0	0	0	n.a.	3	49	99	0	40	90	139
Greece	n.a.	n.a.	n.a.	n.a.	n.a.	43	256	414	n.a.	43	256	414
Spain	0	0	0	52	0	25	0	0	113	232	301	400
France	n.a.	n.a.	n.a.	n.a.	0	50	50	50	75	550	550	650
Italy	0	19	60	100	0	18	109	200	0	148	374	600
Cyprus	0	0	0	15	0	0	3	15	0	0	3	15
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	n.a.	0	0	0	0	0	1	13	30	36
Luxembourg	0	0	0	0	0	5	9	23	0	5	9	23
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	2	4	6	n.a.	2	4	6	n.a.	n.a.	n.a.	n.a.
Netherlands	0	17	22	34	0	152	196	240	0	168	217	282
Austria	0	0	0	0	0	14	12	11	0	54	61	80
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0	0	0	0	0	0	0	24	27
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	4	8	19
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	20	40	0	n.a.	n.a.	n.a.	0	70	120	130
Sweden	0	0	0	0	117	140	185	292	144	251	358	465
United Kingdom	0	0	0	0	n.a.	1	1	1	18	135	692	1743
All Member States (total)	21	51	248	404	117	655	1450	1732	495	2365	4199	6016

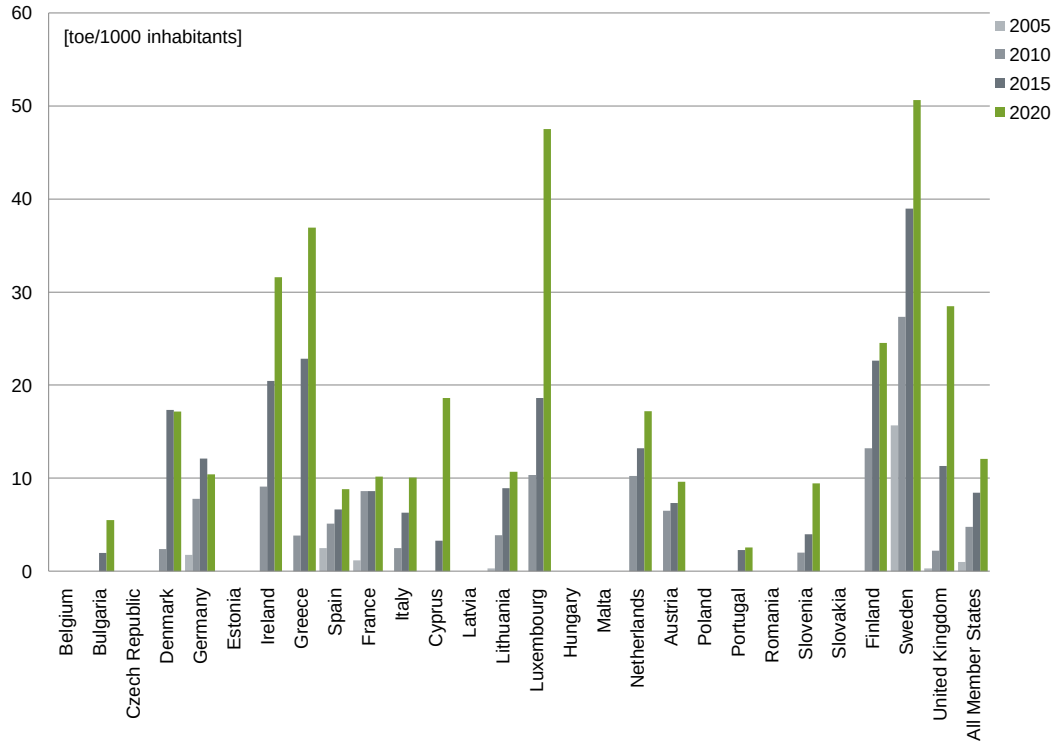


Figure 63: *Calculated per capita (2008) bioethanol / bio-ETBE [toe/1000 inhabitants] for the period 2005 - 2020*

Table 102: *Calculated per capita (2008) bioethanol / bio-ETBE [toe/1000 inhabitants] for the period 2005 - 2020*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	2	5
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	2	17	17
Germany	2	8	12	10
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	9	20	32
Greece	n.a.	4	23	37
Spain	2	5	7	9
France	1	9	9	10
Italy	0	2	6	10
Cyprus	0	0	3	19
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	4	9	11
Luxembourg	0	10	19	48
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	10	13	17
Austria	0	6	7	10
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	2	3
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	2	4	9
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	13	23	25
Sweden	16	27	39	51
United Kingdom	0	2	11	28
All Member States (average)	1	5	8	12

The population data can be viewed in Table 9 (page 25)

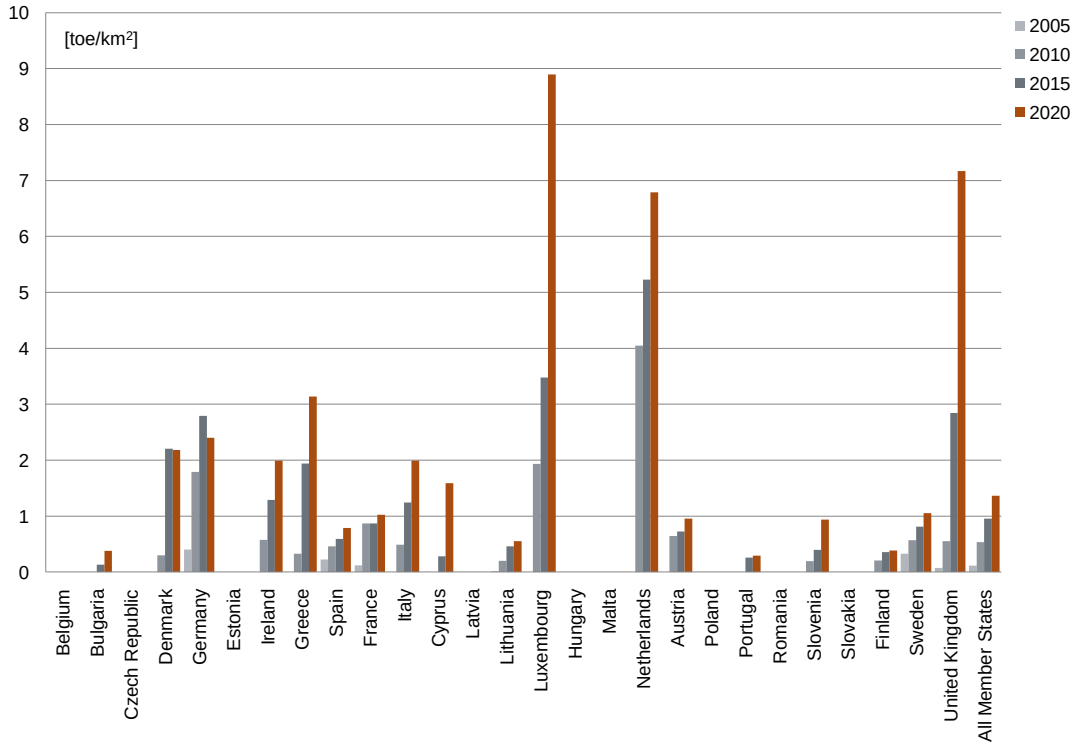


Figure 64: *Calculated per surface area (2004) bioethanol / bio-ETBE [toe/km^2] for the period 2005 - 2020*

Table 103: *Calculated per surface area (2004) bioethanol / bio-ETBE [toe/km^2] for the period 2005 - 2020*

	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	2	2
Germany	0	2	3	2
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	1	1	2
Greece	n.a.	0	2	3
Spain	0	0	1	1
France	0	1	1	1
Italy	0	0	1	2
Cyprus	0	0	0	2
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	1
Luxembourg	0	2	3	9
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	4	5	7
Austria	0	1	1	1
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	1
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	0	1	1	1
United Kingdom	0	1	3	7
All Member States (average)	0	1	1	1

The surface area data can be viewed in Table 9 (page 25)

Biodiesel in transport

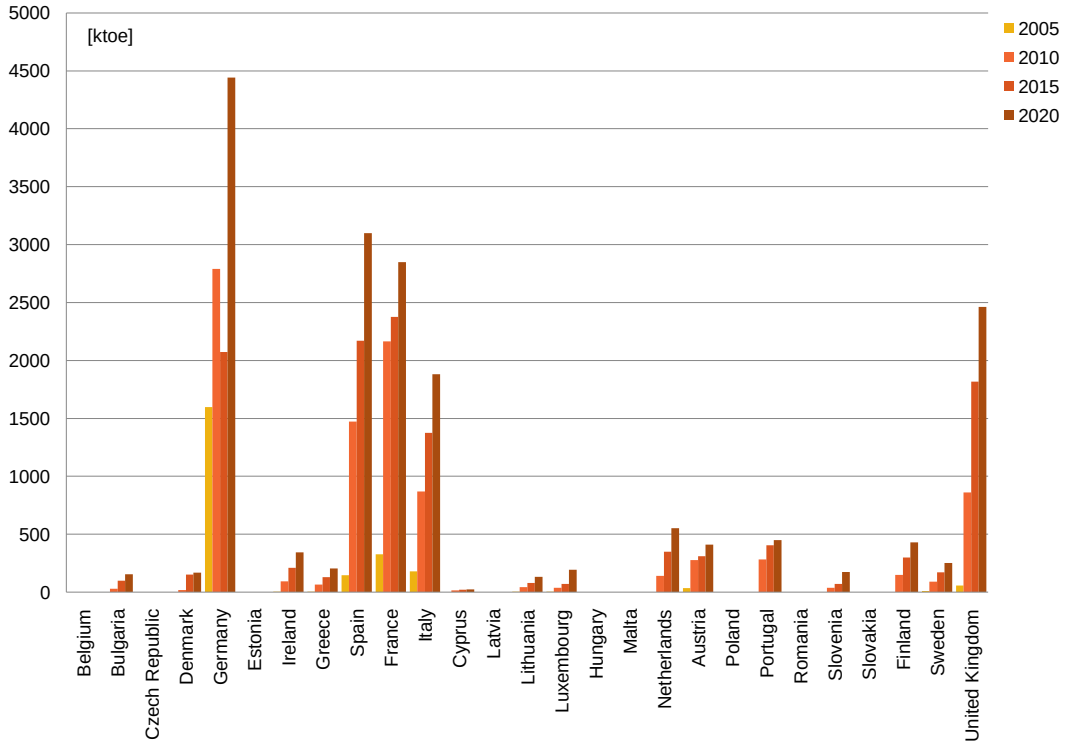


Figure 65: *Projected total biodiesel in renewable transport [ktoe] for the period 2005 - 2020*

Table 104: *Projected total biodiesel in renewable transport [ktoe] for the period 2005 - 2020*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	30	100	154	1
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	18	152	167	1
Germany	1598	2790	2074	4443	24
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	1	94	209	342	2
Greece	1	64	130	203	1
Spain	145	1471	2169	3100	17
France	328	2165	2375	2850	16
Italy	179	868	1374	1880	10
Cyprus	0	15.7	19.8	23.2	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	3	42	79	131	1
Luxembourg	1	37	72	193	1
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	139	350	552	3
Austria	35	276	309	410	2
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	281	405	450	2
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	37	72	174	1
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	150	300	430	2
Sweden	9	89	170	251	1
United Kingdom	57	861	1818	2462	14
All Member States (total)	2357	9427.7	12177.8	18215.2	**100**

More information on additional information on biodiesel in renewable transport (Article 21.2 and imported biodiesel) is presented in Table 106 on page 128.

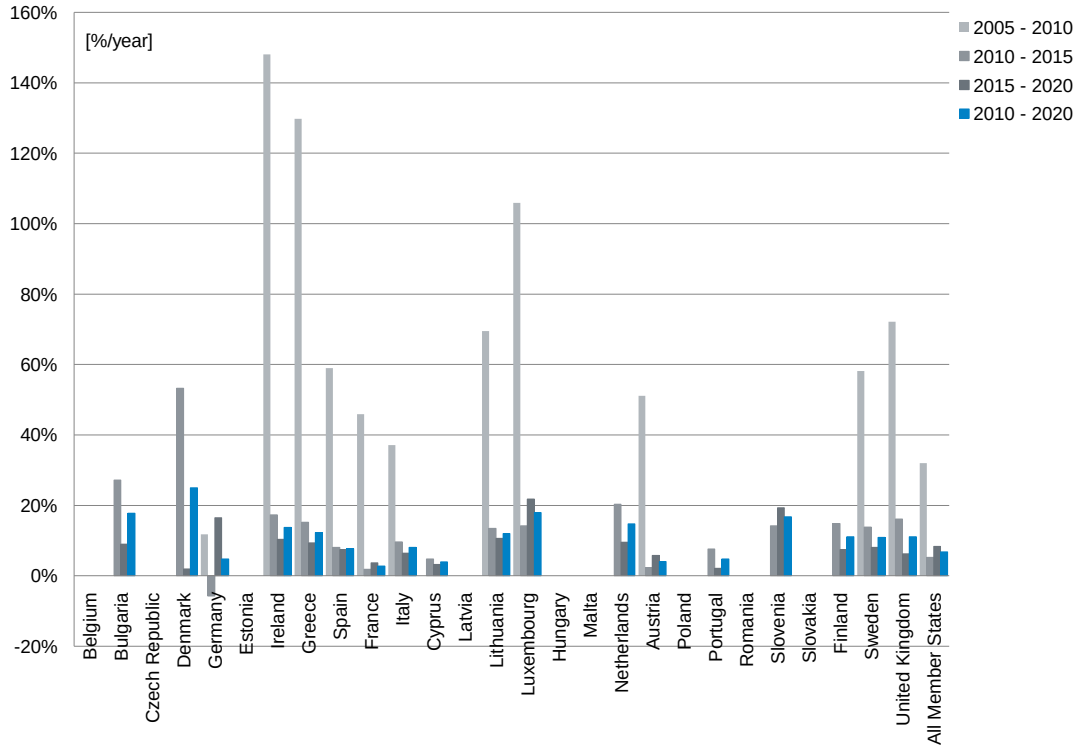


Figure 66: *Calculated average annual growth for biodiesel in renewable transport [%/year] for four periods*

Table 105: *Calculated average annual growth for biodiesel in renewable transport [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	27.2	9.0	17.8
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	53.2	1.9	25.0
Germany	11.8	-5.8	16.5	4.8
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	148.1	17.3	10.4	13.8
Greece	129.7	15.2	9.3	12.2
Spain	58.9	8.1	7.4	7.7
France	45.9	1.9	3.7	2.8
Italy	37.1	9.6	6.5	8.0
Cyprus	n.a.	4.7	3.2	4.0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	69.5	13.5	10.6	12.0
Luxembourg	105.9	14.2	21.8	18.0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	20.3	9.5	14.8
Austria	51.1	2.3	5.8	4.0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	7.6	2.1	4.8
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	14.2	19.3	16.7
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	14.9	7.5	11.1
Sweden	58.1	13.8	8.1	10.9
United Kingdom	72.1	16.1	6.3	11.1
All Member States (average)	31.9	5.3	8.4	6.8

Table 106: *Projected biodiesel in renewable transport [ktoe] for the period 2005 - 2020, indicating the contribution of Article 21.2 and imported biodiesel*

	Biodiesel Article 21.2				Biodiesel imported				Total biodiesel			
	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	30	100	130	0	0	0	24	0	30	100	154
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	18	152	167	0	18	152	167	0	18	152	167
Germany	0	98	98	98	0	1459	610	2846	1598	2790	2074	4443
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	21	0	0	0	n.a.	4	125	240	1	94	209	342
Greece	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1	64	130	203
Spain	0	50	161	200	0	910	325	310	145	1471	2169	3100
France	n.a.	n.a.	n.a.	n.a.	13	400	400	400	328	2165	2375	2850
Italy	21	72	161	250	0	73	436	800	179	868	1374	1880
Cyprus	0	0	2	23	0	9	11	23	0	16	20	23
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0	0	0	0	3	42	79	131
Luxembourg	0	0	0	0	1	37	72	193	1	37	72	193
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	1	1	7	n.a.	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	139	70	121	0	69	245	276	0	139	350	552
Austria	0	0	0	0	34	153	152	175	35	276	309	410
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	4	6	8	0	0	0	0	0	281	405	450
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	37	72	174
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	50	140	0	n.a.	n.a.	n.a.	0	150	300	430
Sweden	0	0	0	0	0	0	0	0	9	89	170	251
United Kingdom	0	0	0	0	n.a.	1	1	1	57	861	1818	2462
All Member States (total)	42	413	801	1144	48	3133	2529	5455	2357	9428	12178	18215

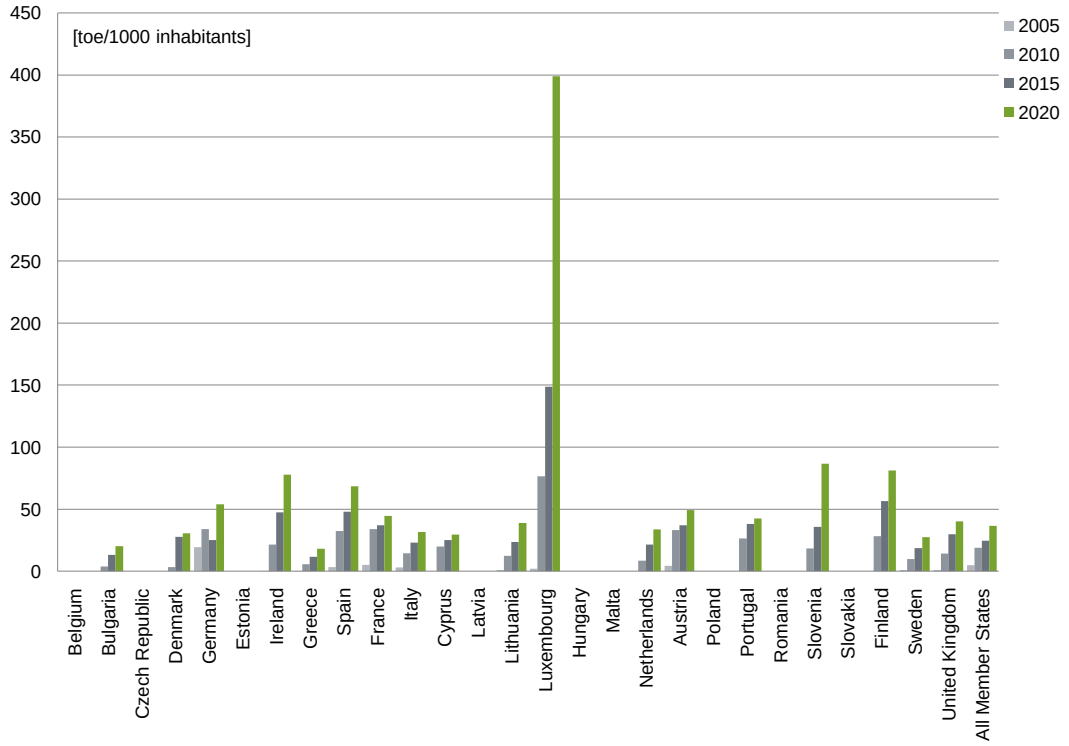


Figure 67: *Calculated per capita (2008) in renewable transport for total biodiesel [toe/1000 inhabitants] for the period 2005 - 2020*

Table 107: *Calculated per capita (2008) in renewable transport for total biodiesel [toe/1000 inhabitants] for the period 2005 - 2020*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	4	13	20
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	3	28	30
Germany	19	34	25	54
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	21	47	78
Greece	0	6	12	18
Spain	3	32	48	68
France	5	34	37	45
Italy	3	15	23	32
Cyprus	0	20	25	29
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	1	12	23	39
Luxembourg	2	76	149	399
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	8	21	34
Austria	4	33	37	49
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	26	38	42
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	18	36	87
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	28	57	81
Sweden	1	10	19	27
United Kingdom	1	14	30	40
All Member States (average)	5	19	24	37

The population data can be viewed in Table 9 (page 25)

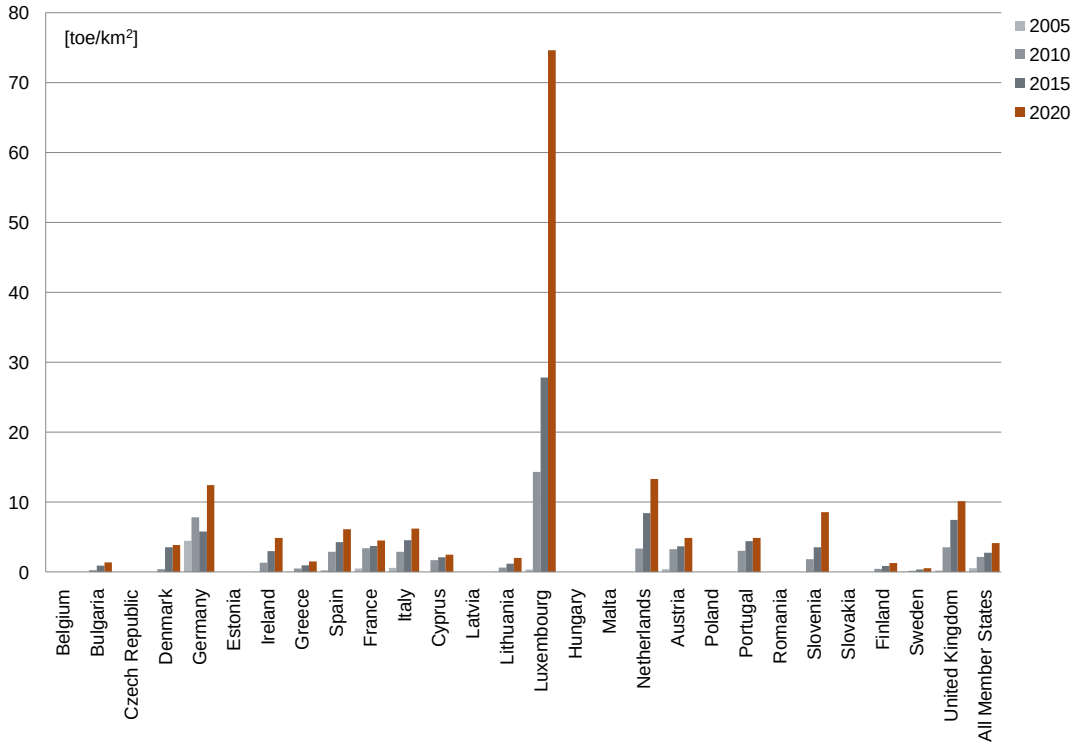


Figure 68: *Calculated per surface area (2004) in renewable transport for total biodiesel [toe/km^2] for the period 2005 - 2020*

Table 108: *Calculated per surface area (2004) in renewable transport for total biodiesel [toe/km^2] for the period 2005 - 2020*

	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	1	1
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	4	4
Germany	4	8	6	12
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	1	3	5
Greece	0	0	1	2
Spain	0	3	4	6
France	1	3	4	5
Italy	1	3	5	6
Cyprus	0	2	2	3
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	1	1	2
Luxembourg	0	14	28	75
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	3	8	13
Austria	0	3	4	5
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	3	4	5
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	2	4	9
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	1	1
Sweden	0	0	0	1
United Kingdom	0	4	7	10
All Member States (average)	1	2	3	4

The surface area data can be viewed in Table 9 (page 25)

Hydrogen from renewables in transport

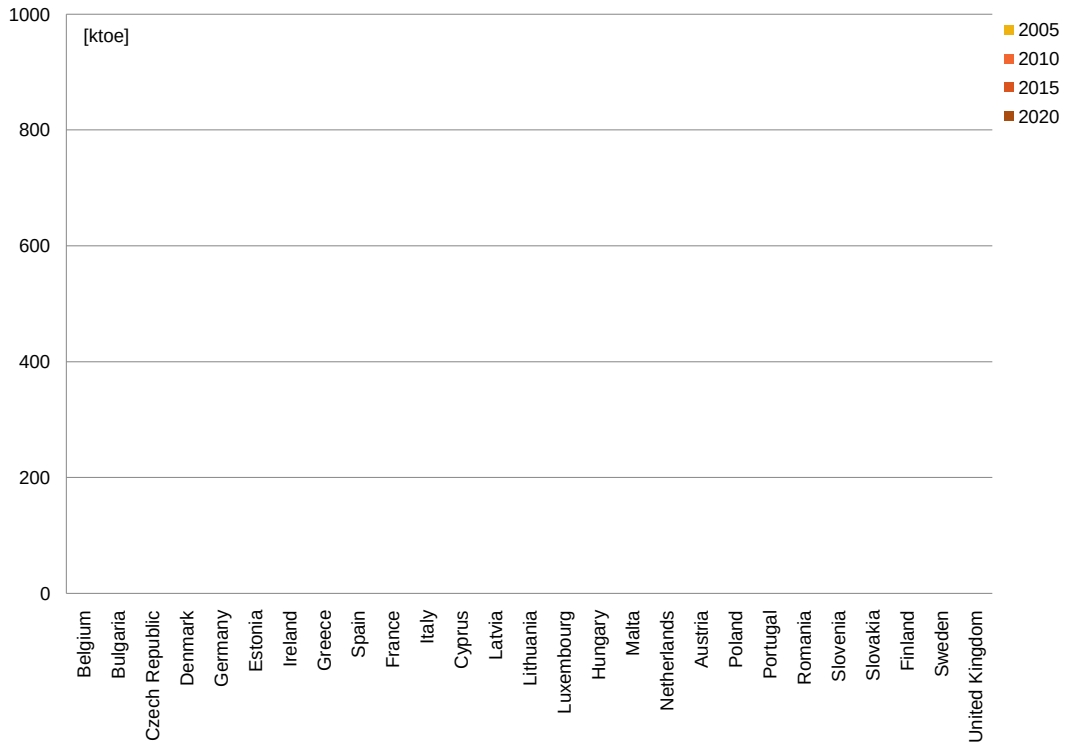


Figure 69: *Projected hydrogen from renewables in transport [ktoe] for the period 2005 - 2020*

Table 109: *Projected total hydrogen from renewables in transport [ktoe] for the period 2005 - 2020*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	0
Germany	0	0	0	0	0
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	0	0	0	0
Greece	n.a.	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	0	0
France	0	0	0	0	0
Italy	0	0	0	0	0
Cyprus	0	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0
Luxembourg	0	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0	0
Austria	0	0	0	0	0
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0
Sweden	0	0	0	0	0
United Kingdom	0	0	0	0	0
All Member States (total)	0	0	0	0	0

0

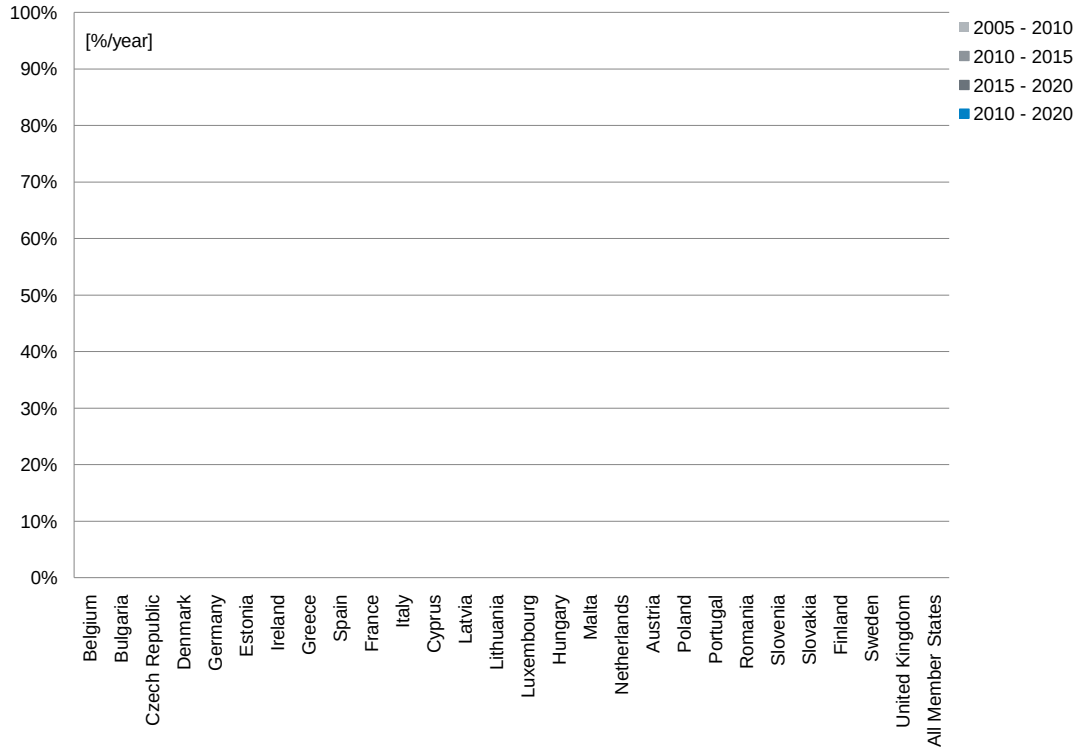


Figure 70: *Calculated average annual growth for hydrogen from renewables in transport [%/year] for four periods*

Table 110: *Calculated average annual growth for hydrogen from renewables in transport [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	n.a.	n.a.	n.a.	n.a.
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	n.a.	n.a.	n.a.
Greece	n.a.	n.a.	n.a.	n.a.
Spain	n.a.	n.a.	n.a.	n.a.
France	n.a.	n.a.	n.a.	n.a.
Italy	n.a.	n.a.	n.a.	n.a.
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	n.a.	n.a.	n.a.	n.a.
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	n.a.	n.a.	n.a.
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	n.a.	n.a.	n.a.	n.a.
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	n.a.	n.a.	n.a.	n.a.

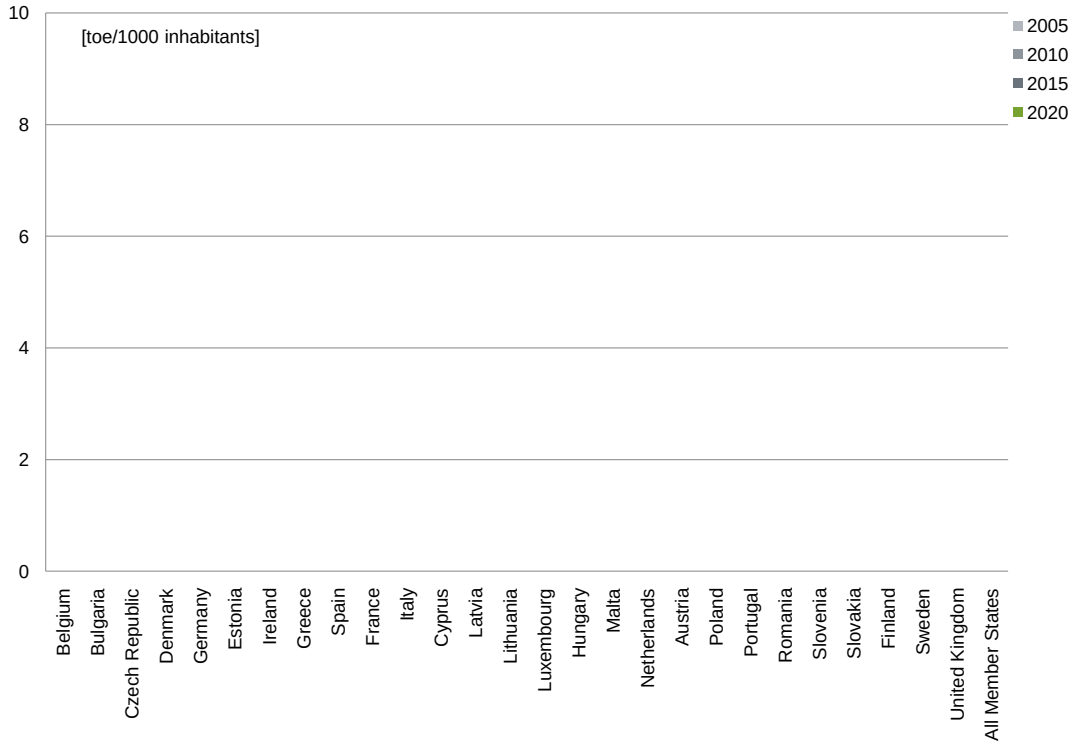


Figure 71: *Calculated per capita (2008) hydrogen from renewables in transport [toe/1000 inhabitants] for the period 2005 - 2020*

Table 111: *Calculated per capita (2008) hydrogen from renewables in transport [toe/1000 inhabitants] for the period 2005 - 2020*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	0	0	0	0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	0	0	0
Greece	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	0
France	0	0	0	0
Italy	0	0	0	0
Cyprus	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0
Austria	0	0	0	0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	0	0	0	0
United Kingdom	0	0	0	0
All Member States (average)	0	0	0	0

The population data can be viewed in Table 9 (page 25)

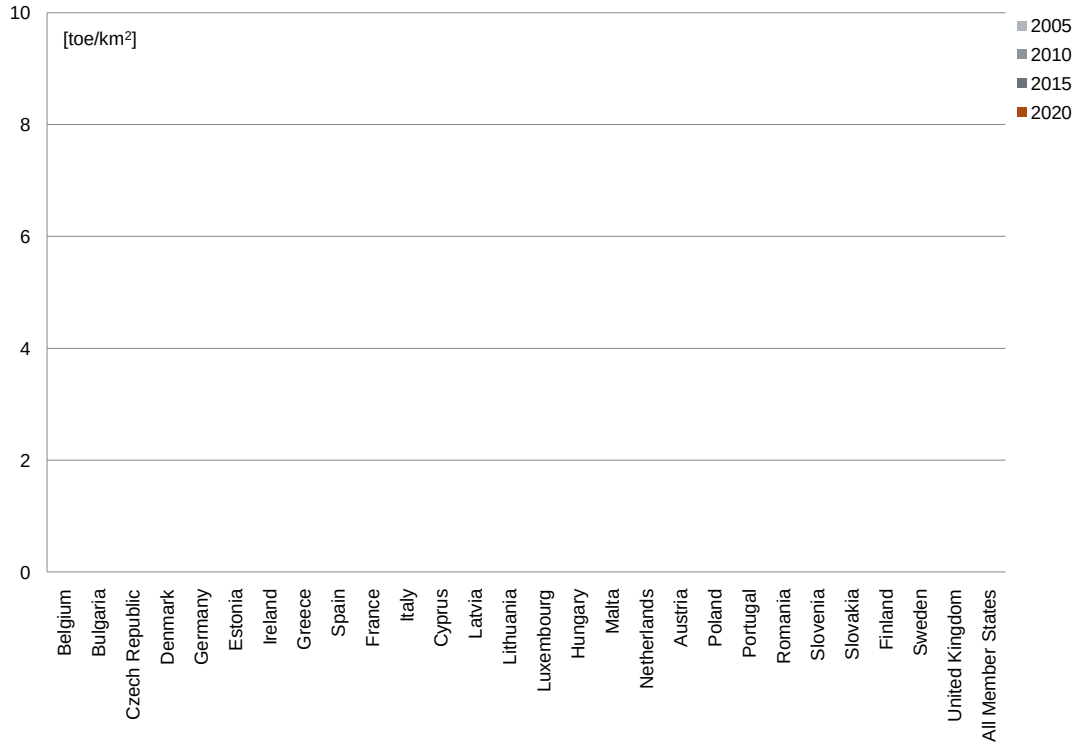


Figure 72: *Calculated per surface area (2004) hydrogen from renewables in transport [toe/km^2] for the period 2005 - 2020*

Table 112: *Calculated per surface area (2004) hydrogen from renewables in transport [toe/km^2] for the period 2005 - 2020*

	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	0	0	0	0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	0	0	0
Greece	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	0
France	0	0	0	0
Italy	0	0	0	0
Cyprus	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	0	0	0	0
Austria	0	0	0	0
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	0	0	0	0
United Kingdom	0	0	0	0
All Member States (average)	0	0	0	0

The surface area data can be viewed in Table 9 (page 25)

Renewable electricity in transport

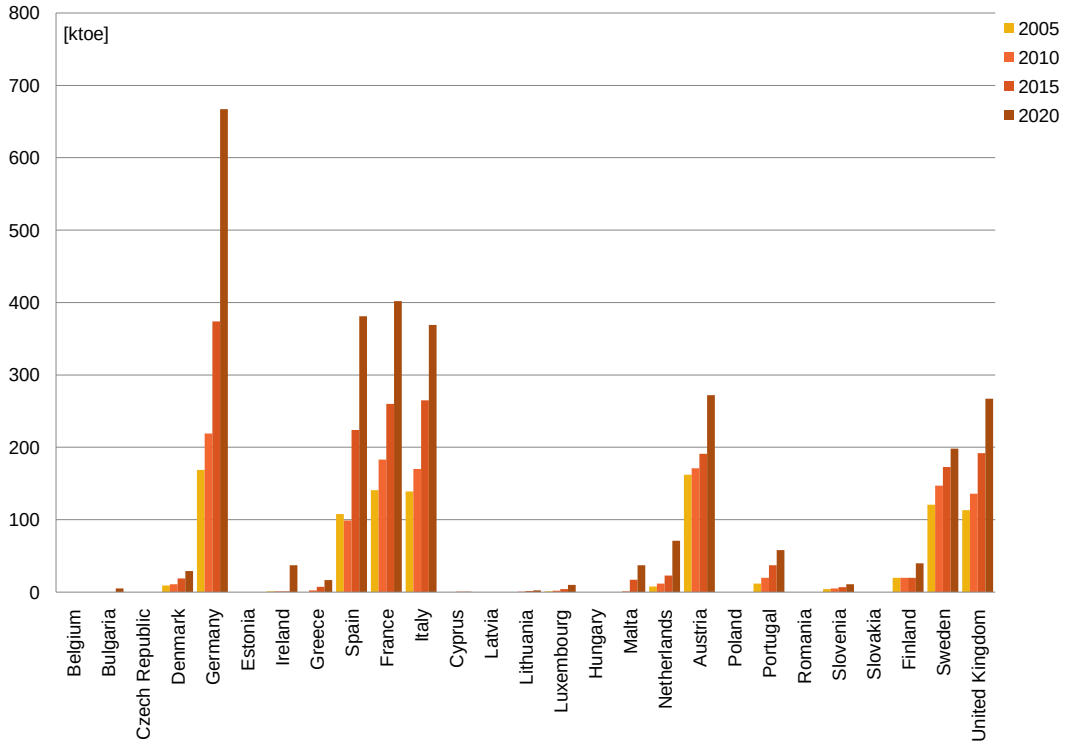


Figure 73: *Projected total renewable electricity in transport [ktoe] for the period 2005 - 2020*

Table 113: *Projected total renewable electricity in transport [ktoe] for the period 2005 - 2020*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	5	0
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	9	11	19	29	1
Germany	169	219	374	667	23
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	1	1	1	37	1
Greece	n.a.	2	7	17	1
Spain	108	99	224	381	13
France	141	183	260	402	14
Italy	139	170	265	369	13
Cyprus	0	0	0	1	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	2	3	0
Luxembourg	1	2	4	10	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	1	17	37	1
Netherlands	8	12	23	71	2
Austria	162	171	191	272	9
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	12	20	37	58	2
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	4	5	7	11	0
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	20	20	20	40	1
Sweden	121	147	173	198	7
United Kingdom	113	136	192	267	9
All Member States (total)	1008	1200	1816	2874	**100**

More information on additional information on renewable electricity in transport (road and non-road transport) is presented in Table 115 on page 140.

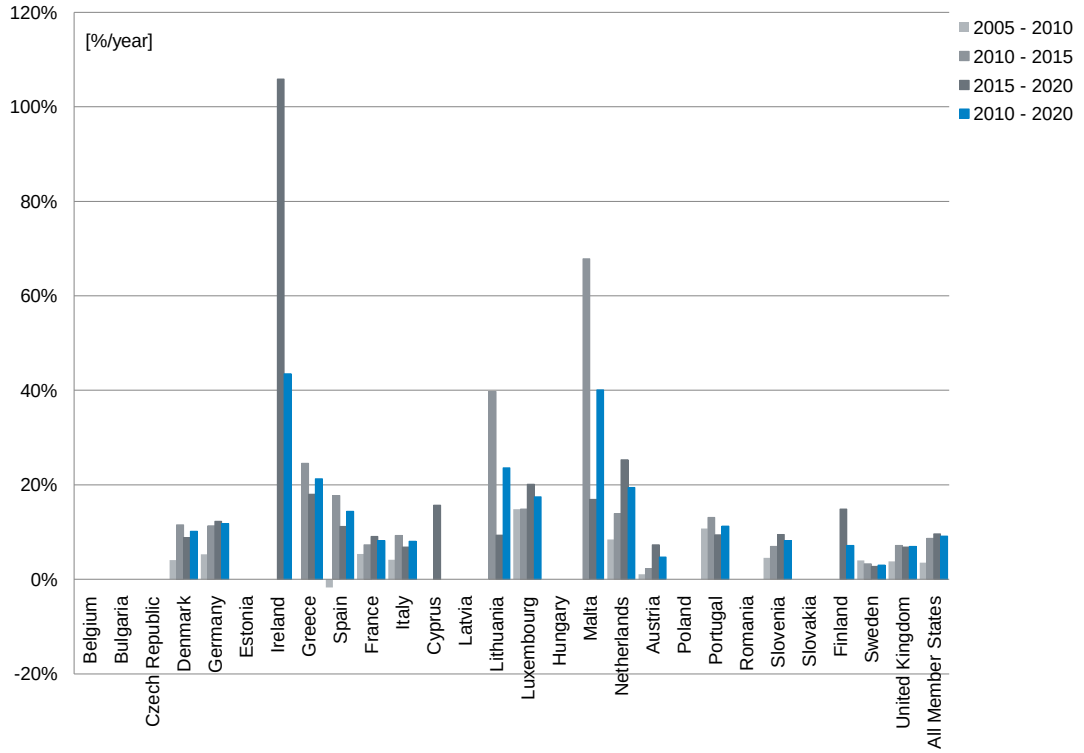


Figure 74: *Calculated average annual growth for renewable electricity in transport [%/year] for four periods*

Table 114: *Calculated average annual growth for renewable electricity in transport [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	4.1	11.6	8.8	10.2
Germany	5.3	11.3	12.3	11.8
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0.0	0.0	105.9	43.5
Greece	n.a.	24.6	18.0	21.3
Spain	-1.7	17.7	11.2	14.4
France	5.4	7.3	9.1	8.2
Italy	4.1	9.3	6.8	8.1
Cyprus	n.a.	n.a.	15.7	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	39.8	9.3	23.6
Luxembourg	14.9	14.9	20.1	17.5
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	67.8	16.9	40.1
Netherlands	8.4	13.9	25.3	19.5
Austria	1.1	2.2	7.3	4.8
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	10.8	13.1	9.4	11.2
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	4.6	7.0	9.5	8.2
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0.0	0.0	14.9	7.2
Sweden	4.0	3.3	2.7	3.0
United Kingdom	3.8	7.1	6.8	7.0
All Member States (average)	3.5	8.6	9.6	9.1

Table 115: *Projected renewable electricity in transport [ktoe] for the period 2005 - 2020, indicating the contribution of road and non-road transport*

	Renewable electricity road transport				Renewable electricity non-road transport				Total renewable electricity			
	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	3	0	0	0	0	0	0	0	5
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	4	12	9	11	15	17	9	11	19	29
Germany	0	0	0	63	169	219	373	604	169	219	374	667
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	n.a.	0	0	34	0	1	1	2	1	1	1	37
Greece	n.a.	1	1	5	n.a.	2	6	11	n.a.	2	7	17
Spain	0	0	31	123	108	99	193	258	108	99	224	381
France	0	0	31	110	141	183	229	292	141	183	260	402
Italy	0	6	45	98	139	164	219	271	139	170	265	369
Cyprus	0	0	0	1	0	0	0	0	0	0	0	1
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0	0	0	0	0	0	2	3
Luxembourg	0	0	0	5	1	2	3	5	1	2	4	10
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	0	0	1	n.a.	1	17	37	n.a.	1	17	37
Netherlands	0	0	1	24	8	12	22	47	8	12	23	71
Austria	0	0	8	68	162	171	183	204	162	171	191	272
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	5	20	12	20	32	38	12	20	37	58
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	1	4	5	7	9	4	5	7	11
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	10	20	20	20	20	20	20	20	40
Sweden	0	3	6	9	121	144	167	190	121	147	173	198
United Kingdom	0	0	4	29	113	136	187	238	113	136	192	267
All Member States (total)	0	10	137	615	1007	1190	1674	2243	1008	1200	1816	2874

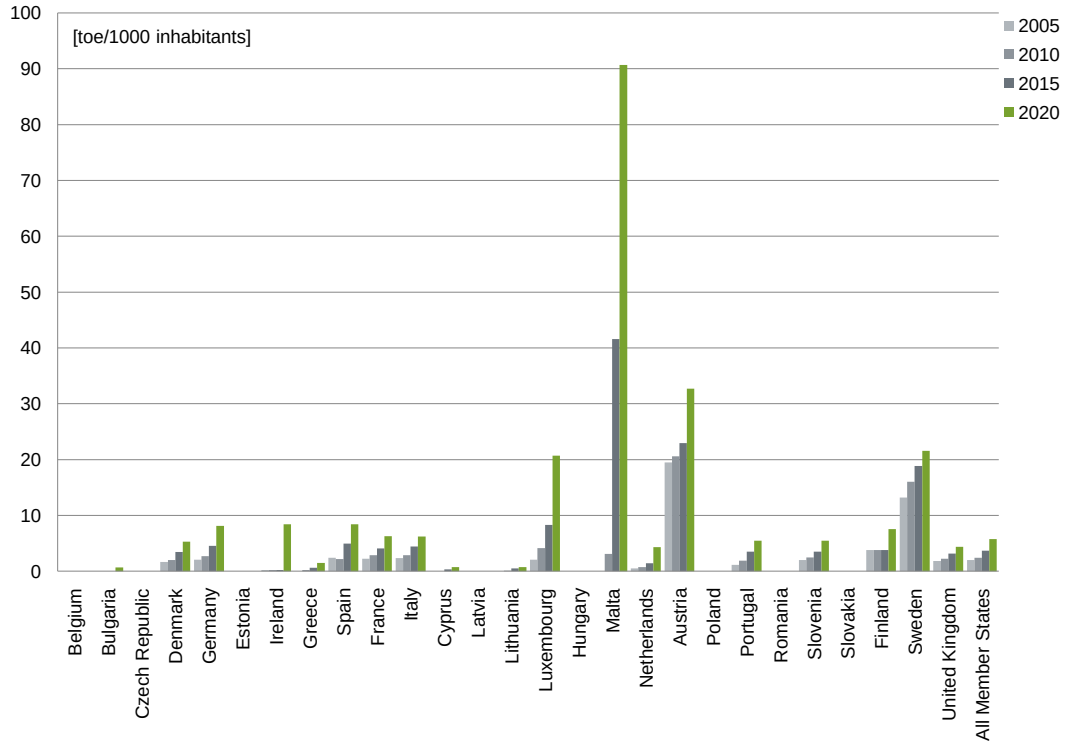


Figure 75: *Calculated per capita (2008) for total renewable electricity in transport [toe/1000 inhabitants] for the period 2005 - 2020*

Table 116: *Calculated per capita (2008) for total renewable electricity in transport [toe/1000 inhabitants] for the period 2005 - 2020*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	1
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	2	2	3	5
Germany	2	3	5	8
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	8
Greece	n.a.	0	1	1
Spain	2	2	5	8
France	2	3	4	6
Italy	2	3	4	6
Cyprus	0	0	0	1
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	1
Luxembourg	2	4	8	21
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	3	42	91
Netherlands	0	1	1	4
Austria	19	21	23	33
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	1	2	3	5
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	2	2	3	5
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	4	4	4	8
Sweden	13	16	19	22
United Kingdom	2	2	3	4
All Member States (average)	2	2	4	6

The population data can be viewed in Table 9 (page 25)

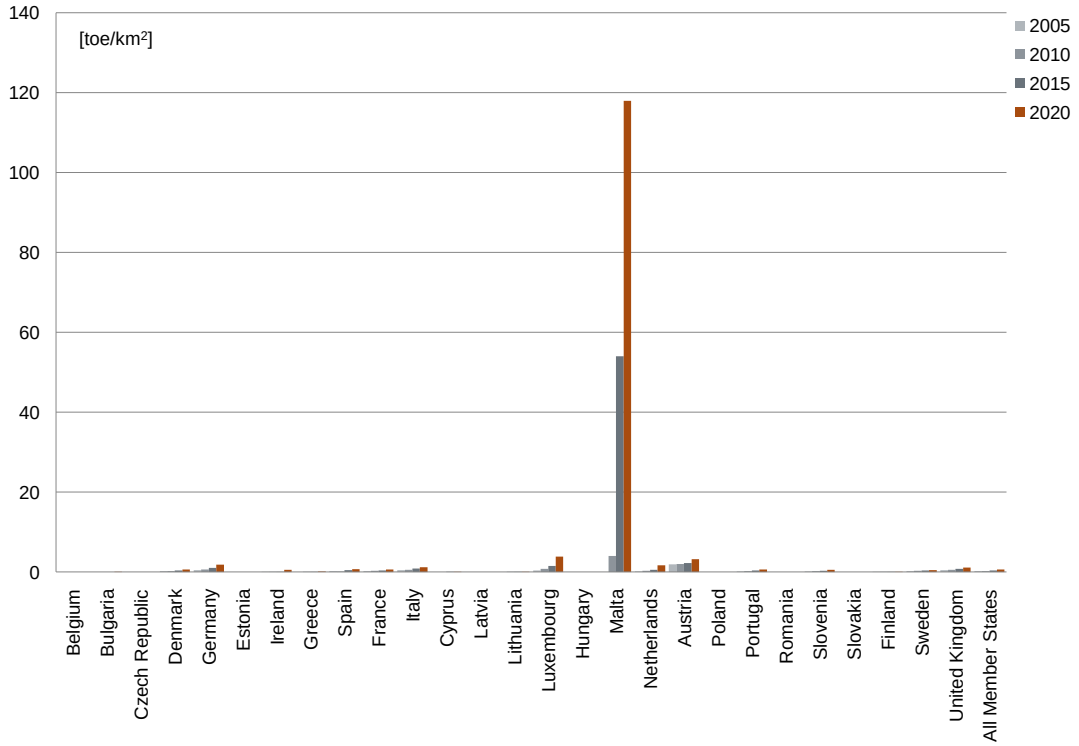


Figure 76: *Calculated per surface area (2004) for total renewable electricity in transport [toe/km^2] for the period 2005 - 2020*

Table 117: *Calculated per surface area (2004) for total renewable electricity in transport [toe/km^2] for the period 2005 - 2020*

	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	1
Germany	0	1	1	2
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	1
Greece	n.a.	0	0	0
Spain	0	0	0	1
France	0	0	0	1
Italy	0	1	1	1
Cyprus	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	1	2	4
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	4	54	118
Netherlands	0	0	1	2
Austria	2	2	2	3
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	1
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	0	0	0	1
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	0	0	0	0
United Kingdom	0	1	1	1
All Member States (average)	0	0	0	1

The surface area data can be viewed in Table 9 (page 25)

Other biofuels in transport

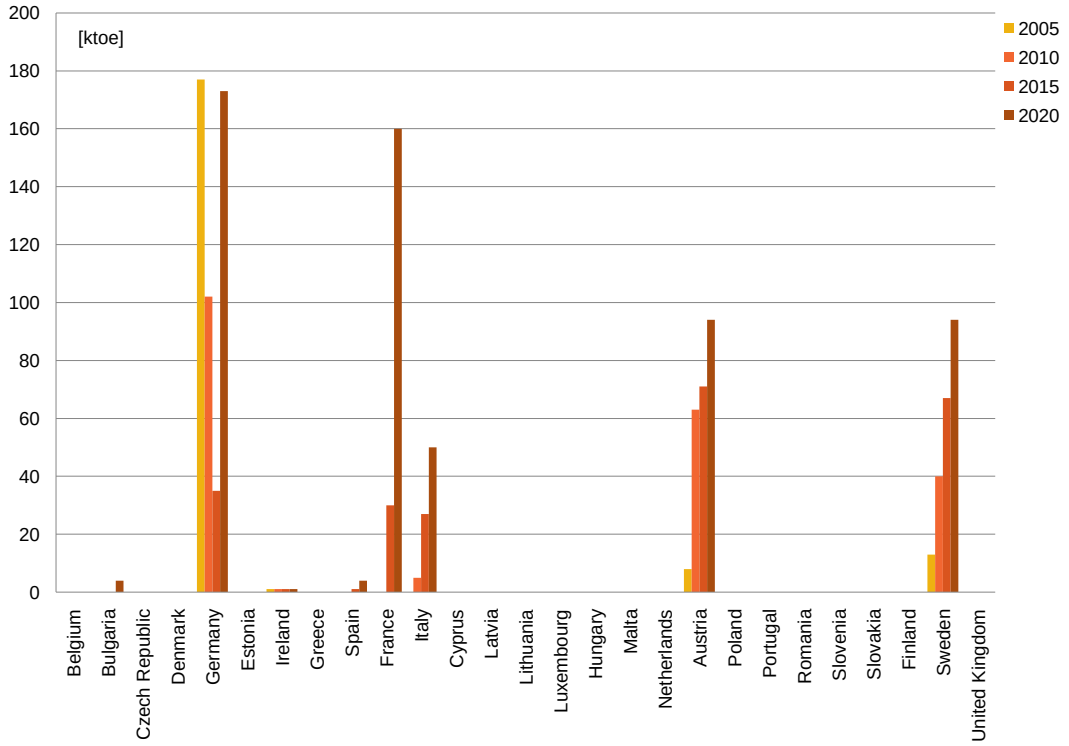


Figure 77: *Projected total other biofuels in transport [ktoe] for the period 2005 - 2020*

Table 118: *Projected total other biofuels in transport [ktoe] for the period 2005 - 2020*

	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2020 [%]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	4	1
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	0
Germany	177	102	35	173	30
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	1	1	1	1	0
Greece	n.a.	n.a.	n.a.	n.a.	n.a.
Spain	0	0	1	4	1
France	0	0	30	160	28
Italy	0	5	27	50	9
Cyprus	0	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0
Luxembourg	0	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.	n.a.
Austria	8	63	71	94	16
Poland	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0
Sweden	13	40	67	94	16
United Kingdom	0	0	0	0	0
All Member States (total)	199	211	232	580	**100**

More information on additional information on other biofuels in transport (Article 21.2) is presented in Table 120 on page 146.

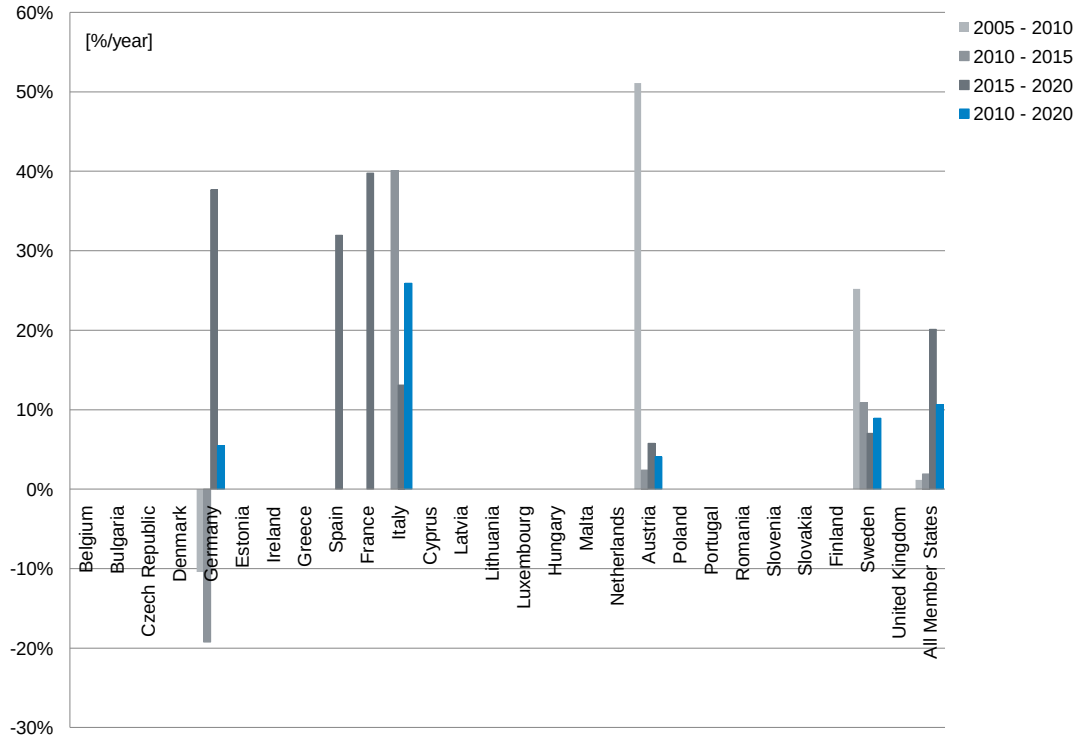


Figure 78: *Calculated average annual growth for other biofuels in transport [%/year] for four periods*

Table 119: *Calculated average annual growth for other biofuels in transport [%/year] for four periods*

	2005 - 2010 [%/year]	2010 - 2015 [%/year]	2015 - 2020 [%/year]	2010 - 2020 [%/year]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	n.a.	n.a.	n.a.	n.a.
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	n.a.	n.a.	n.a.	n.a.
Germany	-10.4	-19.3	37.7	5.4
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0.0	0.0	0.0	0.0
Greece	n.a.	n.a.	n.a.	n.a.
Spain	n.a.	n.a.	32.0	n.a.
France	n.a.	n.a.	39.8	n.a.
Italy	n.a.	40.1	13.1	25.9
Cyprus	n.a.	n.a.	n.a.	n.a.
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.	n.a.
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	51.1	2.4	5.8	4.1
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	n.a.	n.a.	n.a.	n.a.
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	n.a.
Sweden	25.2	10.9	7.0	8.9
United Kingdom	n.a.	n.a.	n.a.	n.a.
All Member States (average)	1.2	1.9	20.1	10.6

Table 120: *Projected other biofuels in transport [ktoe] for the period 2005 - 2020, indicating the contribution of Article 21.2 fuels*

	Other biofuels Article 21.2				Total other biofuels in transport			
	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]	2005 [ktoe]	2010 [ktoe]	2015 [ktoe]	2020 [ktoe]
Belgium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	4	0	0	0	4
Czech Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0	0	0	0	0
Germany	0	0	4	26	177	102	35	173
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ireland	1	1	1	1	1	1	1	1
Greece	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	0	0	0	1	4
France	0	0	0	50	0	0	30	160
Italy	0	5	27	50	0	5	27	50
Cyprus	0	0	0	0	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0	0	0	0	0
Luxembourg	0	0	0	0	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Austria	0	0	0	0	8	63	71	94
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0	0	0	0	0
Sweden	13	40	67	94	13	40	67	94
United Kingdom	0	0	0	0	0	0	0	0
All Member States (total)	14	46	99	225	199	211	232	580

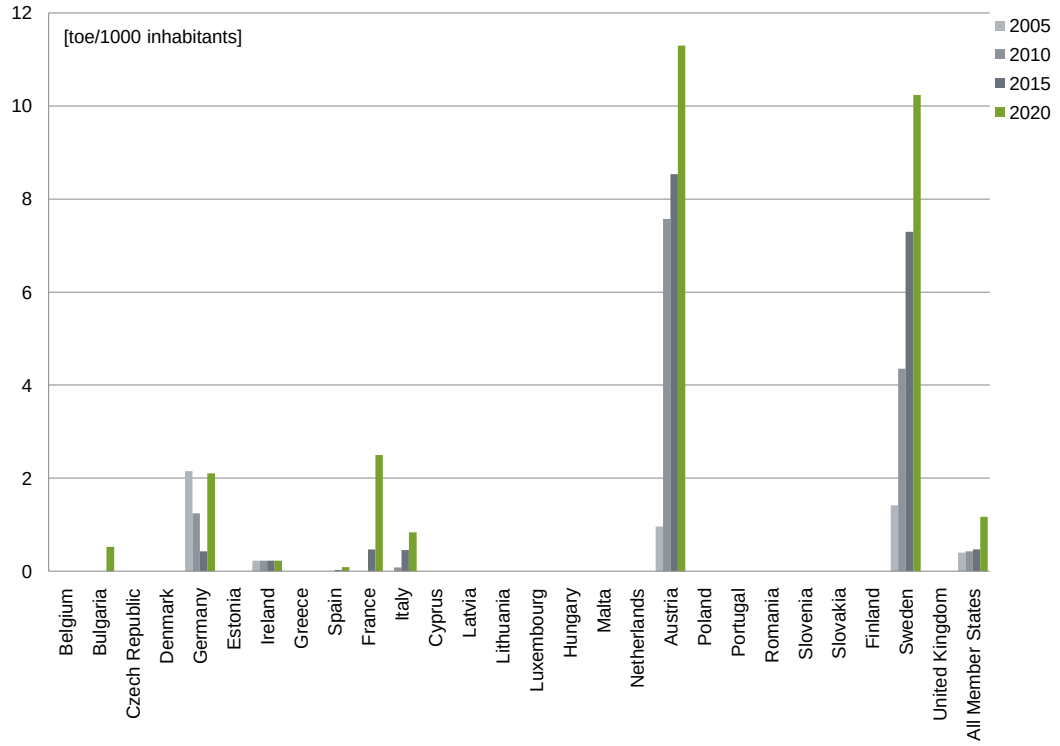


Figure 79: *Calculated per capita (2008) values for total other biofuels in transport [toe/1000 inhabitants] for the period 2005 - 2020*

Table 121: *Calculated per capita (2008) values for total other biofuels in transport [toe/1000 inhabitants] for the period 2005 - 2020*

	2005 [toe/1000 inhabitants]	2010 [toe/1000 inhabitants]	2015 [toe/1000 inhabitants]	2020 [toe/1000 inhabitants]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	1
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	2	1	0	2
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0
Greece	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	0
France	0	0	0	3
Italy	0	0	0	1
Cyprus	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	1	8	9	11
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	1	4	7	10
United Kingdom	0	0	0	0
All Member States (average)	0	0	0	1

The population data can be viewed in Table 9 (page 25)

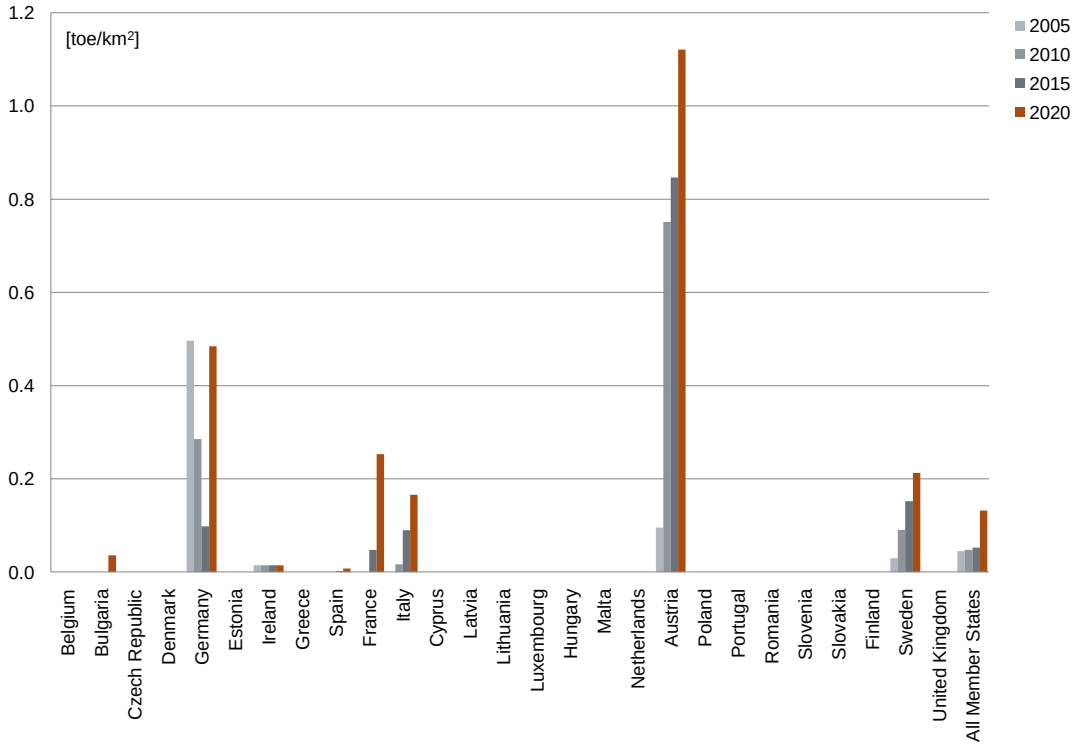


Figure 80: *Calculated per surface area (2004) values for total other biofuels in transport [toe/km^2] for the period 2005 - 2020*

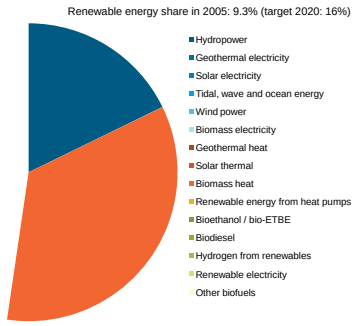
Table 122: *Calculated per surface area (2004) values for total other biofuels in transport [toe/km^2] for the period 2005 - 2020*

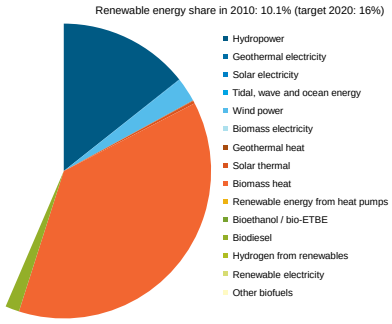
	2005 [toe/km^2]	2010 [toe/km^2]	2015 [toe/km^2]	2020 [toe/km^2]
Belgium	n.a.	n.a.	n.a.	n.a.
Bulgaria	0	0	0	0
Czech Republic	n.a.	n.a.	n.a.	n.a.
Denmark	0	0	0	0
Germany	0	0	0	0
Estonia	n.a.	n.a.	n.a.	n.a.
Ireland	0	0	0	0
Greece	n.a.	n.a.	n.a.	n.a.
Spain	0	0	0	0
France	0	0	0	0
Italy	0	0	0	0
Cyprus	0	0	0	0
Latvia	n.a.	n.a.	n.a.	n.a.
Lithuania	0	0	0	0
Luxembourg	0	0	0	0
Hungary	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	n.a.	n.a.	n.a.	n.a.
Austria	0	1	1	1
Poland	n.a.	n.a.	n.a.	n.a.
Portugal	0	0	0	0
Romania	n.a.	n.a.	n.a.	n.a.
Slovenia	n.a.	n.a.	n.a.	n.a.
Slovakia	n.a.	n.a.	n.a.	n.a.
Finland	0	0	0	0
Sweden	0	0	0	0
United Kingdom	0	0	0	0
All Member States (average)	0	0	0	0

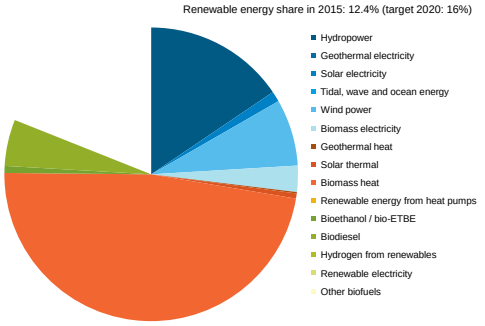
The surface area data can be viewed in Table 9 (page 25)

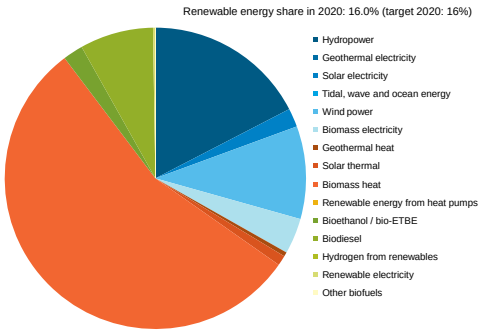
Country Tables

Bulgaria









The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 151 provides a background to the above figures.

			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower 1MW - 10 MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower >10MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower (subtotal)	4336	373	99.9	39.0	3260	280	84.0	27.3	3534	304	57.7	23.8	3951	340	52.4	20.4
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar photovoltaic	0	0	0.0	0.0	12	1	0.3	0.1	263	23	4.3	1.8	454	39	6.0	2.3
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	0	0	0.0	0.0	12	1	0.3	0.1	263	23	4.3	1.8	454	39	6.0	2.3
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Onshore wind	5	0	0.1	0.0	605	52	15.6	5.1	1672	144	27.3	11.3	2260	194	30.0	11.7
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Wind power (subtotal)	5	0	0.1	0.0	605	52	15.6	5.1	1672	144	27.3	11.3	2260	194	30.0	11.7
		Solid biomass	0	0	0.0	0.0	0	0	0.0	0.0	387	33	6.3	2.6	514	44	6.8	2.7
		Biogas	0	0	0.0	0.0	2	0	0.1	0.0	269	23	4.4	1.8	357	31	4.7	1.8
		Bioliquids	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Biomass (subtotal)	0	0	0.0	0.0	2	0	0.1	0.0	656	56	10.7	4.4	871	75	11.6	4.5
		Total (according to Template Tables 10a/b)	4341	373	**100.0**	39.0	3879	334	**100.0**	32.5	6126	527	**100.0**	41.3	7537	648	**100.0**	38.9
		Sum of all technologies (Template Tables 10a/b)	4341	373	100.0	39.0	3879	334	100.0	32.5	6125	527	100.0	41.3	7536	648	100.0	38.9
		Gross final RES-E consumption (Template Table 4a)		206	55.2	21.5		333	99.8	32.5		527	100.0	41.3		648	100.0	38.9
	Heating and cooling	Geothermal		n.a.	n.a.	n.a.		1	0.1	0.1		3	0.3	0.2		9	0.8	0.5
		Solar thermal		n.a.	n.a.	n.a.		6	0.8	0.6		11	1.2	0.9		21	1.9	1.3
		Solid biomass		724	100.0	75.7		734	99.1	71.6		916	97.1	71.8		1053	95.5	63.2
		Biogas		0	0.0	0.0		0	0.0	0.0		13	1.4	1.0		20	1.8	1.2
		Bioliquids		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Biomass (subtotal)		724	100.0	75.7		734	99.1	71.6		929	98.5	72.9		1073	97.3	64.4
		Aerothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Geothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Total (according to Template Table 11)		724	**100.0**	75.7		741	**100.0**	72.3		943	**100.0**	74.0		1103	**100.0**	66.2
		Sum of all technologies (Template Table 11)		724	100.0	75.7		741	100.0	72.3		943	100.0	74.0		1103	100.0	66.2
		Gross final RES-E consumption (Template Table 4a)		750	103.6	78.5		741	100.0	72.3		943	100.0	74.0		1103	100.0	66.2
	Transport	Bioethanol / bio-ETBE		0	n.a.	0.0		0	0.0	0.0		15	13.0	1.2		42	20.5	2.5
		Biodiesel		0	n.a.	0.0		30	100.0	2.9		100	87.0	7.8		154	75.1	9.2
		Hydrogen from renewables		0	n.a.	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		0	n.a.	0.0		0	0.0	0.0		0	0.0	0.0		5	2.4	0.3
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		0	n.a.	0.0		30	**100.0**	2.9		115	**100.0**	9.0		205	**100.0**	12.3
		Sum of all technologies (Template Table 12)		0	n.a.	0.0		30	100.0	2.9		115	100.0	9.0		201	98.0	12.1
		Gross final RES-E consumption (Template Table 4a)		0	n.a.	0.0		30	100.0	2.9		115	100.0	9.0		205	100.0	12.3
		RES-T including Article 21.2 (Template Table 4b)		0	n.a.	0.0		30	100.0	2.9		115	100.0	9.0		217	105.9	13.0
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		956		100.0		1104		107.7		1585		124.3		1956		117.4
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		1097		114.8		1105		107.8		1585		124.3		1951		117.1
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		1097				1105				1585				1952		
	Co-operation mechanisms	Transfer from other Member States and third countries		n.a.		n.a.		79		7.7		309		24.2		290		17.4
		Transfer to other Member States		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
	All renewables including co-operation mechanisms	Total (Template Table 4a)		956		**100.0**		1025		**100.0**		1275		**100.0**		1666		**100.0**
Final consumption	Electricity	Reference scenario		3129	30.3			3130	29.3			3355	27.9			3597	27.5	
		Additional energy efficiency		3129	30.3			3130	30.7			3171	30.8			3148	30.2	
	Heating and cooling	Reference scenario		4543	44.0			4851	45.5			5640	46.9			6193	47.3	
		Additional energy efficiency		4543	44.0			4492	44.1			4539	44.0			4638	44.5	
	Transport	Reference scenario		2642	25.6			2690	25.2			3033	25.2			3301	25.2	
		Additional energy efficiency		2642	25.6			2569	25.2			2599	25.2			2625	25.2	
	Total before aviation red. incl. efficiency	Reference scenario		10314	**100.0**			10671	**100.0**			12028	**100.0**			13091	**100.0**	
		Additional energy efficiency		10314	**100.0**			10191	**100.0**			10309	**100.0**			10411	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				15.3				16.5				20.8				23.8
		Calculated heating and cooling				16.5				16.5				20.8				23.8
	Electricity	Electricity				10.6				10.6				16.6				20.6
		Calculated electricity				6.6				10.6				16.6				20.6
	Transport incl. Art. 21.2 adjustment	Transport				1.1				1.2				4.4				7.8
		Calculated transport				0.0				1.2				4.4				8.3
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.0				1.2				4.4				7.8
	Overall renewable share	Overall renewable share				9.3				10.1				12.4				16.0
		Calculated overall renewable share				9.3				10.8				15.4				18.8
		Contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution from co-operation mechanism				n.a.				0.8				3.0				2.8
		Contribution to co-operation mechanism				n.a.				0.8				3.0				2.8
		Calculated contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				9.4				10.7				12.4				16.0

In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

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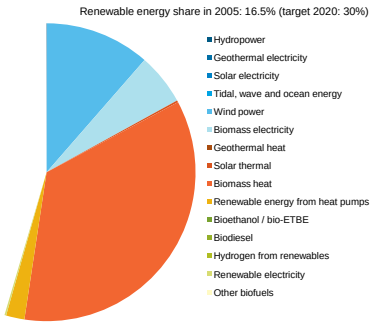
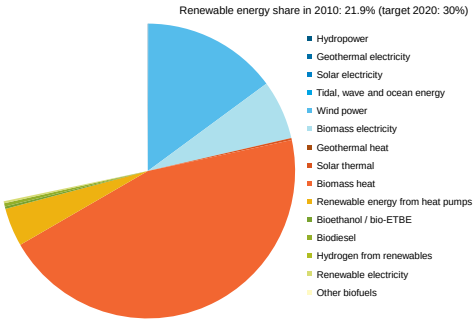
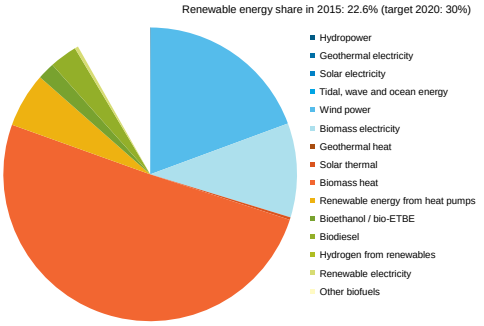
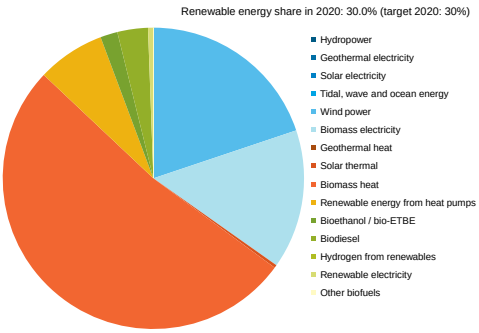






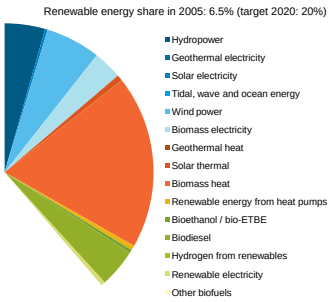


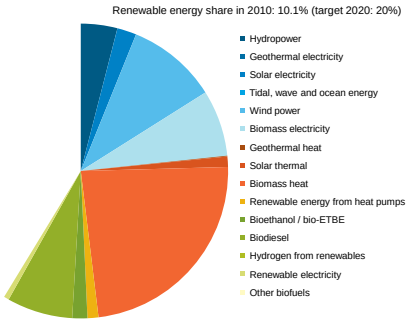
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 153 provides a background to the above figures.

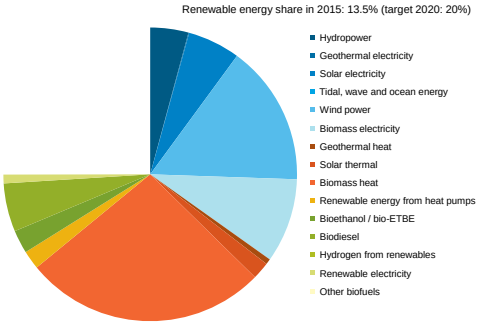
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Hydropower 1MW - 10 MW	23	2	0.2	0.1	31	3	0.2	0.1	31	3	0.2	0.1	31	3	0.2	0.1
		Hydropower >10MW	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Hydropower (subtotal)	23	2	0.2	0.1	31	3	0.2	0.1	31	3	0.2	0.1	31	3	0.2	0.1
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar photovoltaic	2	0	0.0	0.0	2	0	0.0	0.0	3	0	0.0	0.0	4	0	0.0	0.0
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	2	0	0.0	0.0	2	0	0.0	0.0	3	0	0.0	0.0	4	0	0.0	0.0
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Onshore wind	5158	444	52.2	16.3	6121	526	49.3	14.7	6322	544	36.5	14.5	6391	550	31.0	11.2
		Offshore wind	1456	125	14.7	4.6	2485	214	20.0	6.0	4920	423	28.4	11.3	5322	458	25.8	9.3
		Wind power (subtotal)	6614	569	66.9	20.9	8606	740	69.3	20.7	11242	967	64.9	25.8	11713	1007	56.9	20.4
		Solid biomass	2960	255	30.0	9.4	3578	308	28.8	8.6	5312	457	30.7	12.2	6345	546	30.8	11.1
		Biogas	283	24	2.9	0.9	194	17	1.6	0.5	721	62	4.2	1.7	2493	214	12.1	4.4
		Bioliquids	0	0	0.0	0.0	0	0	0.0	0.0	1	0	0.0	0.0	8	1	0.0	0.0
		Biomass (subtotal)	3243	279	32.8	10.3	3772	324	30.4	9.1	6035	519	34.9	13.9	8846	761	43.0	15.4
		Total (according to Template Tables 10a/b)	9881	850	**100.0**	31.3	12412	1067	**100.0**	29.8	17312	1489	**100.0**	39.7	20595	1771	**100.0**	35.9
		Sum of all technologies (Template Tables 10a/b)	9882	850	100.0	31.3	12411	1067	100.0	29.8	17311	1488	100.0	39.7	20594	1771	100.0	35.9
		Gross final RES-E consumption (Template Table 4a)		850	100.0	31.3		1067	100.0	29.8		1477	99.2	39.4		1685	95.2	34.2
	Heating and cooling	Geothermal		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Solar thermal		10	0.5	0.4		11	0.4	0.3		14	0.5	0.4		16	0.5	0.3
		Solid biomass		1714	91.7	63.1		2178	88.3	60.9		2426	85.4	64.8		2470	81.6	50.1
		Biogas		45	2.4	1.7		59	2.4	1.6		92	3.2	2.5		165	5.4	3.3
		Bioliquids		0	0.0	0.0		8	0.3	0.2		8	0.3	0.2		8	0.3	0.2
		Biomass (subtotal)		1759	94.1	64.7		2245	91.0	62.7		2526	88.9	67.4		2643	87.3	53.7
		Aerothermal heat pumps		48	2.6	1.8		91	3.7	2.5		135	4.8	3.6		170	5.6	3.5
		Geothermal heat pumps		52	2.8	1.9		119	4.8	3.3		166	5.8	4.4		199	6.6	4.0
		Hydrothermal heat pumps		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable energy from heat pumps (subtotal)		100	5.4	3.7		210	8.5	5.9		301	10.6	8.0		370	12.2	7.5
		Total (according to Template Table 11)		1869	**100.0**	68.8		2466	**100.0**	68.9		2841	**100.0**	75.8		3028	**100.0**	61.5
		Sum of all technologies (Template Table 11)		1869	100.0	68.8		2466	100.0	68.9		2841	100.0	75.8		3029	100.0	61.5
		Gross final RES-E consumption (Template Table 4a)		1869	100.0	68.8		2480	100.6	69.3		2855	100.5	76.2		3042	100.5	61.8
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		13	31.0	0.4		95	35.7	2.5		94	32.3	1.9
		Biodiesel		0	0.0	0.0		18	42.9	0.5		152	57.1	4.1		167	57.4	3.4
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		9	100.0	0.3		11	26.2	0.3		19	7.1	0.5		29	10.0	0.6
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		9	**100.0**	0.3		42	**100.0**	1.2		266	**100.0**	7.1		291	**100.0**	5.9
		Sum of all technologies (Template Table 12)		9	100.0	0.3		42	100.0	1.2		266	100.0	7.1		290	99.7	5.9
		Gross final RES-E consumption (Template Table 4a)		9	100.0	0.3		42	100.0	1.2		266	100.0	7.1		291	100.0	5.9
		RES-T including Article 21.2 (Template Table 4b)		9	100.0	0.3		42	100.0	1.2		292	109.8	7.8		439	150.9	8.9
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		2718		100.0		3578		100.0		4579		122.2		4989		101.3
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		2719		100.0		3564		99.6		4577		122.2		5061		102.7
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		2728				3575				4595				5090		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		833		22.2		63		1.3
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		2718		**100.0**		3578		**100.0**		3746		**100.0**		4926		**100.0**
Final consumption	Electricity	Reference scenario		3166	19.2			3144	19.1			3418	19.6			3564	19.8	
		Additional energy efficiency		3166	19.2			3108	19.0			3234	19.5			3247	19.9	
	Heating and cooling	Reference scenario		8071	49.0			8161	49.5			8512	48.8			8727	48.5	
		Additional energy efficiency		8071	49.0			8042	49.3			7929	47.8			7653	46.8	
	Transport	Reference scenario		5238	31.8			5189	31.5			5522	31.6			5693	31.7	
		Additional energy efficiency		5238	31.8			5173	31.7			5432	32.7			5520	33.8	
	Total before aviation red. incl. efficiency	Reference scenario		16475	100.0			16495	100.0			17453	100.0			17984	100.0	
		Additional energy efficiency		16475	100.0			16324	100.0			16596	100.0			16419	100.4	
	Total after aviation red. incl. efficiency	Reference scenario		16475	**100.0**			16495	**100.0**			17453	**100.0**			17984	**100.0**	
		Additional energy efficiency		16475	**100.0**			16324	**100.0**			16596	**100.0**			16346	**100.0**	
Share	Heating and cooling	Heating and cooling				23.2				30.8				36.0				39.8
		Calculated heating and cooling				23.2				30.8				36.0				39.7
	Electricity	Electricity				26.8				34.3				45.7				51.9
		Calculated electricity				26.8				34.3				45.7				51.9
	Transport incl. Art. 21.2 adjustment	Transport				0.2				1.0				6.7				10.1
		Calculated transport				0.2				0.8				5.4				8.0
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.2				0.8				4.9				5.3
	Overall renewable share	Overall renewable share				16.5				21.9				22.6				30.0
		Calculated overall renewable share				16.5				21.9				27.6				30.5
		Contribution from co-operation mechanism				n.a.				n.a.				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				5.0				0.4
		Contribution to co-operation mechanism				n.a.				n.a.				5.0				0.4
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				17.0				19.6				22.9				30.0

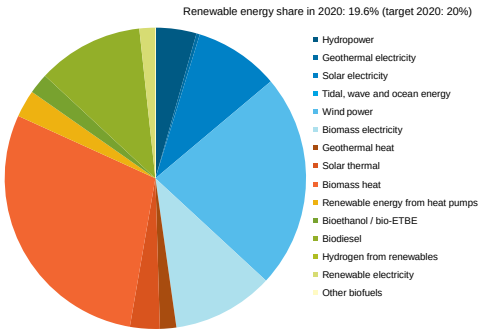
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Germany







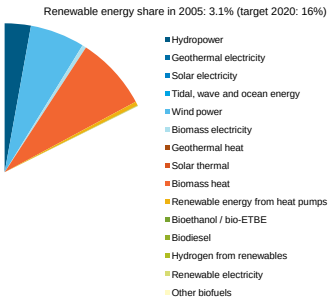


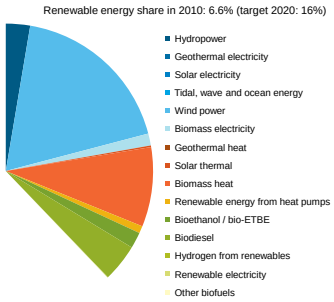
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 155 provides a background to the above figures.

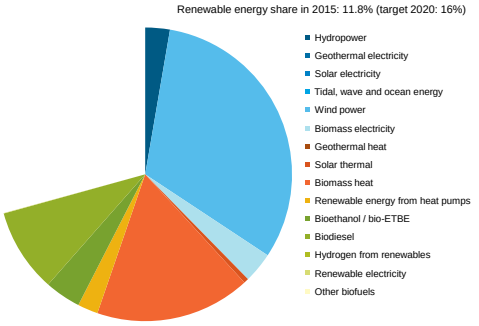
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	3157	271	5.1	1.8	2300	198	2.2	0.9	2450	211	1.6	0.7	2550	219	1.2	0.6
		Hydropower 1MW - 10 MW	3560	306	5.8	2.1	4050	348	3.9	1.5	4250	365	2.7	1.3	4500	387	2.1	1.0
		Hydropower >10MW	12971	1115	21.0	7.5	11650	1002	11.1	4.4	12300	1058	7.8	3.7	12950	1113	6.0	2.9
		Hydropower (subtotal)	19687	1693	31.9	11.3	18000	1548	17.1	6.9	19000	1634	12.1	5.7	20000	1720	9.2	4.5
		Geothermal	0	0	0.0	0.0	27	2	0.0	0.0	377	32	0.2	0.1	1654	142	0.8	0.4
		Solar photovoltaic	1282	110	2.1	0.7	9499	817	9.0	3.6	26161	2249	16.6	7.8	41389	3559	19.1	9.2
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	1282	110	2.1	0.7	9499	817	9.0	3.6	26161	2249	16.6	7.8	41389	3559	19.1	9.2
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Onshore wind	26658	2292	43.2	15.4	44397	3817	42.3	16.9	61990	5330	39.3	18.5	72664	6248	33.5	16.2
		Offshore wind	0	0	0.0	0.0	271	23	0.3	0.1	8004	688	5.1	2.4	31771	2732	14.6	7.1
		Wind power (subtotal)	26658	2292	43.2	15.4	44668	3841	42.6	17.0	69994	6018	44.4	20.9	104435	8980	48.1	23.3
		Solid biomass	10044	864	16.3	5.8	17498	1505	16.7	6.7	21695	1865	13.8	6.5	24569	2113	11.3	5.5
		Biogas	3652	314	5.9	2.1	13829	1189	13.2	5.3	18946	1629	12.0	5.7	23438	2015	10.8	5.2
		Bioliquids	329	28	0.5	0.2	1450	125	1.4	0.6	1450	125	0.9	0.4	1450	125	0.7	0.3
		Biomass (subtotal)	14025	1206	22.7	8.1	32778	2818	31.2	12.5	42090	3619	26.7	12.6	49457	4253	22.8	11.0
		Total (according to Template Tables 10a/b)	61653	5301	**100.0**	35.5	104972	9026	**100.0**	40.0	157623	13553	**100.0**	47.0	216935	18653	**100.0**	48.4
		Sum of all technologies (Template Tables 10a/b)	61652	5301	100.0	35.5	104972	9026	100.0	40.0	157622	13553	100.0	47.0	216935	18653	100.0	48.4
		Gross final RES-E consumption (Template Table 4a)		5301	100.0	35.5		9026	100.0	40.0		13553	100.0	47.0		18653	100.0	48.4
	Heating and cooling	Geothermal		12	0.2	0.1		34	0.3	0.2		234	1.9	0.8		686	4.8	1.8
		Solar thermal		238	3.1	1.6		440	4.4	1.9		741	6.1	2.6		1245	8.6	3.2
		Solid biomass		6794	88.2	45.5		7516	74.9	33.3		8389	69.0	29.1		8952	62.0	23.2
		Biogas		154	2.0	1.0		912	9.1	4.0		1312	10.8	4.6		1692	11.7	4.4
		Bioliquids		313	4.1	2.1		664	6.6	2.9		688	5.7	2.4		711	4.9	1.8
		Biomass (subtotal)		7261	94.2	48.6		9092	90.6	40.3		10389	85.4	36.0		11355	78.7	29.4
		Aerothermal heat pumps		39	0.5	0.3		165	1.6	0.7		338	2.8	1.2		547	3.8	1.4
		Geothermal heat pumps		130	1.7	0.9		258	2.6	1.1		400	3.3	1.4		521	3.6	1.4
		Hydrothermal heat pumps		27	0.4	0.2		42	0.4	0.2		62	0.5	0.2		77	0.5	0.2
		Renewable energy from heat pumps (subtotal)		196	2.5	1.3		465	4.6	2.1		800	6.6	2.8		1144	7.9	3.0
		Total (according to Template Table 11)		7706	**100.0**	51.6		10031	**100.0**	44.4		12163	**100.0**	42.2		14431	**100.0**	37.4
		Sum of all technologies (Template Table 11)		7707	100.0	51.6		10031	100.0	44.4		12164	100.0	42.2		14430	100.0	37.4
		Gross final RES-E consumption (Template Table 4a)		7706	100.0	51.6		10031	100.0	44.4		12163	100.0	42.2		14431	100.0	37.4
	Transport	Bioethanol / bio-ETBE		144	6.9	1.0		639	17.0	2.8		996	28.6	3.5		857	14.0	2.2
		Biodiesel		1598	76.6	10.7		2790	74.4	12.4		2074	59.6	7.2		4443	72.4	11.5
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		169	8.1	1.1		219	5.8	1.0		374	10.8	1.3		667	10.9	1.7
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		2087	**100.0**	14.0		3749	**100.0**	16.6		3479	**100.0**	12.1		6140	**100.0**	15.9
		Sum of all technologies (Template Table 12)		1911	91.6	12.8		3648	97.3	16.2		3444	99.0	11.9		5967	97.2	15.5
		Gross final RES-E consumption (Template Table 4a)		2087	100.0	14.0		3749	100.0	16.6		3479	100.0	12.1		6140	100.0	15.9
		RES-T including Article 21.2 (Template Table 4b)		2087	100.0	14.0		3847	102.6	17.0		3613	103.9	12.5		6390	104.1	16.6
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		14926		100.0		22588		100.0		28822		100.0		38557		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		14925		100.0		22587		100.0		28821		100.0		38557		100.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		14919				22705				29161				39050		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		14926		**100.0**		22588		**100.0**		28822		**100.0**		38557		**100.0**
Final consumption	Electricity	Reference scenario		51813	22.6			51973	23.2			52554	24.0			52627	24.9	
		Additional energy efficiency		51813	22.6			51925	23.2			50588	23.7			48317	24.5	
	Heating and cooling	Reference scenario		116842	51.0			111661	49.9			106215	48.5			98766	46.7	
		Additional energy efficiency		116842	51.0			111597	49.9			103588	48.6			93139	47.2	
	Transport	Reference scenario		53602	23.4			52427	23.4			52187	23.8			51996	24.6	
		Additional energy efficiency		53602	23.4			52355	23.4			51279	24.1			48302	24.5	
	Total before aviation red. incl. efficiency	Reference scenario		229092	**100.0**			223767	**100.0**			218926	**100.0**			211599	**100.0**	
		Additional energy efficiency		229092	**100.0**			223584	**100.0**			213122	**100.0**			197178	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				6.6				9.0				11.7				15.5
		Calculated heating and cooling				6.6				9.0				11.7				15.5
	Electricity	Electricity				10.2				17.4				26.8				38.6
		Calculated electricity				10.2				17.4				26.8				38.6
	Transport incl. Art. 21.2 adjustment	Transport				3.9				7.3				7.0				13.2
		Calculated transport				3.9				7.3				7.0				13.2
	Transport excl. Art. 21.2 adjustment	Calculated transport				3.9				7.2				6.8				12.7
	Overall renewable share	Overall renewable share				6.5				10.1				13.5				19.6
		Calculated overall renewable share				6.5				10.1				13.5				19.6
		Contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Contribution to co-operation mechanism				0.0				0.0				2.2				1.6
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				5.8				8.2				11.3				18.0

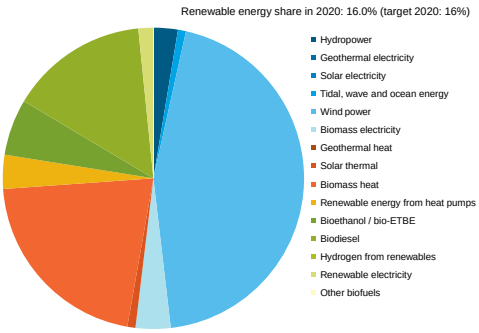
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Ireland







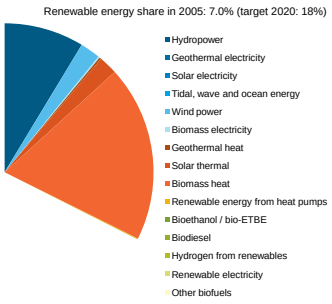


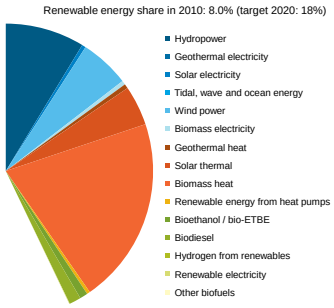
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 157 provides a background to the above figures.

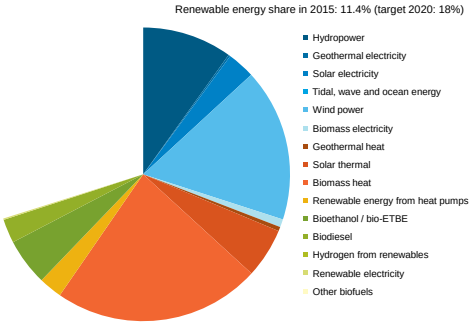
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower 1MW - 10 MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower >10MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower (subtotal)	760	65	30.8	17.5	701	60	12.0	7.0	714	61	7.2	4.4	701	60	5.0	2.7
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar photovoltaic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	0	0	0.0	0.0
		Concentrated solar power	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	230	20	1.7	0.9
		Onshore wind	n.a.	n.a.	n.a.	n.a.	4701	404	80.1	47.1	7525	647	75.7	46.4	10228	879	73.5	38.8
		Offshore wind	n.a.	n.a.	n.a.	n.a.	116	10	2.0	1.2	814	70	8.2	5.0	1742	150	12.5	6.6
		Wind power (subtotal)	1588	137	64.4	36.6	4817	414	82.1	48.2	8339	717	83.9	51.4	11970	1029	86.1	45.4
		Solid biomass	8	1	0.3	0.2	28	2	0.5	0.3	567	49	5.7	3.5	687	59	4.9	2.6
		Biogas	108	9	4.4	2.5	320	28	5.5	3.2	320	28	3.2	2.0	319	27	2.3	1.2
		Bioliquids	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Biomass (subtotal)	116	10	4.7	2.7	347	30	5.9	3.5	887	76	8.9	5.5	1006	87	7.2	3.8
		Total (according to Template Tables 10a/b)	2465	212	**100.0**	56.8	5866	504	**100.0**	58.7	9939	855	**100.0**	61.3	13909	1196	**100.0**	52.7
		Sum of all technologies (Template Tables 10a/b)	2464	212	100.0	56.8	5865	504	100.0	58.7	9940	855	100.0	61.3	13907	1196	100.0	52.7
		Gross final RES-E consumption (Template Table 4a)		180	84.9	48.3		504	99.9	58.7		855	100.0	61.3		1196	100.0	52.7
	Heating and cooling	Geothermal		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Solar thermal		0	0.0	0.0		4	1.8	0.5		12	2.7	0.9		20	3.4	0.9
		Solid biomass		176	91.2	47.2		188	85.5	21.9		362	80.3	26.0		453	76.6	20.0
		Biogas		7	3.6	1.9		10	4.5	1.2		26	5.8	1.9		33	5.6	1.5
		Bioliquids		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Biomass (subtotal)		183	94.8	49.1		198	90.0	23.1		388	86.0	27.8		486	82.2	21.4
		Aerothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Geothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		10	5.2	2.7		18	8.2	2.1		51	11.3	3.7		84	14.2	3.7
		Total (according to Template Table 11)		193	**100.0**	51.7		220	**100.0**	25.6		451	**100.0**	32.4		591	**100.0**	26.0
		Sum of all technologies (Template Table 11)		193	100.0	51.7		220	100.0	25.6		451	100.0	32.4		590	99.8	26.0
		Gross final RES-E consumption (Template Table 4a)		193	100.0	51.7		220	100.0	25.6		451	100.0	32.4		591	100.0	26.0
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		40	29.6	4.7		90	30.0	6.5		139	28.8	6.1
		Biodiesel		1	100.0	0.3		94	69.6	10.9		209	69.7	15.0		342	71.0	15.1
		Hydrogen from renewables		n.a.	n.a.	n.a.		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		1	100.0	0.3		1	0.7	0.1		1	0.3	0.1		37	7.7	1.6
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		1	**100.0**	0.3		135	**100.0**	15.7		300	**100.0**	21.5		482	**100.0**	21.2
		Sum of all technologies (Template Table 12)		2	200.0	0.5		135	100.0	15.7		300	100.0	21.5		518	107.5	22.8
		Gross final RES-E consumption (Template Table 4a)		1	100.0	0.3		135	100.0	15.7		300	100.0	21.5		482	100.0	21.2
		RES-T including Article 21.2 (Template Table 4b)		1	100.0	0.3		138	102.2	16.1		304	101.3	21.8		575	119.3	25.3
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		373		100.0		859		100.0		1605		115.1		2269		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		405		108.6		858		99.9		1605		115.1		2232		98.4
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		407				859				1606				2304		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		211		15.1		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		373		**100.0**		859		**100.0**		1394		**100.0**		2269		**100.0**
Final consumption	Electricity	Reference scenario		2341	18.4			2511	19.2			2764	19.5			2937	19.1	
		Additional energy efficiency		2341	18.4			2473	19.0			2636	19.4			2813	19.9	
	Heating and cooling	Reference scenario		5516	43.3			5184	39.6			5388	38.0			5724	37.2	
		Additional energy efficiency		5516	43.3			5160	39.7			5069	37.3			4931	34.9	
	Transport	Reference scenario		3912	30.7			4605	35.1			5311	37.5			5913	38.5	
		Additional energy efficiency		3912	30.7			4564	35.1			5152	38.0			5747	40.6	
	Total before aviation red. incl. efficiency	Reference scenario		12807	100.5			13127	100.2			14181	100.0			15367	100.0	
		Additional energy efficiency		12807	100.5			13024	100.2			13575	100.0			14142	100.0	
	Total after aviation red. incl. efficiency	Reference scenario		12741	**100.0**			13106	**100.0**			14181	**100.0**			15367	**100.0**	
		Additional energy efficiency		12741	**100.0**			12996	**100.0**			13575	**100.0**			14142	**100.0**	
Share	Heating and cooling	Heating and cooling				3.5				4.3				8.9				12.0
		Calculated heating and cooling				3.5				4.3				8.9				12.0
	Electricity	Electricity				6.9				20.4				32.4				42.5
		Calculated electricity				7.7				20.4				32.4				42.5
	Transport incl. Art. 21.2 adjustment	Transport				0.0				3.0				5.9				10.0
		Calculated transport				0.0				3.0				5.9				10.0
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.0				3.0				5.8				8.4
	Overall renewable share	Overall renewable share				3.1				6.6				11.8				16.0
		Calculated overall renewable share				2.9				6.6				11.8				16.0
		Contribution from co-operation mechanism				n.a.				0.0				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				1.6				0.0
		Contribution to co-operation mechanism				n.a.				0.0				1.6				0.0
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				3.1				5.7				8.9				16.0

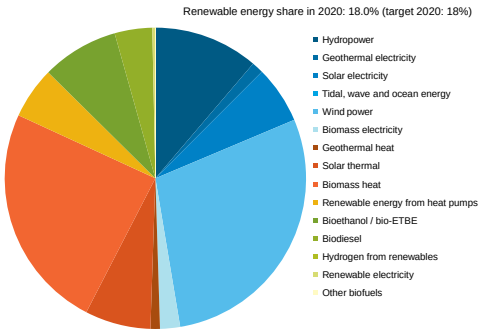
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Greece







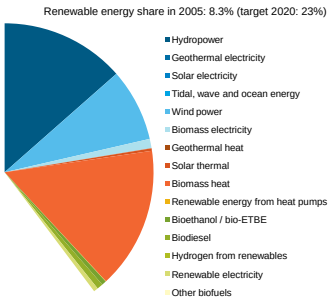


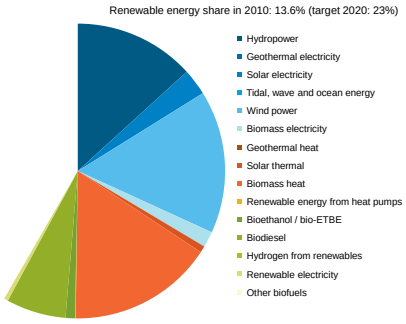
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 159 provides a background to the above figures.

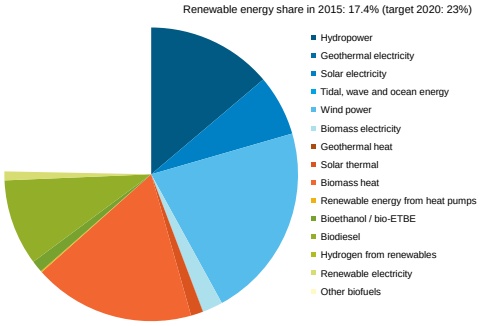
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	106	9	1.8	0.6	112	10	1.4	0.5	131	11	0.8	0.4	150	13	0.6	0.3
		Hydropower 1MW - 10 MW	218	19	3.8	1.2	593	51	7.6	2.6	713	61	4.2	2.4	833	72	3.1	1.6
		Hydropower >10MW	4693	404	81.1	26.8	4283	368	54.6	18.5	4840	416	28.5	16.4	5593	481	20.5	11.1
		Hydropower (subtotal)	5017	431	86.7	28.6	4988	429	63.6	21.5	5684	489	33.5	19.3	6576	565	24.1	13.0
		Geothermal	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	123	11	0.7	0.4	736	63	2.7	1.5
		Solar photovoltaic	1	0	0.0	0.0	242	21	3.1	1.0	1668	143	9.8	5.7	2891	249	10.6	5.7
		Concentrated solar power	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	86	7	0.5	0.3	714	61	2.6	1.4
		Solar (subtotal)	1	0	0.0	0.0	242	21	3.1	1.0	1754	151	10.3	5.9	3605	310	13.2	7.1
		Tidal, wave and ocean energy	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Onshore wind	1267	109	21.9	7.2	3129	269	39.9	13.5	9674	832	57.0	32.8	16125	1387	59.1	31.9
		Offshore wind	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	672	58	2.5	1.3
		Wind power (subtotal)	1267	109	21.9	7.2	3129	269	39.9	13.5	9674	832	57.0	32.8	16797	1444	61.6	33.3
		Solid biomass	n.a.	n.a.	n.a.	n.a.	73	6	0.9	0.3	73	6	0.4	0.2	364	31	1.3	0.7
		Biogas	94	8	1.6	0.5	181	16	2.3	0.8	431	37	2.5	1.5	895	77	3.3	1.8
		Bioliquids	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Biomass (subtotal)	94	8	1.6	0.5	254	22	3.2	1.1	504	43	3.0	1.7	1259	108	4.6	2.5
		Total (according to Template Tables 10a/b)	5786	498	**100.0**	33.0	7838	674	**100.0**	33.8	16967	1459	**100.0**	57.5	27269	2345	**100.0**	54.0
		Sum of all technologies (Template Tables 10a/b)	6379	548	110.2	36.4	8613	741	109.9	37.2	17739	1525	104.6	60.1	28973	2491	106.2	57.4
		Gross final RES-E consumption (Template Table 4a)		440	88.4	29.2		671	99.6	33.7		1459	100.0	57.5		2345	100.0	54.0
	Heating and cooling	Geothermal		10	0.9	0.7		24	1.9	1.2		23	1.5	0.9		51	2.7	1.2
		Solar thermal		101	9.5	6.7		216	17.0	10.8		271	17.5	10.7		355	18.6	8.2
		Solid biomass		951	89.2	63.1		1012	79.7	50.8		1128	72.9	44.5		1222	64.0	28.2
		Biogas		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Bioliquids		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Biomass (subtotal)		951	89.2	63.1		1012	79.7	50.8		1128	72.9	44.5		1222	64.0	28.2
		Aerothermal heat pumps		3	0.3	0.2		14	1.1	0.7		104	6.7	4.1		229	12.0	5.3
		Geothermal heat pumps		1	0.1	0.1		3	0.2	0.2		23	1.5	0.9		50	2.6	1.2
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		4	0.4	0.3		17	1.3	0.9		127	8.2	5.0		279	14.6	6.4
		Total (according to Template Table 11)		1066	**100.0**	70.7		1269	**100.0**	63.7		1548	**100.0**	61.0		1908	**100.0**	44.0
		Sum of all technologies (Template Table 11)		1066	100.0	70.7		1269	100.0	63.7		1549	100.1	61.1		1907	99.9	43.9
		Gross final RES-E consumption (Template Table 4a)		1066	100.0	70.7		1269	100.0	63.7		1548	100.0	61.0		1908	100.0	44.0
	Transport	Bioethanol / bio-ETBE		n.a.	n.a.	n.a.		43	39.1	2.2		256	65.1	10.1		414	65.3	9.5
		Biodiesel		1	100.0	0.1		64	58.2	3.2		130	33.1	5.1		203	32.0	4.7
		Hydrogen from renewables		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable electricity		n.a.	n.a.	n.a.		2	2.2	0.1		7	1.8	0.3		17	2.6	0.4
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		1	**100.0**	0.1		110	**100.0**	5.5		393	**100.0**	15.5		634	**100.0**	14.6
		Sum of all technologies (Template Table 12)		1	100.0	0.1		109	99.5	5.5		393	100.1	15.5		634	99.9	14.6
		Gross final RES-E consumption (Template Table 4a)		1	100.0	0.1		110	100.0	5.5		393	100.0	15.5		634	100.0	14.6
		RES-T including Article 21.2 (Template Table 4b)		1	100.0	0.1		111	100.9	5.6		395	100.5	15.6		641	101.1	14.8
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		1507		100.0		2050		102.9		3393		133.7		4870		112.2
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		1565		103.8		2051		102.9		3393		133.7		4870		112.2
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		1615				2119				3467				5032		
	Co-operation mechanisms	Transfer from other Member States and third countries		n.a.		n.a.		257		12.9		856		33.7		529		12.2
		Transfer to other Member States		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
	All renewables including co-operation mechanisms	Total (Template Table 4a)		1507		**100.0**		1993		**100.0**		2537		**100.0**		4341		**100.0**
Final consumption	Electricity	Reference scenario		5486	25.3			5061	22.3			5480	23.7			6179	24.5	
		Additional energy efficiency		5486	25.3			5061	426.4			5285	426.6			5887	422.9	
	Heating and cooling	Reference scenario		8355	38.6			8644	38.1			8743	37.8			9600	38.0	
		Additional energy efficiency		8355	38.6			8655	729.1			8658	698.8			9674	695.0	
	Transport	Reference scenario		6568	30.3			6774	29.8			6864	29.7			7257	28.7	
		Additional energy efficiency		6568	30.3			6528	550.0			6253	504.7			6336	455.2	
	Total before aviation red. incl. efficiency	Reference scenario		21643	**100.0**			22714	**100.0**			23150	**100.0**			25262	**100.0**	
		Additional energy efficiency		21643	**100.0**			22428	1889.5			22251	1795.9			24114	1732.3	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			1187	**100.0**			1239	**100.0**			1392	**100.0**	
Share	Heating and cooling	Heating and cooling				12.8				14.7				17.9				19.7
		Calculated heating and cooling				12.8				14.7				17.9				19.7
	Electricity	Electricity				8.0				13.3				27.6				39.8
		Calculated electricity				8.0				13.3				27.6				39.8
	Transport incl. Art. 21.2 adjustment	Transport				0.0				1.7				6.3				10.1
		Calculated transport				0.0				1.7				6.3				10.1
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.0				1.7				6.3				10.0
	Overall renewable share	Overall renewable share				7.0				8.0				11.4				18.0
		Calculated overall renewable share				7.0				172.7				273.8				349.9
		Contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution from co-operation mechanism				n.a.				21.7				69.1				38.0
		Contribution to co-operation mechanism				n.a.				1.2				3.9				2.2
		Calculated contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				6.9				9.1				11.9				18.0

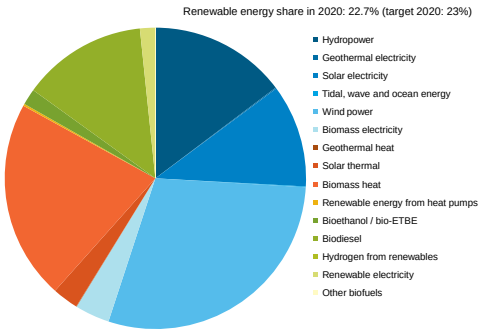
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Spain







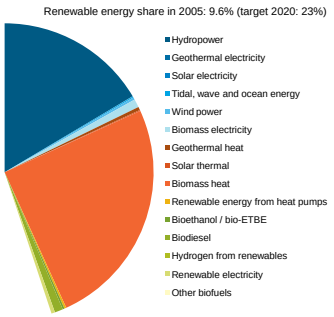


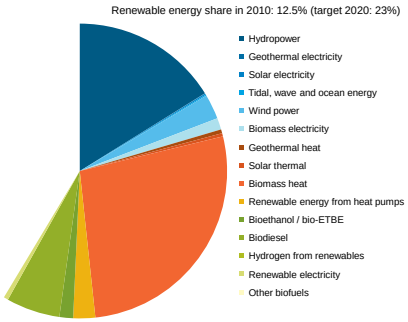
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 161 provides a background to the above figures.

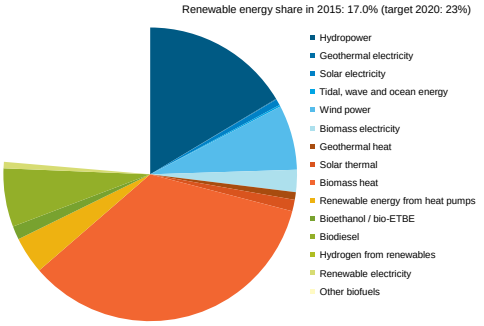
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	893	77	1.7	0.9	831	71	1.0	0.6	715	61	0.6	0.4	803	69	0.5	0.3
		Hydropower 1MW - 10 MW	5719	492	10.6	5.8	4973	428	5.9	3.4	4617	397	4.2	2.4	5477	471	3.7	2.1
		Hydropower >10MW	28891	2484	53.7	29.5	28813	2477	34.3	19.5	31399	2700	28.3	16.4	33314	2864	22.2	13.0
		Hydropower (subtotal)	35503	3053	66.0	36.2	34617	2977	41.2	23.5	36732	3158	33.1	19.2	39593	3404	26.4	15.4
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	300	26	0.2	0.1
		Solar photovoltaic	41	4	0.1	0.0	6417	552	7.6	4.3	9872	849	8.9	5.2	14316	1231	9.5	5.6
		Concentrated solar power	0	0	0.0	0.0	1144	98	1.4	0.8	7913	680	7.1	4.1	15353	1320	10.2	6.0
		Solar (subtotal)	41	4	0.1	0.0	7561	650	9.0	5.1	17785	1529	16.0	9.3	29669	2551	19.8	11.6
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	220	19	0.1	0.1
		Onshore wind	20729	1782	38.5	21.1	40978	3523	48.8	27.8	56786	4883	51.2	29.7	70502	6062	47.0	27.5
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	300	26	0.3	0.2	7753	667	5.2	3.0
		Wind power (subtotal)	20729	1782	38.5	21.1	40978	3523	48.8	27.8	57086	4909	51.4	29.9	78254	6729	52.2	30.5
		Solid biomass	2029	174	3.8	2.1	3719	320	4.4	2.5	4660	401	4.2	2.4	7400	636	4.9	2.9
		Biogas	623	54	1.2	0.6	799	69	1.0	0.5	1302	112	1.2	0.7	2617	225	1.7	1.0
		Bioliquids	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Biomass (subtotal)	2653	228	4.9	2.7	4517	388	5.4	3.1	5962	513	5.4	3.1	10017	861	6.7	3.9
		Total (according to Template Tables 10a/b)	53773	4624	**100.0**	54.8	84034	7226	**100.0**	56.9	110988	9543	**100.0**	58.1	150030	12900	**100.0**	58.5
		Sum of all technologies (Template Tables 10a/b)	58926	5067	109.6	60.1	87673	7539	104.3	59.4	117565	10109	105.9	61.6	158053	13590	105.3	61.6
		Gross final RES-E consumption (Template Table 4a)		4624	100.0	54.8		7227	100.0	56.9		9545	100.0	58.1		12903	100.0	58.5
	Heating and cooling	Geothermal		4	0.1	0.0		4	0.1	0.0		5	0.1	0.0		10	0.2	0.0
		Solar thermal		61	1.7	0.7		159	4.2	1.3		308	7.0	1.9		644	11.4	2.9
		Solid biomass		3441	96.9	40.8		3550	94.3	28.0		3997	90.8	24.3		4850	85.8	22.0
		Biogas		36	1.0	0.4		33	0.9	0.3		63	1.4	0.4		100	1.8	0.5
		Bioliquids		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Biomass (subtotal)		3477	97.9	41.2		3583	95.2	28.2		4060	92.2	24.7		4950	87.5	22.4
		Aerothermal heat pumps		4	0.1	0.0		5	0.1	0.0		7	0.2	0.0		10	0.2	0.0
		Geothermal heat pumps		4	0.1	0.0		12	0.3	0.1		23	0.5	0.1		41	0.7	0.2
		Hydrothermal heat pumps		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable energy from heat pumps (subtotal)		8	0.2	0.1		17	0.5	0.1		31	0.7	0.2		51	0.9	0.2
		Total (according to Template Table 11)		3550	**100.0**	42.1		3764	**100.0**	29.7		4404	**100.0**	26.8		5654	**100.0**	25.6
		Sum of all technologies (Template Table 11)		3550	100.0	42.1		3763	100.0	29.6		4404	100.0	26.8		5655	100.0	25.6
		Gross final RES-E consumption (Template Table 4a)		3550	100.0	42.1		3764	100.0	29.7		4404	100.0	26.8		5654	100.0	25.6
	Transport	Bioethanol / bio-ETBE		113	30.9	1.3		232	12.9	1.8		301	11.2	1.8		400	10.3	1.8
		Biodiesel		145	39.6	1.7		1471	81.6	11.6		2169	80.5	13.2		3100	79.8	14.1
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		108	29.5	1.3		99	5.5	0.8		224	8.3	1.4		381	9.8	1.7
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		366	**100.0**	4.3		1802	**100.0**	14.2		2695	**100.0**	16.4		3885	**100.0**	17.6
		Sum of all technologies (Template Table 12)		366	100.0	4.3		1802	100.0	14.2		2694	100.0	16.4		3881	99.9	17.6
		Gross final RES-E consumption (Template Table 4a)		366	100.0	4.3		1802	100.0	14.2		2695	100.0	16.4		3885	100.0	17.6
		RES-T including Article 21.2 (Template Table 4b)		366	100.0	4.3		1852	102.8	14.6		2902	107.7	17.7		4322	111.2	19.6
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		8433		100.0		12693		100.0		16419		100.0		22057		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		8432		100.0		12693		100.0		16418		100.0		22058		100.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		8983				13104				17207				23126		
	Co-operation mechanisms	Transfer from other Member States and third countries		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
		Transfer to other Member States		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
	All renewables including co-operation mechanisms	Total (Template Table 4a)		8433		**100.0**		12693		**100.0**		16419		**100.0**		22057		**100.0**
Final consumption	Electricity	Reference scenario		25080	24.6			25056	26.8			29647	29.4			35816	32.0	
		Additional energy efficiency		25080	24.6			25056	26.9			28264	29.9			32269	33.3	
	Heating and cooling	Reference scenario		40254	39.5			3334	3.6			32315	32.0			31837	28.5	
		Additional energy efficiency		40254	39.5			3334	3.6			31452	33.2			29849	30.8	
	Transport	Reference scenario		32407	31.8			30891	33.1			34391	34.1			39410	35.2	
		Additional energy efficiency		32407	31.8			30875	33.1			31222	33.0			31681	32.6	
	Total before aviation red. incl. efficiency	Reference scenario		101845	**100.0**			93379	**100.0**			100923	100.1			112530	100.6	
		Additional energy efficiency		101845	**100.0**			93226	**100.0**			94593	**100.0**			97041	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			100866	**100.0**			111882	**100.0**	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			0	0.0			0	0.0	
Share	Heating and cooling	Heating and cooling				8.8				11.3				14.0				18.9
		Calculated heating and cooling				8.8				112.9				14.0				18.9
	Electricity	Electricity				18.4				28.8				33.8				40.0
		Calculated electricity				18.4				28.8				33.8				40.0
	Transport incl. Art. 21.2 adjustment	Transport				1.1				6.0				9.3				13.6
		Calculated transport				1.1				6.0				9.3				13.6
	Transport excl. Art. 21.2 adjustment	Calculated transport				1.1				5.8				8.6				12.3
	Overall renewable share	Overall renewable share				8.3				13.6				17.4				22.7
		Calculated overall renewable share				8.3				13.6				17.4				22.7
		Contribution from co-operation mechanism				n.a.				n.a.				0.0				0.0
		Calculated contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Contribution to co-operation mechanism				n.a.				n.a.				3.6				2.7
		Calculated contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				8.7				11.0				13.8				20.0

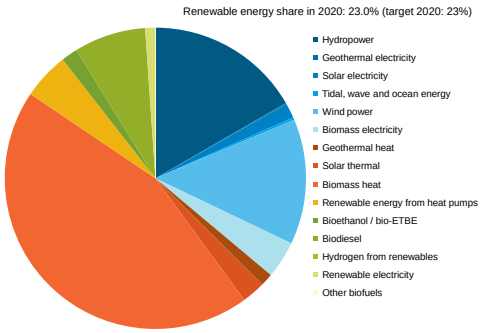
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

France







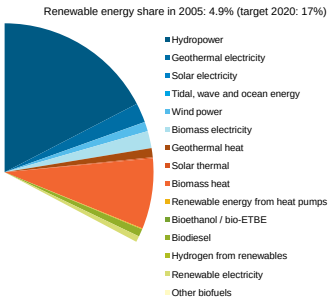


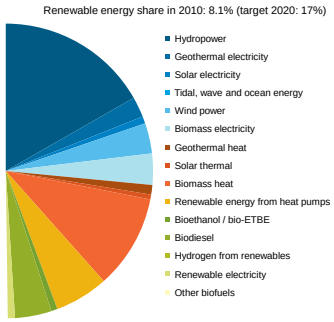
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 163 provides a background to the above figures.

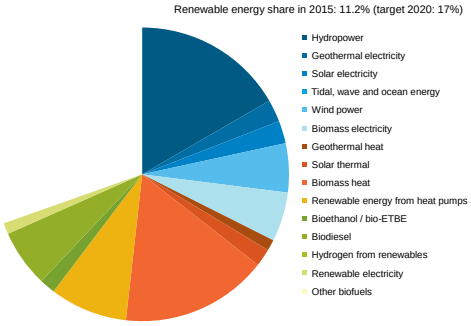
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	1796	154	2.4	1.0	1694	146	1.9	0.7	1727	148	1.5	0.5	1759	151	1.1	0.4
		Hydropower 1MW - 10 MW	6111	525	8.1	3.3	5766	496	6.6	2.4	5878	505	5.1	1.8	5990	515	3.9	1.4
		Hydropower >10MW	62332	5360	82.2	33.7	61563	5293	70.5	25.3	62758	5396	54.3	19.7	63953	5499	41.2	15.2
		Hydropower (subtotal)	70240	6040	92.6	37.9	69024	5935	79.0	28.4	70363	6050	60.9	22.1	71703	6165	46.2	17.1
		Geothermal	95	8	0.1	0.1	153	13	0.2	0.1	314	27	0.3	0.1	475	41	0.3	0.1
		Solar photovoltaic	22	2	0.0	0.0	613	53	0.7	0.3	2617	225	2.3	0.8	5913	508	3.8	1.4
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	365	31	0.3	0.1	972	84	0.6	0.2
		Solar (subtotal)	22	2	0.0	0.0	613	53	0.7	0.3	2987	257	2.6	0.9	6885	592	4.4	1.6
		Tidal, wave and ocean energy	535	46	0.7	0.3	500	43	0.6	0.2	789	68	0.7	0.2	1150	99	0.7	0.3
		Onshore wind	1128	97	1.5	0.6	11638	1001	13.3	4.8	22634	1946	19.6	7.1	39900	3431	25.7	9.5
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	8000	688	6.9	2.5	18000	1548	11.6	4.3
		Wind power (subtotal)	1128	97	1.5	0.6	11638	1001	13.3	4.8	30634	2634	26.5	9.6	57900	4979	37.3	13.8
		Solid biomass	3341	287	4.4	1.8	4506	387	5.2	1.9	8366	719	7.2	2.6	13470	1158	8.7	3.2
		Biogas	478	41	0.6	0.3	935	80	1.1	0.4	2129	183	1.8	0.7	3701	318	2.4	0.9
		Bioliquids	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Biomass (subtotal)	3819	328	5.0	2.1	5441	468	6.2	2.2	10496	902	9.1	3.3	17171	1476	11.1	4.1
		Total (according to Template Tables 10a/b)	75839	6521	**100.0**	41.0	87369	7512	**100.0**	35.9	115577	9938	**100.0**	36.3	155284	13352	**100.0**	37.0
		Sum of all technologies (Template Tables 10a/b)	75839	6521	100.0	41.0	87369	7512	100.0	35.9	115583	9938	100.0	36.3	155284	13352	100.0	37.0
		Gross final RES-E consumption (Template Table 4a)		6118	93.8	38.4		7073	94.2	33.8		9407	94.7	34.3		12729	95.3	35.2
	Heating and cooling	Geothermal		130	1.4	0.8		155	1.4	0.7		310	2.1	1.1		500	2.5	1.4
		Solar thermal		38	0.4	0.2		130	1.2	0.6		465	3.1	1.7		927	4.7	2.6
		Solid biomass		9067	96.5	57.0		9870	88.8	47.2		12500	83.1	45.6		15900	80.6	44.0
		Biogas		86	0.9	0.5		83	0.7	0.4		260	1.7	0.9		555	2.8	1.5
		Bioliquids		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Biomass (subtotal)		9153	97.4	57.5		9953	89.5	47.6		12760	84.8	46.6		16455	83.4	45.6
		Aerothermal heat pumps		27	0.3	0.2		664	6.0	3.2		1080	7.2	3.9		1280	6.5	3.5
		Geothermal heat pumps		49	0.5	0.3		222	2.0	1.1		425	2.8	1.6		570	2.9	1.6
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		76	0.8	0.5		886	8.0	4.2		1505	10.0	5.5		1850	9.4	5.1
		Total (according to Template Table 11)		9397	**100.0**	59.0		11121	**100.0**	53.2		15040	**100.0**	54.9		19732	**100.0**	54.6
		Sum of all technologies (Template Table 11)		9397	100.0	59.0		11124	100.0	53.2		15040	100.0	54.9		19732	100.0	54.6
		Gross final RES-E consumption (Template Table 4a)		9397	100.0	59.0		11124	100.0	53.2		15040	100.0	54.9		19732	100.0	54.6
	Transport	Bioethanol / bio-ETBE		75	13.8	0.5		550	19.0	2.6		550	17.1	2.0		650	16.0	1.8
		Biodiesel		328	60.3	2.1		2165	74.7	10.4		2375	73.9	8.7		2850	70.2	7.9
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		141	25.9	0.9		183	6.3	0.9		260	8.1	0.9		402	9.9	1.1
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		544	**100.0**	3.4		2898	**100.0**	13.9		3215	**100.0**	11.7		4062	**100.0**	11.2
		Sum of all technologies (Template Table 12)		544	100.0	3.4		2898	100.0	13.9		3185	99.1	11.6		3902	96.1	10.8
		Gross final RES-E consumption (Template Table 4a)		544	100.0	3.4		2898	100.0	13.9		3215	100.0	11.7		4062	100.0	11.2
		RES-T including Article 21.2 (Template Table 4b)		544	100.0	3.4		2948	101.7	14.1		3372	104.9	12.3		4427	109.0	12.3
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		15918		100.0		20912		100.0		27402		100.0		36121		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		16321		102.5		21348		102.1		27933		101.9		36744		101.7
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		16462				21534				28163				36986		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		15918		**100.0**		20912		**100.0**		27402		**100.0**		36121		**100.0**
Final consumption	Electricity	Reference scenario		45317	24.4			47378	29.5			49439	31.6			51500	26.3	
		Additional energy efficiency		45317	24.4			45849	24.4			46381	23.7			46913	30.2	
	Heating and cooling	Reference scenario		68949	37.1			72333	45.0			75716	48.4			79100	40.4	
		Additional energy efficiency		68949	37.1			65966	35.2			62983	32.2			60000	38.6	
	Transport	Reference scenario		45080	24.2			53100	33.0			55100	35.2			57500	29.4	
		Additional energy efficiency		45080	24.2			45700	24.4			44000	22.5			42100	27.1	
	Total before aviation red. incl. efficiency	Reference scenario		166689	89.6			179877	111.9			187610	119.9			195745	**100.0**	
		Additional energy efficiency		166689	89.6			164349	87.6			159909	81.7			155268	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		186064	**100.0**			160758	**100.0**			156517	**100.0**			n.a.	n.a.	
		Additional energy efficiency		186064	**100.0**			187610	**100.0**			195745	**100.0**			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				13.6				17.0				24.0				33.0
		Calculated heating and cooling				13.6				16.9				23.9				32.9
	Electricity	Electricity				13.5				15.5				20.5				27.0
		Calculated electricity				13.5				15.4				20.3				27.1
	Transport incl. Art. 21.2 adjustment	Transport				1.2				6.5				7.7				10.5
		Calculated transport				1.2				6.5				7.7				10.5
	Transport excl. Art. 21.2 adjustment	Calculated transport				1.2				6.3				7.3				9.6
	Overall renewable share	Overall renewable share				9.6				12.5				17.0				23.0
		Calculated overall renewable share				8.6				11.1				14.0				23.3
		Contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				9.6				12.8				16.0				23.0

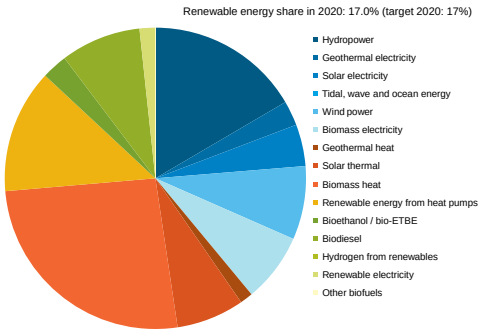
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Italy







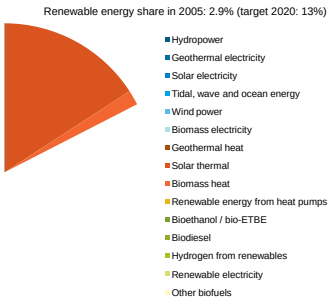


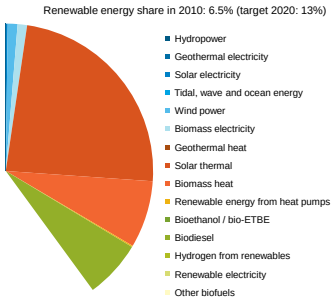
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 165 provides a background to the above figures.

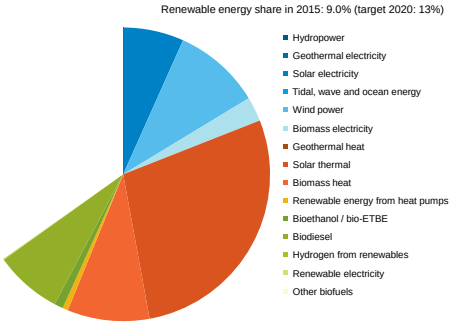
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	1851	159	3.3	2.3	1737	149	2.6	1.4	2009	173	2.5	1.2	2281	196	2.3	0.9
		Hydropower 1MW - 10 MW	7391	636	13.1	9.2	7459	641	11.2	6.0	8627	742	10.5	5.0	9796	842	9.9	3.7
		Hydropower >10MW	34525	2969	61.3	42.8	32946	2833	49.3	26.7	31434	2703	38.4	18.2	29923	2573	30.3	11.4
		Hydropower (subtotal)	43768	3763	77.7	54.2	42141	3623	63.1	34.1	42070	3617	51.4	24.3	42000	3611	42.5	16.0
		Geothermal	5325	458	9.4	6.6	5632	484	8.4	4.6	6191	532	7.6	3.6	6750	580	6.8	2.6
		Solar photovoltaic	31	3	0.1	0.0	1967	169	2.9	1.6	6122	526	7.5	3.5	9650	830	9.8	3.7
		Concentrated solar power	0	0	0.0	0.0	9	1	0.0	0.0	170	15	0.2	0.1	1700	146	1.7	0.6
		Solar (subtotal)	31	3	0.1	0.0	1976	170	3.0	1.6	6292	541	7.7	3.6	11350	976	11.5	4.3
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	1	0	0.0	0.0	5	0	0.0	0.0
		Onshore wind	2558	220	4.5	3.2	8398	722	12.6	6.8	13199	1135	16.1	7.6	18000	1548	18.2	6.8
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	453	39	0.6	0.3	2000	172	2.0	0.8
		Wind power (subtotal)	2558	220	4.5	3.2	8398	722	12.6	6.8	13652	1174	16.7	7.9	20000	1720	20.2	7.6
		Solid biomass	3477	299	6.2	4.3	4758	409	7.1	3.9	6329	544	7.7	3.7	7900	679	8.0	3.0
		Biogas	1198	103	2.1	1.5	2129	183	3.2	1.7	4074	350	5.0	2.4	6020	518	6.1	2.3
		Bioliquids	0	0	0.0	0.0	1758	151	2.6	1.4	3309	285	4.0	1.9	4860	418	4.9	1.8
		Biomass (subtotal)	4675	402	8.3	5.8	8645	743	12.9	7.0	13712	1179	16.7	7.9	18780	1615	19.0	7.1
		Total (according to Template Tables 10a/b)	56356	4846	**100.0**	69.8	66791	5743	**100.0**	54.1	81918	7044	**100.0**	47.3	98885	8503	**100.0**	37.6
		Sum of all technologies (Template Tables 10a/b)	56357	4846	100.0	69.8	66792	5743	100.0	54.1	81918	7044	100.0	47.3	98885	8503	100.0	37.6
		Gross final RES-E consumption (Template Table 4a)		4847	100.0	69.8		5744	100.0	54.1		7045	100.0	47.3		8504	100.0	37.6
	Heating and cooling	Geothermal		213	11.1	3.1		226	5.9	2.1		260	4.3	1.7		300	2.9	1.3
		Solar thermal		27	1.4	0.4		113	2.9	1.1		424	7.0	2.8		1586	15.2	7.0
		Solid biomass		1629	85.0	23.5		2206	57.3	20.8		3404	56.2	22.9		5254	50.2	23.2
		Biogas		26	1.4	0.4		26	0.7	0.2		83	1.4	0.6		266	2.5	1.2
		Bioliquids		0	0.0	0.0		7	0.2	0.1		33	0.5	0.2		150	1.4	0.7
		Biomass (subtotal)		1655	86.4	23.8		2239	58.1	21.1		3520	58.1	23.7		5670	54.2	25.1
		Aerothermal heat pumps		16	0.8	0.2		1127	29.3	10.6		1566	25.8	10.5		2175	20.8	9.6
		Geothermal heat pumps		4	0.2	0.1		40	1.0	0.4		145	2.4	1.0		522	5.0	2.3
		Hydrothermal heat pumps		2	0.1	0.0		105	2.7	1.0		146	2.4	1.0		203	1.9	0.9
		Renewable energy from heat pumps (subtotal)		21	1.1	0.3		1273	33.1	12.0		1857	30.6	12.5		2900	27.7	12.8
		Total (according to Template Table 11)		1916	**100.0**	27.6		3851	**100.0**	36.3		6062	**100.0**	40.7		10456	**100.0**	46.2
		Sum of all technologies (Template Table 11)		1916	100.0	27.6		3851	100.0	36.3		6061	100.0	40.7		10456	100.0	46.2
		Gross final RES-E consumption (Template Table 4a)		1916	100.0	27.6		3851	100.0	36.3		6062	100.0	40.7		10456	100.0	46.2
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		148	12.4	1.4		374	18.3	2.5		600	20.7	2.7
		Biodiesel		179	56.3	2.6		868	72.9	8.2		1374	67.4	9.2		1880	64.8	8.3
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		139	43.7	2.0		170	14.3	1.6		265	13.0	1.8		369	12.7	1.6
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		318	**100.0**	4.6		1190	**100.0**	11.2		2040	**100.0**	13.7		2899	**100.0**	12.8
		Sum of all technologies (Template Table 12)		318	100.0	4.6		1186	99.7	11.2		2013	98.7	13.5		2849	98.3	12.6
		Gross final RES-E consumption (Template Table 4a)		179	56.3	2.6		1020	85.7	9.6		1775	87.0	11.9		2530	87.3	11.2
		RES-T including Article 21.2 (Template Table 4b)		338	106.3	4.9		1295	108.8	12.2		2356	115.5	15.8		3445	118.8	15.2
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		6942		100.0		10615		100.0		14882		100.0		21490		95.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		6941		100.0		10614		100.0		14881		100.0		21489		95.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		7080				10780				15118				21808		
	Co-operation mechanisms	Transfer from other Member States and third countries		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
		Transfer to other Member States		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		1127		5.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		6942		**100.0**		10615		**100.0**		14882		**100.0**		22617		**100.0**
Final consumption	Electricity	Reference scenario		29749	21.1			29505	21.9			31853	22.7			35034	24.1	
		Additional energy efficiency		29749	21.1			30701	23.3			31465	23.8			32227	24.2	
	Heating and cooling	Reference scenario		68501	48.5			64194	47.7			65532	46.7			66499	45.7	
		Additional energy efficiency		68501	48.5			58976	44.7			60081	45.4			61185	46.0	
	Transport	Reference scenario		39000	27.6			36467	27.1			37986	27.1			38544	26.5	
		Additional energy efficiency		39000	27.6			37054	28.1			35513	26.8			33972	25.5	
	Total before aviation red. incl. efficiency	Reference scenario		141226	**100.0**			134643	**100.0**			140399	**100.0**			145566	**100.0**	
		Additional energy efficiency		141226	**100.0**			131801	**100.0**			132422	**100.0**			133042	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				2.8				6.5				10.1				17.1
		Calculated heating and cooling				2.8				6.5				10.1				17.1
	Electricity	Electricity				16.3				18.7				22.4				26.4
		Calculated electricity				16.3				18.7				22.4				26.4
	Transport incl. Art. 21.2 adjustment	Transport				0.9				3.5				6.6				10.1
		Calculated transport				0.9				3.5				6.6				10.1
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.8				3.2				5.7				8.5
	Overall renewable share	Overall renewable share				4.9				8.1				11.2				17.0
		Calculated overall renewable share				4.9				8.1				11.2				16.2
		Contribution from co-operation mechanism				n.a.				0.0				0.0				0.9
		Calculated contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Contribution to co-operation mechanism				n.a.				1.4				1.4				0.0
		Calculated contribution to co-operation mechanism				n.a.				n.a.				n.a.				0.8
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				5.2				7.6				10.5				17.0

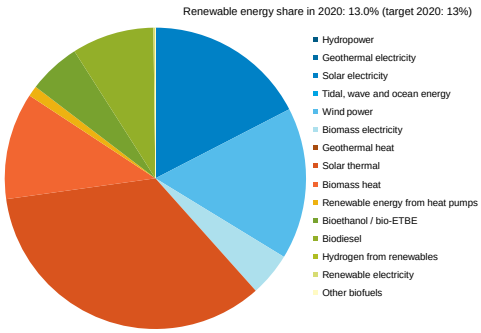
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Cyprus







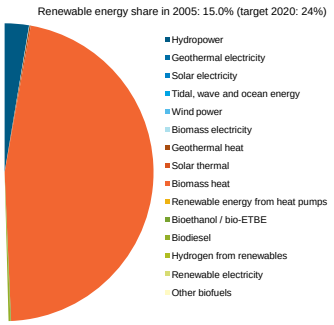


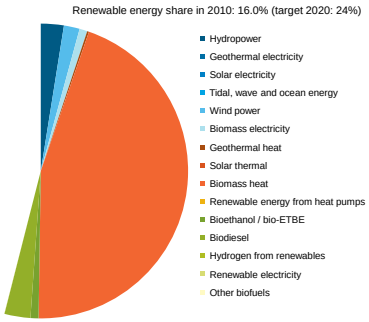
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 167 provides a background to the above figures.

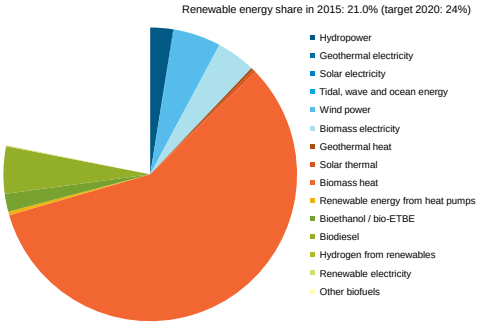
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower 1MW - 10 MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower >10MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower (subtotal)	0	0	n.a.	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Geothermal	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Solar photovoltaic	0	0	n.a.	0.0	6	1	8.8	0.5	59	5	10.0	3.0	309	27	26.3	10.1
		Concentrated solar power	0	0	n.a.	0.0	0	0	0.0	0.0	149	13	25.2	7.5	224	19	19.1	7.3
		Solar (subtotal)	0	0	n.a.	0.0	6	1	8.8	0.5	208	18	35.1	10.5	533	46	45.4	17.4
		Tidal, wave and ocean energy	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Onshore wind	0	0	n.a.	0.0	31	3	45.6	2.3	300	26	50.7	15.2	499	43	42.5	16.3
		Offshore wind	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Wind power (subtotal)	0	0	n.a.	0.0	31	3	45.6	2.3	300	26	50.7	15.2	499	43	42.5	16.3
		Solid biomass	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Biogas	0	0	n.a.	0.0	30	3	44.1	2.3	84	7	14.2	4.2	143	12	12.2	4.7
		Bioliquids	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Biomass (subtotal)	0	0	n.a.	0.0	30	3	44.1	2.3	84	7	14.2	4.2	143	12	12.2	4.7
		Total (according to Template Tables 10a/b)	0	0	n.a.	0.0	68	6	**100.0**	5.1	592	51	**100.0**	29.9	1175	101	**100.0**	38.4
		Sum of all technologies (Template Tables 10a/b)	0	0	n.a.	0.0	67	6	98.5	5.1	592	51	100.0	29.9	1175	101	100.0	38.4
		Gross final RES-E consumption (Template Table 4a)		0	n.a.	0.0		20	342.1	17.5		46	90.4	27.1		101	100.0	38.4
	Heating and cooling	Geothermal		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Solar thermal		41	90.8	86.0		59	76.0	51.8		75	74.4	44.2		90	73.2	34.4
		Solid biomass		4	9.2	8.8		18	23.6	16.1		24	24.0	14.2		30	24.4	11.5
		Biogas		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Bioliquids		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Biomass (subtotal)		4	9.2	8.8		18	23.6	16.1		24	24.0	14.2		30	24.4	11.5
		Aerothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Geothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		0	0.0	0.0		0	0.4	0.3		2	1.6	0.9		3	2.4	1.1
		Total (according to Template Table 11)		45	**100.0**	94.7		78	**100.0**	68.1		101	**100.0**	59.4		124	**100.0**	47.0
		Sum of all technologies (Template Table 11)		45	100.0	94.7		78	100.0	68.1		101	100.0	59.4		124	100.0	47.0
		Gross final RES-E consumption (Template Table 4a)		48	105.6	100.0		78	100.4	68.4		101	100.0	59.4		124	100.3	47.1
	Transport	Bioethanol / bio-ETBE		0	n.a.	0.0		0	0.0	0.0		3	11.5	1.5		15	38.3	5.6
		Biodiesel		0	n.a.	0.0		16	100.0	13.8		20	87.2	11.6		23	60.4	8.8
		Hydrogen from renewables		0	n.a.	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		0	n.a.	0.0		0	0.0	0.0		0	1.2	0.2		1	1.5	0.2
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		0	n.a.	0.0		16	**100.0**	13.8		23	**100.0**	13.4		38	**100.0**	14.6
		Sum of all technologies (Template Table 12)		0	n.a.	0.0		16	100.0	13.8		23	99.9	13.3		38	100.2	14.6
		Gross final RES-E consumption (Template Table 4a)		0	n.a.	0.0		16	101.9	14.0		23	101.3	13.5		38	99.0	14.4
		RES-T including Article 21.2 (Template Table 4b)		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		48		100.0		114		100.0		170		100.0		263		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		45		94.7		99		87.0		174		102.5		262		99.8
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		45				99				175				263		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		48		**100.0**		114		**100.0**		170		**100.0**		263		**100.0**
Final consumption	Electricity	Reference scenario		374	22.5			464	26.6			573	29.4			683	31.6	
		Additional energy efficiency		374	22.5			463	26.6			548	29.1			633	31.3	
	Heating and cooling	Reference scenario		530	31.9			480	27.5			517	26.5			551	25.5	
		Additional energy efficiency		530	31.9			480	27.6			509	27.0			527	26.1	
	Transport	Reference scenario		682	41.1			721	41.3			771	39.5			825	38.2	
		Additional energy efficiency		682	41.1			720	41.3			744	39.5			768	38.0	
	Total before aviation red. incl. efficiency	Reference scenario		1884	113.4			1921	110.1			2150	110.1			2380	110.2	
		Additional energy efficiency		1884	113.4			1919	110.2			2080	110.4			2240	110.7	
	Total after aviation red. incl. efficiency	Reference scenario		1661	**100.0**			1744	**100.0**			1952	**100.0**			2159	**100.0**	
		Additional energy efficiency		1661	**100.0**			1742	**100.0**			1884	**100.0**			2023	**100.0**	
Share	Heating and cooling	Heating and cooling				9.1				16.2				20.0				23.5
		Calculated heating and cooling				9.1				16.3				19.8				23.5
	Electricity	Electricity				0.0				4.3				8.4				16.0
		Calculated electricity				0.0				4.3				8.4				16.0
	Transport incl. Art. 21.2 adjustment	Transport				0.0				2.2				3.1				4.9
		Calculated transport				n.a.				n.a.				n.a.				n.a.
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.0				2.2				3.1				5.0
	Overall renewable share	Overall renewable share				2.9				6.5				9.0				13.0
		Calculated overall renewable share				2.9				6.5				9.0				13.0
		Contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				2.9				4.9				7.4				13.0

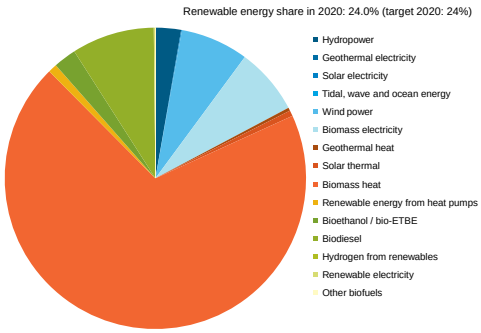
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Lithuania







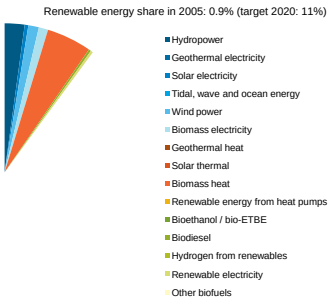


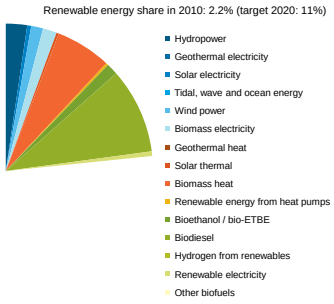
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 169 provides a background to the above figures.

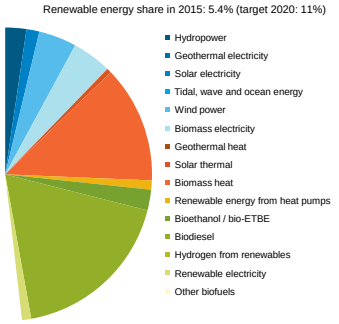
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower 1MW - 10 MW	66	6	14.3	0.8	79	7	9.0	0.9	93	8	4.3	0.7	117	10	4.0	0.7
		Hydropower >10MW	385	33	83.7	4.5	353	30	40.3	3.8	353	30	16.5	2.7	353	30	11.9	2.1
		Hydropower (subtotal)	451	39	98.0	5.3	432	37	49.3	4.7	446	38	20.8	3.4	470	40	15.9	2.7
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar photovoltaic	0	0	0.0	0.0	0	0	0.0	0.0	13	1	0.6	0.1	15	1	0.5	0.1
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	0	0	0.0	0.0	0	0	0.0	0.0	13	1	0.6	0.1	15	1	0.5	0.1
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Onshore wind	2	0	0.4	0.0	297	26	33.9	3.2	924	79	43.1	7.0	1250	107	42.3	7.3
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Wind power (subtotal)	2	0	0.4	0.0	297	26	33.9	3.2	924	79	43.1	7.0	1250	107	42.3	7.3
		Solid biomass	3	0	0.7	0.0	98	8	11.2	1.1	533	46	24.9	4.0	810	70	27.4	4.7
		Biogas	4	0	0.9	0.0	50	4	5.7	0.5	228	20	10.6	1.7	413	36	14.0	2.4
		Bioliquids	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Biomass (subtotal)	7	1	1.5	0.1	147	13	16.8	1.6	761	65	35.5	5.7	1223	105	41.3	7.1
		Total (according to Template Tables 10a/b)	460	40	**100.0**	5.4	876	75	**100.0**	9.5	2143	184	**100.0**	16.1	2958	254	**100.0**	17.3
		Sum of all technologies (Template Tables 10a/b)	460	40	100.0	5.4	876	75	100.0	9.5	2144	184	100.0	16.1	2958	254	100.0	17.3
		Gross final RES-E consumption (Template Table 4a)		38	96.1	5.2		74	98.2	9.3		182	98.8	15.9		254	99.9	17.2
	Heating and cooling	Geothermal		2	0.3	0.3		3	0.5	0.4		4	0.4	0.4		5	0.5	0.3
		Solar thermal		0	0.0	0.0		0	0.0	0.0		5	0.6	0.4		9	0.9	0.6
		Solid biomass		685	99.6	93.8		657	98.6	82.6		851	95.2	74.5		973	92.6	66.0
		Biogas		1	0.1	0.1		6	0.9	0.8		28	3.1	2.5		50	4.8	3.4
		Bioliquids		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Biomass (subtotal)		686	99.7	94.0		663	99.5	83.4		879	98.3	77.0		1023	97.3	69.4
		Aerothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Geothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		0	0.0	0.0		0	0.0	0.0		6	0.7	0.5		14	1.3	0.9
		Total (according to Template Table 11)		688	**100.0**	94.2		666	**100.0**	83.8		894	**100.0**	78.3		1051	**100.0**	71.3
		Sum of all technologies (Template Table 11)		688	100.0	94.2		666	100.0	83.8		894	100.0	78.3		1051	100.0	71.3
		Gross final RES-E consumption (Template Table 4a)		688	100.0	94.2		666	100.0	83.8		849	95.0	74.3		1051	100.0	71.3
	Transport	Bioethanol / bio-ETBE		1	25.0	0.1		13	23.2	1.6		30	26.5	2.6		36	20.8	2.4
		Biodiesel		3	75.0	0.4		42	75.0	5.3		79	69.9	6.9		131	75.7	8.9
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		0	0.0	0.0		0	0.5	0.0		2	1.4	0.1		3	1.4	0.2
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		4	**100.0**	0.5		56	**100.0**	7.0		113	**100.0**	9.9		173	**100.0**	11.7
		Sum of all technologies (Template Table 12)		4	100.0	0.5		55	98.8	7.0		111	97.9	9.7		170	98.0	11.5
		Gross final RES-E consumption (Template Table 4a)		4	100.0	0.5		55	98.2	6.9		111	98.2	9.7		169	97.7	11.5
		RES-T including Article 21.2 (Template Table 4b)		4	100.0	0.5		55	98.2	6.9		113	100.0	9.9		173	100.0	11.7
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		730		100.0		795		100.0		1142		100.0		1474		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		732		100.2		797		100.3		1190		104.2		1476		100.1
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		732				797				1189				1475		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		730		**100.0**		795		**100.0**		1142		**100.0**		1474		**100.0**
Final consumption	Electricity	Reference scenario		985	20.1			913	18.1			1053	18.5			1204	19.1	
		Additional energy efficiency		985	20.1			911	18.1			1048	18.7			1193	19.6	
	Heating and cooling	Reference scenario		2583	52.6			2417	48.0			2697	47.3			2886	45.8	
		Additional energy efficiency		2583	52.6			2417	48.0			2601	46.4			2684	44.1	
	Transport	Reference scenario		1133	23.1			1336	26.5			1554	27.3			1817	28.9	
		Additional energy efficiency		1133	23.1			1333	26.5			1527	27.2			1734	28.5	
	Total before aviation red. incl. efficiency	Reference scenario		4907	**100.0**			5034	**100.0**			5698	**100.0**			6296	**100.0**	
		Additional energy efficiency		4907	**100.0**			5031	**100.0**			5610	**100.0**			6084	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				27.0				28.0				34.0				39.0
		Calculated heating and cooling				26.6				27.6				32.6				39.2
	Electricity	Electricity				4.0				8.0				17.0				21.0
		Calculated electricity				3.9				8.1				17.4				21.3
	Transport incl. Art. 21.2 adjustment	Transport				0.3				4.0				7.0				10.0
		Calculated transport				0.4				4.1				7.4				10.0
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.4				4.2				7.4				10.0
	Overall renewable share	Overall renewable share				15.0				16.0				21.0				24.0
		Calculated overall renewable share				14.9				15.8				20.4				24.2
		Contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Contribution to co-operation mechanism				0.0				0.0				2.9				1.0
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				15.0				16.6				18.6				23.0

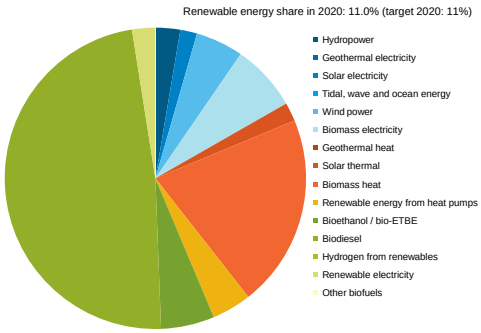
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Luxembourg









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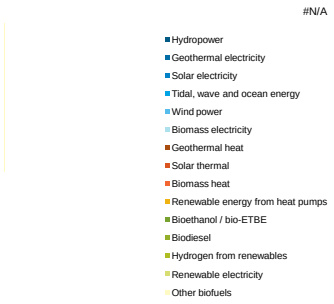
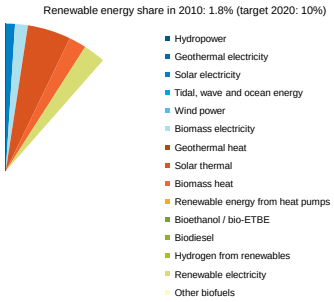
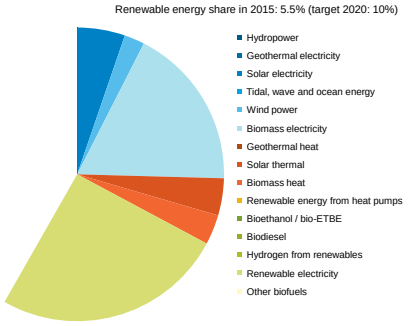
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	5	0	2.3	1.1	6	1	2.3	0.6	6	1	1.1	0.2	7	1	0.9	0.1
		Hydropower 1MW - 10 MW	93	8	43.5	20.0	100	9	39.1	9.7	100	9	17.7	3.7	117	10	15.0	2.1
		Hydropower >10MW	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Hydropower (subtotal)	98	8	45.8	21.1	107	9	41.8	10.3	107	9	19.0	4.0	124	11	15.9	2.2
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar photovoltaic	18	2	8.4	3.9	20	2	7.8	1.9	65	6	11.5	2.4	84	7	10.8	1.5
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	18	2	8.4	3.9	20	2	7.8	1.9	65	6	11.5	2.4	84	7	10.8	1.5
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Onshore wind	52	4	24.3	11.2	60	5	23.4	5.8	192	17	34.0	7.1	239	21	30.6	4.2
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Wind power (subtotal)	52	4	24.3	11.2	60	5	23.4	5.8	192	17	34.0	7.1	239	21	30.6	4.2
		Solid biomass	19	2	8.9	4.1	25	2	9.8	2.4	77	7	13.7	2.9	190	16	24.4	3.4
		Biogas	27	2	12.6	5.8	44	4	17.2	4.3	123	11	21.8	4.6	144	12	18.5	2.6
		Bioliquids	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Biomass (subtotal)	46	4	21.5	9.9	70	6	27.3	6.8	200	17	35.5	7.4	334	29	42.8	5.9
		Total (according to Template Tables 10a/b)	214	18	**100.0**	46.0	256	22	**100.0**	24.7	564	48	**100.0**	21.0	780	67	**100.0**	13.9
		Sum of all technologies (Template Tables 10a/b)	214	18	100.0	46.0	257	22	100.4	24.8	564	48	100.0	21.0	781	67	100.1	13.9
		Gross final RES-E consumption (Template Table 4a)		18	97.8	45.0		22	99.9	24.7		49	101.0	21.2		67	99.9	13.8
	Heating and cooling	Geothermal		n.a.	n.a.	n.a.		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Solar thermal		0	0.0	0.0		1	3.8	1.1		2	3.5	0.9		8	7.4	1.7
		Solid biomass		16	80.0	40.0		19	73.1	21.3		39	68.4	16.9		70	64.8	14.5
		Biogas		3	15.0	7.5		5	19.2	5.6		12	21.1	5.2		13	12.0	2.7
		Bioliquids		n.a.	n.a.	n.a.		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Biomass (subtotal)		19	95.0	47.5		24	92.3	27.0		51	89.5	22.1		83	76.9	17.1
		Aerothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Geothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		0	0.0	0.0		1	3.8	1.1		4	7.0	1.7		17	15.7	3.5
		Total (according to Template Table 11)		20	**100.0**	50.0		26	**100.0**	29.2		57	**100.0**	24.7		108	**100.0**	22.3
		Sum of all technologies (Template Table 11)		19	95.0	47.5		26	100.0	29.2		57	100.0	24.7		108	100.0	22.3
		Gross final RES-E consumption (Template Table 4a)		20	100.0	50.0		26	100.0	29.2		57	100.0	24.7		108	100.0	22.3
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		5	11.6	5.6		9	10.7	3.9		23	10.2	4.8
		Biodiesel		1	50.0	2.5		37	86.0	41.6		72	85.7	31.2		193	85.4	39.9
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		1	50.0	2.5		2	4.7	2.2		4	4.8	1.7		10	4.4	2.1
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		2	**100.0**	5.0		43	**100.0**	48.3		84	**100.0**	36.4		226	**100.0**	46.7
		Sum of all technologies (Template Table 12)		2	100.0	5.0		44	102.3	49.4		85	101.2	36.8		226	100.0	46.7
		Gross final RES-E consumption (Template Table 4a)		2	100.0	5.0		43	100.0	48.3		84	100.0	36.4		226	100.0	46.7
		RES-T including Article 21.2 (Template Table 4b)		2	100.0	5.0		43	100.0	48.3		85	101.2	36.8		234	103.5	48.3
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		40		100.0		89		100.0		186		80.5		391		80.8
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		39		98.5		89		100.0		185		80.3		391		80.8
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		39				92				190				401		
	Co-operation mechanisms	Transfer from other Member States and third countries		n.a.		n.a.		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		n.a.		n.a.		0		0.0		45		19.5		93		19.2
	All renewables including co-operation mechanisms	Total (Template Table 4a)		40		**100.0**		89		**100.0**		231		**100.0**		484		**100.0**
Final consumption	Electricity	Reference scenario		567	12.7			553	12.5			568	12.2			602	12.2	
		Additional energy efficiency		567	12.7			549	13.3			544	12.8			569	12.9	
	Heating and cooling	Reference scenario		1189	26.7			1293	29.2			1344	29.0			1436	29.2	
		Additional energy efficiency		1189	26.7			1235	30.0			1234	29.1			1268	28.8	
	Transport	Reference scenario		2416	54.2			2309	52.2			2448	52.7			2584	52.6	
		Additional energy efficiency		2416	54.2			2086	50.6			2211	52.1			2334	53.1	
	Total before aviation red. incl. efficiency	Reference scenario		4605	103.3			4558	103.0			4760	102.6			5019	102.1	
		Additional energy efficiency		4605	103.3			4273	103.6			4386	103.4			4530	103.0	
	Total after aviation red. incl. efficiency	Reference scenario		4457	**100.0**			4426	**100.0**			4641	**100.0**			4915	**100.0**	
		Additional energy efficiency		4457	**100.0**			4123	**100.0**			4243	**100.0**			4396	**100.0**	
Share	Heating and cooling	Heating and cooling				1.7				2.1				4.6				8.5
		Calculated heating and cooling				1.7				2.1				4.6				8.5
	Electricity	Electricity				3.2				4.0				8.9				11.8
		Calculated electricity				3.2				4.0				9.0				11.8
	Transport incl. Art. 21.2 adjustment	Transport				0.0				2.1				3.8				10.0
		Calculated transport				0.1				2.1				3.8				10.0
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.1				2.1				3.8				9.7
	Overall renewable share	Overall renewable share				0.9				2.2				5.4				11.0
		Calculated overall renewable share				0.9				2.2				4.4				8.9
		Contribution from co-operation mechanism				n.a.				0.0				1.1				2.1
		Calculated contribution from co-operation mechanism				n.a.				0.0				0.0				0.0
		Contribution to co-operation mechanism				n.a.				0.0				0.0				0.0
		Calculated contribution to co-operation mechanism				n.a.				0.0				1.1				2.1
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				0.9				2.9				5.4				11.0

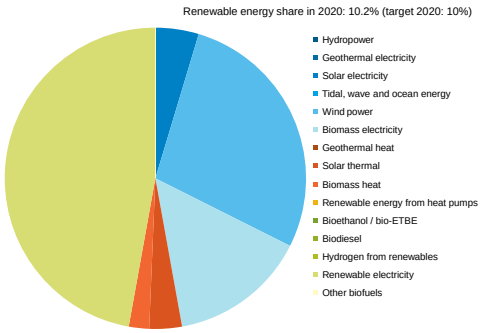
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Malta







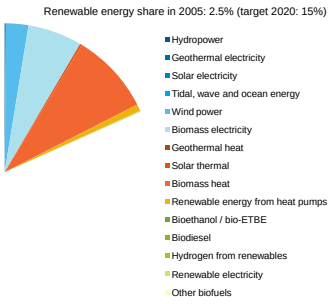


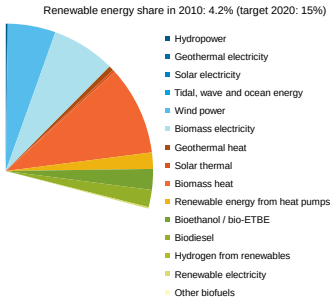
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 173 provides a background to the above figures.

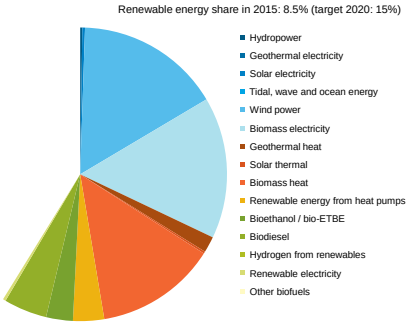
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower 1MW - 10 MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower >10MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower (subtotal)	0	0	n.a.	n.a.	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Geothermal	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Solar photovoltaic	n.a.	n.a.	n.a.	n.a.	6	1	41.6	6.7	41	4	20.7	13.1	43	4	9.9	6.7
		Concentrated solar power	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Solar (subtotal)	0	0	n.a.	n.a.	6	1	41.6	6.7	41	4	20.7	13.1	43	4	9.9	6.7
		Tidal, wave and ocean energy	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Onshore wind	n.a.	n.a.	n.a.	n.a.	0	0	0.1	0.0	17	2	8.8	5.6	38	3	8.9	6.0
		Offshore wind	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	0	0	0.0	0.0	216	19	50.0	33.8
		Wind power (subtotal)	0	0	n.a.	n.a.	0	0	0.1	0.0	17	2	8.8	5.6	255	22	58.8	39.8
		Solid biomass	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	86	7	43.1	27.2	86	7	19.8	13.4
		Biogas	n.a.	n.a.	n.a.	n.a.	9	1	58.3	9.3	54	5	27.4	17.3	50	4	11.5	7.8
		Bioliquids	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Biomass (subtotal)	0	0	n.a.	n.a.	9	1	58.3	9.3	140	12	70.5	44.5	135	12	31.3	21.2
		Total (according to Template Tables 10a/b)	n.a.	n.a.	n.a.	n.a.	15	1	**100.0**	16.0	198	17	**100.0**	63.2	433	37	**100.0**	67.7
		Sum of all technologies (Template Tables 10a/b)	0	0	n.a.	n.a.	15	1	99.9	16.0	198	17	100.0	63.2	433	37	100.0	67.7
		Gross final RES-E consumption (Template Table 4a)		n.a.	n.a.	n.a.		1	78.1	12.5		17	99.7	63.0		37	99.4	67.3
	Heating and cooling	Geothermal		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Solar thermal		n.a.	n.a.	n.a.		3	71.4	31.5		3	55.4	10.1		3	61.7	5.0
		Solid biomass		n.a.	n.a.	n.a.		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Biogas		n.a.	n.a.	n.a.		1	28.6	12.6		2	44.6	8.2		2	38.5	3.1
		Bioliquids		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Biomass (subtotal)		0	n.a.	n.a.		1	28.6	12.6		2	44.6	8.2		2	38.5	3.1
		Aerothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Geothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		0	n.a.	n.a.		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Total (according to Template Table 11)		n.a.	n.a.	n.a.		4	**100.0**	44.1		5	**100.0**	18.3		4	**100.0**	8.1
		Sum of all technologies (Template Table 11)		0	n.a.	n.a.		4	100.0	44.1		5	100.0	18.3		4	100.2	8.1
		Gross final RES-E consumption (Template Table 4a)		n.a.	n.a.	n.a.		4	113.3	50.0		5	101.0	18.5		5	111.9	9.1
	Transport	Bioethanol / bio-ETBE		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Biodiesel		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrogen from renewables		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable electricity		n.a.	n.a.	n.a.		1	43.0	16.0		17	327.9	63.1		37	275.3	67.7
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		n.a.	n.a.	n.a.		3	**100.0**	37.3		5	**100.0**	19.3		14	**100.0**	24.6
		Sum of all technologies (Template Table 12)		0	n.a.	n.a.		1	43.0	16.0		17	327.9	63.1		37	275.3	67.7
		Gross final RES-E consumption (Template Table 4a)		n.a.	n.a.	n.a.		3	100.7	37.5		5	96.2	18.5		13	96.2	23.6
		RES-T including Article 21.2 (Template Table 4b)		n.a.	n.a.	n.a.		4	134.2	50.0		7	134.6	25.9		18	133.1	32.7
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		n.a.		n.a.		8		100.0		27		100.0		55		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		0		n.a.		7		81.4		10		37.6		18		32.7
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		0				6				39				79		
	Co-operation mechanisms	Transfer from other Member States and third countries		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
		Transfer to other Member States		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
	All renewables including co-operation mechanisms	Total (Template Table 4a)		n.a.		n.a.		8		**100.0**		27		**100.0**		55		**100.0**
Final consumption	Electricity	Reference scenario		n.a.	n.a.			226	43.7			258	44.7			291	46.6	
		Additional energy efficiency		n.a.	n.a.			215	49.5			244	49.8			270	50.6	
	Heating and cooling	Reference scenario		n.a.	n.a.			46	8.9			66	11.4			76	12.2	
		Additional energy efficiency		n.a.	n.a.			45	10.4			63	12.9			73	13.7	
	Transport	Reference scenario		n.a.	n.a.			152	29.4			159	27.6			165	26.4	
		Additional energy efficiency		n.a.	n.a.			152	35.0			159	32.4			165	30.9	
	Total before aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			517	**100.0**			577	**100.0**			625	**100.0**	
		Additional energy efficiency		n.a.	n.a.			506	116.6			561	114.5			603	112.9	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			434	**100.0**			490	**100.0**			534	**100.0**	
Share	Heating and cooling	Heating and cooling				n.a.				7.9				7.9				6.2
		Calculated heating and cooling				n.a.				8.9				7.9				6.8
	Electricity	Electricity				n.a.				0.6				7.0				13.8
		Calculated electricity				n.a.				0.5				7.0				13.7
	Transport incl. Art. 21.2 adjustment	Transport				n.a.				2.8				4.2				10.7
		Calculated transport				n.a.				2.6				4.4				10.9
	Transport excl. Art. 21.2 adjustment	Calculated transport				n.a.				2.0				3.3				8.2
	Overall renewable share	Overall renewable share				n.a.				1.8				5.5				10.2
		Calculated overall renewable share				n.a.				1.8				5.5				10.3
		Contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Contribution to co-operation mechanism				n.a.				n.a.				n.a.				0.2
		Calculated contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				0.0				2.0				4.5				10.0

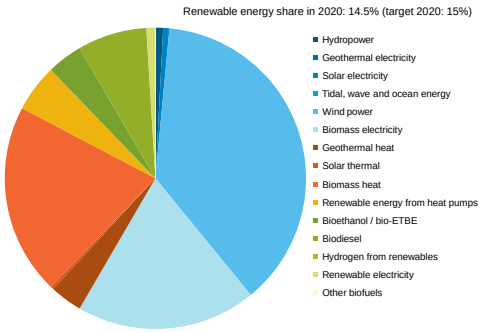
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Netherlands







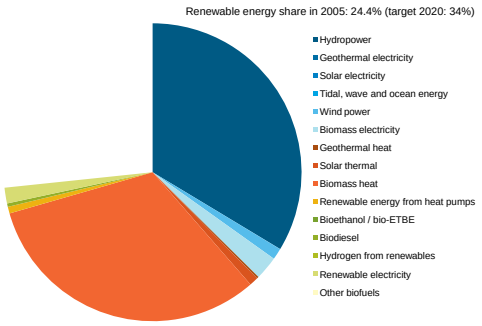


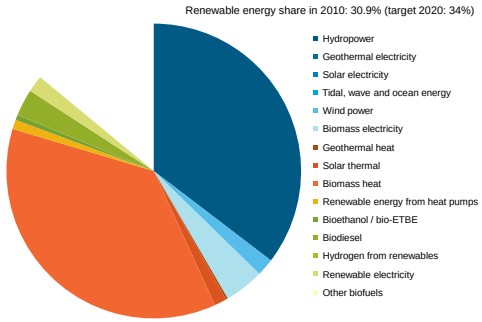
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 175 provides a background to the above figures.

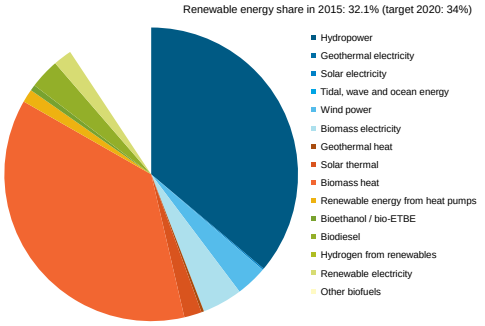
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower 1MW - 10 MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower >10MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower (subtotal)	89	8	1.2	0.6	128	11	1.2	0.5	200	17	0.7	0.4	714	61	1.4	0.8
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar photovoltaic	40	3	0.6	0.3	73	6	0.7	0.3	250	21	0.9	0.5	570	49	1.1	0.7
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	40	3	0.6	0.3	73	6	0.7	0.3	250	21	0.9	0.5	570	49	1.1	0.7
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Onshore wind	2067	178	28.6	13.3	3667	315	34.5	14.8	9508	818	34.6	19.0	13372	1150	26.6	15.7
		Offshore wind	0	0	0.0	0.0	803	69	7.5	3.2	4147	357	15.1	8.3	19036	1637	37.8	22.3
		Wind power (subtotal)	2067	178	28.6	13.3	4470	384	42.0	18.1	13655	1174	49.8	27.3	32408	2787	64.4	38.0
		Solid biomass	4758	409	65.8	30.6	5103	439	48.0	20.6	11189	962	40.8	22.3	11975	1030	23.8	14.0
		Biogas	283	24	3.9	1.8	872	75	8.2	3.5	2161	186	7.9	4.3	4664	401	9.3	5.5
		Bioliquids	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Biomass (subtotal)	5041	433	69.7	32.4	5975	514	56.2	24.1	13350	1148	48.6	26.7	16639	1431	33.1	19.5
		Total (according to Template Tables 10a/b)	7233	622	**100.0**	46.4	10636	915	**100.0**	43.0	27442	2360	**100.0**	54.8	50317	4326	**100.0**	58.9
		Sum of all technologies (Template Tables 10a/b)	7237	622	100.1	46.5	10646	915	100.1	43.0	27455	2361	100.0	54.8	50331	4328	100.0	59.0
		Gross final RES-E consumption (Template Table 4a)		622	100.0	46.5		915	100.1	43.0		2360	100.0	54.8		4326	100.0	58.9
	Heating and cooling	Geothermal		0	0.0	0.0		39	4.3	1.8		130	9.4	3.0		259	11.9	3.5
		Solar thermal		16	2.2	1.2		20	2.2	0.9		17	1.2	0.4		23	1.1	0.3
		Solid biomass		540	75.3	40.3		573	63.2	26.9		604	43.8	14.0		650	29.8	8.9
		Biogas		69	9.6	5.2		111	12.3	5.2		174	12.6	4.0		288	13.2	3.9
		Bioliquids		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Bio-SNG for grid feed-in		38	5.3	2.8		31	3.4	1.5		202	14.6	4.7		582	26.7	7.9
		Biomass (subtotal)		647	90.2	48.3		715	78.9	33.6		980	71.0	22.8		1520	69.8	20.7
		Aerothermal heat pumps		n.a.	n.a.	n.a.		35	3.9	1.6		81	5.9	1.9		117	5.4	1.6
		Geothermal heat pumps		n.a.	n.a.	n.a.		90	9.9	4.2		161	11.7	3.7		242	11.1	3.3
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		0	0.0	0.0		3	0.2	0.1		11	0.5	0.1
		Renewable energy from heat pumps (subtotal)		54	7.5	4.0		132	14.6	6.2		252	18.3	5.9		377	17.3	5.1
		Total (according to Template Table 11)		717	**100.0**	53.5		906	**100.0**	42.6		1380	**100.0**	32.0		2179	**100.0**	29.7
		Sum of all technologies (Template Table 11)		717	100.0	53.5		906	100.0	42.6		1379	99.9	32.0		2179	100.0	29.7
		Gross final RES-E consumption (Template Table 4a)		717	100.0	53.5		906	100.0	42.6		1380	100.0	32.0		2179	100.0	29.7
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		168	52.7	7.9		217	36.7	5.0		282	31.2	3.8
		Biodiesel		0	0.0	0.0		139	43.6	6.5		350	59.2	8.1		552	61.0	7.5
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		8	100.0	0.6		12	3.8	0.6		23	3.9	0.5		71	7.8	1.0
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		8	**100.0**	0.6		319	**100.0**	15.0		591	**100.0**	13.7		905	**100.0**	12.3
		Sum of all technologies (Template Table 12)		8	100.0	0.6		319	100.0	15.0		590	99.8	13.7		905	100.0	12.3
		Gross final RES-E consumption (Template Table 4a)		8	100.0	0.6		319	100.0	15.0		591	100.0	13.7		905	100.0	12.3
		RES-T including Article 21.2 (Template Table 4b)		8	100.0	0.6		475	148.9	22.3		685	115.9	15.9		1097	121.2	14.9
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		1339		100.0		2128		100.0		4307		100.0		7340		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		1339		100.0		2128		100.0		4308		100.0		7339		100.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		1347				2140				4330				7412		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		1339		**100.0**		2128		**100.0**		4307		**100.0**		7340		**100.0**
Final consumption	Electricity	Reference scenario		10347	19.3			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		10347	19.3			10627	21.2			11210	22.2			11681	23.1	
	Heating and cooling	Reference scenario		28436	52.9			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		28436	52.9			24612	49.0			24618	48.7			24989	49.5	
	Transport	Reference scenario		11351	21.1			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		11351	21.1			11699	23.3			11419	22.6			10634	21.0	
	Total before aviation red. incl. efficiency	Reference scenario		54010	100.5			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		54010	100.5			51008	101.5			51698	102.3			52088	103.1	
	Total after aviation red. incl. efficiency	Reference scenario		53717	**100.0**			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		53717	**100.0**			50240	**100.0**			50554	**100.0**			50532	**100.0**	
Share	Heating and cooling	Heating and cooling				2.5				3.7				5.6				8.7
		Calculated heating and cooling				2.5				3.7				5.6				8.7
	Electricity	Electricity				6.0				8.6				21.0				37.0
		Calculated electricity				6.0				8.6				21.1				37.0
	Transport incl. Art. 21.2 adjustment	Transport				0.1				4.1				6.0				10.3
		Calculated transport				0.1				4.1				6.0				10.3
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.1				2.7				5.2				8.5
	Overall renewable share	Overall renewable share				2.5				4.2				8.5				14.5
		Calculated overall renewable share				2.5				4.2				8.5				14.5
		Contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				2.4				4.7				7.6				14.0

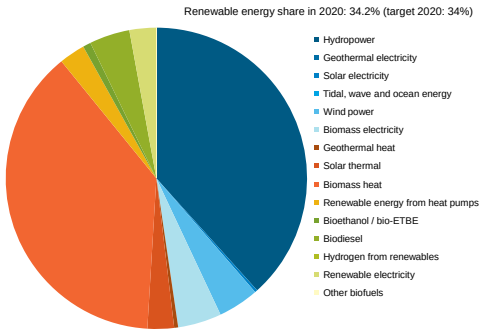
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Austria







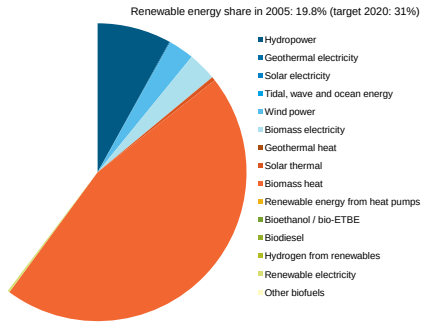


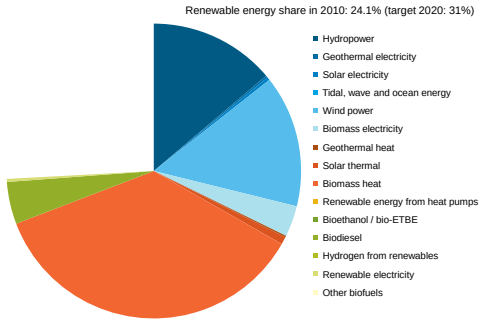
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 177 provides a background to the above figures.

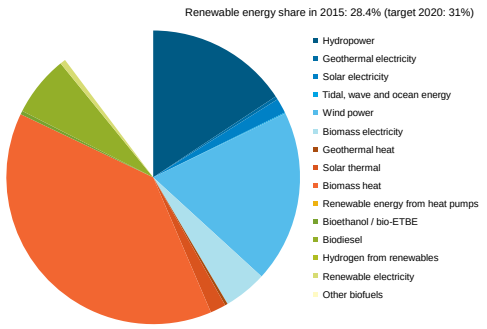
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	1448	125	3.5	1.8	2129	183	4.7	2.3	2178	187	4.5	2.2	2326	200	4.4	2.2
		Hydropower 1MW - 10 MW	3247	279	7.9	4.1	3400	292	7.5	3.7	3477	299	7.2	3.6	3715	319	7.1	3.4
		Hydropower >10MW	32430	2788	78.5	41.4	33013	2839	72.7	35.7	33768	2904	70.1	34.6	36071	3102	68.9	33.5
		Hydropower (subtotal)	37125	3192	89.9	47.4	38542	3314	84.9	41.7	39423	3390	81.8	40.4	42112	3621	80.4	39.1
		Geothermal	2	0	0.0	0.0	2	0	0.0	0.0	2	0	0.0	0.0	2	0	0.0	0.0
		Solar photovoltaic	21	2	0.1	0.0	85	7	0.2	0.1	170	15	0.4	0.2	306	26	0.6	0.3
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	21	2	0.1	0.0	85	7	0.2	0.1	170	15	0.4	0.2	306	26	0.6	0.3
		Tidal, wave and ocean energy	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Onshore wind	1343	115	3.3	1.7	2034	175	4.5	2.2	3780	325	7.8	3.9	4811	414	9.2	4.5
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Wind power (subtotal)	1343	115	3.3	1.7	2034	175	4.5	2.2	3780	325	7.8	3.9	4811	414	9.2	4.5
		Solid biomass	2507	216	6.1	3.2	4131	355	9.1	4.5	4223	363	8.8	4.3	4530	390	8.6	4.2
		Biogas	283	24	0.7	0.4	553	48	1.2	0.6	567	49	1.2	0.6	581	50	1.1	0.5
		Bioliquids	33	3	0.1	0.0	36	3	0.1	0.0	36	3	0.1	0.0	36	3	0.1	0.0
		Biomass (subtotal)	2823	243	6.8	3.6	4720	406	10.4	5.1	4826	415	10.0	4.9	5147	443	9.8	4.8
		Total (according to Template Tables 10a/b)	41314	3552	**100.0**	52.7	45383	3902	**100.0**	49.1	48200	4144	**100.0**	49.4	52377	4504	**100.0**	48.6
		Sum of all technologies (Template Tables 10a/b)	41314	3552	100.0	52.7	45383	3902	100.0	49.1	48201	4145	100.0	49.4	52378	4504	100.0	48.6
		Gross final RES-E consumption (Template Table 4a)		3480	98.0	51.7		3902	100.0	49.1		4144	100.0	49.4		4503	100.0	48.6
	Heating and cooling	Geothermal		19	0.6	0.3		19	0.5	0.2		27	0.7	0.3		40	1.0	0.4
		Solar thermal		92	2.9	1.4		127	3.5	1.6		181	4.8	2.2		269	6.4	2.9
		Solid biomass		3025	94.1	44.9		3400	93.0	42.8		3447	90.5	41.1		3591	85.9	38.8
		Biogas		8	0.2	0.1		15	0.4	0.2		16	0.4	0.2		16	0.4	0.2
		Bioliquids		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Biomass (subtotal)		3033	94.4	45.0		3415	93.4	42.9		3463	90.9	41.3		3607	86.3	38.9
		Aerothermal heat pumps		0	0.0	0.0		38	1.0	0.5		55	1.4	0.7		105	2.5	1.1
		Geothermal heat pumps		0	0.0	0.0		10	0.3	0.1		14	0.4	0.2		26	0.6	0.3
		Hydrothermal heat pumps		0	0.0	0.0		48	1.3	0.6		68	1.8	0.8		131	3.1	1.4
		Renewable energy from heat pumps (subtotal)		69	2.1	1.0		96	2.6	1.2		137	3.6	1.6		263	6.3	2.8
		Total (according to Template Table 11)		3213	**100.0**	47.7		3657	**100.0**	46.0		3808	**100.0**	45.4		4179	**100.0**	45.1
		Sum of all technologies (Template Table 11)		3213	100.0	47.7		3657	100.0	46.0		3808	100.0	45.4		4179	100.0	45.1
		Gross final RES-E consumption (Template Table 4a)		3213	100.0	47.7		3657	100.0	46.0		3808	100.0	45.4		4179	100.0	45.1
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		54	9.6	0.7		61	9.7	0.7		80	9.3	0.9
		Biodiesel		35	17.1	0.5		276	48.9	3.5		309	49.0	3.7		410	47.9	4.4
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		162	79.0	2.4		171	30.3	2.2		191	30.3	2.3		272	31.8	2.9
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		205	**100.0**	3.0		564	**100.0**	7.1		631	**100.0**	7.5		856	**100.0**	9.2
		Sum of all technologies (Template Table 12)		197	96.1	2.9		501	88.8	6.3		561	88.9	6.7		762	89.0	8.2
		Gross final RES-E consumption (Template Table 4a)		205	100.0	3.0		564	100.0	7.1		631	100.0	7.5		856	100.0	9.2
		RES-T including Article 21.2 (Template Table 4b)		205	100.0	3.0		567	100.5	7.1		643	101.9	7.7		958	111.9	10.3
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		6735		100.0		7952		100.0		8392		100.0		9266		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		6808		101.1		7952		100.0		8392		100.0		9267		100.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		6962				8060				8514				9445		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		6735		**100.0**		7952		**100.0**		8392		**100.0**		9266		**100.0**
Final consumption	Electricity	Reference scenario		5725	20.7			5634	21.9			6091	21.8			6666	21.8	
		Additional energy efficiency		5725	20.7			5634	21.9			5817	22.3			6377	23.5	
	Heating and cooling	Reference scenario		13206	47.8			12007	46.7			13009	46.6			14274	46.6	
		Additional energy efficiency		13206	47.8			12007	46.7			12203	46.7			12802	47.2	
	Transport	Reference scenario		8945	32.4			8336	32.4			9055	32.5			10065	32.9	
		Additional energy efficiency		8945	32.4			8336	32.4			8374	32.1			8414	31.0	
	Total before aviation red. incl. efficiency	Reference scenario		27610	**100.0**			25726	**100.0**			27893	**100.0**			30622	**100.0**	
		Additional energy efficiency		27610	**100.0**			25726	**100.0**			26113	**100.0**			27109	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				24.3				30.5				31.2				32.6
		Calculated heating and cooling				24.3				30.5				31.2				32.6
	Electricity	Electricity				60.8				69.3				71.2				70.6
		Calculated electricity				60.8				69.3				71.2				70.6
	Transport incl. Art. 21.2 adjustment	Transport				2.3				6.8				7.7				11.4
		Calculated transport				2.3				6.8				7.7				11.4
	Transport excl. Art. 21.2 adjustment	Calculated transport				2.3				6.8				7.5				10.2
	Overall renewable share	Overall renewable share				24.4				30.9				32.1				34.2
		Calculated overall renewable share				24.4				30.9				32.1				34.2
		Contribution from co-operation mechanism				n.a.				0.0				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Contribution to co-operation mechanism				n.a.				0.0				0.0				0.0
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				23.3				25.4				28.1				34.0

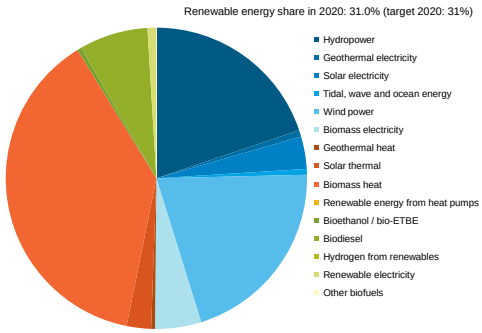
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Portugal







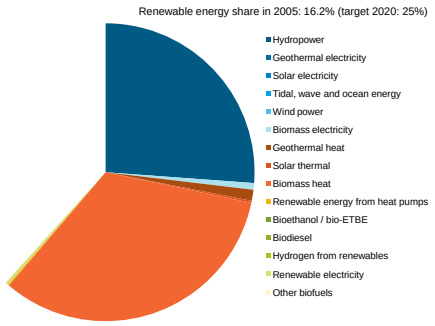


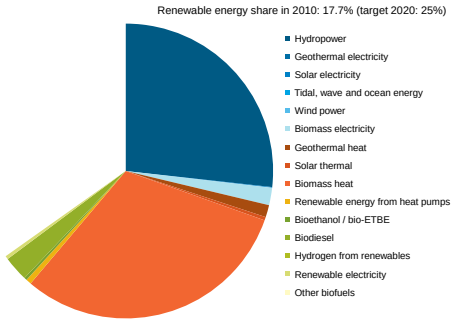
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 179 provides a background to the above figures.

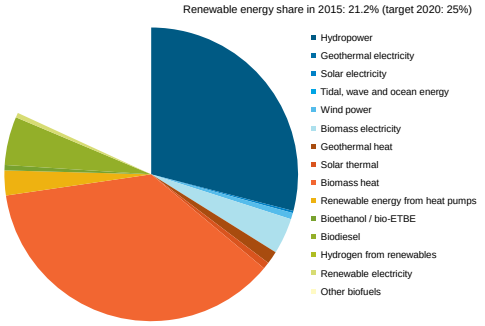
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower 1MW - 10 MW	381	33	4.3	0.8	827	71	3.6	1.6	1108	95	3.8	1.8	1511	130	4.2	2.1
		Hydropower >10MW	4737	407	53.1	10.5	8916	767	39.2	17.1	9993	859	34.0	15.9	12562	1080	35.3	17.9
		Hydropower (subtotal)	5118	440	57.3	11.4	9742	838	42.8	18.7	11101	955	37.7	17.6	14074	1210	39.6	20.0
		Geothermal	55	5	0.6	0.1	163	14	0.7	0.3	260	22	0.9	0.4	488	42	1.4	0.7
		Solar photovoltaic	3	0	0.0	0.0	230	20	1.0	0.4	797	69	2.7	1.3	1475	127	4.1	2.1
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	360	31	1.2	0.6	1000	86	2.8	1.4
		Solar (subtotal)	3	0	0.0	0.0	230	20	1.0	0.4	1157	99	3.9	1.8	2475	213	7.0	3.5
		Tidal, wave and ocean energy	0	0	0.0	0.0	1	0	0.0	0.0	75	6	0.3	0.1	437	38	1.2	0.6
		Onshore wind	1773	152	19.9	3.9	10214	878	44.9	19.6	13420	1154	45.6	21.3	14416	1240	40.5	20.5
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	60	5	0.2	0.1	180	15	0.5	0.3
		Wind power (subtotal)	1773	152	19.9	3.9	10214	878	44.9	19.6	13400	1152	45.5	21.3	14596	1255	41.0	20.8
		Solid biomass	934	80	10.5	2.1	1092	94	4.8	2.1	1468	126	5.0	2.3	1468	126	4.1	2.1
		Biogas	34	3	0.4	0.1	130	11	0.6	0.2	368	32	1.3	0.6	525	45	1.5	0.7
		Bioliquids	1008	87	11.3	2.2	1170	101	5.1	2.2	1523	131	5.2	2.4	1523	131	4.3	2.2
		Biomass (subtotal)	1976	170	22.1	4.4	2400	206	10.5	4.6	3358	289	11.4	5.3	3516	302	9.9	5.0
		Total (according to Template Tables 10a/b)	8925	767	**100.0**	19.9	22751	1956	**100.0**	43.7	29430	2531	**100.0**	46.7	35584	3060	**100.0**	50.6
		Sum of all technologies (Template Tables 10a/b)	8925	767	100.0	19.9	22750	1956	100.0	43.7	29351	2524	99.7	46.6	35586	3060	100.0	50.6
		Gross final RES-E consumption (Template Table 4a)		1337	174.2	34.6		1956	100.0	43.7		2531	100.0	46.7		3060	100.0	50.6
	Heating and cooling	Geothermal		1	0.0	0.0		10	0.4	0.2		18	0.7	0.3		25	1.0	0.4
		Solar thermal		22	0.9	0.6		50	2.2	1.1		105	4.3	1.9		160	6.4	2.6
		Solid biomass		1785	70.6	46.2		1514	67.6	33.8		1515	61.5	27.9		1484	59.2	24.6
		Biogas		10	0.4	0.3		10	0.4	0.2		23	0.9	0.4		37	1.5	0.6
		Bioliquids		713	28.2	18.4		655	29.2	14.6		801	32.5	14.8		801	32.0	13.3
		Biomass (subtotal)		2508	99.1	64.9		2179	97.3	48.7		2339	95.0	43.1		2322	92.6	38.4
		Aerothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Geothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Total (according to Template Table 11)		2530	**100.0**	65.4		2240	**100.0**	50.0		2462	**100.0**	45.4		2507	**100.0**	41.5
		Sum of all technologies (Template Table 11)		2531	100.0	65.5		2239	100.0	50.0		2462	100.0	45.4		2507	100.0	41.5
		Gross final RES-E consumption (Template Table 4a)		2529	100.0	65.4		2240	100.0	50.0		2462	100.0	45.4		2507	100.0	41.5
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		0	0.0	0.0		24	5.2	0.4		27	5.0	0.4
		Biodiesel		0	0.0	0.0		281	93.4	6.3		405	86.9	7.5		450	84.1	7.4
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		12	100.0	0.3		20	6.6	0.4		37	7.9	0.7		58	10.8	1.0
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		12	**100.0**	0.3		301	**100.0**	6.7		466	**100.0**	8.6		535	**100.0**	8.9
		Sum of all technologies (Template Table 12)		12	100.0	0.3		301	100.0	6.7		466	100.0	8.6		535	100.0	8.9
		Gross final RES-E consumption (Template Table 4a)		12	100.0	0.3		301	100.0	6.7		466	100.0	8.6		535	100.0	8.9
		RES-T including Article 21.2 (Template Table 4b)		12	100.0	0.3		305	101.3	6.8		479	102.8	8.8		574	107.3	9.5
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		3866		100.0		4476		100.0		5421		100.0		6044		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		3297		85.3		4477		100.0		5422		100.0		6044		100.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		3310				4496				5452				6102		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		3866		**100.0**		4476		**100.0**		5421		**100.0**		6044		**100.0**
Final consumption	Electricity	Reference scenario		4076	21.3			4076	21.3			5547	28.5			n.a.	n.a.	
		Additional energy efficiency		4076	21.3			5201	27.0			n.a.	n.a.			n.a.	n.a.	
	Heating and cooling	Reference scenario		7706	40.4			7706	40.4			8197	42.1			n.a.	n.a.	
		Additional energy efficiency		7706	40.4			7839	40.6			n.a.	n.a.			n.a.	n.a.	
	Transport	Reference scenario		5980	31.3			5980	31.3			5743	29.5			n.a.	n.a.	
		Additional energy efficiency		5980	31.3			5986	31.0			n.a.	n.a.			n.a.	n.a.	
	Total before aviation red. incl. efficiency	Reference scenario		19094	100.0			19094	100.0			19467	100.0			n.a.	n.a.	
		Additional energy efficiency		19094	100.0			19293	100.0			n.a.	n.a.			n.a.	n.a.	
	Total after aviation red. incl. efficiency	Reference scenario		19094	**100.0**			19094	**100.0**			19467	**100.0**			n.a.	n.a.	
		Additional energy efficiency		19094	**100.0**			19293	**100.0**			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				31.9				30.7				31.9				30.6
		Calculated heating and cooling				32.8				28.6				n.a.				n.a.
	Electricity	Electricity				29.3				41.4				50.5				55.3
		Calculated electricity				32.8				37.6				n.a.				n.a.
	Transport incl. Art. 21.2 adjustment	Transport				0.2				5.0				8.0				10.0
		Calculated transport				0.2				5.1				n.a.				n.a.
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.2				5.0				n.a.				n.a.
	Overall renewable share	Overall renewable share				19.8				24.1				28.4				31.0
		Calculated overall renewable share				20.2				23.2				n.a.				n.a.
		Contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				n.a.				n.a.
		Contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution to co-operation mechanism				0.0				0.0				n.a.				n.a.
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				20.5				22.6				25.2				31.0

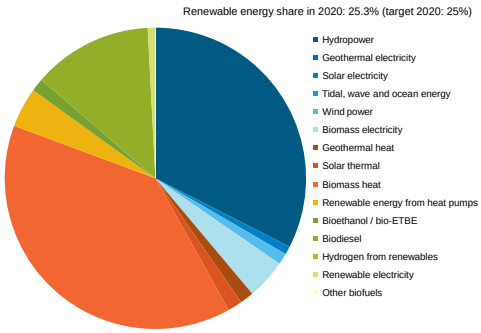
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Slovenia







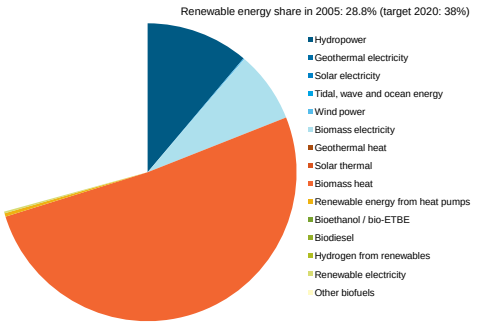


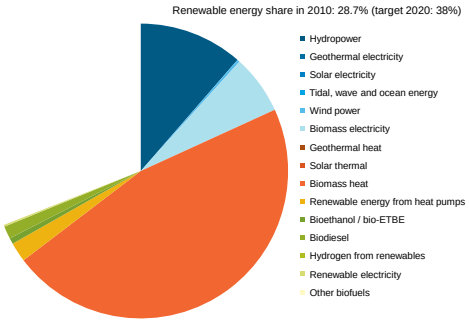
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 181 provides a background to the above figures.

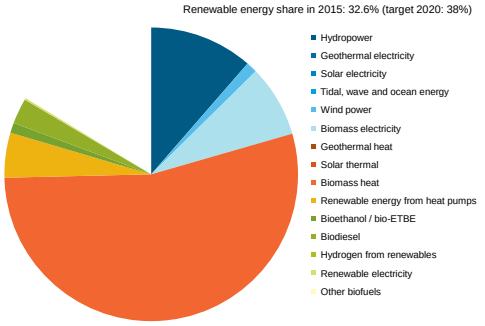
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	451	39	10.7	4.7	262	23	5.8	2.6	270	23	5.1	2.1	270	23	4.4	1.7
		Hydropower 1MW - 10 MW	155	13	3.7	1.6	192	17	4.3	1.9	247	21	4.6	1.9	270	23	4.4	1.7
		Hydropower >10MW	3493	300	82.9	36.3	3744	322	83.0	36.8	4042	348	75.9	31.6	4581	394	74.8	29.3
		Hydropower (subtotal)	4099	352	97.3	42.6	4198	361	93.1	41.3	4559	392	85.6	35.7	5121	440	83.6	32.8
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar photovoltaic	0	0	0.0	0.0	12	1	0.3	0.1	37	3	0.7	0.3	139	12	2.3	0.9
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	0	0	0.0	0.0	12	1	0.3	0.1	37	3	0.7	0.3	139	12	2.3	0.9
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Onshore wind	0	0	0.0	0.0	2	0	0.0	0.0	109	9	2.0	0.9	191	16	3.1	1.2
		Offshore wind	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Wind power (subtotal)	0	0	0.0	0.0	2	0	0.0	0.0	109	9	2.0	0.9	191	16	3.1	1.2
		Solid biomass	82	7	1.9	0.9	150	13	3.3	1.5	272	23	5.1	2.1	309	27	5.0	2.0
		Biogas	32	3	0.8	0.3	148	13	3.3	1.5	351	30	6.6	2.7	367	32	6.0	2.3
		Bioliquids	0	0	0.0	0.0	0	0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Biomass (subtotal)	114	10	2.7	1.2	298	26	6.6	2.9	623	54	11.7	4.9	676	58	11.0	4.3
		Total (according to Template Tables 10a/b)	4213	362	**100.0**	43.8	4510	388	**100.0**	44.4	5328	458	**100.0**	41.7	6126	527	**100.0**	39.2
		Sum of all technologies (Template Tables 10a/b)	4213	362	100.0	43.8	4510	388	100.0	44.4	5328	458	100.0	41.7	6127	527	100.0	39.2
		Gross final RES-E consumption (Template Table 4a)		362	99.9	43.7		388	100.1	44.4		458	100.0	41.7		527	100.0	39.2
	Heating and cooling	Geothermal		16	3.4	1.9		18	4.0	2.1		19	3.4	1.7		20	3.2	1.5
		Solar thermal		3	0.6	0.4		5	1.1	0.6		10	1.8	0.9		21	3.4	1.6
		Solid biomass		401	86.2	48.4		415	93.3	47.5		483	86.1	43.9		497	79.5	37.0
		Biogas		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Bioliquids		43	9.2	5.2		0	0.0	0.0		12	2.1	1.1		28	4.5	2.1
		Biomass (subtotal)		444	95.5	53.6		415	93.3	47.5		495	88.2	45.0		525	84.0	39.1
		Aerothermal heat pumps		0	0.0	0.0		1	0.2	0.1		7	1.2	0.6		14	2.2	1.0
		Geothermal heat pumps		0	0.0	0.0		4	0.9	0.5		26	4.6	2.4		38	6.1	2.8
		Hydrothermal heat pumps		0	0.0	0.0		2	0.4	0.2		5	0.9	0.5		5	0.8	0.4
		Renewable energy from heat pumps (subtotal)		2	0.4	0.2		8	1.8	0.9		37	6.6	3.4		58	9.3	4.3
		Total (according to Template Table 11)		465	**100.0**	56.2		445	**100.0**	50.9		561	**100.0**	51.0		625	**100.0**	46.5
		Sum of all technologies (Template Table 11)		465	100.0	56.2		446	100.2	51.0		561	100.0	51.0		624	99.8	46.4
		Gross final RES-E consumption (Template Table 4a)		465	100.0	56.2		445	100.0	50.9		561	100.0	51.0		625	100.0	46.5
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		4	8.7	0.5		8	9.3	0.7		19	9.4	1.4
		Biodiesel		0	0.0	0.0		37	80.4	4.2		72	83.7	6.6		174	85.7	12.9
		Hydrogen from renewables		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable electricity		4	100.0	0.5		5	10.9	0.6		7	8.1	0.6		11	5.4	0.8
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		4	**100.0**	0.5		46	**100.0**	5.3		86	**100.0**	7.8		203	**100.0**	15.1
		Sum of all technologies (Template Table 12)		4	100.0	0.5		46	100.0	5.3		87	101.2	7.9		204	100.5	15.2
		Gross final RES-E consumption (Template Table 4a)		0	0.0	0.0		40	87.0	4.6		79	91.9	7.2		192	94.6	14.3
		RES-T including Article 21.2 (Template Table 4b)		4	100.0	0.5		46	100.0	5.3		86	100.0	7.8		204	100.5	15.2
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		828		100.0		874		100.0		1099		100.0		1344		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		827		99.9		874		100.0		1098		99.9		1344		100.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		831				880				1106				1355		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		828		**100.0**		874		**100.0**		1099		**100.0**		1344		**100.0**
Final consumption	Electricity	Reference scenario		1272	25.0			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		1272	25.0			1196	24.3			1293	24.9			1342	25.2	
	Heating and cooling	Reference scenario		2291	45.0			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		2291	45.0			1996	40.5			2054	39.6			2029	38.1	
	Transport	Reference scenario		1526	30.0			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		1526	30.0			1735	35.2			1839	35.5			1953	36.7	
	Total before aviation red. incl. efficiency	Reference scenario		5090	**100.0**			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		5090	**100.0**			4927	**100.0**			5186	**100.0**			5323	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				20.0				22.3				27.3				30.8
		Calculated heating and cooling				20.3				22.3				27.3				30.8
	Electricity	Electricity				28.5				32.4				35.4				39.3
		Calculated electricity				28.5				32.4				35.4				39.3
	Transport incl. Art. 21.2 adjustment	Transport				0.3				2.6				4.7				10.5
		Calculated transport				0.3				2.7				4.7				10.4
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.3				2.7				4.7				10.4
	Overall renewable share	Overall renewable share				16.2				17.7				21.2				25.3
		Calculated overall renewable share				16.3				17.7				21.2				25.2
		Contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				16.0				17.8				20.1				25.0

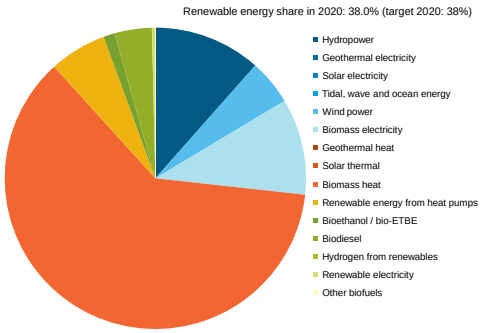
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Finland







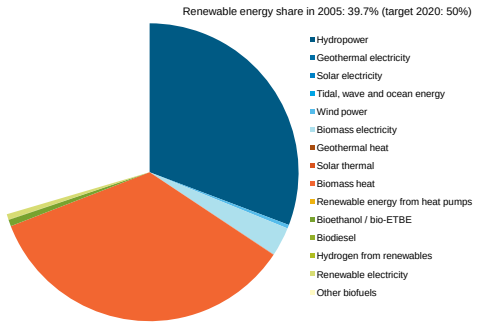


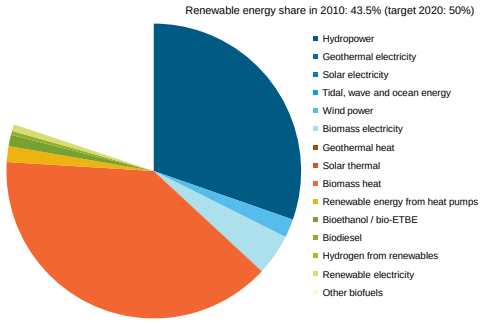
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 183 provides a background to the above figures.

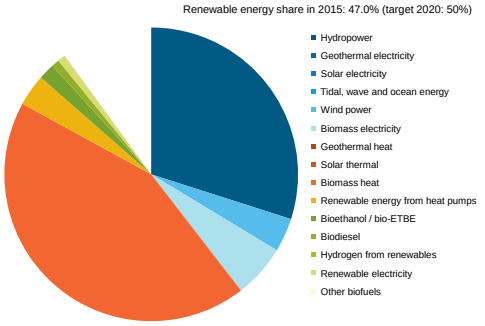
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	140	12	0.6	0.2	150	13	0.7	0.2	150	13	0.6	0.1	150	13	0.4	0.1
		Hydropower 1MW - 10 MW	1260	108	5.3	1.4	1290	111	5.7	1.5	1290	111	5.0	1.2	1310	113	3.9	1.1
		Hydropower >10MW	12510	1076	52.7	14.2	12780	1099	56.4	14.9	12780	1099	49.9	12.3	12960	1114	38.8	10.4
		Hydropower (subtotal)	13910	1196	58.6	15.8	14210	1222	62.7	16.6	14210	1222	55.5	13.7	14410	1239	43.1	11.6
		Geothermal	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar photovoltaic	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Concentrated solar power	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Tidal, wave and ocean energy	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Onshore wind	150	13	0.6	0.2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Offshore wind	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Wind power (subtotal)	150	13	0.6	0.2	360	31	1.6	0.4	1520	131	5.9	1.5	6090	524	18.2	4.9
		Solid biomass	9640	829	40.6	11.0	3930	338	17.3	4.6	5300	456	20.7	5.1	7860	676	23.5	6.3
		Biogas	20	2	0.1	0.0	40	3	0.2	0.0	50	4	0.2	0.0	270	23	0.8	0.2
		Bioliquids	n.a.	n.a.	n.a.	n.a.	4120	354	18.2	4.8	4530	390	17.7	4.4	4780	411	14.3	3.8
		Biomass (subtotal)	9660	831	40.7	11.0	8090	696	35.7	9.4	9880	850	38.6	9.5	12910	1110	38.6	10.4
		Total (according to Template Tables 10a/b)	23730	2040	**100.0**	27.0	22660	1948	**100.0**	26.4	25620	2203	**100.0**	24.6	33420	2874	**100.0**	26.9
		Sum of all technologies (Template Tables 10a/b)	23720	2040	100.0	27.0	22660	1948	100.0	26.4	25610	2202	100.0	24.6	33410	2873	100.0	26.8
		Gross final RES-E consumption (Template Table 4a)		2030	99.5	26.9		1950	100.1	26.4		2200	99.9	24.6		2870	99.9	26.8
	Heating and cooling	Geothermal		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Solar thermal		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Solid biomass		5450	98.6	72.1		2710	52.0	36.7		3300	52.1	36.9		3940	54.2	36.8
		Biogas		40	0.7	0.5		30	0.6	0.4		30	0.5	0.3		60	0.8	0.6
		Bioliquids		n.a.	n.a.	n.a.		2240	43.0	30.4		2470	39.0	27.6		2610	35.9	24.4
		Biomass (subtotal)		5490	99.3	72.6		4980	95.6	67.5		5800	91.5	64.8		6610	90.9	61.8
		Aerothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Geothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		40	0.7	0.5		230	4.4	3.1		530	8.4	5.9		660	9.1	6.2
		Total (according to Template Table 11)		5530	**100.0**	73.1		5210	**100.0**	70.6		6340	**100.0**	70.8		7270	**100.0**	67.9
		Sum of all technologies (Template Table 11)		5530	100.0	73.1		5210	100.0	70.6		6330	99.8	70.7		7270	100.0	67.9
		Gross final RES-E consumption (Template Table 4a)		5530	100.0	73.1		5210	100.0	70.6		6340	100.0	70.8		7270	100.0	67.9
	Transport	Bioethanol / bio-ETBE		0	0.0	0.0		70	30.4	0.9		120	27.3	1.3		130	21.7	1.2
		Biodiesel		0	0.0	0.0		150	65.2	2.0		300	68.2	3.4		430	71.7	4.0
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		20	100.0	0.3		20	8.7	0.3		20	4.5	0.2		40	6.7	0.4
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		20	**100.0**	0.3		230	**100.0**	3.1		440	**100.0**	4.9		600	**100.0**	5.6
		Sum of all technologies (Template Table 12)		20	100.0	0.3		240	104.3	3.3		440	100.0	4.9		600	100.0	5.6
		Gross final RES-E consumption (Template Table 4a)		0	0.0	0.0		220	95.7	3.0		410	93.2	4.6		560	93.3	5.2
		RES-T including Article 21.2 (Template Table 4b)		20	100.0	0.3		230	100.0	3.1		510	115.9	5.7		800	133.3	7.5
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		7560		100.0		7380		100.0		8950		100.0		10700		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		7570		100.1		7368		99.8		8963		100.1		10704		100.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		7590				7398				8972				10743		
	Co-operation mechanisms	Transfer from other Member States and third countries		0		0.0		0		0.0		0		0.0		0		0.0
		Transfer to other Member States		0		0.0		0		0.0		0		0.0		0		0.0
	All renewables including co-operation mechanisms	Total (Template Table 4a)		7560		**100.0**		7380		**100.0**		8950		**100.0**		10700		**100.0**
Final consumption	Electricity	Reference scenario		7530	28.7			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		7530	28.7			7550	29.3			8210	29.9			8740	31.0	
	Heating and cooling	Reference scenario		13970	53.2			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		13970	53.2			14010	54.5			15000	54.7			15300	54.3	
	Transport	Reference scenario		4220	16.1			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		4220	16.1			4030	15.7			4100	15.0			4080	14.5	
	Total before aviation red. incl. efficiency	Reference scenario		26260	**100.0**			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		26260	**100.0**			25730	**100.0**			27420	**100.0**			28170	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				40.0				37.0				42.0				47.0
		Calculated heating and cooling				39.6				37.2				42.3				47.5
	Electricity	Electricity				27.0				26.0				27.0				33.0
		Calculated electricity				27.0				25.8				26.8				32.8
	Transport incl. Art. 21.2 adjustment	Transport				0.0				6.0				12.0				20.0
		Calculated transport				0.5				5.7				12.4				19.6
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.5				5.7				10.7				14.7
	Overall renewable share	Overall renewable share				28.8				28.7				32.6				38.0
		Calculated overall renewable share				28.8				28.7				32.6				38.0
		Contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution from co-operation mechanism				0.0				0.0				0.0				0.0
		Contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Calculated contribution to co-operation mechanism				0.0				0.0				0.0				0.0
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				28.5				30.4				32.8				38.0

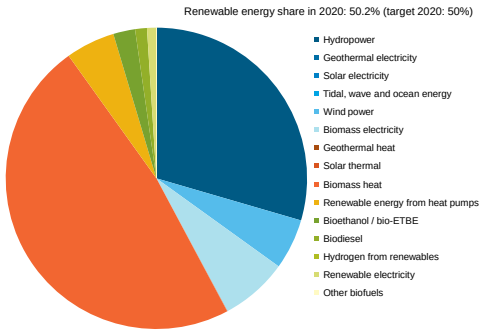
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

Sweden







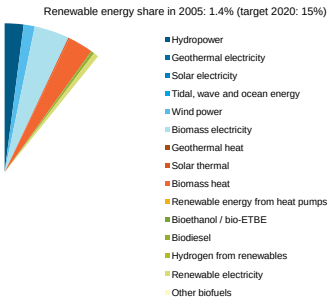


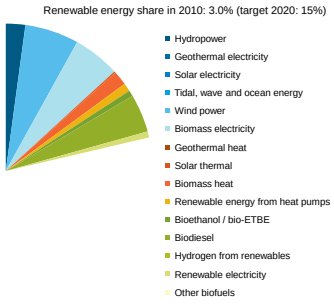
The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 185 provides a background to the above figures.

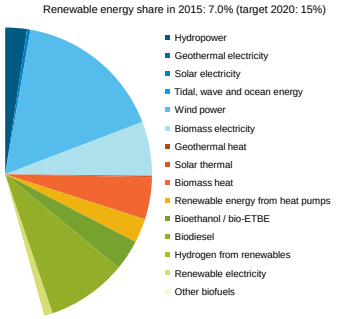
			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	458	39	0.6	0.3	458	39	0.5	0.3	458	39	0.5	0.2	458	39	0.5	0.2
		Hydropower 1MW - 10 MW	3027	260	3.7	1.9	3027	260	3.5	1.7	3027	260	3.3	1.5	3027	260	3.1	1.3
		Hydropower >10MW	69318	5960	85.2	43.5	67693	5821	78.1	37.1	66069	5681	71.8	32.1	64444	5541	66.3	28.1
		Hydropower (subtotal)	72874	6266	89.5	45.8	71249	6126	82.2	39.0	69625	5987	75.7	33.8	68000	5847	69.9	29.7
		Geothermal	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Solar photovoltaic	0	0	0.0	0.0	1	0	0.0	0.0	3	0	0.0	0.0	4	0	0.0	0.0
		Concentrated solar power	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Solar (subtotal)	0	0	0.0	0.0	1	0	0.0	0.0	3	0	0.0	0.0	4	0	0.0	0.0
		Tidal, wave and ocean energy	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Onshore wind	877	75	1.1	0.6	4585	394	5.3	2.5	8292	713	9.0	4.0	12000	1032	12.3	5.2
		Offshore wind	62	5	0.1	0.0	208	18	0.2	0.1	354	30	0.4	0.2	500	43	0.5	0.2
		Wind power (subtotal)	939	81	1.2	0.6	4793	412	5.5	2.6	8646	743	9.4	4.2	12500	1075	12.9	5.5
		Solid biomass	7452	641	9.2	4.7	10513	904	12.1	5.8	13574	1167	14.8	6.6	16635	1430	17.1	7.3
		Biogas	53	5	0.1	0.0	53	5	0.1	0.0	53	5	0.1	0.0	53	5	0.1	0.0
		Bioliquids	65	6	0.1	0.0	65	6	0.1	0.0	65	6	0.1	0.0	65	6	0.1	0.0
		Biomass (subtotal)	7506	645	9.2	4.7	10567	909	12.2	5.8	13628	1172	14.8	6.6	16689	1435	17.2	7.3
		Total (according to Template Tables 10a/b)	81384	6998	**100.0**	51.1	86675	7453	**100.0**	47.5	91966	7908	**100.0**	44.7	97258	8363	**100.0**	42.4
		Sum of all technologies (Template Tables 10a/b)	81319	6992	99.9	51.1	86610	7447	99.9	47.4	91902	7902	99.9	44.6	97193	8357	99.9	42.4
		Gross final RES-E consumption (Template Table 4a)		6605	94.4	48.3		7189	96.5	45.8		7772	98.3	43.9		8356	99.9	42.4
	Heating and cooling	Geothermal		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Solar thermal		6	0.1	0.0		6	0.1	0.0		6	0.1	0.0		6	0.1	0.0
		Solid biomass		6992	98.7	51.1		7800	94.7	49.7		8607	91.7	48.6		9415	89.3	47.8
		Biogas		21	0.3	0.2		18	0.2	0.1		14	0.1	0.1		11	0.1	0.1
		Bioliquids		65	0.9	0.5		65	0.8	0.4		65	0.7	0.4		65	0.6	0.3
		Biomass (subtotal)		7078	99.9	51.7		7883	95.7	50.2		8686	92.5	49.1		9491	90.0	48.2
		Aerothermal heat pumps		0	0.0	0.0		50	0.6	0.3		100	1.1	0.6		150	1.4	0.8
		Geothermal heat pumps		0	0.0	0.0		272	3.3	1.7		544	5.8	3.1		815	7.7	4.1
		Hydrothermal heat pumps		0	0.0	0.0		27	0.3	0.2		54	0.6	0.3		80	0.8	0.4
		Renewable energy from heat pumps (subtotal)		0	0.0	0.0		349	4.2	2.2		697	7.4	3.9		1046	9.9	5.3
		Total (according to Template Table 11)		7084	**100.0**	51.7		8237	**100.0**	52.5		9390	**100.0**	53.0		10543	**100.0**	53.5
		Sum of all technologies (Template Table 11)		7084	100.0	51.7		8238	100.0	52.5		9389	100.0	53.0		10543	100.0	53.5
		Gross final RES-E consumption (Template Table 4a)		7084	100.0	51.7		8237	100.0	52.5		9390	100.0	53.0		10543	100.0	53.5
	Transport	Bioethanol / bio-ETBE		144	50.0	1.1		251	47.5	1.6		358	46.6	2.0		465	46.1	2.4
		Biodiesel		9	3.1	0.1		89	16.9	0.6		170	22.1	1.0		251	24.9	1.3
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		121	42.0	0.9		147	27.8	0.9		173	22.5	1.0		198	19.6	1.0
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		288	**100.0**	2.1		528	**100.0**	3.4		768	**100.0**	4.3		1008	**100.0**	5.1
		Sum of all technologies (Template Table 12)		274	95.1	2.0		487	92.2	3.1		701	91.3	4.0		914	90.7	4.6
		Gross final RES-E consumption (Template Table 4a)		288	100.0	2.1		528	100.0	3.4		768	100.0	4.3		1008	100.0	5.1
		RES-T including Article 21.2 (Template Table 4b)		301	104.5	2.2		573	108.5	3.7		844	109.9	4.8		1116	110.7	5.7
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		13689		100.0		15695		100.0		17702		100.0		19709		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		14249		104.1		16071		102.4		17893		101.1		19716		100.0
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		14350				16172				17992				19814		
	Co-operation mechanisms	Transfer from other Member States and third countries		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
		Transfer to other Member States		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
	All renewables including co-operation mechanisms	Total (Template Table 4a)		13689		**100.0**		15695		**100.0**		17702		**100.0**		19709		**100.0**
Final consumption	Electricity	Reference scenario		12987	37.6			13650	36.1			14314	34.8			14977	33.7	
		Additional energy efficiency		12987	37.6			13089	36.3			13191	35.0			13293	33.9	
	Heating and cooling	Reference scenario		13190	38.2			15339	40.6			17488	42.5			19637	44.2	
		Additional energy efficiency		13190	38.2			14448	40.0			15706	41.7			16964	43.2	
	Transport	Reference scenario		7473	21.6			7923	20.9			8373	20.4			8823	19.9	
		Additional energy efficiency		7473	21.6			7686	21.3			7898	21.0			8111	20.7	
	Total before aviation red. incl. efficiency	Reference scenario		34519	**100.0**			37826	**100.0**			41132	**100.0**			44439	**100.0**	
		Additional energy efficiency		34519	**100.0**			36089	**100.0**			37660	**100.0**			39231	**100.0**	
	Total after aviation red. incl. efficiency	Reference scenario		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
		Additional energy efficiency		n.a.	n.a.			n.a.	n.a.			n.a.	n.a.			n.a.	n.a.	
Share	Heating and cooling	Heating and cooling				53.7				57.0				59.8				62.1
		Calculated heating and cooling				53.7				57.0				59.8				62.1
	Electricity	Electricity				50.9				54.9				58.9				62.9
		Calculated electricity				50.9				54.9				58.9				62.9
	Transport incl. Art. 21.2 adjustment	Transport				4.0				7.4				10.7				13.8
		Calculated transport				4.0				7.5				10.7				13.8
	Transport excl. Art. 21.2 adjustment	Calculated transport				3.9				6.9				9.7				12.4
	Overall renewable share	Overall renewable share				39.7				43.5				47.0				50.2
		Calculated overall renewable share				39.7				43.5				47.0				50.2
		Contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				39.8				41.6				43.9				49.0

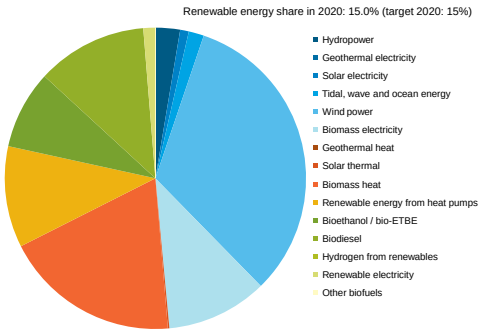
In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

United Kingdom









The *pie charts* have been based on absolute energy values in ktoe whereas the figure *titles* display information on the share of renewables in a specific year in comparison to the target for the year 2020. The shares also contain information about the future gross final energy consumption, which in some countries might increase considerably up to 2020. For some countries the above figures may therefore seem counter-intuitive. The table on page 187 provides a background to the above figures.

			2005				2010				2015				2020			
			[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]	[GWh]	[ktoe]	[%]	[%]
Renewable production	Electricity	Hydropower < 1MW	44	4	n.a.	0.2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower 1MW - 10 MW	399	34	n.a.	1.7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower >10MW	4478	385	n.a.	18.8	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Hydropower (subtotal)	4921	423	n.a.	20.6	5100	439	16.1	10.2	5730	493	9.5	5.3	6360	547	5.4	2.7
		Geothermal	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Solar photovoltaic	8	1	n.a.	0.0	40	3	0.1	0.1	890	77	1.5	0.8	2240	193	1.9	0.9
		Concentrated solar power	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0.0
		Solar (subtotal)	8	1	n.a.	0.0	40	3	0.1	0.1	890	77	1.5	0.8	2240	193	1.9	0.9
		Tidal, wave and ocean energy	n.a.	n.a.	n.a.	n.a.	0	0	0.0	0.0	0	0	0.0	0.0	3950	340	3.4	1.7
		Onshore wind	2501	215	n.a.	10.5	9520	819	30.1	19.0	20610	1772	34.2	19.0	34150	2936	29.2	14.3
		Offshore wind	403	35	n.a.	1.7	4630	398	14.6	9.2	18820	1618	31.2	17.4	44120	3794	37.7	18.5
		Wind power (subtotal)	2904	250	n.a.	12.2	14150	1217	44.7	28.3	39430	3390	65.4	36.4	78270	6730	66.9	32.8
		Solid biomass	4347	374	n.a.	18.2	5500	473	17.4	11.0	7990	687	13.2	7.4	20590	1770	17.6	8.6
		Biogas	4762	409	n.a.	20.0	6830	587	21.6	13.6	6300	542	10.4	5.8	5570	479	4.8	2.3
		Bioliquids	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		Biomass (subtotal)	9109	783	n.a.	38.2	12330	1060	39.0	24.6	14290	1229	23.7	13.2	26160	2249	22.4	11.0
		Total (according to Template Tables 10a/b)	n.a.	n.a.	n.a.	n.a.	31630	2720	**100.0**	63.2	60330	5187	**100.0**	55.7	116970	10058	**100.0**	49.0
		Sum of all technologies (Template Tables 10a/b)	16942	1457	n.a.	71.1	31620	2719	100.0	63.2	60340	5188	100.0	55.7	116980	10058	100.0	49.0
		Gross final RES-E consumption (Template Table 4a)		1506	n.a.	73.5		2720	100.0	63.2		5189	100.0	55.8		10059	100.0	49.0
	Heating and cooling	Geothermal		1	0.2	0.0		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Solar thermal		29	4.9	1.4		34	6.6	0.8		34	2.2	0.4		34	0.5	0.2
		Solid biomass		493	83.6	24.0		305	58.9	7.1		904	58.8	9.7		3612	58.3	17.6
		Biogas		67	11.4	3.3		18	3.5	0.4		54	3.5	0.6		302	4.9	1.5
		Bioliquids		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Biomass (subtotal)		560	94.9	27.3		323	62.4	7.5		958	62.3	10.3		3914	63.1	19.1
		Aerothermal heat pumps		n.a.	n.a.	n.a.		66	12.7	1.5		194	12.6	2.1		1301	21.0	6.3
		Geothermal heat pumps		n.a.	n.a.	n.a.		120	23.2	2.8		354	23.0	3.8		953	15.4	4.6
		Hydrothermal heat pumps		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Renewable energy from heat pumps (subtotal)		0	0.0	0.0		186	35.9	4.3		548	35.7	5.9		2254	36.4	11.0
		Total (according to Template Table 11)		590	**100.0**	28.8		518	**100.0**	12.0		1537	**100.0**	16.5		6199	**100.0**	30.2
		Sum of all technologies (Template Table 11)		590	100.0	28.8		543	104.8	12.6		1540	100.2	16.5		6202	100.0	30.2
		Gross final RES-E consumption (Template Table 4a)		475	80.5	23.2		518	100.0	12.0		1537	100.0	16.5		6199	100.0	30.2
	Transport	Bioethanol / bio-ETBE		18	9.6	0.9		135	11.9	3.1		692	25.6	7.4		1743	39.0	8.5
		Biodiesel		57	30.3	2.8		861	76.1	20.0		1818	67.3	19.5		2462	55.1	12.0
		Hydrogen from renewables		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0		0	0.0	0.0
		Renewable electricity		113	60.1	5.5		136	12.0	3.2		192	7.1	2.1		267	6.0	1.3
		Other biofuels		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
		Total (according to Template Table 12)		188	**100.0**	9.2		1132	**100.0**	26.3		2702	**100.0**	29.0		4472	**100.0**	21.8
		Sum of all technologies (Template Table 12)		188	100.0	9.2		1132	100.0	26.3		2702	100.0	29.0		4472	100.0	21.8
		Gross final RES-E consumption (Template Table 4a)		69	36.7	3.4		1066	94.2	24.8		2581	95.5	27.7		4251	95.1	20.7
		RES-T including Article 21.2 (Template Table 4b)		69	36.7	3.4		1066	94.2	24.8		2587	95.7	27.8		4295	96.0	20.9
	All renewables excluding co-operation mechanisms	Gross final RES consumption (Template Table 4a)		2050		100.0		4304		100.0		9307		100.0		20510		100.0
		Sum of total values from Template Tables 10a/b, 11 and 12 (corr. Art 5(1))		665		32.4		4234		98.4		9234		99.2		20462		99.8
		Sum of all technologies in Template Tables 10a/b, 11 and 12 (graphs)		2235				4394				9430				20732		
	Co-operation mechanisms	Transfer from other Member States and third countries		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
		Transfer to other Member States		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		n.a.
	All renewables including co-operation mechanisms	Total (Template Table 4a)		2050		**100.0**		4304		**100.0**		9307		**100.0**		20510		**100.0**
Final consumption	Electricity	Reference scenario		32100	21.3			31800	22.3			33100	23.1			34200	24.1	
		Additional energy efficiency		32100	21.3			31700	22.2			32100	22.9			32400	23.7	
	Heating and cooling	Reference scenario		66900	44.3			60000	42.0			56900	39.8			54800	38.6	
		Additional energy efficiency		66900	44.3			60000	42.0			55300	39.4			51500	37.7	
	Transport	Reference scenario		41704	27.6			40485	28.4			42002	29.4			41779	29.4	
		Additional energy efficiency		41704	27.6			40485	28.4			42002	30.0			41779	30.6	
	Total before aviation red. incl. efficiency	Reference scenario		154500	102.4			146600	102.7			148300	103.7			149000	104.9	
		Additional energy efficiency		154500	102.4			146500	102.7			145600	103.9			144100	105.4	
	Total after aviation red. incl. efficiency	Reference scenario		150900	**100.0**			142800	**100.0**			143000	**100.0**			142000	**100.0**	
		Additional energy efficiency		150900	**100.0**			142700	**100.0**			140200	**100.0**			136700	**100.0**	
Share	Heating and cooling	Heating and cooling				0.7				1.0				3.0				12.0
		Calculated heating and cooling				0.7				0.9				2.8				12.0
	Electricity	Electricity				4.7				9.0				16.0				31.0
		Calculated electricity				4.7				8.6				16.2				31.0
	Transport incl. Art. 21.2 adjustment	Transport				0.2				2.6				6.2				10.3
		Calculated transport				0.2				2.6				6.2				10.3
	Transport excl. Art. 21.2 adjustment	Calculated transport				0.5				2.8				6.4				10.7
	Overall renewable share	Overall renewable share				1.4				3.0				7.0				15.0
		Calculated overall renewable share				1.4				3.0				6.6				15.0
		Contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Calculated contribution from co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Contribution to co-operation mechanism				n.a.				n.a.				-0.2				0.0
		Calculated contribution to co-operation mechanism				n.a.				n.a.				n.a.				n.a.
		Transport fuels target																10.0
		Overall renewable share (trajectory periods 2011-2012 and 2015-2016)				1.3				4.0				7.5				15.0

In 'Final consumption' values for the year 2005 refer to the 'base year' in Template Table 1
The columns indicating percentages [%] have data displayed in bold. This is a reference to the parameter used for calculating the percentage. For calculating the shares values have been taken from the 'Additional energy efficiency' scenario.
Art. 21.2 adjustment refers to double counting of certain biofuels (times 2) and and renewable electricity in road transport (times 2.5).
Where is referred to Tables 1, 4a, 10a/b, 11 and 12 it is mean to the Template, prepared by the European Commission and available for download at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0548:EN:NOT

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