European Environment Agency

Country profile – Belgium

The section 'Key climate- and energy-related data' was prepared by the EEA. It includes the latest data available as of 31 July 2014

The section 'Climate and energy policy framework' was prepared by eclareon and Ecologic Institute, Germany. It includes the latest information on national policies and measures available as of 31 May 2014.

For methodological details and other country profiles, see www.eea.europa.eu/themes/climate/country-profiles.

Key climate- and energy-related data — Belgium

Key data on GHG emissions	2005	2011	2012	2013	EU 2012
Total GHG emissions (UNFCCC, Kyoto Protocol) (Mt CO_2 eq.)	142.1	120.1	116.5	116.9	4 544.2
GHG per capita (t CO_2 eq./cap.)	13.6	10.9	10.5	10.5	9.0
GHG per GDP (g CO_2 eq./PPS in EUR)	504	363	344	341	350
Share of GHG emissions in total EU-28 emissions (%)	2.7%	2.6%	2.6%	2.6%	100%
EU ETS verified emissions (Mt CO_2 eq.)	55.4	46.2	43.0	45.2	1 848.6
Share of EU ETS emissions in total emissions (%)	39%	38%	37%	39%	41%
ETS emissions vs allowances (free, auctioned, sold) (%)	– 5.1%	– 18.3%	– 36.9%	– 31.6%	– 14.1%
Share of CERs & ERUs in surrendered allowances (%)	0.0%	13.5%	23.3%	n.a.	26.4%
Non-ETS (ESD) emissions, adjusted to 2013–2020 scope (Mt CO_2 eq.)	77.4	69.9	69.4	71.6	2 566.6
Key data on renewable energy	**2005**	**2010**	**2011**	**2012**	**EU 2012**
Share of renewable energy in gross FEC (%)			5.2%	6.8%	14.1%
() = including all biofuels consumed in transport	(2.3%)	(5.0%)			
Share of renewable energy for electricity (%)	2.4%	7.1%	8.8%	11.1%	23.5%
Share of renewable energy for heating and cooling (%)	3.4%	5.0%	4.7%	6.6%	15.6%
Share of renewable energy for transport (%)			4.0%	4.5%	5.1%
() = including all biofuels consumed (%)	(0.2%)	(4.1%)			
Key data on energy consumption	**2005**	**2010**	**2011**	**2012**	**EU 2012**
Primary energy consumption (Mtoe)	51.2	52.8	52.0	48.7	1 584.8
Primary energy consumption per capita (Mtoe/cap.)	4.9	4.9	4.7	4.4	3.1
Final energy consumption (Mtoe)	36.8	37.5	37.8	36.6	1 104.5
Final energy consumption per capita (Mtoe/cap.)	3.5	3.5	3.4	3.3	2.2
Efficiency of conventional thermal electricity and heat production (%)	48.4%	55.2%	56.1%	55.2%	50.0%
Energy consumption per dwelling by end use	**2005**	**2009**	**2010**	**2011**	**EU 2011**
Total energy consumption per dwelling (toe/dwelling)	2.31	1.97	1.89	n/a	1.42
Space heating and cooling (toe/dwelling)	1.79	1.43	1.35	n/a	0.96
Water heating (toe/dwelling)	0.22	0.22	0.22	n/a	0.18
Cooking (toe/dwelling)	0.07	0.07	0.07	n/a	0.08
Electricity (lighting, appliances) (toe/dwelling)	0.22	0.24	0.23	n/a	0.20

Progress towards GHG targets (under the Effort Sharing Decision, i.e. non-ETS emissions)

2013 ESD target (% vs base year)	– 1.6%	2020 ESD target (% vs base year)	– 15.0%
2013 ESD emissions (% vs base year)	– 8.4%	2020 ESD projections WEM (% vs base year)	– 3.8%
		2020 ESD projections WAM (% vs base year)	– 4.4%

Based on approximated emission estimates for 2013, emissions covered by the Effort Sharing Decision (ESD) (i.e. in the sectors which are not covered by the EU ETS) are expected to be below the annual ESD target in 2013. However, projections indicate that 2020 ESD emissions are expected to be above the 2020 ESD target, despite the implementation of measures planned until 2013.

Progress towards renewable energy targets

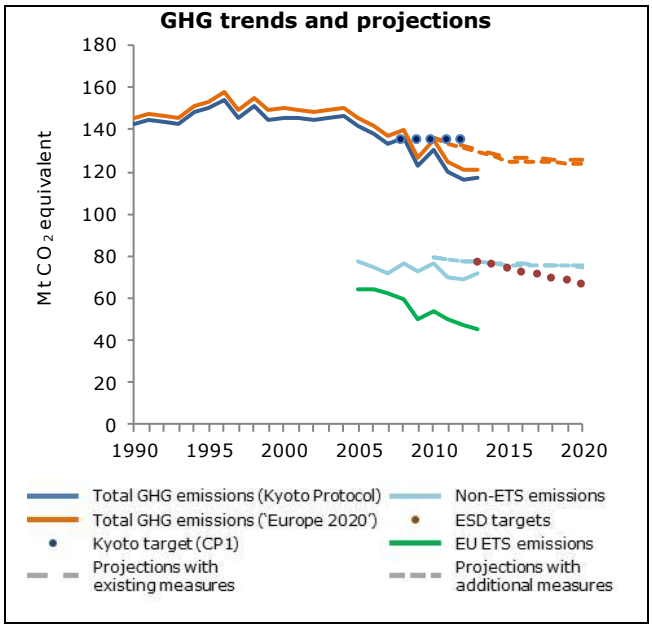
2012 RES share in gross final energy consumption (%)	6.8%	2011–2012 indicative share from RES Directive (%)	4.4%
2020 RES target	13.0%	2012 expected share from NREAP (%)	5.2%

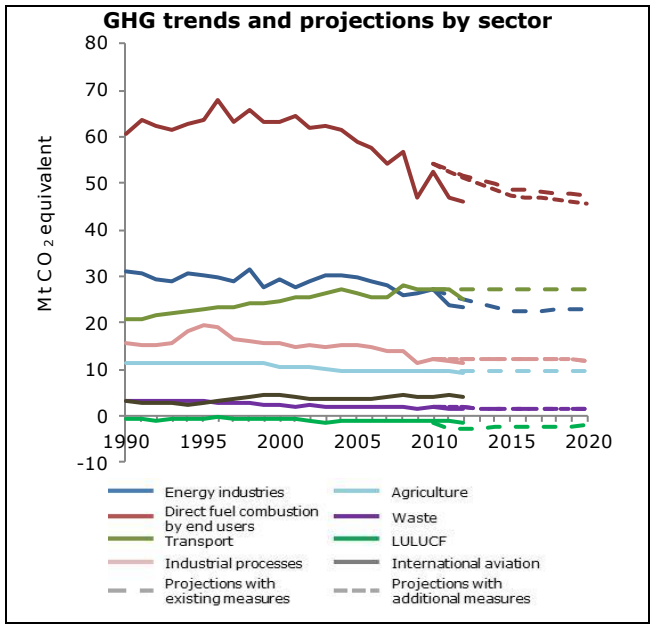
The average share of renewable sources in gross final energy consumption for 2011–2012 was 6.0% (2.2 Mtoe), which is higher than the indicative RED target for 2011–2012 (4.4%). At the same time, the share of renewables in 2012 (6.8 %) is higher than the expected 2012 NREAP target (5.2 %). Over the period 2005–2012 the observed average annual growth rate in renewable energy consumption amounted to 16.5%. In order to reach its 2020 NREAP target, Belgium needs an average annual growth rate of 9.9% in the run-up to 2020. In absolute terms, this is equivalent to 1.7 time its cumulative effort so far.

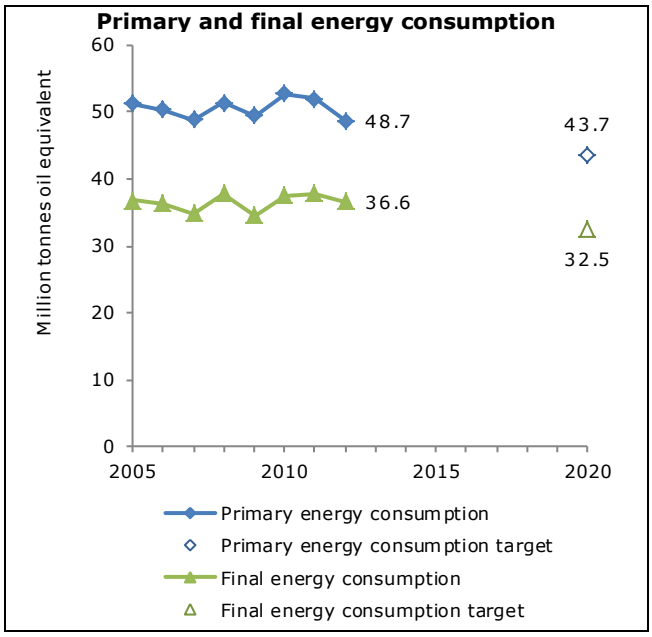
Progress towards energy efficiency targets

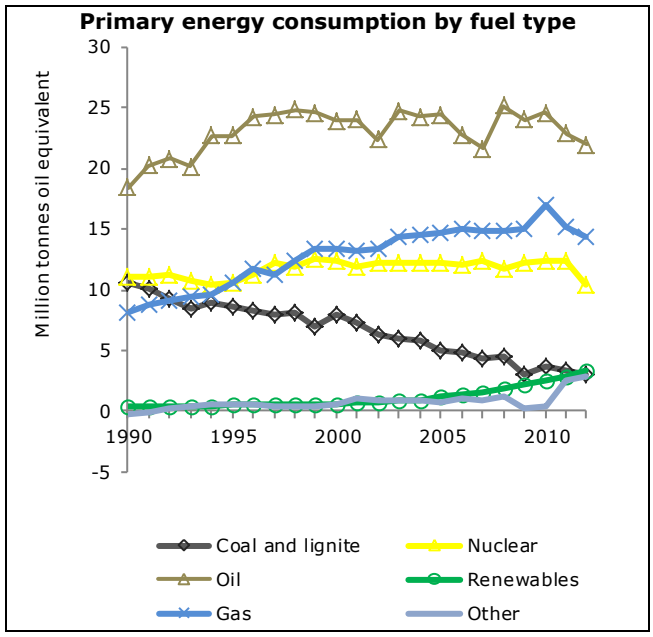
Primary energy consumption:		Final energy consumption:	
2005–2012 average annual change	-0.7%	2005–2012 average annual change	-0.1%
2012–2020 average annual change to target	-1.4%	2012–2020 average annual change to target	-1.5%

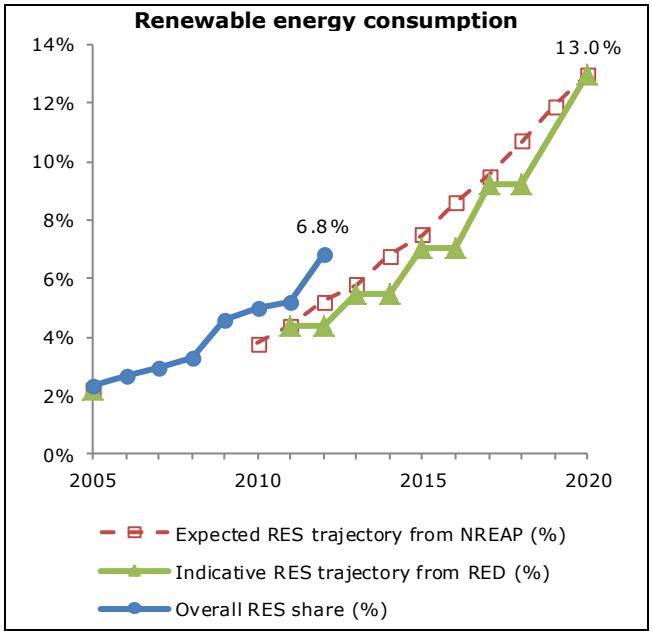
The reductions in primary and final energy consumption between 2005 and 2012 were not sufficient to put Belgium on track to meet its 2020 targets. Improving conversion efficiency for electricity production and energy efficiency in industry could help reducing primary energy consumption. Energy efficiency policies are dealt with at regional level, with no oversight of developments in this area at federal level.

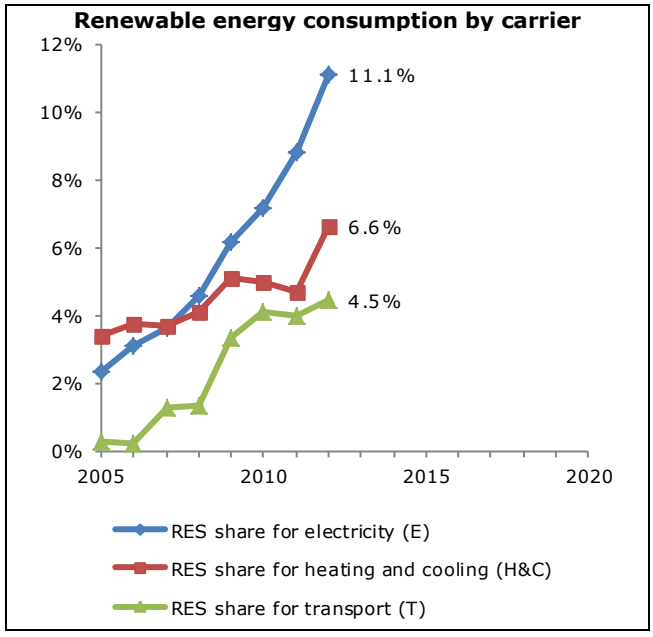

GHG trends and projections
Mt CO2 equivalent
180
160
140
120
100
80
60
40
20
0
1990
1995
2000
2005
2010
2015
2020
Total GHG emissions (Kyoto Protocol)
Total GHG emissions ('Europe 2020')
Kyoto target (CP1)
Projections with existing measures
Non-ETS emissions
ESD targets
EU ETS emissions
Projections with additional measures


GHG trends and projections by sector
Mt CO2 equivalent
80
70
60
50
40
30
20
10
0
-10
1990
1995
2000
2005
2010
2015
2020
Energy industries
Direct fuel combustion by end users
Transport
Industrial processes
Projections with existing measures
Agriculture
Waste
LULUCF
International aviation
Projections with additional measures


Primary and final energy consumption
Million tonnes oil equivalent
60
50
40
30
20
10
0
2005
2010
2015
2020
48.7
36.6
43.7
32.5
Primary energy consumption
Primary energy consumption target
Final energy consumption
Final energy consumption target


Primary energy consumption by fuel type
Million tonnes oil equivalent
30
25
20
15
10
5
0
-5
1990
1995
2000
2005
2010
Coal and lignite
Oil
Gas
Nuclear
Renewables
Other


Renewable energy consumption
14%
12%
10%
8%
6%
4%
2%
0%
2005
2010
2015
2020
13.0%
6.8%
Expected RES trajectory from NREAP (%)
Indicative RES trajectory from RED (%)
Overall RES share (%)


Renewable energy consumption by carrier
12%
10%
8%
6%
4%
2%
0%
2005
2010
2015
2020
11.1%
6.6%
4.5%
RES share for electricity (E)
RES share for heating and cooling (H&C)
RES share for transport (T)

Climate and energy policy framework

Challenges and opportunities
One of the major barriers for effective climate policies in Belgium is the difficult coordination between different levels of government and the recent renegotiation of competences among them. The competences for climate policies are now divided between the federal level and the three regions. The regions are yet to agree on the internal burden sharing for the Belgian national greenhouse gas (GHG) emission reduction target as well as the renewable energy target, and it is not clear whether the individual regional targets add up to fulfil the national targets. The reshuffle of competences has also led to the discontinuation of policy instruments, for example for energy efficiency former national measures were not adequately replaced by regional ones. Agreeing on a burden sharing among the regions would provide a long-term framework and increase investment security.
Per capita GHG emissions and energy consumption are relatively high in Belgium compared to other EU Member States. The country is highly dependent on energy imports, and fossil fuels make up a considerable share of the primary energy consumption. As with a few other EU Member States, Belgium did not succeed in reducing its energy consumption in recent years. Especially in the industrial and household sectors, energy efficiency improvements have been slow. A study suggests that Belgium has an energy savings potential representing 29 % of its business-as-usual scenario in 2030, with the largest potential in buildings. Implementing measures to realise this potential, such as support to make the entire building stock comply with passive house energy standards or energy efficiency targets for lighting, appliances and heating, is estimated to create 20 000 jobs and would reduce Belgium's energy dependency (McKinsey, 2009).
Emissions from transport are also a major challenge for Belgium. While the vehicle fleet is relatively efficient, the number of passenger-kilometres travelled is very high and road congestion especially around Brussels is a major problem. The high use of passenger vehicles partly results from misleading vehicle tax incentives and an inefficient public transport system with long journey times (7sur7, 2014). Reconsidering the taxation structure and investing in public transport infrastructure could not only reduce emissions, but also address congestion problems and air pollution. It is estimated that tapping the full potential of the transport sector could create an additional 10 000 to 20 000 jobs until 2030 (McKinsey, 2009).

Climate and energy strategies
In Belgium, energy and climate change policy is foremost a regional competence (Flanders, Wallonia, Brussels-Capital region), which leads to an unclear division of competences within the regions and between the federal and the regional authorities, and to a lack of coherence between the different relevant administrative bodies responsible for the implementation of climate policies. A National Climate Commission is responsible for coordinating the policies implemented at a regional level, and established Belgium's national climate plan for 2009−2012 (Service Fédéral, 2011), which included an internal burden-sharing agreement. However, a follow-up plan is still missing due to a lack of consensus between the regions on the internal burden sharing of non-ETS targets for 2013−2020 and the share of renewable energies. As a result, each region adopts its own policy strategies and policy instruments with only limited coordination.
Flanders' Climate Policy Plan 2013–2020 aims to reduce non-ETS emissions by 15 % until 2020 given that no internal burden sharing in Belgium has been decided yet. In Wallonia, the 2013 Climate Decree sets targets for reducing GHG emissions by 30 % until 2020 and by 80 to 95 % until 2050, implemented through 5-year carbon budgets. The Decree also establishes an Air-Climate-Energy Plan, which is still subject to public enquiry in June 2014. Brussels adopted a Code for air, climate and energy (COBRACE) in 2013. It introduces several measures in order to meet the regional objectives of reducing GHG emissions by 30 % by 2025 compared to 1990. Among others, the Code aims at improving energy efficiency in the building sector, and introduces specific standards for air quality and GHG emissions. Moreover, it serves as a legal basis for its Integrated Air-Climate-Energy Plan, which is in the process of adoption and which shall contain concrete objectives by 2024 as well as measures to be implemented within the next 5 years.

Renewable energy
Belgium has no overarching strategy for the development of renewable energies, since this policy area is primarily a regional competence, apart from offshore wind energy. The Walloon government agreed in 2013 on a roadmap to achieve the Walloon target of 8 000 GWh of renewable energy by 2020, with almost half of the capacity from wind energy.
Renewable electricity is promoted in Belgium through a quota system that requires energy suppliers to cover a share of their supply from renewable sources. As the promotion of renewable energies is mainly a regional competence, the quota systems differ between the regions, and certificates are not tradable between the regions. In all regions, wind, solar, biogas, biomass and hydro power are eligible, but only in Brussels and Flanders is geothermal energy covered. The federal quota scheme covers only offshore wind energy. The regions also offer additional support schemes, namely subsidies, investment assistance for companies and net metering. In Wallonia, for instance, photovoltaic (PV) installations of less than 10 kW are not supported anymore under the quota scheme but through the Qualiwatt scheme. The scheme offers owners of residential PV installations a deduction on their electricity bills, proportionate to their household income, which allows refunding the installation within 8 years on average.
In Wallonia and Brussels, renewable heat is promoted through subsidies and investment assistance for biomass heating, and geothermal and solar thermal energy. Flanders recently introduced a new support scheme for heat produced from renewable energy sources as well as the district heating grid in general. With a budget of EUR 6.7 million, the Flemish government aims to stimulate increased industrial generation of renewable heat, the construction of heat networks, the recovery of waste heat and heat production from renewable energy sources (VEA, 2013).

Energy efficiency
Per capita energy consumption is well above EU average, mainly due to consumption in industry and households. The climate policies of all three regions encompass measures on energy efficiency, but policies vary considerably between regions. The first Action Plan for Energy Efficiency (APEE) in Brussels-Capital sets a target of 9 % reduction of final energy consumption by 2016. The target has not been updated in the second regional action plan published in 2011. In Wallonia, the regional government announced the finalisation of the third APEE in March 2014, but it has not been published yet.

Belgium's implicit **tax rate** on energy is the lowest among the EU-15 Member States and a wide range of exemptions from excise duties apply, for example for energy-intensive processes, low-income households or businesses with an environmental objectives agreement.
In Flanders, **energy suppliers** are obliged to deliver premiums for energy-saving investments to private and legal entities, up to an annual quota imposed by the government.
In Brussels and Wallonia, **combined heat and power** (CHP) is eligible under the quota system for renewable energy, while Flanders uses a separate quota system granting cogeneration certificates per MWh primary energy savings since 2005. Additionally, CHP installations are eligible under a number of regional subsidy schemes, and the federal government grants a reduction of the taxable profits for energy-saving measures, including CHP.
Wallonia adopted voluntary agreements with **industrial** sectors for the period 2003–2013 to reduce energy consumption, in exchange for access to additional subsidies for feasibility studies and energy audits. The voluntary agreements proved successful, since they allowed the participating Walloon industries to improve their energy efficiency by 16.5 %. The voluntary agreements of the Walloon region were therefore renewed for the period 2014–2020 (Energie Wallonie, 2014). Flanders adopted an Energy Efficiency Benchmarking Covenant (2003–2012) with energy-intensive industry with the aim to improve energy efficiency by 7.4 % over the period 2003–2012. The Flemish Auditing Covenant (2005–2013) with medium-sized companies aimed at saving 1.25 TWh by 2012. In both Wallonia and Flanders, the agreements cover 90 % of industrial energy consumption. In Brussels, which has only a small industrial sector, a voluntary labelling system called Eco-dynamic Enterprise is in place.
All three regions offer subsidies for energy efficiency improvements to **private sector entities**. Flanders introduced an Ecological Premium scheme that grants premiums of a maximum of EUR 1 million per company over a period of 3 years. An additional bonus is granted if the company conducts energy, environmental or ecological efficiency scans, provides a valid environment certificate or shows a certified environment management system. Since 2012, a Strategic Ecologic Premium for technologies and companies that do not qualify for support under the regular premium system is in place, covering up to 70 % of investment costs. Also in Wallonia and Brussels, energy-saving investment is supported through premiums, financed by an energy fund.
In the **buildings** sector, minimum energy performance standards exist for new and modernised buildings and energy performance certification was introduced. Belgium created a public energy service company (Fedesco) in 2005 that is particularly active in the building sector. It finances energy efficiency projects in public federal buildings, including energy audits, technical installations or awareness-raising campaigns. Over the last year, Fedesco has shared experience with regional provincial and local authorities through its Knowledge Center (Fedesco, 2014).
In Brussels, the new COBRACE aims at improving energy efficiency in the building sector, not only through regulation on the energy performance of buildings, but also through the emphasis put on the exemplary role of public buildings. It also introduces the obligation for owners and occupants of buildings over 100 000 m² to submit an action plan for the reduction of energy consumption. The main financial support instrument for energy efficiency in buildings is the Energy Bonus, which is available for several categories of refurbishment works in buildings, such as insulation, or efficient heating. It is calculated based on the income level of the applicant and according to the technical characteristics of the equipment used. The budget allocated to the Energy Bonus for the year 2014 amounts to EUR 20 million (Bruxelles Environnement, 2014).
The Flemish government pursues an Energy Renovation Programme 2020 with the target to make all homes energy-efficient by 2020. In the coming years, the Flemish government aims to introduce additional policies to improve energy efficiency performance of heat boilers and the replacement of old heating infrastructure (Vlaamse Regering, 2013). Flanders also offers subsidies for building renovation such as insulating glass, or installation of high-efficiency boilers and solar heaters.
Wallonia launched the support instrument Ecopack in 2012 aiming at stimulating energy efficiency upgrades in residential buildings. The programme offers interest-free loans and grants ranging from EUR 2 500 to 30 000 for households that carry out at least two energy efficiency improvements (Cluster Cap 2020 2012). After a successful first year, the programme was extended until mid-2014 (Nollet, 2013). In order to encourage **households** to reduce their electricity consumption, Wallonia will introduce a progressive pricing system for electricity in 2015 that increases the electricity price for households the more they consume. The system will apply neither to households heating with electricity or heat pumps nor to business customers.

Transport

The transport sector was formerly mainly under federal competency but most responsibilities were transferred to the regional level in 2011, for example taxation on registration and ownership of cars, environmental incentives and speed limits.
Average emissions for newly registered cars are low at 127.9 CO_2/km in Belgium, but transport emissions still make up a high share, given the large amount of passenger-kilometres travelled. Flanders and the Walloon region have taken measures targeting CO_2 emissions of cars with the registration tax (regional competence). Flanders levies a registration tax based on CO_2 emissions and the EURO standard. Wallonia's registration tax is based on engine power, but an additional CO_2-based bonus-malus charge applies (ACEA, 2012). Brussels' registration tax is based only on engine power. The ownership tax for all three regions is based on cylinder capacity for passenger cars, or on weight and number of axles for commercial vehicles. Reforms are being discussed to account for CO_2 emissions (Ecoscore, 2013). The regions also agreed to introduce a distance-based toll system for vehicles above 3.5 tonnes from 2016 onwards (European Commission, 2013b).
Excise duties on petrol are average compared to neighbouring countries, but taxes levied on diesel are around 30 % lower (European Commission, 2013a). Since 2009, a federal quota for biofuels is in place that obliges providers of petrol or diesel fuels to ensure that 4 % of the annual fuel sale is biofuel. In 2010, a national fuel tax reduction was introduced that applies to petrol containing at least 7 % v/v of bioethanol and diesel containing at least 5 % v/v of biodiesel. However, these measures have not been updated (Bond Beter Leefmilieu, 2012).
In the field of public transport, all four Belgian transport operators De Lijn, STIB, TEC and SNCB decided to work together in the so-called ReTiBo project aiming at the integration of registration, ticketing and steering software systems by 2016 (Vlaamsparlament, 2013). In Brussels, residents can, since 2006, exchange their vehicle registration for 1 year of free public transport use under the Prime Bruxell'Air scheme.

Agriculture
In Flanders, the 2012 Flemish Agriculture Investment Fund offers investment subsidies to companies in order to invest in environmentally friendly and energy-efficient technologies, such as renewable energy and CHP. The Flemish Climate Policy Plan of 2013 lists plans and strategies targeting consumer behaviour and sustainable production via awareness raising, strategic support for organic agriculture, and the efficient use of production chains and circular flows (Vlaamse Regering, 2013).
Wallonia launched a strategic plan for the development of organic farming and the consumption of organic products in 2013, aiming to increase the number of organic farms from 1 100 to 1 750 by 2020 and to double the share of organic agricultural areas from 7.5 to 15 % of the total utilised agricultural land by 2020. The plan foresees the allocation of EUR 2 million for research and development of the organic industry. At the end of March 2014, the Walloon parliament adopted the first Walloon Agriculture Code, which is currently pending publication in the official journal (Agriculture Wallonie, 2014).

Waste
The Brussels government and competent stakeholders concluded a new environment–employment alliance devoted to the resource and waste sector in 2013. The objective of such alliances is to create employment opportunities.
Brussels does not have landfills but sends waste to the other regions. The 2010 Waste Prevention and Management Plan sets priority on awareness-raising campaigns, legislation on take-back obligations and infrastructure for waste reception. It establishes targets for reduction of household waste and waste from the tertiary sector and industry. The plan also gives priority to biomethanisation rather than open-air composting.
Flanders has a long tradition in waste management plans, and is the most advanced region in Belgium in this context. The current plan (2008–2015) aims to limit waste production per annum per capita to 560 kg, and residual waste to 150 kg. Flanders implements separated waste collection, subsidies for reuse centres, quotas on waste production per inhabitant and communication instruments. The high landfill tax in Flanders, which increases annually, had a significant effect on the reduction of the landfilling rate. Landfill bans are in place on certain waste streams (EEA, 2013).
Wallonia introduced a landfill tax in 2008, and rates were more than doubled in 2010 (EEA, 2013). The government of the Walloon region planned to elaborate a new waste plan 'Horizon 2020'. However, the former government did not succeed in finalising the plan and the publication will be postponed to the next legislative term — i.e. after 25 May 2014 (Maene, 2014).

References
7sur7, 2014, 'La voiture reste le moyen de transport privilégié des Belges' (http://www.7sur7.be/7s7/fr/1502/Belgique/article/detail/1779144/2014/01/22/La-voiture-reste-le-moyen-de-transport-privilegie-des-Belges.dhtml) accessed 5 October 2014.
ACEA, 2012, 'Taxation Guide 2012', European Automobile Manufacturer's Association (http://www.acea.be/publications/article/acea-tax-guide) accessed 8 October 2014.
Agriculture Wallonie, 2014, 'La Wallonie se dote d'un Code wallon de l'Agriculture', Portail de l'agriculture en Wallonie (http://agriculture.wallonie.be/codeagricole) accessed 5 October 2014.
Bond Beter Leefmilieu, 2012, '11 maatregelen voor een trendbreuk in het klimaatbeleid' (http://www.bondbeterleefmilieu.be/page.php/7/show/13997) accessed 5 October 2014.
Bruxelles Environnement, 2013, 'Les primes énergie 2013 suspendues à partir du 2 juillet' (http://www.bruxellesenvironnement.be/Templates/news.aspx?id=37869&site=pr) accessed 1 October 2013.
Bruxelles Environnement, 2014, 'Les primes énergie 2014 pour les bâtiments du secteur résidentiel: un nouvel équilibre' (http://www.bruxellesenvironnement.be/Templates/Particuliers/informer.aspx?id=12193) accessed 5 October 2014.
Ecoscore, 2013, 'Flemish region' (http://www.ecoscore.be/en/flemish-region) accessed 5 October 2014.
EEA, 2013, *Municipal waste management in Belgium*, European Environment Agency (http://www.eea.europa.eu/publications/managing-municipal-solid-waste/belgium-municipal-waste-management) accessed 5 October 2014.
Energie Wallonie, 2014, 'Les accords de branche, au carrefour entre réalité économique et politique énergie climat', Portail de l'énergie en Wallonie (http://energie.wallonie.be/nl/les-accords-2014-2020.html?IDC=7863) accessed 5 October 2014.
European Commission, 2013, 'Excise duty tables, Part II – Energy products and Electricity', RED 1036, January 2013, Directorate-General for Taxation.
European Commission, 2013b, Commission Staff Working Document: Ex-post evaluation of Directive 1999/62/EC, as amended, on the charging of heavy goods vehicles for the use of certain infrastructures (SWD(2013) 1 final) (http://ec.europa.eu/transport/modes/road/road_charging/doc/swd%282013%291.pdf) accessed 5 October 2014.
Fedesco, 2014, 'Societé — Aperçu' (http://www.fedesco.be/fr/societe.html) accessed 14 February 2014.
Maene, J-C., 2014, 'Biométhanisation et Plan Wallon des déchets ? Rendez-vous après le 25 mai…' (http://jcmaene.be/blog/parlement-wallon/biomethanisation-et-plan-wallon-des-dechets-rendez-vous-apres-le-25-mai/2014/03/26/) accessed 5 October 2014.
McKinsey, 2009, *Pathways to world-class energy efficiency in Belgium* (http://www.mckinsey.com/App_Media/Reports/Belux/Energy_efficiency_in_Belgium_full_report.pdf) accessed 5 October 2014.
Nollet, J-M., 2013, 'L'Ecopack prolongé!' (http://nollet.wallonie.be/l-ecopack-prolong) accessed 1 October 2013.
Service Fédéral, 2011, 'Objectifs de réductions et partage de la charge' (http://www.climat.be/fr-be/politiques/politique-belge/politique-nationale/objectifs-de-reduction) accessed 5 October 2014.
VEA, 2013, 'Steunregeling groene warmte' (http://www.energiesparen.be/groene-energie-en-wkk/prof/steunregeling) accessed 15 October 2014.
Vlaamse Regering, 2013, 'Vlaams Klimaatbeleidsplan 2013-2020' (http://www.lne.be/themas/klimaatverandering/klimaattips/klimaattips/wat-doet-de-vlaamse-overheid/vlaams-klimaatbeleidsplan) accessed 5 October 2014.
Vlaamsparlament, 2013, 'ReTiBo' (http://www.vlaamsparlement.be/Proteus5/getFile.action?id=486858) accessed 5 October 2014.