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**Country Factsheet Belgium**

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INVESTMENT BANK**

**State of the Energy Union**

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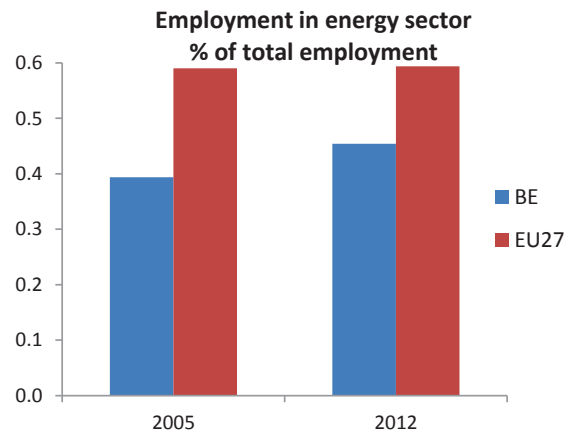
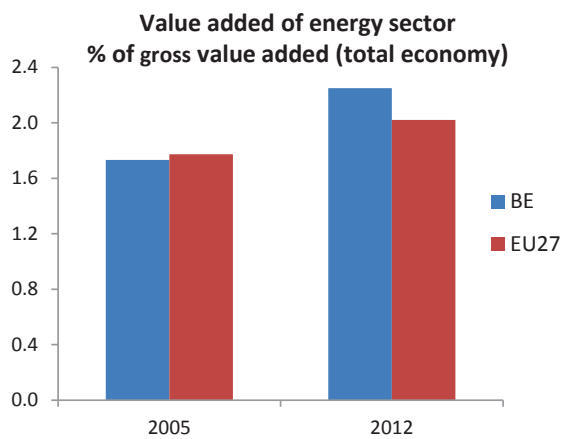
# Towards an Energy Union Belgium



## Macroeconomic relevance of energy

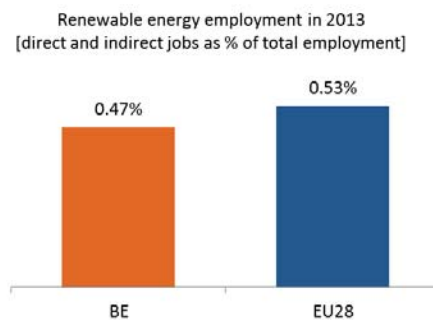
### IMPORTANCE OF THE ENERGY SECTOR

The share of the energy sector in total value added is higher than that for the EU27, while the share in total employment is considerably lower than that for the EU as a whole. The importance of the sector has notably increased during the period 2005-2012, most strongly in terms of value added generated but also in terms of employment.



Source: EUROSTAT – National Accounts

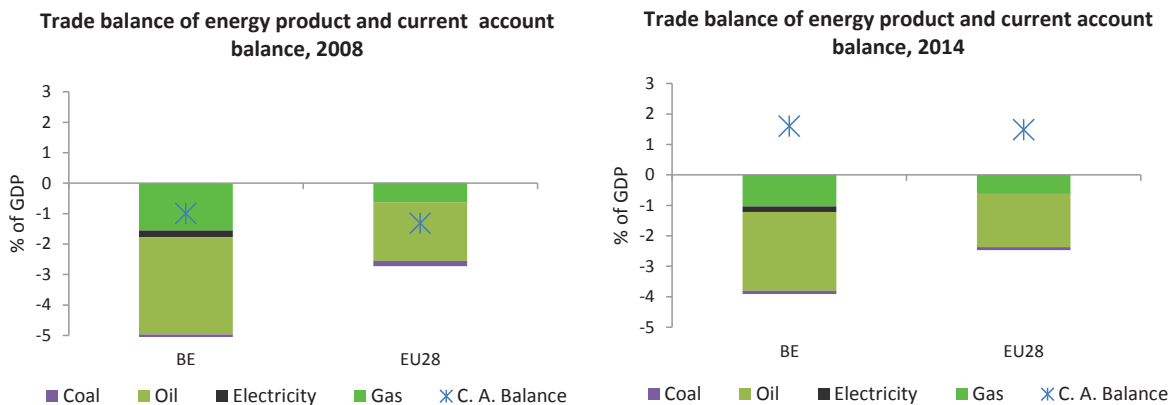
According to EurObserv'ER, in 2013, the share of direct and indirect renewable energy related employment in total employment of the economy in Belgium was at about 0.47%, slightly below the EU average of 0.53%.



Source: European Commission, based on EurObserv'ER and EUROSTAT

### TRADE BALANCE OF ENERGY PRODUCTS

The energy trade balance deficit of Belgium represents 3.9% of GDP in 2014, which is more than 50% higher than the EU average. The deficit is mainly based on net imports of oil and natural gas. The deficit has decreased by about 25% during 2006-2013; the composition of its drivers has remained relatively constant.



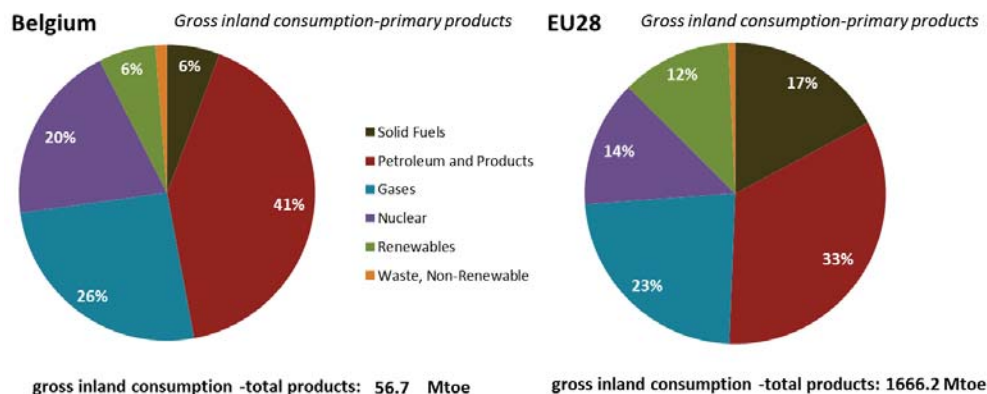
Source: EUROSTAT  
 Note: Current account balance for EU28 from European Commission (AMECO)

# 1. Energy Security, solidarity and trust

## ENERGY MIX

The energy mix of Belgium differs from the one of the EU-28 by a lower share of coal and other solid fuels, a lower share of renewable energy and a higher share of petroleum products and nuclear. Compared to 1995, the share of renewables in Belgium increased more than EU average (from less than 1% to 6% of the energy mix), while the share of natural gas increased by 6 percentage points. The main decrease concerns the use of solid fuels (11 percentage points).

### Gross inland energy consumption in 2013



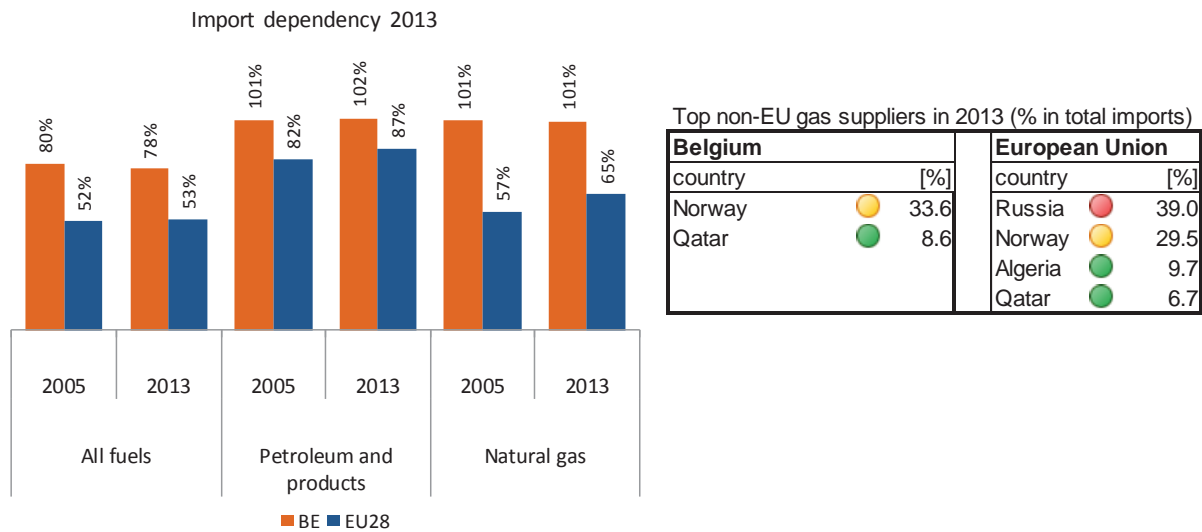
Source: European Commission, based on EUROSTAT

## IMPORT DEPENDENCY

Although it improved since 1995, Belgium remains with an import dependency<sup>1</sup> above the EU average for all fuels, and in particular for gas and petroleum products. Belgium imports all of its

<sup>1</sup> Note: A dependency rate in excess of 100% indicates that energy products have been stocked.

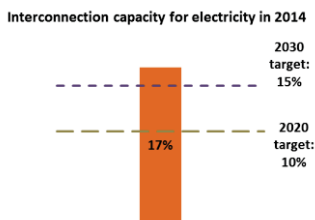
natural gas, with Norway as its largest non-EU supplier<sup>2</sup>. A part of the imports concern transit as gas transfers represent more than four times the Belgian domestic use. Overall, the country supplier concentration index is relatively high for Belgium. It experiences an above EU average energy import dependency, expressed as percentage of GDP.



Source: European Commission, based on EUROSTAT

## 2. A fully-integrated internal energy market

### INTERCONNECTIONS



Source: European Commission based on ENTSO-E scenario outlook and adequacy forecast 2014

Note: Reference to 2030 target is based on October 2014 European Council conclusions stating that "the Commission will also report regularly to the European Council with the objective of arriving at a 15% target by 2030"

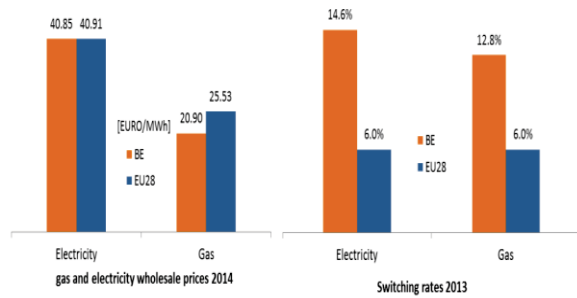
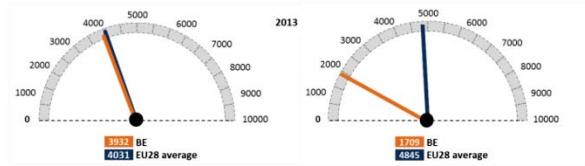
The interconnection level for electricity was 17% in 2014 for Belgium, which is above the 2020 and 2030 targets at the EU level. Due to changes in the generation mix and retirement of generation capacity, risks for security of supply will increase in the coming years. Increased cooperation with neighbouring countries, the timely realisation of the Alegro interconnection project with Germany and the NEMO project with the UK, and demand side response are required to tackle such risks, as well as a stable regulatory framework and market design that encourage investments in electricity production and increased efficiency.

Belgium occupies a strategic position in the European gas grids and serves as an important transit country, attracting international trade as a collection of connection points of several pipelines and has an important LNG terminal (in Zeebrugge), which contributes significantly to the security of supply in North-West Europe. Belgium is well interconnected with its neighbours.

<sup>2</sup> Top non-EU gas suppliers table is based on EUROSTAT data. The share of imports from non-EU countries is calculated as the ratio between volumes of imports from that specific non-EU supplier and total imports (from EU and non-EU countries).

### ELECTRICITY AND GAS MARKETS

Market concentration index for power generation (left) and gas supply (right) (Herfindahl index – 10000 means monopoly)



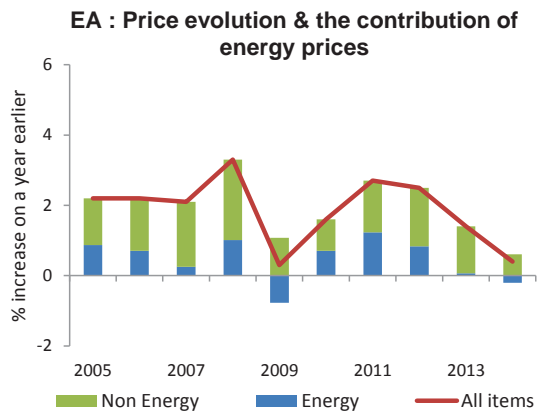
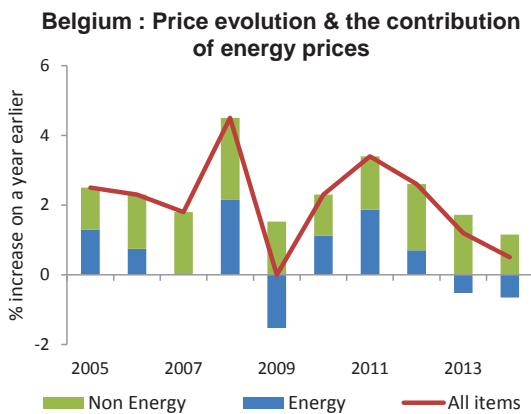
Sources: ESTAT and European Commission Calculations

Sources: European Commission based on ESTAT, CEER and Platts Power Vision

The level of market concentration remains high for power generation, but improved significantly for gas. The very high switching rate of consumers tends to reduce the market share of incumbent suppliers. However the market concentration remains high at retail level for both electricity and gas. Wholesale gas and electricity prices are close to EU average. Domestic retail prices for electricity are above the EU average and domestic gas prices are only slightly above the EU. As far as electricity is concerned, the average price in Belgium has been following the average price in the neighbouring countries since 2013. The average gas price in Belgium remains constant at approximately 1 EUR/MWh above the average of the neighbouring countries. Consumer assessment of the retail gas and electricity markets is above EU average (11<sup>th</sup> position in the EU ranking)<sup>3</sup>. Given the outcome of the cost-benefit analysis, the Belgian regions have so far not decided to proceed with the wide-scale roll-out of smart meters in the electricity and gas markets.

### CONTRIBUTION OF ENERGY TO CONSUMER PRICE EVOLUTION

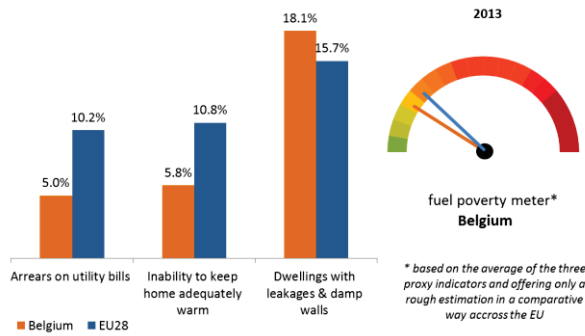
Consumer price inflation has decreased more or less in line with the Euro area average since 2011. In Belgium the contribution of the energy items to the headline inflation rate has been negative since 2013, whereas for the Euro area as a whole the contribution was still positive in 2013.



Source: DG ECFIN based on Eurostat

<sup>3</sup> 10th Consumer Markets Scoreboard (June 2014), [http://ec.europa.eu/consumers/consumer\\_evidence/consumer\\_scoreboards/10\\_edition/index\\_en.htm](http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/10_edition/index_en.htm)

### VULNERABLE CONSUMERS

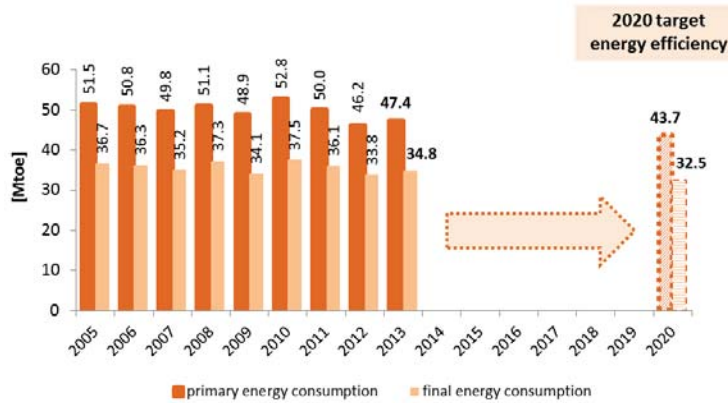


Source: European Commission, based on on EUROSTAT SILC survey

Based on a EUROSTAT survey on income and living conditions, three proxy indicators are used to assess fuel poverty issues. In Belgium, the percentage of households with potential fuel poverty issues is below EU-average. The number of customers benefiting from social tariffs remained stable compare to 2011 (400.000 for electricity and 230.000 for gas).

## 3. Energy Efficiency and moderation of energy demand

### ENERGY EFFICIENCY TARGET 2020 (43.7 Mtoe primary energy and 32.5 Mtoe final energy)



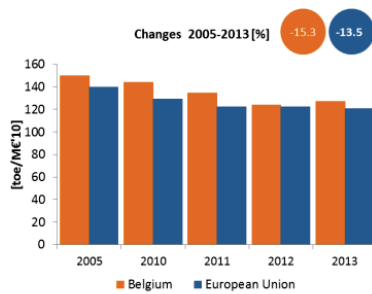
Source: European Commission, based on EUROSTAT and on national energy efficiency targets as declared by the MS under the Energy Efficiency Directive

Belgium’s 2020 energy efficiency target is 43.7 Mtoe expressed in primary energy consumption (32.5 Mtoe expressed in final energy consumption). If the trend in primary energy consumption observed in the period 2005-2013 continues up to 2020, Belgium will be at risk of not meeting its national target. Belgium has to increase its current efforts regarding energy efficiency to further decrease its current primary energy consumption (47.4 in 2013) to reach its ambitious 2020 target.

### ENERGY INTENSITY

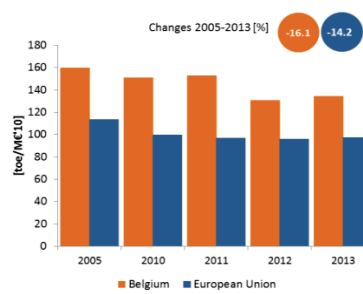
Primary energy intensity in Belgium has decreased from 2005, although it remains slightly above the EU average. A high energy intensity reduction is recorded in the industrial sector, i.e. about 16,1% between 2005 and 2013, significantly more than the average energy intensity reduction in the EU28. The lowering of the industrial sector’s energy intensity is mainly due to a reduction in the energy use of the iron and steel sectors whilst at the same time this sector has known a small increase in its value added. Another factor is the gradual shift from chemistry towards pharmaceuticals, of which the latter is less energy intensive.

Primary energy intensity of the economy



Source: European Commission based on EUROSTAT and European Commission/AMECO

Final energy intensity in industry

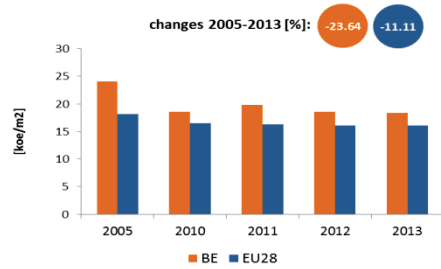


Source: PRIMES model background data and estimations based on EU Commission and EU MS inputs

Final energy intensity in the residential sector in Belgium (as reported at GDP constant prices Euro2010) decreased by more than 20% between 2005 and 2013, but it is still above the EU average. Concerning the energy efficiency of buildings, the policy package currently in place in Belgium comprises regulatory instruments, economic and financial incentives as well as information tools and advice.

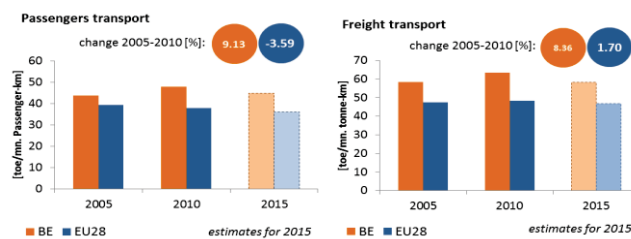
The specific energy intensity of passenger cars remained stable. The specific energy intensity for freight transport increased consistently between 2000-2010 (by 34%), showing a deteriorating trend.

Energy intensity in residential sector



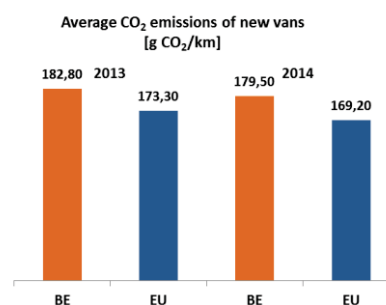
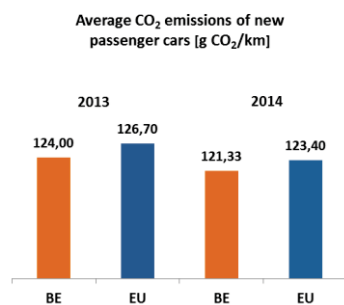
Source: European Commission based on Odyssee database (estimates of floor area at country level)

Energy intensity for passenger cars and freight transport<sup>4</sup>



Source: PRIMES model background data and estimations based on EU Commission and EU MS inputs

EU legislation sets mandatory CO<sub>2</sub> emission reduction standards for new cars and vans. By 2021, the fleet average to be achieved by all new cars is 95 grams of CO<sub>2</sub> per kilometre. For new vans, the fleet average is set at 147 g/km by 2020.

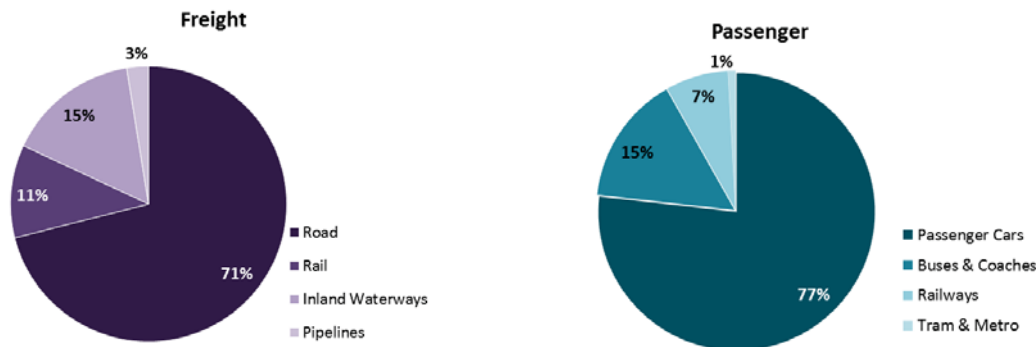


Source: European Environmental Agency. 2014 values are provisional. 2013 EU average refers to EU-27.

<sup>4</sup> Statistics on energy demand for passengers and freight transport are not available and model estimates have been used instead. These issues should be borne in mind when comparing energy intensity in freight or passenger transport between Member States, which should be regarded as merely indicative.

Regarding transport performance, in EU-28 the domestic freight modal shares are 71% by road, 17% by rail, 7% by inland waterways and 5% by pipelines. The respective inland passenger modal shares are 82% by passenger car, 9% by buses and coaches, 7% by railways and 2% by tram and metro. Compared to the European average, Belgium reports a higher use of inland waterways in freight transport, given the existence of navigable rivers and canals in the country.

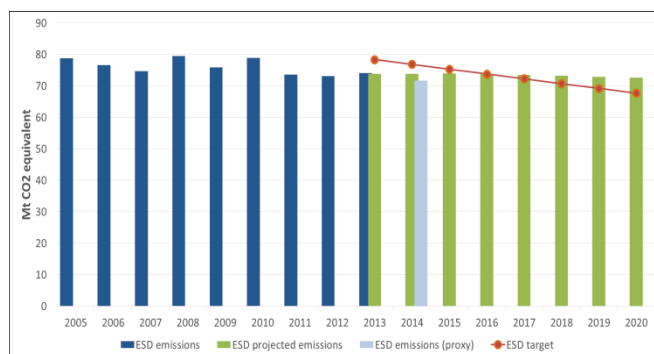
Modal share Belgium



Source: Eurostat and EU transport in figures 2015. Data refers to 2013. Modal shares based on tonne-kilometres for freight sector and passenger-kilometres for passenger sector, freight data based on activity within country territory. Estimates are made when data is missing.

## 4. Decarbonisation of the economy

### NON-ETS GHG EMISSION REDUCTION TARGET 2020 (-15% by 2020 as compared to 2005 in the non-ETS sector)



Source: European Commission based on EEA. Based on preliminary data. ESD (Effort Sharing Decision) emissions are the emissions from sectors not covered by the EU ETS

Emissions in 2014 (based on 2014 approximated data) decreased by 10% with respect to 2005. According to its 2015 projections, non-ETS emissions are expected to be below the relevant targets on average over the 2013-2020 period. However, Belgium is expected to exceed its greenhouse gas emission reduction target in 2020, with a 6% gap as compared to 2005.

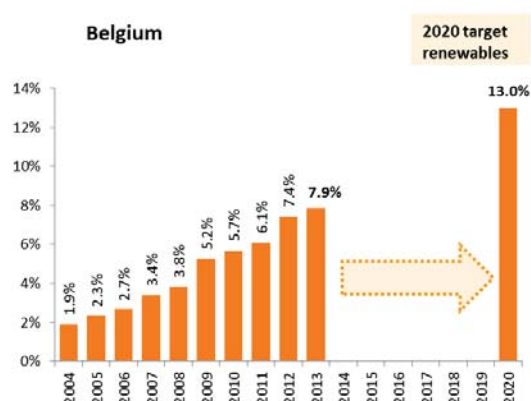
Non-ETS Emissions (vs. 2005)	Projections/proxy	target
Projections with existing measures 2020	-9%	-15%
Proxy 2014	-10%	-3%

The absence of an agreement between the federal and regional authorities on the distribution of the effort needed to reduce emissions hinders more affirmative action. Significant progress has been made in this regard recently, with negotiations reaching the final phases. For example, revenues from the auctioning of ETS allowances cannot be mobilised for climate and energy related purposes in the absence of such an agreement. There is furthermore ample scope to shift the tax burden away from labour towards more growth friendly taxes, including environmental taxes. Flanders is working (2016) on an adjustment of the BIV (a tax for new cars) and road tax in order to green the car park. Belgium's revenues from environmentally related taxes are among the lowest in the EU. In particular, the favourable tax treatment of company cars in personal income taxation entails a considerable budgetary cost and encourages the use of cars, which creates harmful environmental and economic



effects in terms of congestion costs and pollution.

## RENEWABLE ENERGY SHARE TARGET 2020 (13%)



Source: European Commission based on EUROSTAT

Belgium made good progress in renewables development. The renewables share in final energy consumption reached 8 % in 2013, thus Belgium had already exceeded its 2013/14 interim targets as set out in the Renewable Energy Directive. However, additional progress is still needed to reach the 2020 target.

## GREENHOUSE GAS EMISSION INDICATORS

- In Belgium the share of emissions of the industrial sector in 2012 are higher than the EU average, while the share of emissions of the power industry is lower than EU average (higher use of nuclear).
- In 2014 the revenues from the auctioning of ETS allowances amounted to 97.1 millions euro. However, In the absence of an agreement between the federal and regional authorities, these revenues cannot be used to finance climate change mitigation action.

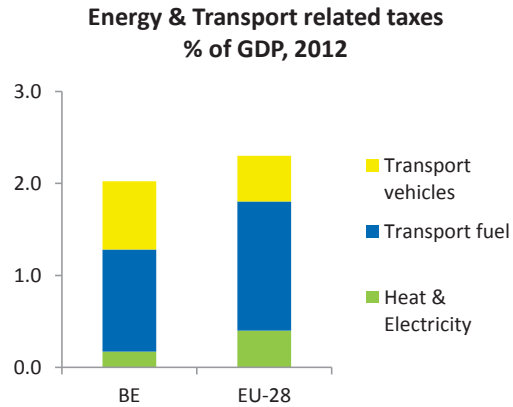
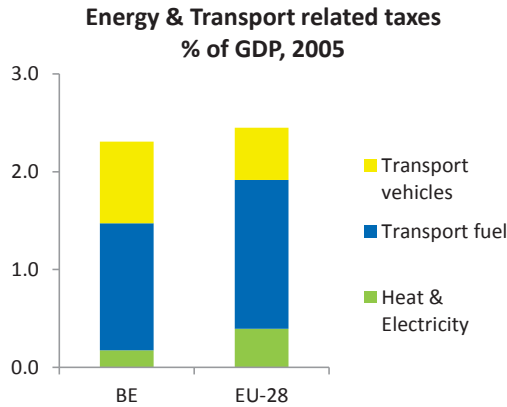
Largest Sectors of GHG Emissions in 2012 (*)	Belgium	EU Average	GHG Emissions	Belgium	EU
Energy/power industry	20%	33%	EU ETS auctioning revenues in 2014 (EUR millions)	97.1	3205
Transport	21%	20%	Share of ETS emissions in 2013	38%	42%
Industry	28%	19%	GHG emissions/capita in 2013 (tCO <sub>2</sub> equivalent)	10.7	8.5
Agriculture (incl. forestry & fishery)	10%	12%	Carbon intensity of economy in 2013 (tCO <sub>2</sub> equivalent/EUR millions)	320	328
Residential & Commercial	20%	13%			
Waste & others	1%	3%			

Source: European Commission based on EEA

(\*)Sectoral breakdown for 2013 data not available.

## ENERGY & TRANSPORT TAXATION

Energy and transport related taxes as a share of GDP amount to 2.0%, which is lower than the EU-average. This is mainly due to comparatively low taxation of transport fuel and heat and electricity, while taxation on transport vehicles is above average. The overall tax burden on energy has fallen between 2005 and 2012, which relates to the taxation of transport fuels and vehicles. Company cars and gasoline cars benefit from a favourable tax treatment in personal income taxation.

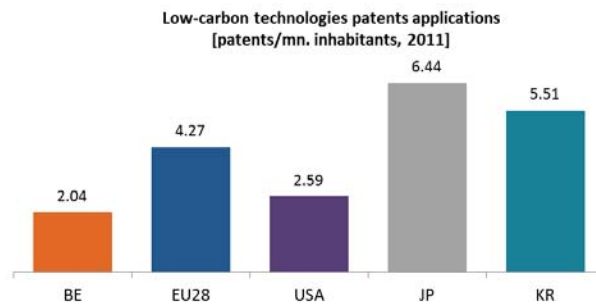
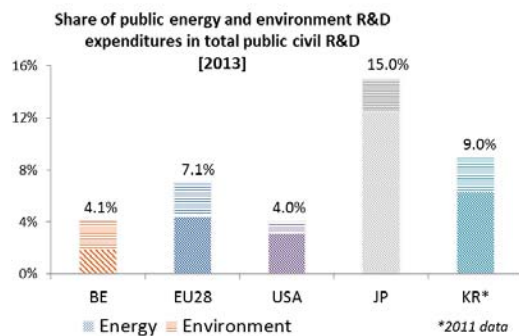


Source: Eurostat

## 5. Research, innovation and competitiveness

### RESEARCH AND INNOVATION

Belgium is below EU average, in line with the US and below Japan and South Korea in terms of public support share allocated to research and innovation in the field of energy and environment. In terms of intensity of low-carbon technologies patents, Belgium is behind the EU average and main worldwide partners.



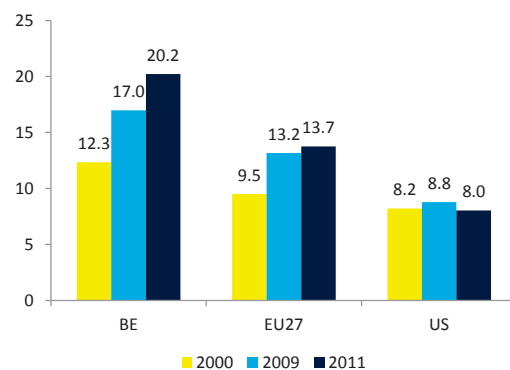
Source: European Commission based on EUROSTAT

### COMPETITIVENESS

The real unit energy costs, that is the amount of money spent on energy sources needed to obtain one unit of value added, has increased in the Belgian manufacturing industry since 2000. It has also remained much higher in Belgium than in the EU27 or in the US. One explaining factor is the relatively high energy intensity<sup>5</sup> of the manufacturing sector.

Regarding energy prices paid by industrial customers, electricity prices are slightly below EU average, at levels similar to OECD average. Regarding gas, prices are among the lowest in the EU and remain lower than major non-EU

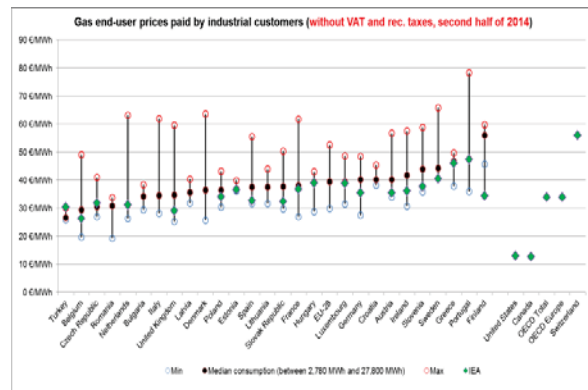
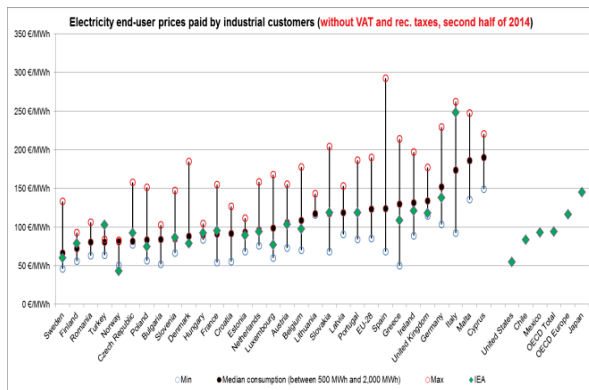
Real unit energy costs (% of value added)



Source: European Commission

<sup>5</sup> The energy intensity presented here is derived from Use Tables of WIOD, see "Energy Economic Developments in Europe SWD(2014)19".

trade partners, except the US and Canada.



Source: European Commission based on EUROSTAT and IEA

## 6. Post-2020 Energy and Climate policy Strategy

### COMPREHENSIVE MEDIUM TO LONG-TERM STRATEGY (post-2020) FOR CLIMATE AND ENERGY

- Belgium has not yet established a strategy for energy and climate covering the post-2020 period. Several studies are being performed by the different Belgian entities to develop such strategy. Current strategies in the different regions focus on achieving the 2020 targets, while also referring to the 2050 long-term objectives. Belgium is also preparing a *Low Carbon Development Strategy*.
- The federal government has published in 2012 a long term policy vision on sustainable development, covering: increased share of renewable energies, decarbonisation of electricity, improved energy efficiency, increased energy security, greater accessibility of energy services, and greenhouse gas emission reduction by 80-95% by 2050 compared to 1990. Moreover, a binding plan has been set out at the federal level which envisages nuclear phase-out by 2025.
- The federal government plans to establish an 'energy pact', underpinned by a common energy vision with the regions, and through consultation with stakeholders. The overarching goal of the pact would be to guarantee the supply of clean and affordable energy for the next 20-25 years.
- Belgium has not yet reached an agreement for an internal burden sharing for the key climate and energy objectives. The negotiations have gained momentum recently, and an agreement seems within reach. A climate responsibility mechanism among regions has started in 2015. The mechanism consists in determining a multiannual reference trajectory for the reduction of greenhouse gas emissions for each region until 2030 for the residential and tertiary building sector (excluding industrial buildings).

### NATIONAL TARGETS, especially for 2030

Objectives, 2030-2050	Targets	Comments
GHG reduction	No (for 2030) Policy vision	<ul style="list-style-type: none"> <li>• The federal <i>Royal Decree on the Long Term Policy Vision on Sustainable Development</i> includes the policy vision objective to reduce Belgian GHG emissions domestically by at least 80 to 95% in 2050 compared to 1990.</li> <li>• The Walloon <i>climate decree</i> establishes objectives of GHG emissions reductions of 80-95% by 2050 compared to 1990.</li> </ul>

	objectives for 2050	<ul style="list-style-type: none"> <li>The Flemish 2013-2020 <i>Climate Policy Plan</i> refers to the EU 2050 objective to reduce emissions by 80% to 95% compared to 1990 (draft <i>Flemish Mobility plan</i>: aim to reduce by 16% by 2030 compared to 2005 in the transport sector).</li> <li>Brussels-Capital Region has decided to reduce the domestic GHG emissions by 30% by 2025 compared to 1990, to accentuate the current trend in order to move towards a reduction of 80 to 95% in 2050</li> </ul>
Renewable energy	No	<ul style="list-style-type: none"> <li>The Walloon region has established green certificate envelopes until 2024 to give investors a clear vision.</li> </ul>
Energy Efficiency / savings	No	

## 7. Regional cooperation

Regional cooperation on infrastructure development is necessary to optimise the identification of regional infrastructure priorities and to coordinate cross-border investments. Belgium is a member of three Regional Groups which have been established under the TEN-E Regulation: Northern Seas Offshore Grid, North South Electricity Interconnections in Western Europe, and North South Gas Interconnections in Western Europe. Belgium is also supporting and participating in the establishment of a thematic group on cross-border carbon dioxide network

Belgium is a member of the Pentalateral Energy Forum, created in 2005 by Energy Ministers from Benelux, Germany and France (and extended to Austria as full member in 2011 and Switzerland as an observer) in order to promote collaboration on cross-border exchange of electricity. It is an inter-governmental initiative, whose mission consists of improving control of the cross-border network and harmonising allocation methods using information exchange between regulators and network managers in participating countries. Belgium has signed the Declaration for Regional Cooperation on Security of Supply in the framework of the Internal Market on 8 June 2015 to improve cooperation among neighbouring countries on national energy policies and actively participates in the German-led round-table with 12 neighbouring countries. Belgium is also a member of the Gas Platform (Benelux, Germany and France) where further market integration and the upcoming Regulation regarding security of supply and the coordinating of the emergency response plans are discussed.

Benelux cooperation in the field of energy mainly takes place through the Pentalateral Energy Forum, the Gas Platform and the North Seas Countries' Offshore Grid Initiative. The Benelux Secretariat General also acts as a secretariat for these 3 initiatives.

## 8. Cohesion policy contribution

The EU Cohesion policy provides investment possibilities to implement energy policy objectives in Belgium which will be complemented by national public and private co-financing, aiming at optimal leverage. It also ensures integrated territorial solutions to challenges by supporting capacity building, technical assistance and territorial cooperation.

*Energy efficiency:* Over 2014-2020, EU Cohesion Policy will invest some EUR 114 million in energy efficiency improvements in public and residential buildings and in enterprises, as well as in high-efficiency cogeneration and district heating in Belgium. A further estimated EUR 65 million will be invested in supporting the move towards an energy-efficient, decarbonised transport sector. These investments are expected to contribute to around 540 households with improved energy

consumption classification and a decrease of around 420 000 kWh per year of decreased primary energy consumption of public buildings.

*Decarbonisation:* Overall, the EU Cohesion Policy investments in Belgium over 2014-2020 are expected to contribute to an estimated annual decrease of GHG of around 11 000 tonnes of CO<sub>2</sub>eq. Over 2014-2020, EU Cohesion Policy will invest some EUR 22 million in renewable energy in Belgium. These investments are expected to contribute to around 10 MW of additional capacity of renewable energy production.

*Research, Innovation and Competitiveness:* Over 2014-2020, EU Cohesion Policy will invest significantly in R&I and in SME competitiveness in Belgium. This will be based on the regional strategies for smart specialisation. For Belgium, the strategies include a focus on sustainable energy and low-carbon economy. At this stage, at least EUR 14 million is foreseen for investments in R&I and adoption of low-carbon technologies in Belgium, but this might increase further in line with the evolving content of the smart specialisation strategy.