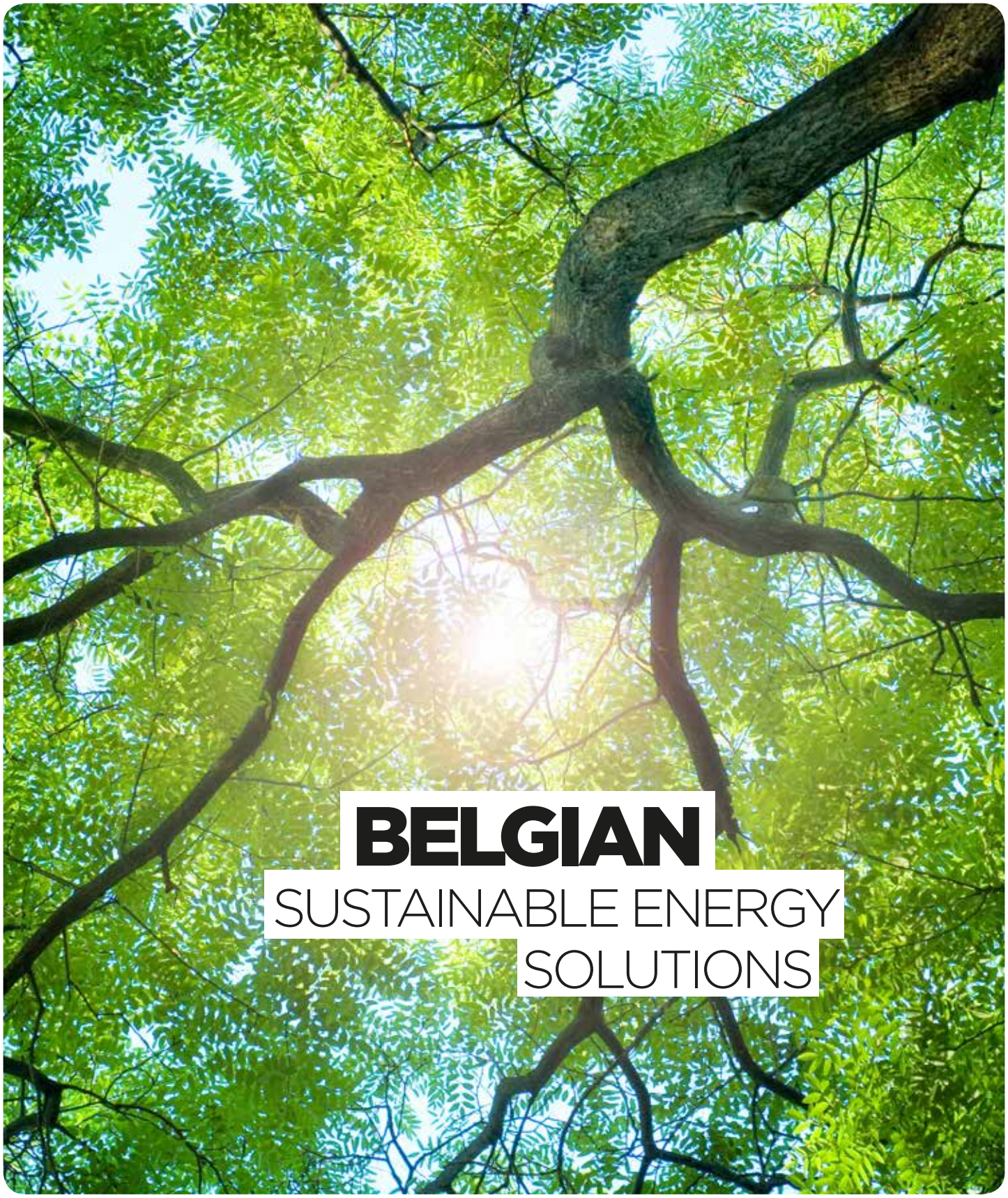

BELGIAN
SUSTAINABLE ENERGY SOLUTIONS

belgian
foreign trade agency

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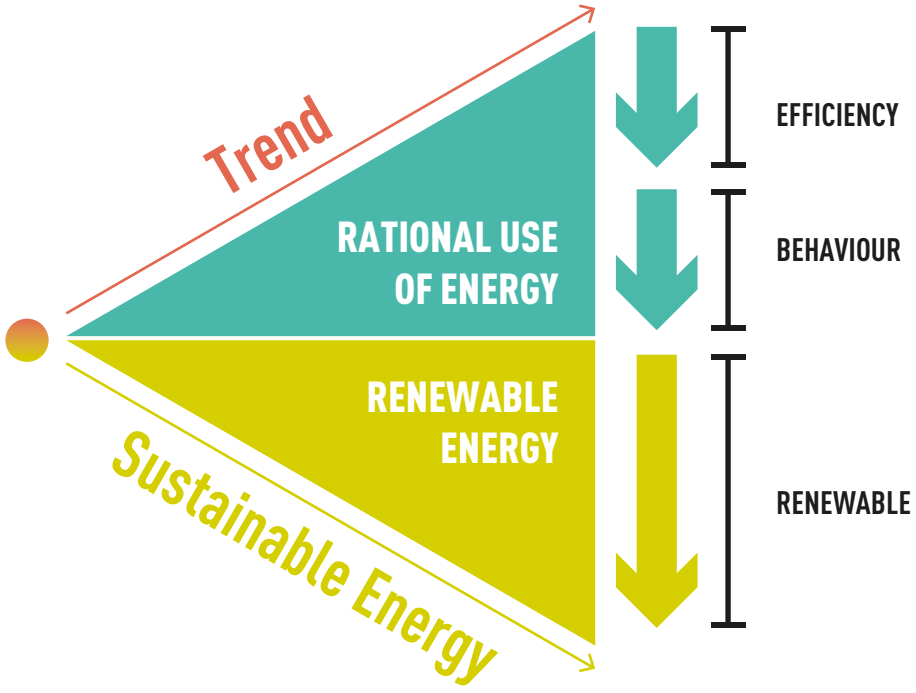


Source: APERe

"Sustainable energy ensures, for all and in the long-term, access to energy services. It implies a balance between an energy supply based on renewable sources and a demand controlled by rational use of energy (sensible behaviour and efficient equipment)".

Source: APERe, SmartGuide 2014

SECTION 1
THE BELGIAN ENERGY MARKET IN FIGURES

According to Eurostat, the energy sector represented 14.1% of Belgian industry (excluding construction) in 2012 and contributed an amount of 2.3% to the total GDP of the country. Its importance is increasing over time.

The energy sector here corresponds to heading D of the NACE classification: "Production and distribution of electricity, gas, steam and conditioned air" (Electricity, gas, steam and hot water supply).

Chart 1

Energy sector share in the Belgian economy

Source: Eurostat (2014)

This first section analyses the Belgian energy market with some key figures.

OVERALL ENERGY EFFICIENCY IS IMPROVING IN BELGIUM.

1.1. ENERGY CONSUMPTION

PRIMARY CONSUMPTION AND FINAL CONSUMPTION

- The primary consumption (or gross internal consumption) of energy of a country expresses the total consumption of energy products used to carry out its activities, including any wastage and non-energy usage.

- The final consumption measures the quantity of energy used in the form of fuel or electricity. It is made available to consumers so that their equipment will work and they will benefit from energy services. The final consumption of energy is established by collecting data from companies that supply energy products.

The relationship between these two notions indicates the total energy efficiency of the country and reflects losses between the energy which is made available and that which is in fact used.

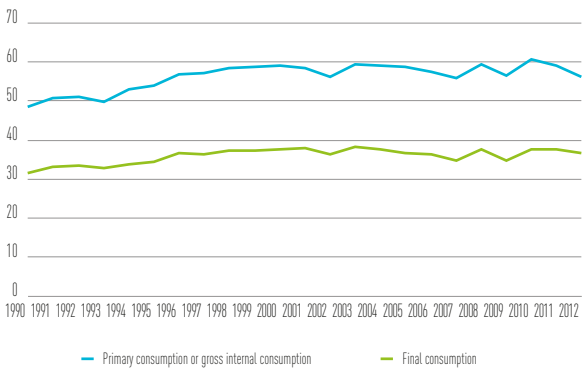
According to the latest available figures, primary energy consumption reached 56.3 Mtoe (million tonnes of oil equivalent) in 2012, that is, 5.1 toe per Belgian. As for final energy consumption it reached 36.6 Mtoe, that is, approximately 3.3 toe per person.

Since 2010, gross internal consumption decreased more than final consumption (7% as against 2.5%), a sign that overall energy efficiency is improving in Belgium. However, the country is generally struggling to reduce its energy consumption, which is decreasing less than in the European Union.

Chart 2

Consumption of primary and final energy, in Mtoe

Source: FPS Economy/Eurostat (2014)

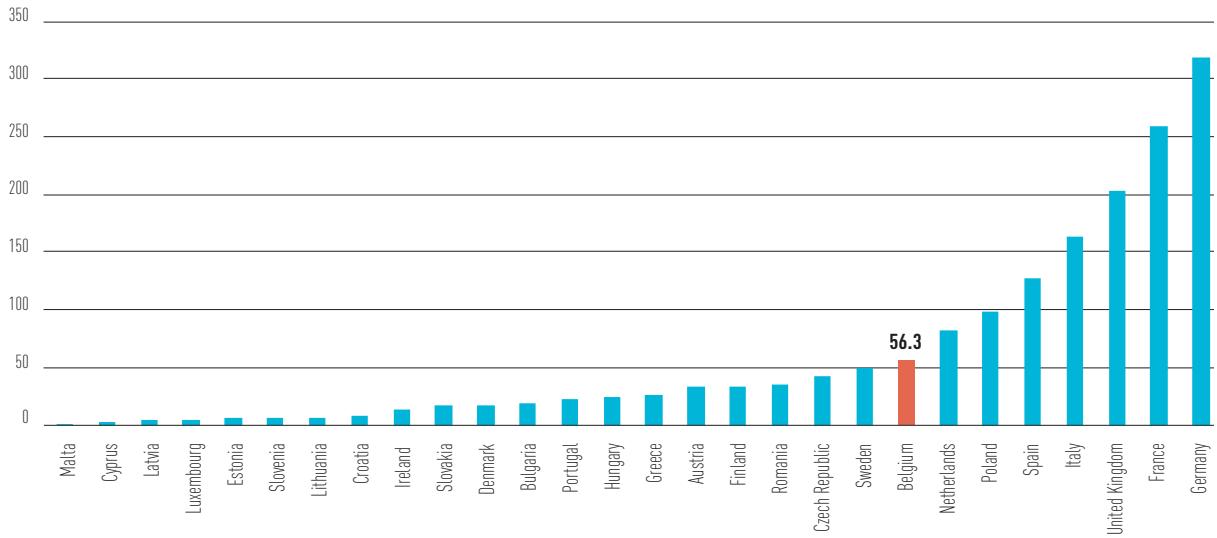


CONSUMPTION IN THE EUROPEAN UNION

Chart 3

Gross inland energy consumption, in Mtoe (2012)

Source: Eurostat (2014)



Belgium is the 8th biggest energy user in the European Union. With 56.3 Mtoe, it consumes 3.3 % of the total European energy use (1,682.9 Mtoe in 2012).

CONSUMPTION BY ENERGY SOURCE

Chart 4

Primary consumption by energy source (2012)

Source: Eurostat (2014)

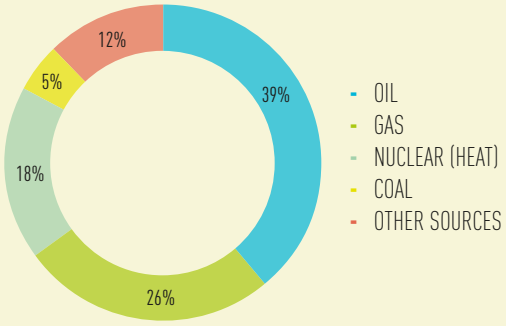
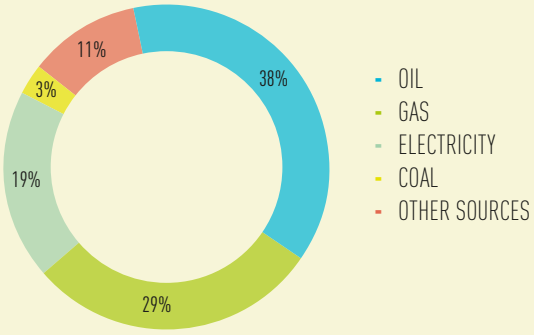


Chart 5

Final consumption by energy source (2012)

Source: Eurostat (2014)

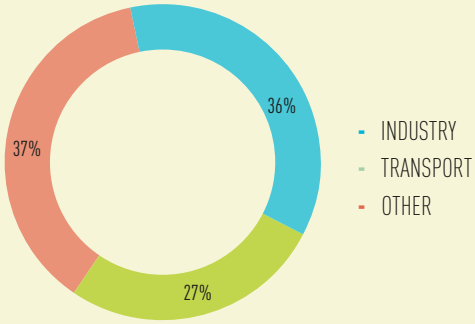


BELGIUM IS THE 8TH BIGGEST ENERGY USER IN THE EUROPEAN UNION.

- Fossil fuel, produced from rocks that originated from living matter, has a dominant place in the Belgian energy mix, in the form of coal, oil and natural gas.
- Nuclear represents 18% of primary energy consumed in Belgium.
- Electricity covers 20% of final energy needs. According to Synergrid figures, total electricity consumption in Belgium rose to 82 TWh in 2013, that is, a slight drop compared to 2012.

CONSUMPTION BY SECTOR

Chart 6
Final consumption by sector (2012)
Source: Eurostat (2014)



- In the industrial field, the most energy-hungry sectors are chemical and petro-chemical (15%), the steel industry (6%) and non-metallic minerals (5%).
- In transport, the most energy-hungry sectors are road (19%), air transport (4%) and rail (1%).
- The "Other" category is made up mainly of households (20%), and businesses and public services (12%).

In electricity, major industries consumed 26.5 TWh compared to 55.5 TWh for clients connected to the network of distribution network managers (GRD), that is, residential, tertiary and SMEs.

BELGIAN ENERGY INTENSITY IS HIGHER THAN THE EUROPEAN AVERAGE.

1.2. ENERGY INTENSITY

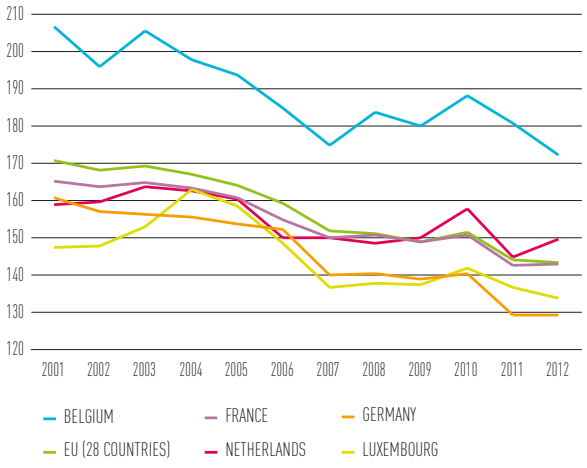
The energy intensity of a country is defined as the relationship between its primary energy consumption and its GDP. It measures the quantity of energy used by the economy to produce one unit of GDP. A change in energy intensity indicates a restructuring of the economy or an alteration in energy efficiency (source: FPS Economy).

With sustainable development in mind, it is essential to dissociate economic growth, on the one hand, from growth in energy consumption on the other, and the latter must be lower.

Belgian energy intensity is higher than the European average. Both Belgian energy intensity and European energy intensity have been exhibiting a downward trend since 2010. That of our country is becoming more pronounced, yet not sufficiently so to catch up with the European average.

The high value of this parameter is partly explained by the quality of the logistic hub in Belgium. As mentioned earlier, almost one third of the energy is in fact accounted for by the transport sector. To a lesser extent, the Netherlands also have a similar situation.

Chart 7
Energy intensity of the economy
(in kg of petroleum equivalent per EUR 1,000)
Source: Eurostat (2014)



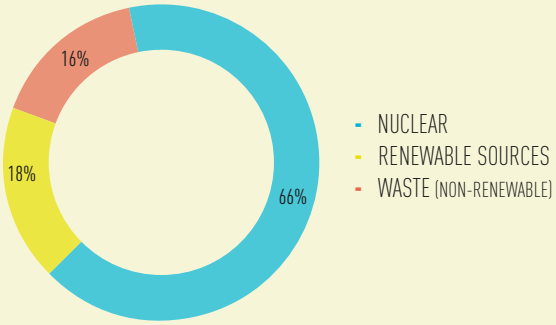
THE HIGH VALUE OF THIS PARAMETER IS PARTLY EXPLAINED BY THE QUALITY OF THE LOGISTIC HUB IN BELGIUM.

1.3. ENERGY PRODUCTION

PRODUCTION OF INTERNAL PRIMARY ENERGY

The production of primary energy in Belgium was 15.7 Mtoe in 2012, that is, approximately one quarter of the total primary energy consumption.

Chart 8
Primary production by energy type in Mtoe (2012)
Source: Eurostat (2014)



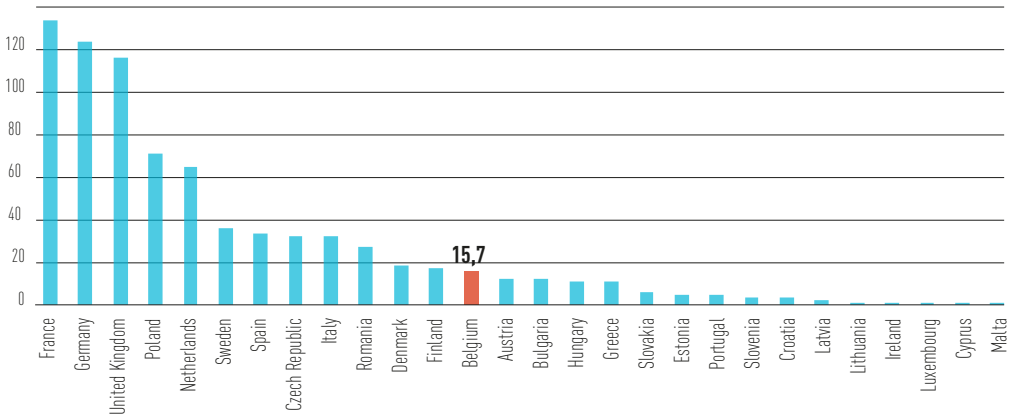
- By statistical convention, the production of nuclear heat is counted as internal energy production, even though this 66% was produced from imported uranium. Strictly speaking, only electricity produced from renewable sources and waste represents primary energy produced in Belgium.
- Renewable sources include biomass as well as water power, geothermal, wind power and solar energy.
- Waste represents 16% of our energy production, whereas at the European level this source is tiny (see below). Belgium is the second biggest producer of energy from waste after Germany. It generates 2.5 Mtoe, which is 18% of the European total.

BELGIUM IS THE SECOND BIGGEST PRODUCER OF ENERGY FROM WASTE.

PRODUCTION IN THE EUROPEAN UNION

The internal production of primary energy rose to 794 million tonnes equivalent of petroleum in the EU 28. While 29% is from nuclear energy, 22% comes from renewable energies. These are followed by solid fuels (21%), gas (17%), crude oil (10%) and, lastly, waste (2%).

Chart 9
Primary production en Mtoe (2012)
Source: Eurostat (2014)



THE PRODUCTION OF PRIMARY ENERGY IN BELGIUM, THAT IS, APPROXIMATELY ONE QUARTER OF THE TOTAL PRIMARY ENERGY CONSUMPTION.

1.4. ENERGY IMPORTATION

Belgium has to source the majority of its primary energy resources from abroad. 60% of its net importation is of oil, compared to 32% for natural gas.

According to the APERe (SmartGuide 2014), in 2012 Belgium imported:

- 4.2 million tonnes of coal
- 170 million barrels of oil
- 16 bcm (billion cubic meter) of natural gas, and
- 500,000 tonnes of uranium minerals

This overall energy dependency is however tempered by the great diversity of supplier countries. In 2012, oil imports were from over 20 different countries. Belgium bought its gas from 4 supplier countries, 3 of which are in Europe.

PRODUCTION OF ELECTRICITY

Electricity is a form of so-called "secondary" energy, as it is not naturally present on earth, but results from the transformation of a primary energy resource by a power station.

Belgian electricity production was 71,600 GWh in 2012. It fell by 0.5% per year on average over the decade of 2002-2012, after having seen sustained growth from 1974, when production more than doubled, growing at an average rate of 2.4% per year.

Since 1950, coal, oil and nuclear have succeeded each other to provide the majority of Belgian production.

The opening of two nuclear power stations with a power of nearly 6,000 MW, at Doel and Tihange between 1974 and 1985 brought nuclear to the forefront: today it provides more than half of Belgian electricity production.

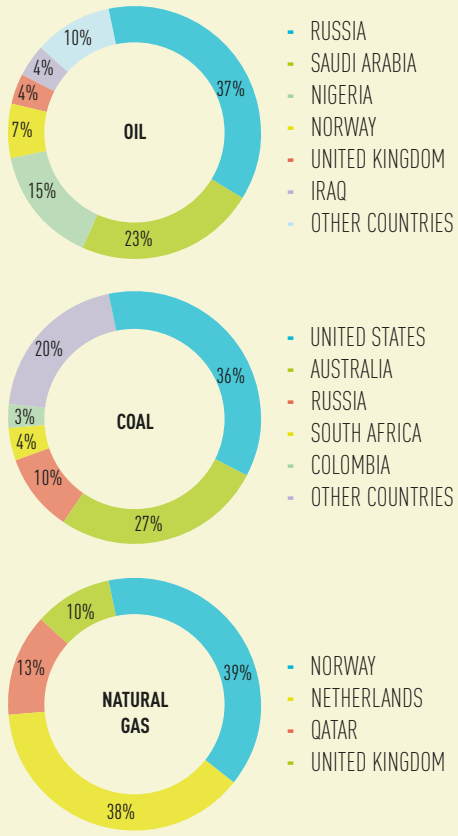
Since the end of the 1990s, the construction of natural gas power stations has accelerated. Gas (30% in 2012) has overtaken coal (7% in 2012) to become the second source of energy for the production of electricity. Natural gas units show great flexibility in the way they function and can compensate for intermittent units when they are not in production at times of peak demand for electricity.

The evolution of recent years highlights an increase in the production of electricity from natural gas, renewable and waste sources, as well as a gradual reduction in the use of coal and liquid fuels.

Chart 10

Origin of energy imports of crude oil, natural gas and coal in 2012

Source: Eurostat (2014)



Electricity represents 1.9% of our energy imports. Belgium is interconnected with France, the Netherlands and Luxembourg with which it exchanges high voltage electricity.

In 2013, according to Synergrid, Belgium had a net import balance of 9.6 TWh (9.9 TWh in 2012), that is, 11.8% of the total electricity consumption of the country. It exported 7.6 TWh and imported 17.2 TWh.

This situation is explained by the temporary closure of the power stations at Doel and Tihange. After they were restarted, imports decreased in the second half of 2012 and there was even a reversal of the trend at the end of the year. In December 2013, Belgium in fact exported more electricity than it imported, for the first time since September 2011, thanks in particular to the strength of the winds that were experienced at the end of 2013.

Chart 11

Electricity imports and exports, in TWh

Source: SmartGuide 2014 /Elia

THIS OVERALL ENERGY DEPENDENCY IS HOWEVER TEMPERED BY THE GREAT DIVERSITY OF SUPPLIER COUNTRIES.

1.5. ENERGY DEPENDENCY

The energy dependency indicator examines the extent to which Belgium can meet its own needs. It is calculated as the relationship between net imports and internal consumption.

Belgium does not have any oil, natural gas, uranium or coal reserves. The degree of dependency for these resources is therefore 100%. The extent to which the level of total energy dependency varies from 100% is entirely dependent on our production from renewable sources and waste.

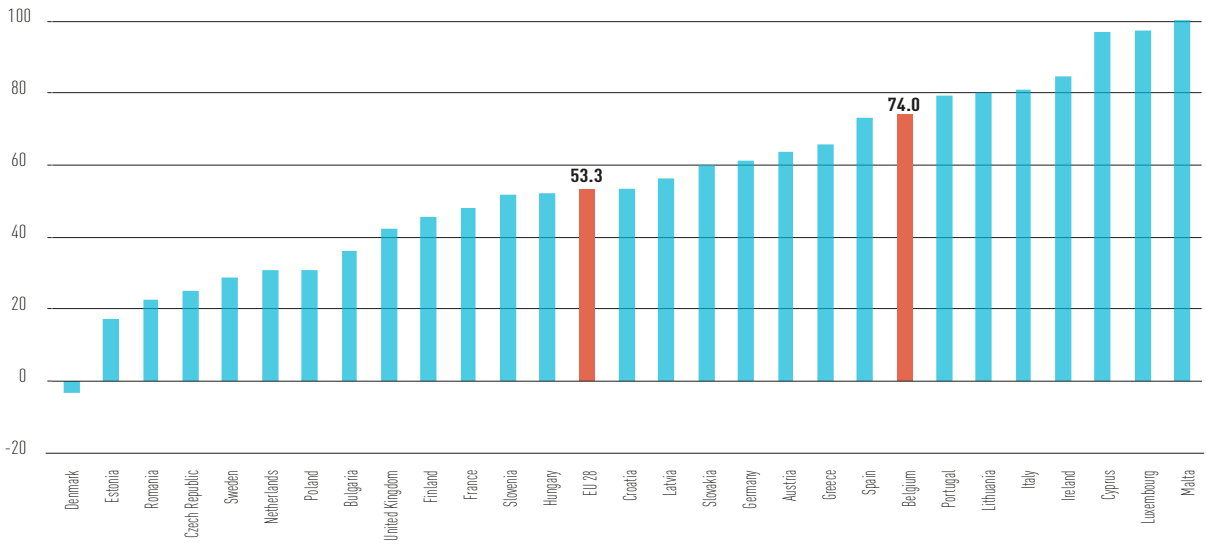
This reached 74.0% for Belgium in 2012. The EU average is 53.3%. Denmark has a negative rating and is the only country that is a net exporter of energy thanks to its natural fossil fuel resources.

THE EXTENT TO WHICH THE LEVEL OF TOTAL ENERGY DEPENDENCY VARIES FROM 100% IS ENTIRELY DEPENDENT ON OUR PRODUCTION FROM RENEWABLE SOURCES AND WASTE.

Chart 12

Energy dependency rate, in % (2012)

Source: Eurostat (2014)



SECTION 2
THE OBJECTIVES

2.1. THE EUROPEAN OBJECTIVES

European Union policy in the field of energy is aimed at achieving four objectives, which are formulated in the Treaty on the Functioning of the European Union:

- To ensure the functioning of the energy market
- To ensure security of energy supply in the Union
- To promote energy efficiency and energy saving and the development of new and renewable energies, and
- To promote the interconnection of energy networks

"The challenges of transforming Europe's energy system remain urgent and daunting: the EU currently imports approx. 55% of its energy – and might reach 70% in the next 20 to 30 years. In 2030 the EU will be importing 84% of its gas, 59% of its coal and 94% of its oil. In these circumstances, it is obvious that the challenge to satisfy our energy needs is huge."

Source: The European Renewable Energy Council, "RE-Thinking 2050: A 100% Renewable Energy Vision for the European Union" (2010)

The European Union consumes approximately 20% of the energy produced in the world. Having few resources (less than 1% of oil reserves, 1.5% of natural gas and 4% of coal), it must import more than half of its energy, a proportion that could rise to 70 -75% by 2030. Today, almost 40% of the coal that is used, more than 60% of the gas and more than 80% of the oil come from other continents.

DIRECTIVE 2009/28/EC ON THE PROMOTION OF THE USE OF ENERGY FROM RENEWABLE SOURCES

Having access to sources of renewable energy is considered an essential element of energy policy, as it helps to reduce dependency on fuel imported from countries outside the EU, to reduce CO_2 emissions to respond to the requirements of the Kyoto Protocol and to separate energy costs from the price of oil.

In 2009 Europe adopted Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

This "climate and energy" package sets a triple objective for 2020:

- To reduce greenhouse gas emissions by 20% compared to 1990 levels
- To reduce primary energy consumption by 20% compared to predicted levels, and
- To bring the proportion of renewable energies in the final energy consumption up to at least 20%

DIRECTIVE 2012/27/EU ON ENERGY EFFICIENCY

Whereas renewable energy and the reduction of greenhouse gases were quickly given a legal framework making the objectives binding, this was not the case for energy efficiency, so energy consumption did not decrease sufficiently. This is why the Commission adopted a new directive at the end of 2012 on energy efficiency. It integrates and reformulates the Directives on energy services (2006/32/EC) and cogeneration (2004/8/EC). It establishes a common framework of measures to promote more efficient energy use at all levels of the chain by 2020 and to prepare the way for further improvements beyond that date.

The overall objective of the EU in matters of energy efficiency is defined as follows: "to achieve energy consumption of no more than 1,474 Mtoe of primary energy and/or 1,078 Mtoe of final energy in 2020". Following the accession of Croatia, this was changed to "1,483 Mtoe of primary energy or 1,086 Mtoe of final energy".

The directive requires that member States calculate a national guideline objective for energy efficiency as well as a series of compulsory measures concerning energy saving (source: FPS Economy):

- An obligation for energy distributors and retail energy sales companies to reduce annual energy sales to final customers by 1.5%, with the possibility for member States to take account of energy savings achieved in the energy transformation, distribution and transmission

sectors, including efficient district heating and cooling infrastructure, to reach this objective (Art. 7)
- Each year, an obligation to renovate 3% of the total floor area of heated and/or cooled buildings owned and occupied by central government (Art. 5)
- A long-term strategy for mobilising investment in the renovation of the national stock of residential and commercial buildings, both public and private (Art. 4)
- Energy audits and energy management systems for large enterprises (Art. 8)
- A comprehensive assessment of the potential for the application of high-efficiency cogeneration and efficient district heating and cooling by 31 December 2015; this must be updated every five years (Art. 14)
- From 30 April 2013, an annual report on the progress achieved by each member State towards national energy efficiency targets

2030 OBJECTIVES

The EU already has a full set of energy and climate policies for the period up to 2020. Forecasts up to 2050 show that current measures are, however, insufficient to effectively contribute to an economy supporting a European energy policy that is sustainable, secure, competitive and with low carbon emissions.

On 22 January 2014, the European Union also set new climate objectives, this time for 2030:

- 40% reduction in greenhouse gases compared to 1990 and
- a proportion of at least 27% renewable in the energy mix.

These ambitions send a strong signal to the market, encouraging private investment in new gas pipelines and electricity networks or in technologies with low carbon emissions. These objectives must be reached if the EU wishes to keep its promise to reduce its greenhouse gas emissions by 80 to 95% by 2050.

2.2. THE BELGIAN OBJECTIVES

Currently, political discussions are still underway in Belgium on fixing a national objective for energy efficiency, in accordance with directive 2012/27/EU.

In the business world, the subject is high up on the list of priorities. Promises are formalised by voluntary agreements signed between Regional governments and major alliances in the sector.

Businesses commit to rationalising their energy consumption ("The best energy is that which you don't use up") and to reducing their emissions of greenhouses gases based on pre-established objectives. In return, they receive from financial and administrative benefits. Originating in 2003, these sector agreements were extended and reinforced ten years later in second generation agreements.

THE BEST ENERGY IS THAT WHICH YOU DON'T USE UP.

Today, the only Belgian objectives that have been calculated arise from directive 2009/28/EC, for which the government published a national action plan for renewable energies in November 2010. The two objectives set are to reach:

- 13% green energy in the final consumption mix by 2020 and
- 21% of energy consumption produced from renewable energy sources.

They have not yet been disseminated amongst the three Regions, which are in charge of the development of renewable energies.

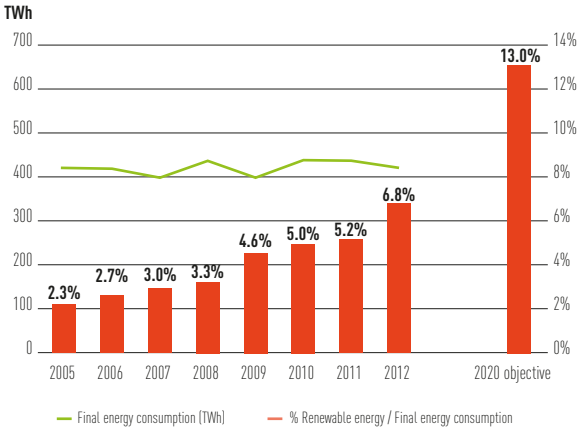
What is the current situation?

13% GREEN ENERGY IN THE FINAL CONSUMPTION MIX BY 2020

Chart 13

Proportion of renewable sources in final gross energy consumption in Belgium

Source: Observatoire belge de l'énergie / APERe (2014)



The latest available data from Eurostat indicate that in 2012 renewal sources provided Belgium with 29 TWh of energy, that is, 6 TWh more than in 2011. In eight years, their share of Belgian final consumption went from 2.3% (in 2005) to 6.8%. The European average is 14.1%. Three countries have already exceeded their 2020 objective: Estonia, Bulgaria and Sweden, even though the latter had set the most ambitious objective (49%).

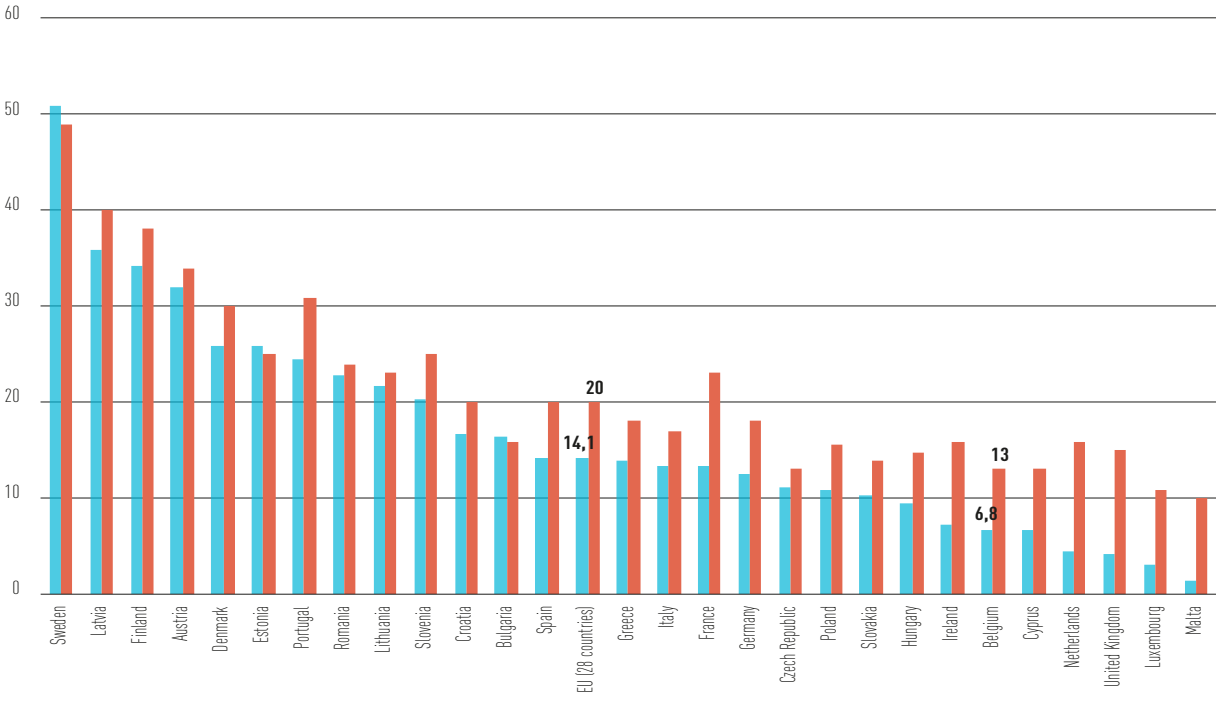
SmartGuide 2014 (APERe) distinguishes three classic energy uses: heat, electricity and transport.

- Heat represents half of renewable final consumption, that is, 14.3 TWh in 2012. This is mainly biomass fuel.
- The most remarkable growth is seen in electricity. It has gone from 2.2 to 10.4 TWh in eight years. In 2012, its contribution to the renewable total is 37%. Production comes from biomass thermal power stations, wind farms and the stock of solar cells.
- Biofuels were introduced into the fuel distribution circuit from 2007. With 3.8 TWh, in 2012, their contribution to renewable is 13%. They represent 4.5% of energy consumed by the transport sector in 2012 according to Eurostat.

Chart 14

Proportion of renewable energies in final gross energy consumption in %

Source: Eurostat (2014)



As far as the proportion of renewable energies in final consumption at regional level is concerned, Wallonia achieved 9.5% in 2012, Flanders 5.5% and Brussels 1.7%. The detailed proportions of the Regions are presented in the renewable energy observatory of the APERe (www.apere.org).

21% OF ENERGY CONSUMPTION PRODUCED FROM RENEWABLE ENERGY SOURCES

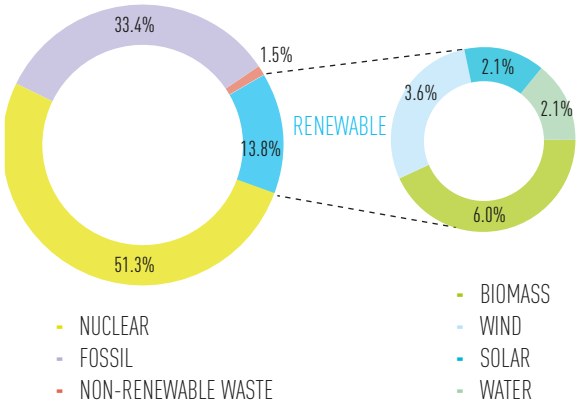
Like its French neighbour, Belgium now produces the majority of its electricity from nuclear energy (40.3 TWh in 2012, that is, 51.4%) and fossil fuels (26.2 TWh, that is, 33.4%).

The renewable energy production industry has attracted the attention of the authorities and increased considerably in recent years. Representing only 2.8% of electricity production in 2002, green electricity reached 13.8% ten years later, according to figures in the 2013 report by Observ'ER, the European observer of renewable energies. 10.4 TWh of green electricity. The APERe calculates this quantity to be 12 TWh for 2013 and the Federal Planning Bureau envisages 50 TW by 2050.

Chart 15

Production of electricity in 2012 by sector

Source: Observ'ER (2013)



BELGIUM IS THE 3RD COUNTRY IN EUROPE IN TERMS OF INSTALLED CAPACITY.

The sector by sector analysis is presented below.

BIOMASS

Biomass is spearheading green energy in Belgium. Its production has tripled in eight years according to the APERe. Belgium is a pioneer of the conversion of coal-fired power stations to co-combustion or 100% biomass combustion, a procedure which involves replacing the coal with pellets of wood.

WIND

The wind power sector has experienced a meteoric boom, with average growth of 47.5% per year between 2002 and 2012. One can differentiate between the onshore and offshore sectors. The country has vast potential thanks to favourable wind conditions and stable, fairly shallow sea beds. Belgium is the 3rd country in Europe in terms of installed capacity (380 MW). In 2012, The European Investment Bank (EIB) agreed a loan for the Northwind offshore wind farm. The government is also intending to build an artificial island in the North Sea to store the electricity.

SOLAR

The success of the sector began in 2009 thanks to generous subsidies granted by the Regions. Support mechanisms (systems of green certificates) were however reviewed in 2013, which could limit the future expansion of the photovoltaic market. In 2011, the year it reached its height, almost 1 GW was installed.

WATER

Hydroelectric production remains generally stable with differences according to variations in the annual water regime. Belgium has limited potential in water power. Most of it is produced by pumped-storage, which enables the surplus production of nuclear electricity to be stored.

The latest available figures from the APERe calculate the installed power of electricity production from renewable sources in Belgium at the end of 2013 to be 5.9 GW of which:

- 51% from photovoltaic solar panels (3 GW),
- 29% from wind (1.7 GW),
- 15% from biomass (0.9 GW),
- 3% from incineration (0.15 GW) and
- 2% from real-time hydroelectricity (0.11 GW).

TOWARDS 2050: THE 100% RENEWABLE SCENARIO

A consortium of three research departments, the Bureau fédéral du Plan, the ICEDD (Institut de conseil et d'études en développement durable / Institute of advice and research in sustainable development) and the VITO (Vlaamse instelling voor technologish onderzoek) analysed, in a report published in April 2013, the feasibility of moving by 2050 from our current energy system to a system based 100% on renewable energies. This project was undertaken on behalf of the three Regions and the FPS Energy. The conclusion was that such a prospect would be technically achievable, but would involve society making a major choice, especially in view of its cost, estimated to be an investment of 300 to 400 billion EUR. Such a system based on renewable energies would, however, present three major advantages:

- decreased dependency on imports of fossil (oil, natural gas and coal), which would reduce the external energy bill (60 to 150 billion EUR) and lessen implicit political and economic risks,
- a decrease in greenhouse gases,
- the creation of many jobs, from 21,000 to 65,000 full-time posts according to the scenarios envisaged.

RENEWABLE ENERGY COUNTRY ATTRACTIVENESS INDEX

A quarterly RECAI (Renewable Energy Country Attractiveness Index) report by Ernst & Young dating from February 2014 places Belgium in 13th position in a world list classifying countries in terms of renewable energy. It is the 5th country in the European Union, behind Germany (3rd), the United Kingdom (5th), France (9th) and Italy (11th).

The RECAI index gives a score to 40 countries for national markets in sustainable energy, infrastructure for this and the applicability of individual technologies.

It is in technology for offshore wind power that Belgium achieves its best score, coming 5th world-wide after the United Kingdom, Germany, China and the United States.

For more information, see www.ey.com/recai.

BELGIUM NOW PRODUCES THE MAJORITY OF ITS ELECTRICITY FROM NUCLEAR ENERGY AND FOSSIL FUELS.

SECTION 3
BELGIUM'S ADVANTAGES

3.1. BELGIUM, A FOCUS ON RESEARCH

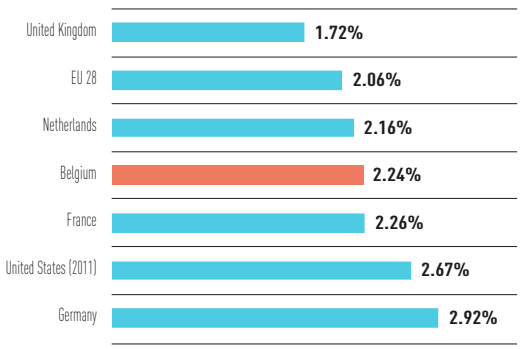
2.24% OF GDP: A RECORD

Belgium devoted 2.24% of its GDP to R&D in 2012, a "level that has not been equalled in our country for a generation", according to Philippe Courard, Secretary of State for Scientific Policy. The figure has grown over a decade and is set to reach 3% by 2020. 8.4 billion from the budget has been set aside for research, of which 68% spent by private enterprise.

"Apart from the quality of the researchers and scientific infrastructures of our country, this improvement is largely due to the effect of fiscal measures that favour research."

Ward Ziarko, statistical director at Belspo, federal scientific policy (Le Soir, December 2013).

Chart 16
Expenditure on R&D as % of GDP in 2012
Source: Le Soir/Belspo (2013)



Brain.be (Belgian Research Action through Interdisciplinary Networks) is the new framework programme for federal research, approved by the Council of Ministers in October 2012. It aims to meet the scientific knowledge needs of the federal departments and support the potential of Federal Scientific Establishments (ESF).

THE BELGIAN ALLIANCE: BERA - BELGIAN ENERGY RESEARCH ALLIANCE

http://www.bera-set.be/

In Belgium, apart from nuclear power, research in energy matters is done in partnership with the European community or region. There is no real national structure.

The BERA offers an alternative and therefore constitutes "a sort of virtual research centre capable of expressing itself at national and international level for everything concerning research in a given energy-related field" (Renouvelle magazine).

On 24 August 2011, 14 Belgian research organisations signed the official creation of the BERA (Belgian Energy Research Alliance) as a legal entity. One of the main ambitions of the BERA is to participate at strategic level in European energy research and more specifically in the EERA (European Energy Research Alliance). Its organisation is modelled on the latter, its European twin, which originated a year earlier, and now brings together no fewer than 2,700 active researchers in more than 150 research centres and universities in Europe.

The mission of the BERA is: "promoting collaborative research and innovation in the field of energy in Belgium. To this end, the association stimulates its members to collaborate and to take part in international energy research programmes, especially in the context of the EERA (European Energy Research Alliance). The goal for the association is to take on a strategic role in the priority setting of the European Energy Research Agenda. The association will pool expertise in different domains related to energy. Moreover, it will stimulate intensive interaction between industry, government and research."

AMONGST ITS MEMBERS THERE ARE 20 RESEARCH CENTRES AND UNIVERSITIES:

"It is essential that research activities in this field are coordinated at European level in a spirit of collaboration. Within this context, interactions with Industry and the political world are very important."

Dr. Gerrit Jan Schaeffer, President of the BERA (2011)

3.2. BELGIUM, A LOGISTICAL ADVANTAGE

According to figures from the World Bank published in March 2014, Belgium is the 3rd most attractive country in the world for logistics, after Germany and the Netherlands.

The logistical performance indicator of the World Bank looks at the attractiveness of the commercial logistics of 160 countries. Every two years it evaluates the productivity of the customs services, the quality of the infrastructure and the speed of delivery. Belgium shows continuous progress, as it was ranked 12th in 2007, 9th in 2010, 7th in 2012 and rose to 3rd place in 2014.

By way of example in the field of energy, the Belgian natural gas network forms part of the best interconnected infrastructures in Europe according to Fluxys. With its 18 interconnection points with neighbouring entities, it is open to gas flows from the United Kingdom, Norway, the Netherlands, Russia and the producer countries of LNG (liquefied natural gas). Belgium acts as a hub for the transport of natural gas to the Netherlands, Germany, Luxembourg, France, the United Kingdom and the countries of southern Europe.

BELGIUM IS THE 3RD MOST ATTRACTIVE COUNTRY IN THE WORLD FOR LOGISTICS.

3.3. BELGIUM, A FAVOURABLE TAX REGIME

Belgium has a tax and legal environment that is among the most attractive for foreign investors. The country was given a score of 82.3% in the classification of the quality of regulations in the Gwlobal Innovation Index 2013. Extremely effective legislation means it takes just four days to get a business up and running in Belgium, which is quicker than in any other European Union member state. All these benefits contribute to Belgium's openness to investors.

The primary tax legislation is the 1992 Tax Code. Changes are often implemented by Royal Decree and can be checked on the website Fisconetplus of the Federal Public Service Finance.

A competitive effective tax rate

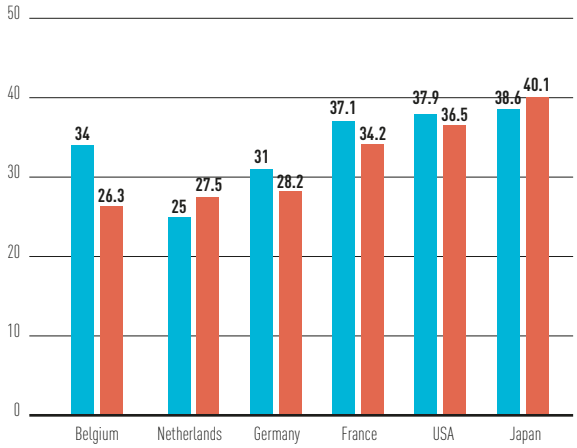
All companies in Belgium are subject to corporate tax. The nominal rate is 33.99%. For SMEs with a taxable income of no more than €322,500, the tax rate drops to 24.98% on profits up to €25,000, 31.93% on profits between €25,000 and €90,000 and 35.54% on profits between €90,000 and €322,500.

Belgium has a unique tax regime. Numerous deductions are available (see below). Thanks to these measures, the amount of tax due decreases significantly and the tax rate becomes much lower than in many other countries. Clearly, Belgium is highly competitive when it comes to taxes.

Chart 17

Nominal Corporate Tax Rate (NTCR) and Effective Corporate Tax Rate (ETCR)

Source: ZEW, Centre for European Economic Research, Manheim Effect Tax levels – Final Report 2012



BELGIUM IS HIGHLY COMPETITIVE WHEN IT COMES TO TAXES.

Notional interest deduction

The notional interest deduction is a unique and innovative tax benefit in Belgium. This is a tax deduction for risk capital, which reduces the unequal treatment of debt financing and equity financing. It is automatically applied to all companies (resident and non-resident). The system allows companies to deduct a purely notional interest charge from their taxable base. The notional interest corresponds to an interest calculation on the basis of each company's adjusted equity capital. The notional interest rate for the tax year 2015 is 2.63%. It is increased by an additional 0.5% to 3.13% for SMEs.

THE NOTIONAL INTEREST DEDUCTION IS A UNIQUE AND INNOVATIVE TAX BENEFIT IN BELGIUM.

Advance tax rulings

Belgian tax law recognises the growing need for legal certainty among existing and potential investors. With this in mind, companies are offered an advance ruling on tax matters. This ruling has legal force, and is based on the competent tax authority's decision on how tax law applies to a given situation or transaction. This gives potential investors the legal certainty they need on the tax implications of their projects. The tax authorities are bound by these rulings for up to five years. The Federal Public Service Finances has a special unit to deal with tax queries from foreign investors.

Exemption from withholding tax on dividends

Another widely acclaimed provision is the exemption from withholding tax on dividends distributed by Belgian companies to non-residents. This exemption applies to all countries with which Belgium has concluded a tax treaty, including the United States.

By registering their holding company in Belgium when investing in Europe, corporate investors from treaty countries can repatriate unlimited European profits without paying withholding tax on dividends and profits.

TAX DEDUCTION ON PATENT INCOME GIVES BELGIUM A VERY LOW EFFECTIVE TAX BURDEN.

ADDITIONAL BENEFITS FOR R&D

Tax deduction on patent income

Tax deduction on patent income is a federal measure that results in an exemption of 80% on income from certain patents. This gives Belgium a very low effective tax burden on patent income (no more than 6.8%). The measure applies to all Belgian companies subject to corporate tax and to all Belgian branches of foreign companies that are subject to corporate tax.

Eligible patents for large companies:

- Patents self-developed in a Belgian or foreign "R&D" centre
- Patents acquired (by purchase or licensing) provided they are developed further in a Belgian or foreign R&D centre

Eligible patents for SMEs:

- Patents registered on their name (no need for a "R&D" centre)

Eligible income:

- License payments: milestone payments, upfront fees and so on
- A percentage of the turnover of patented products and services

Reduced employment charges for researchers

To ease the payroll costs of researchers, significant relief is given to employers in the form of an 80% exemption from the payroll tax (salary withholding tax).

The Belgian tax system also provides attractive conditions for foreign executives and researchers temporarily assigned to Belgium.

These attractive conditions include tax-free expatriation allowances (up to € 29,750 per year), tax-free reimbursement of establishment costs, school fees and business travel.

Higher investment incentives and tax credits for research and development

Companies that invest in the research and development of new environmentally friendly products and advanced technologies benefit from increased investment incentives or a tax credit corresponding to the tax saving linked to the investment deduction (14.5% of the investment value for the fiscal year 2014), according to each company's choice. The selected benefits can be applied immediately or over the depreciation period of the investment. In that case the deduction amounts come to 21.5%.

For more information, see
www.minfin.be or business.belgium.be.

3.4. BELGIUM, AN ATTRACTIVE DESTINATION FOR FDI

According to Ernst & Young's "2014 Barometer of Belgian Attractiveness", Belgium achieves excellent scores in terms of foreign direct investment (FDI). The number of investment projects has increased by 4%, from 169 in 2012 to 175 in 2013. Belgium remains the 5th most attractive place in Europe for FDI.

A perception study highlights some assets Belgium enjoys as an investment destination: market size, stable and predictable business environment, diversity and quality of labor force, high purchasing power, infrastructure, tax incentives for R&D investments, research and innovation capacity. According to Ernst & Young, "American companies have always invested in Belgium, given its logistical situation, its highly qualified workforce and its tax regime".

BELGIUM REMAINS THE 5TH MOST ATTRACTIVE PLACE IN EUROPE FOR FDI.

SECTION 4
STAKEHOLDERS IN THE ENERGY SECTOR

4.1. ORGANISATION OF THE BELGIAN MARKET

A MATTER SHARED BETWEEN THE FEDERAL AND THE REGIONAL AUTHORITIES

The Belgian federal authority is competent in matters where technical and economic indivisibility require equal treatment at national level. In the field of energy, it is responsible for:

- Electricity and natural gas tariffs
- The high voltage network over 70 kilovolts (kV)
- Storage and transport of natural gas
- Electricity production (apart from electricity produced from renewable sources and cogeneration)
- Nuclear energy

The 3 Regions are responsible for:

- Distribution of electricity in networks of voltage lower than or equal to 70 kilovolts (kV)
- Distribution of natural gas
- Production of electricity from renewable sources and cogeneration
- Rational energy use
- The obligations of public service.

A LIBERALISED NETWORK

The liberalisation of the energy market has applied from 2003 in Flanders and from 2007 in Wallonia and Brussels. The previous situation involved a limited number of Stakeholders and was hard to reconcile with the objectives of free competition advocated by the European Commission. The Commission then required the market to be liberalised, with the aim of promoting a lowering of prices for the benefit of the consumer.

PRODUCTION

Whereas Electrabel was the only producer of electricity before 2007, today numerous operators coexist. In 2013, Electrabel was still number one, with approximately 50% of market share. The figure still reached 72% in 2010 and more than 80% before 2007.
As well as the classic power stations (coal, natural gas and oil) and nuclear power stations, production from renewable energy sources is increasingly present on the market. Green energy is generated by photovoltaic panels, hydroelectric power stations, wind power or biomass power stations. Cogeneration installations are also becoming more numerous.
The FEBEG brings together the principal producers of electricity.

TRANSPORT

The transport of energy still functions under a monopolistic regime in Belgium. Two companies are responsible for the maintenance and development of high-voltage lines (> 30,000 volts) and high pressure pipelines: Elia for electricity and Fluxys for gas. These two GRTs (transport network managers) are responsible for transporting energy from or to abroad and for transporting it from producer power stations and gas terminals to major industrial users and distribution networks.

DISTRIBUTION

The GRDs (distribution network managers) are responsible for low and medium voltage lines and low and medium pressure pipelines. They are administered by mixed inter-municipalities (linked to Electrabel) or pure inter-municipalities (100% public funds). In Wallonia, mixed inter-municipalities are grouped together to form ORES (gas and electricity network operators).
The GRDs are responsible for bringing gas and electricity to the final consumer: SMEs and households. They read the meters and solve any fluctuations on the network.

DELIVERY

Suppliers sell energy, manage contracts and send out bills.
A liberalised market allows for the presence of several competing suppliers. Since 1 January 2007, the final user has a free choice of supplier, according to his location and consumer habits. Lists of authorised suppliers for electricity and natural gas are available on regulators' websites.
Suppliers buy their energy directly from electricity producers or importers of natural gas. They can also get supplies through the Belpex electricity exchange or its equivalent for natural gas, the Hub de Zeebrugge.
Like the producers, suppliers are grouped together in Belgium in the FEBEG federation.

REGULATION

The functioning of the liberalised gas and electricity market is monitored by the regulators. These are institutions with legal competence to regulate certain aspects of the market such as price control, competition, public service obligations and market mechanisms.

They fulfil an advisory role to public authorities, as well as an information-giving role to consumers. The Belgian energy sector has a federal regulator and three regional regulators, each with a specific competence.

The CREG (Commission de Régulation de l'Electricité et du Gaz = Commission for the Regulation of Electricity and Gas) controls the management of transport networks and fixes tariffs for the use of distribution networks.

The VREG (Vlaamse Reguleringsinstantie voor de Elektriciteits- en Gasmarkt), the CWaPE (Commission Wallonne pour l'Energie = Walloon Energy Commission) and BRUGEL (commission for the regulation of energy in the Brussels-Capital Region or "Bruxelles Gaz Electricité") are responsible for the correct functioning of regional energy markets. They supervise the distribution network, except for tariffs which are the responsibility of the CREG.

vreg
Vlaamse Reguleringsinstantie voor de Elektriciteits- en Gasmarkt

CREG

CWaPE

brugel
THE BRUSSELS REGION ENERGY REGULATOR

4.2. FEDERATIONS

SUPPORT AND ADVICE FOR FOREIGN INVESTORS

FIT, AWEX and Brussels Invest & Export each promote their own region: Flanders, Wallonia and Brussels. They have three main tasks, which they each fulfil in their own way:

1. Supporting exporters from the region
2. Informing, prospecting for and advising potential foreign investors
3. Promoting the region abroad

Besides tax incentives Belgian regions also grant companies significant financial incentives for recruitment, training, R&D, investment, consultancy and environmental protection.

FLANDERS INVESTMENT & TRADE

FIT provides professional advice to all foreign companies that want to start or expand operations in Flanders. To make things even easier, FIT has a network of more than 90 offices abroad that can give advice. Their presence on the ground means that they know better than anyone what foreign investors need. More generally, FIT helps companies wishing to invest in Flanders to find the best location, get the right information and make the right contacts. It also offers assistance in applying for grants and other aid, and in understanding Flemish and national regulations etc.

www.flanderstrade.com
www.investinflanders.com

invest-export.brussels

Brussels Invest & Export promotes foreign trade, assists Brussels companies, and attracts foreign investors to Brussels. It has built a database to help foreign investors with a specific project in mind to find business partners in Brussels. Brussels Export has a foreign network of some 88 economic and trade attachés. Some of these are shared with FIT or AWEX.

Invest in Brussels specifically offers companies the opportunity to test Brussels as a business location for three months, providing them with free office space, secretarial services, facilities and professional advice from experts on suitable locations, support facilities, sector-related issues and legislation at Brussels and federal level, among other things.

www.brusselsinvestexport.be
www.investinbrussels.com

Wallonia.be
EXPORT
INVESTMENT

The Wallonia Export and Investment Agency (AWEX) offers general expertise in international economic relations. This expertise extends from promoting Walloon exports through to seeking foreign investment (helping find suitable sites, explaining support measures and tax rules, and providing information on recruitment and staff training, project funding etc.). AWEX also provides a range of services to all Walloon businesses aiming to operate internationally. However it is also the partner of choice for all buyers, importers and foreign prospects that are looking for a partner in Wallonia and wanting to find products, equipment, technologies or services in the area.

Outside of Belgium, AWEX is able to count on an international network of 109 financial and business attachés covering more than 120 markets and some 20 international organisations. These representatives are the key contact locally for any business or public body wanting to develop a business or partnership relationship with Wallonia or simply wanting to find out about the economic potential of such a relationship.

At the Walloon level, AWEX's main partners are in particular the centres of competitiveness and the technological clusters.

www.awex.be
www.investinwallonia.be

BELGIAN FEDERATIONS OF INDUSTRY

The Renewable Energy club is powered by Agoria, the Belgian federation of the technology industry.

In this club, both local and international companies who are active in renewable energy, in the broadest sense possible, have formed a unique network that paves the way for the Belgian renewable energy sector on the international scene.

The members are all Belgian-based companies who supply technology products and services to the global Renewable Energy market.

They are active in the following domains: engineering, contracting, heavy equipment and structural steel construction, software and advanced automation, inspection and certification, logistics, machinery...

www.renewableenergyclub.be

Since 1991, the Association pour la Promotion des Energies Renouvelables (= Association for the Promotion of Renewable Energies) (APERe asbl) has been providing advisory and educational activities to ease the development of renewable energies in Belgium.

With its members and partners, the APERe constitutes an academic, associative and social economic network in the field of sustainable energy.

www.apere.org

EDORA is the federation of companies that are active in renewable energy. It acts so that renewable energy can contribute in an efficient way to energy self-sufficiency and economic prosperity.

EDORA unites a renewable sector oriented towards a triple objective: socio-economic, energy and environmental. It argues for ambitious, balanced, integrated and quality renewable development.

www.edora.org

The FEBEG represents electricity producers, traders and suppliers of electricity and gas, as well as laboratories in the electricity and gas sector.

The FEBEG has 23 active members which together employ more than 8,000 people and have a turnover approaching EUR 23 billion.

www.febeg.be

REGIONAL PLAYERS

Bruxelles Environnement is the public name of the Institut Bruxellois pour la Gestion de l'Environnement (Brussels Institute for the Management of the Environment) or IBGE, the administration of the environment and of energy in the Brussels-Capital Region.

Its aims are to study, monitor and manage air, water, ground, waste, noise, nature (green spaces and biodiversity) etc. and also to issue environmental permits, to monitor compliance with these permits, to develop and support educational projects on the environment in Brussels schools, to participate in meetings and negotiations at Belgian and international levels, etc. Finally, Bruxelles Environnement has developed its activities in the field of eco-construction and links between health and environment.

It was Bruxelles-Environnement that originated the "Ecodynamic Enterprise" labels, which give official recognition in the Brussels-Capital Region of good practice in environmental management that has been implemented by business. It rewards their environmental entrepreneurship and their progress in this sphere, especially in waste management, rational energy use, workforce mobility, etc.

www.bruxellesenvironnement.be

The Flanders Cleantech Association (FCA) is a cleantech cluster that groups Flemish cleantech companies and supporting actors. The purpose of FCA is to create a strong reputation for Flemish cleantech power abroad in influential networks, new markets, potential investors and projects involving cleantech innovations.

For this FCA maintains worldwide contacts with other cleantech clusters and associations, in order to discover and encourage opportunities for cross-border collaboration between Flemish and foreign cleantech companies.

www.fca.be

The Flemish Energy Agency (VEA) implements sustainable energy policy and its most important tasks include stimulating the rational use of energy and the promotion of environmentally-friendly energy production. In that regard, we focus on policy formulation and implementation, increasing levels of support amongst the public, the enforcement of regulations and policy evaluation.

VEA is an independent agency of the Environment, Nature and Energy Department of the Government of Flanders. Thanks to its outstanding team spirit, its ability to work in an efficient way and to respond in a dynamic and flexible manner, VEA provides an expert and client-oriented service.

www.energiesparen.be

GreenWin is an innovation cluster dedicated to the green technologies. GreenWin brings together in a single network 160 members: companies (about 70% of SMEs), universities, research centers and training organizations. GreenWin aims at strengthening Wallonia's industrial facilities, identifying skills and innovative ideas. GreenWin supports ambitious business-led projects that reduce the environmental impact of industry and housing by improving the life cycle of products: process intensification, use of renewable materials, reduction of waste production and reuse or recycling of wastes. GreenWin's projects portfolio relies when possible on the principles of circular economy. GreenWin' scope covers green chemistry, green materials and building, and environmental management (waste & recycling management, water and air treatment, soil remediation). In relation to energy, GreenWin's members develop projects in:

- Materials and systems for chemical and thermal energy storage
- Energy performance of buildings including retrofitting of residential or office buildings
- Valorisation of wastes and sludges

www.greenwin.be

The TWEED cluster (Technologie Wallonne Energie - Environnement et Développement durable / Walloon Energy Technology - Environment and Sustainable Development) is a Walloon organisation which brings together more than a hundred businesses that are active in the sustainable energy sector.

It endeavours to play a major role in business development in the sectors of "sustainable energy". We understand sustainable energy to mean:

- Renewable energy sources
- The implementation of processes enabling energy saving, energy efficiency and the reduction of greenhouse gases including CO2, in industry and in the tertiary sector
- The development of products with similar aims, intended for industry, the tertiary sector or private individuals ("green" products and services).

http://clusters.wallonie.be/tweed-fr/

CAP2020 is a cluster in the Walloon Region the objective of which is:

- To reach a level of energy performance for Buildings of 20% more efficient than the legal requirement for 15% of buildings (in new buildings or renovated buildings) by 2020
- To develop energy production from renewable sources, with a view to sustainable development
- To improve energy performance over the whole building stock of the Walloon Region by 1% per year by 2020.

CAP2020 brings together the 3 types of key workers in construction: contractors, architects and the producers of construction materials. The cluster now has more than 170 members.

In July 2013, CAP 2020 received a bronze label award for Cluster Management Excellence, a project co-financed by the European Commission which developed quality indicators with the aim of improving the efficiency of the management of European clusters. After analysing 36 indicators - including organisation, management, finance, interaction and cluster services, the specialists awarded CAP 2020 the bronze label, internationally recognised and demonstrating its efforts to achieve excellence.

For more information, please see:
www.clusterexcellence.eu.

http://clusters.wallonie.be/cap2020-fr/

CLUSTER ECO CONSTRUCTION

The Walloon cluster Eco-Construction is a dynamic network bringing together a variety of experts:

- Architects and specialists in infrared thermal imaging and electro-magnetic pollution
- Construction companies (public and private buildings, homes, etc.) and businesses that are active in the ecological renovation sector
- Manufacturers and suppliers of ecological materials (insulation, paint, coatings, etc.) and bio-electricians
- Consultants and businesses that are active in the renewable energy field: heat pump, wind power, solar water heating, wood-burning stove, water power, etc.
- The originators of projects and specialist entrepreneurs in the areas of water purification by lagooning, the installation of natural swimming pools, the collection and treatment of rainwater
- Organisatiwons for information and promotion (wood, natural materials, renewable energy, etc.)
- Research centres, higher education institutes and universities

http://clusters.wallonie.be/ecoconstruction-fr/

ecobuild.brussels by impulse.brussels

As the network of the professional actors in the Brussels sustainable construction sector, the Cluster Ecobuild aims to strengthen the regional competitive position of the eco-construction sector.

The Cluster increases the capacity of innovation and development through a range of services developed by and for its members, in collaboration with the main public actors in the entrepreneurship domain.

The Cluster helps its members to stay at the excellence of this fast-growing domain, and aims to answer the increasing demand-side by promoting its members, all approved professional.

The Cluster fosters collaboration and synergies between businesses, support organizations and research center. One of its major role is to gather all of the actors in the sustainable construction value chain: architects, engineers, contractors, developers, material sellers and developers, craftsmen ... The Cluster also plays a supporting role in the implementation of major joint projects: construction, renovation, R & D ...

http://cluster-ecobuild.com/en

WHAT IS ECO-CONSTRUCTION?

Eco-construction means building while respecting our environment and that of future generations and also offering maximum comfort to the occupants.

This approach therefore implies:

- Identifying the environmental impacts of projects throughout their life cycle
- Favouring planning and architectural choices that use natural light, integrate bio-climatic principles, and guarantee good thermal insulation of the whole of the outer casing of the building, while respecting the legislation in force
- Using "ecological" or "natural" materials that require little energy in their manufacture, transport and implementation
- Using construction techniques that require manpower rather than large amounts of energy,
- Favouring the use of renewable energy and/or fuel that causes little pollution
- Favouring the choice of "intelligent" equipment: "low-energy" lighting and household appliances, efficient heating of the correct capacity

For more information, please see: www.ecoconstruction.be

4.3 COMPANIES

The second chapter of this publication includes 12 success stories of businesses from the 3 Regions. The third draws up a non-exhaustive list of Belgian companies active in the energy sector. Each chapter is organised in four categories:

- Production
- Electric solutions
- Thermal solutions
- Energy efficiency

PRODUCTION

The production of energy is a major issue in Belgium, where the domestic supply does not cover the demand. Our country is one of the most energy dependent in Europe. The development of new technologies, especially in renewable energy, would produce a sustainable solution, particularly in light of the phasing out of nuclear power in 2015. The Federal Planning Bureau calculates the investment needed by producers to install supplementary electricity production capacity by 2030, that is, 22 GW according to predictions, at EUR 27 billion.

Our first category revisits the energy producers. Further down the chain, heat, electricity and fuel are the three principal forms in which energy is used by the final consumers. The first two will be the focus of our attention in the following categories.

ELECTRIC SOLUTIONS

Belgian companies that are developing electric solutions will be dealt with in a second category. The increasing contribution of renewable energies to the energy mix is focussing the minds of experts on distribution and transport networks and the storage of electricity. There is no lack of challenges in this area.

Production records from wind farms and solar panels regularly demonstrate the performance of these new sources and their ability to compensate for losses from the network. They also highlight the fragility of the Belgian electricity network, originally designed for a centralised production system, based on energy reserves.

"This evolution is leading the energy market to abandon an approach hitherto focussed on a product - the kWh- to now focus on a notion of time-related service with the objective of optimising energy management at all points of the chain, in all places and at all times."

Source: APERe, SmartGuide 2013

The final user acquires a new role, that of "prosumer" (or "consum'actor"), who has his own contribution to make to electric performance. This will no longer be solely down to the experts in the sector, but individual initiative will have to play its part, which implies an effort to adapt on the part of those who design solutions, such as monitoring tools (smart metering), for example.

Storage consists of creating a reversible cycle of electricity in another form of storable energy (real storage) or moving consumption when electricity is available (virtual storage). Storing electricity then putting it back according to demand requires innovative solutions.

"The electricity networks of tomorrow will permit intelligent management of electricity flow according to the availability of the energy resource and the steering of the demand. They will combine electricity transfer and information transfer between the different stakeholders. The Belgian "smart grid", interconnected with the European "smart grid", will have to take advantage of technology (existing or to be developed), societal and behavioural changes, news ways of collaborating and organising and new skills or professions."

(source: APERe, SmartGuide 2013)

THERMAL SOLUTIONS

In a third category, solutions in terms of heat will be discussed. In Belgium, the production of heat from renewable energy has up to now primarily concerned the initiative of individuals. Solutions on a larger scale, however, offer attractive prospects for heating thanks to biomass fuels and cogeneration (the simultaneous production of heat and electricity).

The Belgian cogeneration stock is growing: almost 600 installations were listed in 2012 with a total capacity of nearly 2,700 MWe of electric power and more than 3,600 MWth of thermal power (source: APERe).

The heat network is also appearing as a key infrastructure in the thermal future of Belgium. It can redistribute some of the energy lost in transformation or final use to heat buildings or for domestic hot water and thus save primary resources.

ENERGY EFFICIENCY

The final category highlights energy efficiency, which the European Union defines as the relationship between the results, service, goods or energy that is obtained, on the one hand, and the effort that goes into obtaining this result, on the other. Improving energy efficiency means increasing this proportion following technical, behavioural and economic changes.

This notion will be illustrated by some success stories from Belgian companies working in this fourth area. Among the various responses put forward, we may mention eco-construction, green roofs or energy management software.

"Energy efficiency is a way of managing and restraining the growth in energy consumption. Something is more energy efficient if it delivers more services for the same energy input, or the same services for less energy input.

Energy efficiency offers a powerful and cost-effective tool for achieving a sustainable energy future. Improvements in energy efficiency can reduce the need for investment in energy infrastructure, cut energy bills, improve health, increase competitiveness and improve consumer welfare. Environmental benefits can also be achieved by the reduction of greenhouse gas emissions and local air pollution. Energy security – the uninterrupted availability of energy sources at an affordable price – can also benefit from improved energy efficiency by decreasing reliance on imported fossil fuels."

Source: International Energy Agency (IEA)

SUCCESS STORIES
IN BELGIUM

CATEGORY PRODUCTION

COMPANY **C-POWER**

INTERVIEW WITH

Jaak Rutten
CEO

- A world first: The first major offshore project involving **6.15 MW** turbines
- Annual energy production: **1,050 GWh**
- An annual reduction in CO_2 emissions of 415,000 tonnes, when compared to the newest Gas Turbines
- Estimated turnover in 2014: **EUR 145 billion to EUR 150 billion**
- Investment cost: **EUR 1.3 billion**
- Amount of employment created during the construction phase: **3,000 man years**
- Jobs created during the operational phase: approximately **100 full-time positions**
- Winner of the Thomson Reuters Project Finance International Award for the three stages of the project

A PIONEER

C-Power is the first fully completed offshore wind farm in the Belgian concession area of the North Sea, which is located 30 kilometres from the coast, off the port of Zeebrugge. It has been built on the Thornton Bank, a sandbank located at depths of between 12 and 30 metres. The project has been established in an area that has been designated by the Federal Government for the construction of wind farms. C-Power has obtained a concession to operate the wind farm for the next 20 years.

The construction project undertaken by C-Power was completed in three stages, commencing in 2007 with the installation of 6 wind turbines, each with a capacity of 5 MW. Those wind turbines were then linked together. The electricity generated is carried to the ELIA high voltage station on the coast, via an undersea cable. This initial phase, which was a pilot project was completed and entered service in 2009. Work to construct phases two and three then got underway in 2011. That period also saw the construction of a second undersea cable, a transformer station and 48 wind turbines of 6.15 MW each. *"This was a world first. Nowhere in the world have such massive wind turbines been constructed at sea"*, explained C-Power's CEO Jaak Rutten. C-Power has been operating at full capacity since September 2013.

A SUSTAINABLE UNDERTAKING

Together, the 54 wind turbines have a capacity of 325 MW. On an annual basis, the quantity of power generated will be 1050 GWh, which is sufficient to provide electricity for 300,000 families or *"10 times' the domestic power consumption in the town of Ostend."*

By generating that quantity of electricity, C-Power is making a substantial contribution towards the environmental targets of Belgium and of Europe as a whole. The park generates 7% of the production that Belgium will require in order to achieve the target of obtaining 13% of its energy requirements from renewable sources by 2020. Each year, it will also reduce the country's CO_2 emissions by a total of 415,000 tonnes.

ADDED VALUE FOR THE ECONOMY

As the first of its type, the project has played a significant role in developing the know-how that resides amongst the Belgian companies involved. *"This project has generated a great deal of knowledge and expertise. And if we look at the entire supply chain involved in the construction of a wind farm of this type, all of the technology and know-how, other than the turbines and the cables, comes from Belgium. That experience will certainly be useful when it comes to exporting the technology and knowledge accrued by the Belgian companies involved in the project."*

Nowhere in the world have such massive wind turbines been constructed at sea.

The project itself will also be of benefit to the economic development of Belgium as a whole and of the Ostend region in particular. Around 3000 full-time workers were involved during the construction phase. The operation and maintenance of the wind farm are estimated to create jobs for around one hundred people for the next twenty years. C-Power also is also playing an important part in the process to expand the Port of Ostend, *"where a cluster of companies involved in offshore wind is now emerging."*

INTERNATIONAL COOPERATION

The total investment cost of C-Power was EUR 1.3 billion, 70% of which was financed by a consortium of Belgian and foreign banks. The remaining 30% of the investment needed came from shareholders.

The shareholder structure consists of seven complementary companies, four of which are based in Belgium (DEME, SOCOFE, Z-Kracht and SRIW) and three outside Belgium (RWE, EDF, Marguerite Fund). These account for 55% and 45% of the shares respectively. The combination of industrial, financial and public shareholders is what constitutes the strength of this project.

The most important structural partners are: the German company Senvion (formerly known as REpower), the consortium THV Seawind (a joint venture between Dredging International and Fabricom), the Swedish company ABB and the Port of Ostend.

The decision to establish the project in Belgium was an obvious one, in view of the fact that the original initiators were Belgian companies. A suitable location was then established during consultations with the Government. *"The Federal Government fulfilled the role of a pioneer in this regard, as it was the first government in Europe to designate a number of zones for the construction of wind farms. That is the reason why Belgium is now ranked in third position in the world, after the United Kingdom and Denmark, with regard to its capacity to generate electricity using offshore wind."*

THE FUTURE

Jaak Rutten, the CEO of C-Power, has identified two challenges that will exist in the future. On the one hand and with reference to C-Power, he is quick to point out how important it is for the wind farm to be utilised in the most effective way. This would involve *"ensuring that the wind farm is always operational, whenever enough wind is available."* To give you an idea, *"if, on any day, we had full capacity, but the wind farm wasn't operational, we would incur a loss of EUR 1 million."* On the other hand, with regard to the sector, he highlighted the necessity to ensure that the sector becomes less dependent on subsidies in due course.

That experience will certainly be useful when it comes to exporting the technology and knowledge accrued by the Belgian companies involved in the project.

Belgium is now ranked in third position in the world, after the United Kingdom and Denmark, with regard to its capacity to generate electricity using offshore wind.

MILESTONES

- 2003: Concession obtained on Thornton Bank
- 2007: Construction of phase 1 started
- 2009: Six 5MW wind turbines operational
- 2010: Financial closure - phases 2 & 3
- 2013: 48 turbines of 6.15 MW operational, bringing the total capacity to 325 MW


©Tom D'Haenens

CATEGORY PRODUCTION

COMPANY **CMI ENERGY**

INTERVIEW WITH

Jean-Luc Maurange
Executive President

Laurence Petit
Communication Manager

- Member of the **CMI Group**
- Based in Seraing (Belgium), Willebroek (Belgium) and Erie (Pennsylvania, USA)
- Around **300 employees**
- Turnover: **EUR 250 to 300 million in 2013**
- Market share: **12%** in 2013
- Export share: **100%**
- 4 patents registered in 2013

WALLOON INDUSTRIAL HERITAGE

Established by John Cockerill in 1817 in a former castle of the Prince-Bishops of Liège, the CMI Group (Cockerill Maintenance & Ingénierie) now embodies the heritage of this industrial genius who created a remarkable economic boom in Wallonia.

Recording a turnover of EUR 800 million and employing almost 4,000 people worldwide, the Group comprises four major sectors: CMI Defence, CMI Industry, CMI Services and, finally of particular interest for this study, CMI Energy. *"This versatility facilitates synergy between industry and energy,"* explains Laurence Petit. *"We design industrial boilers for the petrochemical industry, for example. While our colleagues at CMI Industry propose energy efficiency solutions to their industrial clients."*

THE HEAT RECOVERY STEAM GENERATOR, OUR CORE BUSINESS

CMI Energy's speciality is forged around the design, supply and installation of heat recovery steam generators (HRSG). These enable steam released from the gas turbine outlet to be reintroduced into the energy production cycle. This mechanism, known as the combined cycle, noticeably improves the efficiency of gas-fired power plants.

CMI Energy is the global leader in this niche sector and holds a market share around 10% or above. The vast majority of its orders are for export with the unit having maintained a strong business relationship with the Middle East, in particular, for several decades. CMI's standing abroad is naturally guaranteed by its local offices and its references, but also by its participation in numerous economic missions and technical conferences.

CMI Energy secures the engineering of all its own equipment and designs critical parts for intellectual property purposes. *"We manage projects in their entirety, from design to equipment start-up. We also rely on several meticulously-chosen partners to cover India, China and South Korea, among others,"* explains Jean-Luc Maurange.

CMI Energy also offers expertise and technical assistance in addition to the revamping and modernisation of all types of boilers - even those produced by competitors.

SOLAR ENERGY, A BUDDING BUSINESS

CMI Energy is also developing its expertise in CSP (Concentrated Solar Power) technology used in solar thermal power plants. The major component designed by CMI Energy for these installations is called the receiver which is installed at the top of a tower to capture the solar radiation reflected by a field of mirrors.

CMI equips solar thermal power plants of increasing power ratings, in particular in partnership with the Spanish company Abengoa. A CMI solar receiver is currently being assembled

This versatility facilitates synergy between industry and energy.

The relatively high cost of Belgian labour is offset by its efficiency.

and once finished will equip the South African Khi Solar One plant. Several other projects on an even larger scale are in progress in several locations around the world.

"Investments in solar technology are costly, but energy performance is high," according to Jean-Luc Maurange. *"CMI Energy offers innovative solutions in this field."* Its research has led to the registration of a patent for the original design of a CMI superheater.

One of the challenges of solar power is continuous energy production, which means having to resort to storage technology known as "molten salt". The produced energy is stored and then released when there is no sun. CMI is currently working on several projects of this kind. *"We are proposing yet another innovative technology in this field,"* adds Jean-Luc Maurange.

ATTACHMENT TO BELGIAN EFFICIENCY

Established in Seraing for nearly two centuries, CMI has no intention of moving. *"We have a strong desire to keep the business here and thus to remain a local company",* says Laurence Petit. The Group has succeeded in unearthing and attracting high-quality talented people in the Liège region, lured by the challenges and high technical nature of its products. It can therefore ensure that it is able to continue offering its clients tailor-made solutions, thereby consolidating its excellent reputation. "The relatively high cost of Belgian labour is offset by its efficiency. CMI will never jeopardise the quality of its products for a matter of cost," says Jean-Luc Maurange.

In addition, he highlights other advantages of the Belgian market, such as its opportunities and its flexibility in terms of project funding, particularly thanks to the Delcredere|Ducroire.

BIOMASS AND GEOTHERMAL ENERGY IN AN EXPLORATORY PHASE

In addition to solar energy, the CMI Group is also active on the wind energy market. Indeed CMI Services, whose purpose is to provide services to industry, maintains on and offshore wind turbines: in particular on the Belgian coast at Thornton Bank.

Today, CMI is fuelling its ambition to exploit renewable energy even further and is setting its sights on biomass and geothermal energy. In regard to biomass, it has just taken a stake in the capital of Xylowatt, a Belgian company specialising in biomass gasification solutions. With geothermal energy, it is staying true to its general philosophy by continuing to study various scenarios with the aim of coming up with a truly innovative technology.

Jean-Luc Maurange insists: *"CMI would rather be an expert in one cutting-edge technology that a non-specialised company in several niche sectors. Being flavour of the month in all areas is a utopian ideal. CMI would prefer to provide a new value, rather than the same solutions as its competitors".*

CMI would prefer to provide a new value, rather than the same solutions as its competitors.

CATEGORY PRODUCTION

COMPANY **XANT**

INTERVIEW WITH

Alexander Van Heuverswyn
Sales and Marketing Manager

- Belgian's only **mid-size wind turbine** manufacturer
- Founded on 9/12/**2011**
- Registered office in **Brussels**
- Operational base in Harelbeke
- Joint venture between 3 complementary partners: Vyncke, 3E and Jo Versavel
- **80%** export
- **6** employees
- Investment in R&D: **EUR 1,500,000** to **EUR 2,000,000**

XANT
WIND POWER MADE EASY

XANT is a young Brussels start-up which was founded on 9 December 2011. The company was created as a spin-off from renewable energy consulting firm 3E and, in its current form, is a joint venture between three complementary partners: 3E (40%), VYNCKE (40%) and business angel Jo VERSAVEL (20%).

XANT specializes in developing and delivering robust and cost-efficient mid-size wind turbines, for both off-grid and grid-tied applications. Alexander Van Heuverswyn describes the core business as "applied wind technology", or engaging in R&D activities with the aim of commercializing and operating state-of-the-art, mid-size wind turbines.

"The value added lies primarily in reducing the customer's energy bill in a cost-efficient manner, by generating (some of) their energy requirements in a green and, therefore, sustainable way, specifically using wind."

The wind turbine manufacturer's international outlook is reflected in its business plan, which sets out a 3-phase approach to export markets. In the initial phase, it is focusing its efforts on the UK, Ireland, Italy, Greece, Belgium and the Netherlands. In the second phase, it will be expanding its sales to South America and Africa. Finally, in the third phase, it will look to the rest of the world. Xant is aiming for an export share of 80%.

The company employs 6 people and has 3 task forces: Business Development & Marketing, R&D & Technology, and Project Coordination.

The value added lies primarily in reducing the customer's energy bill in a cost-efficient manner.

XANT 21

At the start of 2014, the company launched the "XANT21", a class Ia, 100 kWe downwind wind turbine. "21" refers to the rotor diameter of the blades.

The turbine is the result of 3 years of research by consulting firm 3E. The concept and design were developed by 4 engineers (Xavier Vanwijck, Alex De Broe, Nathalie Picot and Thomas Duffey), whose initials produced the name XANT. The first design was approved by Germanischer Lloyd in 2011 and the first prototype was erected in February 2014 on the site of the company's operational base at VYNCKE in Harelbeke.

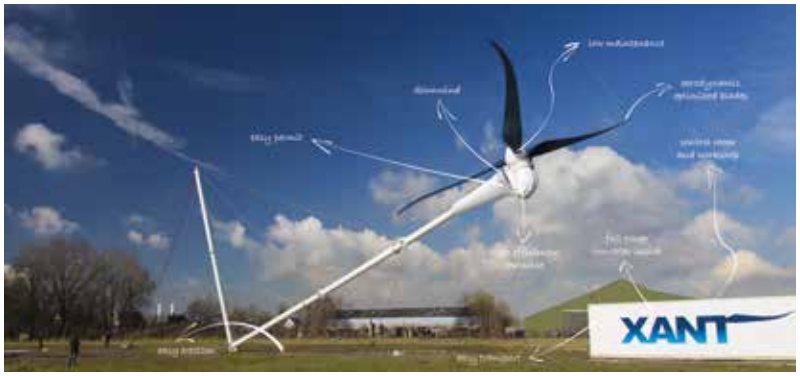
Innoviris (the Brussels Institute for Research and Innovation) provided financial support for the development of the turbine. The support of the Brussels-Capital Region was vital in transforming the idea into a working prototype capable of being marketed.

The turbine was developed according to the JEEP principle (Just Enough Essential Parts) and, despite the JEEP

philosophy behind it, can be classified as a category la wind turbine, the most stringent category. The innovative concept behind the XANT21 can best be described by its 5 "Unique Selling Points" (USP), which are: aeroelectrically-tailored blades (no pitch motors and directly coupled to generator), self yaw system (no motor to position the nacelle), direct-drive generator (no gearbox), guyed tower erected with gin pole (no crane required), easy transport in 40-feet high cube ISO container (even the most remote regions can be served). These USPs place the emphasis on both the configuration itself and the logistical advantages of the turbine. *"It is the combination of these 5 USPs which makes the turbine unique and competitive"*, says Van Heuverswyn.

THE FUTURE

Xant plans to develop and commercialize new turbines in the future. Following its successful start-up phase, the company is also aiming to move as swiftly as possible from phase 1 to phase 2, which means exporting to more markets.



It is the combination of these 5 USPs which makes the turbine unique and competitive.

CATEGORY ELECTRIC SOLUTIONS

COMPANY **3E**

INTERVIEW WITH

Geert Palmers
CEO

Antoon Soete
Manager Policy & Strategy

- Founded in: **1999**
- Number of employees: **105**
- Head office in **Brussels**
- Annual turnover: **EUR 12.5 million** in 2013
- Patented software platform: **SynaptiQ**
- Awards: Industrie Award 2013 for Flidar-case, Top Employer Belgium 2012, Mercurius Award 2012 from Brussels Export, Trends Gazelle Award 2010 for fast-growing business in the SME category.

3E is an independent software and consulting firm which specialises in renewable energy and energy efficiency. The company was founded 15 years ago by 3 young engineers, as a spin-off from nanotechnology-related research centre IMEC.

3E focuses on 4 areas: Wind, Solar PV, Grids & Power Markets and Buildings & Sites. Today, the company operates worldwide, with a head office in Brussels and branch offices in Beijing, Istanbul, Milan, Toulouse, London and Cape Town. Its customers belong to the public and private sector and include the likes of banks, project developers, material producers, NGOs and governments.

The name 3E refers both to the 3 Engineers who started up the company and to "Energy, Economy and Ecology", three dimensions of sustainability which are central to the company's development.

SUSTAINABLE ENERGY: CONSULTANCY AND SOFTWARE

One of the defining moments in 3E's expansion was its evolution three years ago from a pure consultancy firm to a technology company. Geert Palmers explains that *"the energy market of the future will be dominated by renewable energy, which will no longer be subsidised. Only companies that operate cost-effectively will survive."* 3E wants to capitalise on this market trend by offering consultancy and software services to optimise its customers' financial performance.

The energy market of the future will be dominated by renewable energy, which will no longer be subsidised. Only companies that operate cost-effectively will survive.

As a consultant, the company is involved throughout a project's entire life cycle. 3E's services include feasibility studies, technical support and due diligence.

The software component of its operations is geared towards monitoring systems once they are operational. Its patented "SynaptiQ" technology is central to this. This software tool enables real-time monitoring, automated reporting and intelligent data analysis of renewable energy projects. Antoon Soete gives an example to illustrate this: *"our tool monitors the energy output of wind and PV farms in real time. This enables continual benchmarking of how effectively these farms generate the output they are supposed to generate, given the weather conditions and as set out in the business plan. The software also allows intelligent data analysis to identify what and where things are going*

wrong. This information is automatically sent to the various parties involved in the project." Geert Palmers adds that *"because they can respond more swiftly and accurately, this enables stakeholders to generate an additional 2% to 3% return on a portfolio of PV and/or wind farms."*

Today, the software is connected to more than 1,000,000 devices in 17 countries. The ultimate goal is to implement the web application worldwide.

INNOVATION

To improve the competitiveness of its services and products, 3E is also constantly seeking out scope to innovate. A major driver in this regard is the desire to reduce the investment and operating costs of renewable energy. *"It all boils down to the cost per megawatt hour produced,"* says Antoon Soete.

Internal R&D capacity is pooled in the "I-lab", a 15-person unit whose sole purpose is to undertake state-of-the-art research. In addition, 3E initiates and participates in international research consortia, together with leading research institutions and industrial partners.

Some examples of newly developed products are the Floating LiDAR, which was launched in 2012 and offers an alternative to offshore measurement masts (see www.flidar.eu), and the more recently installed Xant wind turbine (see the article on Xant).

DIVERSITY AS AN ASSET

When asked about the secret behind this success, Geert Palmers cites not only the company's innovative spirit but also its multicultural and multidisciplinary team. *"A strong team is the be-all and end-all",* he believes. The company now has 105 employees of 20 different nationalities, from very diverse backgrounds: engineers, meteorologists, scientists, economists, physicists and software developers. *"This diversity lies at the core of our DNA and makes for a dynamic, entrepreneurial and innovative working environment."*

THE FUTURE

3E believes in a future that will be driven entirely by renewable energy - which, furthermore, will be used super efficiently. On that basis, the company will carry on working to drive down the operating cost of these energy sources.

This diversity lies at the core of our DNA and makes for a dynamic, entrepreneurial and innovative working environment.

CATEGORY ELECTRIC SOLUTIONS

COMPANY **FIFTHPLAY**

INTERVIEW WITH

Kris Van Daele
Managing Director

- Founded in **2006**
- Head office: **Antwerp**
- Subsidiary of the Niko Group
- **40** employees
- Budgeted annual turnover in 2014: **EUR 6 million**
- Investment in R&D and production: **EUR 2 million** a year
- Patents include: "Nuvonet", "Slim stopcontact", "the fifthplay cloud platform"

Fifthplay is a high-tech player and a wholly-owned subsidiary of the Niko Group. The company was set up in Antwerp in 2006 and, with 40 employees, now operates in Belgium, The Netherlands, France, Germany and Spain. From 2014 it will expand into the UK and Scandinavia.

The name Fifthplay is a reference to the fifth technological level above the fourth, or the quadplay, with which we are currently familiar: telephony, television, internet and mobile. The company's aim is to become the "go-to" brand name in its field.

ACTIVITIES

Since 2010 the company has focused its activities on two areas: energy management and remote monitoring of chronic diseases.

In the energy management sphere, the company specialises in enhancing smart homes and buildings with energy management services. More specifically, it has developed an internet-based service platform, which allows users to measure and remotely control their energy consumption and production in real time. Kris van Daele explains that *"the price of electricity will change in the future to a daily or even an hourly rate, due to the rise of renewable energy, and making the wrong decisions on when to switch on will cost money. Fifthplay is one of only a handful of companies that not only monitors but also allows remote access."*

In addition to software, drawing on Niko's many years of experience in hardware production the company also provides the tools needed to manage electricity more wisely. *"The most familiar products in Flanders, which are supplied through a partnership with Electrabel, are the smart energy box and the smart thermostat box, more than 5,000 of which are currently in use."*

Fifthplay targets its services at two markets. Firstly, residential dwellings, which it serves through a partnership with utility companies, telecom operators and original equipment manufacturers (OEM). In this segment, the technology provides both convenience and energy services. Consumers are made aware of their ecological footprint and given the means to manage their budget cost-effectively. The second target group comprises companies to which it supplies the "smart energy for businesses platform" to enable them to implement sustainable governance, which means that, in addition to a green image, they can also achieve energy efficiency and optimisation.

The most familiar products in Flanders, which are supplied through a partnership with Electrabel, are the smart energy box and the smart thermostat box, more than 5,000 of which are currently in use.

PROJECTS

Fifthplay is involved in a number of specific projects which drive forward the integration of technology in buildings and even cities.

One example is "Nuvonet", launched in 2011 - a free Internet platform for local merchants and healthcare providers to offer their services via the Internet. This software made it to the finals of the Agoria Smart City Award 2013 and is now operational in Sint-Niklaas, Wavre and Limburg *"with over 4,000 users"*.

The company is also targeting a new group - property developers who are looking to incorporate Fifthplay technology in the construction of sustainable new build homes.

INTERNATIONAL

"The energy landscape will change drastically over the next 20 years." We are evolving towards a complex energy network in which decentralised production, consumption and energy storage will be the key elements. However, both Belgian and Flemish legislation lags behind our neighbouring countries in this regard. *"Other countries are catching on faster than Belgium."*

Kris van Daele explains that the big, foreign players *"are already gearing their services to this new market. It's important for Fifthplay to embrace this trend and position itself internationally."*

The company is aiming for an export share of 30%, with the emphasis on conquering the mid-market. Given the regional differences in policy and regulation, partnerships will be formed with local implementation and service partners. Fifthplay's flair for "creativity, innovation and flexibility" will set it apart from the competition.

THE FUTURE

The company plans to expand five-fold over the next three years, partly through organic growth and partly through mergers and acquisitions. The acquisition strategy is geared towards taking over foreign companies in order to increase market share.

Fifthplay is currently the market leader on the Belgian "smart homes market" and its ultimate goal is to be one of the top three European players in the sphere of "connected homes".

The energy landscape will change drastically over the next 20 years.

CATEGORY ELECTRIC SOLUTIONS

COMPANY **STEEL**

INTERVIEW WITH

Pierre Vanderdonck
General Manager

- Founded in **1982**
- Established in the **Louvain-la-Neuve** science park
- **25** employees
- Turnover: **EUR 4.7 million** in 2013
- Export share: **27%**
- Growth: **21%** per year on average
- Building nominated for the 2013 MIPIM in Cannes

OUR CORE BUSINESS: MEASURING ELECTRICITY CONSUMPTION

Founded in 1982 on the initiative of Pierre van Hoof and Gabriel Vanderdonck, the name Steel is an abbreviation of "SociéTé d'Etude en Electronique". Originally, it specialised in instrumentation and process management before advancing towards measuring electricity consumption.

Its core business is to provide full and integrated metering solutions from the design to the installation and commissioning of products manufactured in its own workshops. *"Our atypical approach is centred around two main bases: from dream to maintenance and from measurement to bill,"* summarises Pierre Vanderdonck.

Several hundred Steel cabinets and boxes are now used in metering sub-stations within the Belgian power network.

AN ENERGY-CONSUMING CLIENTELE

Steel's clients are mainly large organisations whose electricity bill exceeds EUR 30,000 per year. There are four categories, depending on the client's business sector. The largest includes electricity companies, transport network managers (Elia, EDF-RTE, etc.) or distribution network managers (the municipality of Wavre, Tecteo, etc.). Steel also serves the industry's biggest names (Solvay, Arcelor, Infrabel, Unilever, etc.), renewable energy producers (Sunswitch, N-Tec, etc.) and real estate and multi-site companies (AG Real Estate, UCL, etc.), for which its offer focuses on the installation of measuring and billing systems.

Our atypical approach is centred around two main bases: from dream to maintenance and from measurement to bill.

OUR FAULT, OUR PASSION: PERFECTIONISM

"Our obsession with detail makes us stand out from the rest of the market," says Pierre Vanderdonck. *"The representative nature of measurement is key to all decision-making processes. Its combination of technologies, knowledge, expertise, rigour and perfectionism make Steel a one-of-a-kind company."* In addition, it is certified to ISO 9001 (quality), ISO 14001 (environment) and OHSAS 18001 (safety).

Pierre Vanderdonck compares market competition to long-distance running: *"You don't have to be fast, you have to be good. When you choose a technology for an electricity network, it sometimes takes a very long time to make a decision. It is, in fact, vital that you take the time to build trust with your clients."*

AN OPENING ABROAD

"We are the leaders in our niche in Belgium," says Pierre Vanderdonck. *"Our clients here are demanding and it's not so easy to export this high-quality culture outside our borders."* Steel makes 27% of its sales abroad, almost exclusively in France, the home of its second largest client (EDF).

"We want to bring our expertise to the forefront to offer a new range of products centred on the measurement of power quality," says Pierre Vanderdonck. As a priority, Steel is setting its sights on the eastern European countries that have recently joined the European Union, on account of their actual needs as regards electricity measurement tools.

Steel is also working on a project with the South African company CTLAB. *"We're hoping to combine Belgian values, mainly centred on requirements, with African technological know-how, focused on products,"* explains Pierre Vanderdonck. Optimistic about the creation of jobs for people in Wallonia, thanks to the implementation of a distribution network, support unit and after-sales service for Europe and an R&D cell, he adds that the strategic conditions of the partnership are clear.

AN IDYLLIC SETTING

After relocating several times, Steel has had a brand new head office built, providing a "breath of industrial elegance" for future constructions at the Einstein science park in Louvain-la-Neuve. Centred around an atrium bathed in light, the building houses offices upstairs and an assembly shop and storage area on the ground floor, giving a total surface area of approaching 1,500 m². *"It's a low-energy construction, highlighting the dynamic image of our company in harmony with its technical and innovative sphere of activity,"* Pierre Vanderdonck points out, adding that the welfare of its workers is of paramount importance to the company.

The project was selected by the MIPIM in Cannes, which brings together the most influential players in the real estate sector, as one of the four finalists for the 2013 Awards in the "industry and logistics" category.

You don't have to be fast, you have to be good.

CATEGORY THERMAL SOLUTIONS

COMPANY **BESIX**

INTERVIEW WITH

Geoffroy Bekkers
Sustainable Construction Project Manager

- Based in **Brussels**
- Employs around **19,000** people (2,400 in Belgium)
- Turnover: **EUR 2.132 billion** in 2012
- Order book: **EUR 3.073 billion** at 1 January 2013
- "Sustainable Construction" department created in 2012

A globally-renowned player in the construction industry, the BESIX Group operates in 17 countries across 4 continents, employing 19,000 people (including 2,400 in Belgium). Founded in 1909, it is Belgium's biggest name in the construction of buildings and infrastructure, and environmental and industrial projects. Besix is also involved in quarrying, facility management, property development and concessions. As an integrated service provider it offers a total service package, from design to realisation and operation. *"BESIX is committed to proposing integrated solutions to its clients in all its fields of operation, both in civil engineering and in construction"*, summarises Geoffroy Bekkers.

The BESIX Group is represented throughout Belgium both in its own name and through the agency of its smaller subsidiaries, such as Cobelba, Wust, Jacques Delens and Vanhout. Geoffroy Bekkers is keen to reiterate the fact that BESIX is one of the last remaining Belgian construction companies to still be Belgian. *"The feeling of belonging to a family business helps create a pleasant working environment."*

A DEPARTMENT DEDICATED TO SUSTAINABILITY

"Even though we receive orders where we are only required for the construction stage, at BESIX we crave projects where we can add value further upstream, starting from the design stage", explains Geoffroy Bekkers. BESIX has its own internal research department with around 100 employees, which for several years it has been expanding into a department dedicated to sustainable construction – aware of the need for real technical input in this field.

Today, its work focuses on two areas: environmental certificates and passive buildings.

More comprehensive than, for example, the Belgian regulations on building energy performance, environmental certificates bring together all the parameters linked to the environment. The BREEAM environmental performance assessment method is the most widely-used frame of reference in the world and a standard in terms of sustainable construction. *"Clients' awareness of their ecological footprint is a major issue that comes into play with these certificates, and is something that too often causes a headache for companies"*, states Geoffroy Bekkers, a trained BREEAM advisor.

The feeling of belonging to a family business helps create a pleasant working environment.

Demands on energy consumption are increasing. A European directive will require all new buildings to be "nearly zero-energy"[1] by 2020. As of 2015, the Brussels region will be the first in the world in which the passive standard will be required for each new construction project; this involves each building having its own renewable energy source. A model student, BESIX has chosen to put these standards into practice now at one of its own sites: replacing the offices at its Sint-Pieters-Leeuw warehouse, a project it has designed and carried out itself. *"We have decided to turn to effective but simple solutions to prove that sustainability is within everyone's reach"*, insists Geoffroy Bekkers.

Clients' awareness of their ecological footprint is a major issue.

SUSTAINABLE, OPEN-SOURCE CONSTRUCTION

"Sustainable construction is an open-source concept", says Geoffroy Bekkers. "Knowledge is gained through exchanges between people who believe in sustainability over and above financial profit".

BESIX is a member of various organisations involved in sustainable development, such as the Ecobuild Cluster. *"We believe it is worth our while to be involved in this network. It enables us to exchange information and good practices with partners who are interested in sustainable and eco-construction",* explains Geoffroy Bekkers. "It is a way for BESIX to bring its sustainable construction department to the forefront".

Sustainable construction is an open-source concept.

A FUTURE FULL OF CHALLENGES

BESIX hopes to be selected for a collaboration project with Greenwin aimed at developing a tool to guarantee the energy performance of a building. It would allow developers and investors to calculate both the cost of the construction and the future energy consumption of the building.

The company also believes that activities to monitor actual energy consumption in relation to predicted consumption should be increased. *"Unlike its designer, the building's end user is not an expert in sustainable construction",* explains Geoffroy Bekkers, who advocates training to raise awareness of this.

Geoffroy Bekkers appears to be optimistic about the development of sustainability, which is increasingly arousing interest. He draws on a marked enthusiasm for his internal training sessions focussing on an introduction to passive building and the increasingly dominating environmental requirements in the projects received by BESIX. He adds that sustainability should generate positive effects on employment because it calls for qualifications and comprehensive technical knowledge on new technologies.

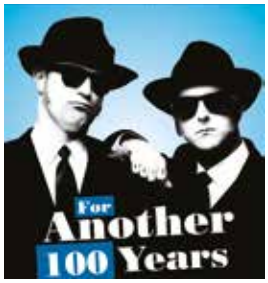
1 A «nearly zero-energy» building is one where energy consumption is almost zero or is offset by energy production (for example through photovoltaic panels or wind turbines).

CATEGORY THERMAL SOLUTIONS

CLEAN ENERGY TECHNOLOGY
VYNCKE

COMPANY **VYNCKE**

INTERVIEW WITH



Peter Vyncke
CEO

- Established in **1912**
- Consolidated annual turnover 2013: **EUR 65 million**
- Export ratio: **90%**
- **310** employees worldwide
- Core technology: **combustion technology**
- In 2014 Vyncke NV received the Trends Gazelle Award for the fastest-growing company in the "Large companies" category for the 7th time

SUSTAINABLE SOLUTIONS

Vyncke nv is a family-run company now in its fourth generation, having been founded in 1912 by Louis Vyncke. Since 2002, the business has been led by his great-grandsons, brothers Peter (CEO) and Dieter (COO) Vyncke. The company specialises in manufacturing industrial energy plants that convert biomass process waste into process energy, with its core technology being combustion engineering.

The firm delivers innovative custom-made energy plants that produce between 1 and 100 MW_{th} of thermal energy and between 0.5 and 15 MWe of electrical energy for industrial clients in the wood industry, the agricultural and food industries, and the renewable energy sector. Its energy plants can take the shape of (steam) boilers, thermal oil heaters or gas generators, used as stand-alone installations or as part of a combined system – whether used to generate electricity or not. The patented water-cooled combustion grate technology forms the core of each solution.

In studying the client's fuel and energy needs and designing the best solution, Vyncke nv takes the total carbon footprint into account. Peter Vyncke explains further: *"The focus of our solutions is sustainability by means of decentralisation. We bring solutions to situations where waste is being produced and there is a need for energy, thereby eliminating the need to transport waste or energy."*

The focus of our solutions is sustainability by means of decentralisation.

A GLOBAL LOCAL FAMILY COMPANY

Peter Vyncke is proud of his south-west Flanders heritage. Yet he resolutely chooses to develop operations on a global scale.

Vyncke nv is a wholly-owned subsidiary of the family holding company Prometheus nv. The group has settlements in Brazil, the USA, Canada, Flanders, Germany, the Czech Republic, India, China, Thailand, Malaysia and Singapore. The company employs 310 people worldwide, of whom 100 work in Flanders and 210 in the rest of the world, with a consolidated annual turnover of EUR 65 million, 95% of which is generated outside of Flanders and 70% outside of the EU.

Although growth does not feature amongst the top 10 strategic objectives, the company has recorded growth of around 10% on an annual basis over the last few years. The key to the growth model is the concept of "continuity". Vyncke nv believes in steady, organic growth, with a look towards the future. Hence the slogan to celebrate 100 years of Vyncke nv: "for another 100 years".

The secret to this success can be explained by a combination of two factors. On the one hand, there is the price/quality ratio, for which Vyncke nv is a global champion. On the other hand, there is the business culture that Peter Vyncke defines as *"encompassing the Vynckeneers similarity to Tintin. We don't see the world as a Mercator projection, but we behold it with admiration, with amazement, and as a place to explore. As a global player, we can swiftly deploy resources locally."*

The firm's establishment in Belgium Flanders is written in the history books, but its continued presence is sustained by the company's external growth. It is also a conscious decision determined by the availability of a local pool of creative and talented people.

GOING FORWARD

Vyncke nv is a global player with a business model that spreads risks and is *"immune to politics and currency"*. It is a flexible company that can respond appropriately to changing local and global conditions. Peter Vyncke is embracing the future, and sums up with the words: *"The future is bright"*.

As a global player, we can swiftly deploy resources locally.

CATEGORY THERMAL SOLUTIONS

COMPANY **XYLOWATT**

INTERVIEW WITH

Olivier Lefebvre
CEO

- Spin-off from the Université catholique de Louvain-la-Neuve (UCL)
- Founded in **2001**
- Located in **Louvain-la-Neuve** (since June 2014)
- Sales and services: **EUR 3 million** in 2013
- Export share: around **80%** in 2013
- **25** employees
- Holds **2** patents

OUR CORE BUSINESS: WASTE TO CLEAN GAS

A spin-off of UCL launched in 2001 following twenty years of research and development in the university's laboratories, Xylowatt is now described as an SME specialising in the design, construction and operation of biomass gasification units, i.e. the conversion of waste into combustible gas.

The NOTAR® technology offered by Xylowatt constitutes a major step forward in the development of cogeneration (simultaneous production of heat and electricity) using biomass. Its process ensures the successive destruction of organic pollutants, compression of heavy metals and, finally, the compression of residual pollutants.

It is adapted to use an increasingly large range of biomass, both contaminated and not, as a raw material: clean wood, contaminated wood, food industry residues, sewage sludge, SRF (solid recovered fuel), etc.

The NOTAR® technology is renowned for the extremely low tar content of the gas it produces, which is suitable for use in a cogeneration engine or even as an alternative fuel in an industrial application. *"Historically, Xylowatt directed its research towards the production of gas with a view to fuelling cogeneration engines,"* explains Olivier Lefebvre. *"A second approach has opened up more recently: to use the gas as a substitute for fossil energies in industrial furnaces."*

IN THE SERVICE OF R&D

Xylowatt distinguishes three profiles of parties for whom its technology is of benefit. As a priority, it is focusing on demonstration projects and is firstly contacting R&D departments, which will assess the technical and commercial potential for turning new types of waste into clean and renewable energy. Olivier Lefebvre mentions a pilot project in Champagne in which Xylowatt is playing a central role. On the initiative of Saint Gobain Emballage and the Comité interprofessionnel du vin de champagne [Champagne interprofessional committee] (CIVC), it has designed a gasification reactor to replace fossil fuels used in glass furnaces with a gas produced from the viticulture biomass available on site. The idea is to then optimise the process and extend it to meet the needs of the glass-making industry in general.

The NOTAR® technology offered by Xylowatt constitutes a major step forward in the development of cogeneration (simultaneous production of heat and electricity) using biomass.

Secondly, its partners include EPCs and integrators seeking gasification methods to solve the "waste-to-energy" challenges encountered by their own clients.

Thirdly, Xylowatt also enters into business relationships with end users, in regard to both materials and energy, that have reclaimable waste. Olivier Lefebvre gives us the example of a subsidiary of Infrabel that manages the stocks of former wooden railway sleepers for which an environmentally-responsible solution is required.

It is entering a new phase involving industrialising its solutions with a view to meeting the technical and economic demands of the market.

ALLIANCE AND COMPETITION

"We are still at a relatively early stage of mastering gasification," explains Olivier Lefebvre. *"The competition mainly comes from traditional energy solutions rather than the other players in this niche sector. With regard to raw materials upstream of the chain, it is the alternative waste disposal methods – sending waste to landfill or to be incinerated – that are overshadowing us. It's up to Xylowatt to promote the economic and environmental benefits of its technology."*

The company essentially operates by taking on long-term projects, often mobilising all of its human resources. They are carried out in Belgium but also in other parts of Europe especially in France and the United Kingdom, where prospects are particularly interesting at the moment. In addition, unusual investigation activities are in progress at Fukushima, Japan, with analyses focusing on irradiated wood.

Among the advantages of the company being based in Belgium, Olivier Lefebvre highlights the availability of skills and the network forged through clusters and hubs. Xylowatt works with the research centres of the Belgian universities of Louvain-la-Neuve and Liège, and also has scientific partners in France such as Sierra in Montpellier and the Ecole des Mines in Albi.

MOVING TOWARDS INDUSTRIALISATION

Xylowatt has recently swapped the industrial building it used to occupy in the Charleroi region for a return to its roots in Louvain-la-Neuve, where its pilot gasification unit is already based. Assembly of its facilities will be subcontracted from now on in line with the direction taken by the new shareholders.

On 5 February 2014, CMI and Air Liquide took a stake in the capital of Xylowatt. The skills of these two shareholders will help optimise and confirm the industrial credentials of its NOTAR® technology.

Xylowatt is also working to reduce its costs with a view to making its biomass gas competitive in relation to natural gas. *"This partnership is opening up a completely new stage for Xylowatt. The company used to be recognised in Europe for its expertise and capacity for innovation. With the help of these two leading players, it is entering a new phase involving industrialising its solutions with a view to meeting the technical and economic demands of the market."*

The competition mainly comes from traditional energy solutions.

CATEGORY ENERGY EFFICIENCY

COMPANY **DAPESCO**

INTERVIEW WITH

Tanguy Detroz
Founder & Managing Director

- Founded in **2002**
- Established in the **Louvain-la-Neuve** science park
- **20** employees (18 in Belgium, 2 in Paris)
- Turnover: **EUR 2.5 million** in 2013
- Export share: around **50%**
- Clients in over **50 countries**
- Growth: **30%** per year on average
- More than **10%** of turnover invested in R&D
- Building nominated for the 2013 Belgian Energy Award

FROM A RESEARCH FIRM...

Founded in 2002 by Tanguy Detroz, Dapesco initially operated as a research unit dedicated to energy saving. Its mission is to lower its clients' energy bills by looking at two factors: lowering consumption and lowering the purchasing price. Historically, Dapesco's typical client is an energy-intensive, multi-site company. Keen to manage both financial and technical aspects at a global level, Dapesco soon noticed the absence on the market of any software tools enabling the integration of data from multi-site clients.

...TO A SOFTWARE PUBLISHER

This need gave rise to Dapesco's second business: energy management software design. Its platform, known as EMIS, which stands for Energy Management Information System, allows energy to be monitored continuously and remotely. It integrates meter data (taken from meters and sub-meters), production data, as well as meteorological and contractual data. Today, EMIS 3.0 fulfils a triple-headed function in regard to energy: the optimisation of purchases, daily management of energy saving activities and technical expertise in relation to the technologies in place.

CLIENTS WITH DIVERSE PROFILES

Among Dapesco's clients are some of the big names in a range of sectors includingretail sector, tertiary building, industry and the public sector. Some of them, the self supporting end-users, use its tools autonomously and exploit the data using their own energy manager. Others require the full services of Dapesco, delegating their entire energy management process. These also include resellers, partner research companies that offer Dapesco's platform to their clients under their own label.

The combination of our IT and energy skills sets us apart from our competitors, which are generally experts on a single front.

IT AND ENERGY: A UNIQUE COCKTAIL

Dapesco's defining character is built on several foundations. *"Firstly, the combination of our IT and energy skills sets us apart from our competitors, which are generally experts on a single front,"* says Tanguy Detroz. Secondly, the tools developed by Dapesco are flexible and allow multi-site (sometimes originating from different countries), multi-energy (electricity, water,

Belgium is demonstrating creativity in sustainable energy.

fuel, gas, etc.) and multi-source (meters, bills, suppliers, etc.) data to be integrated. Thirdly, the company is completely independent, both from hardware designers - it adapts its software to the meter installed at the client's premises and not the other way around - and from energy suppliers.

FIRMLY ESTABLISHED IN BELGIUM...

Louvain-la-Neuve science park was a natural choice for its headquarters as the founder Tanguy Detroz comes from the region. *"80% of our workers live less than 15 minutes away,"* he says. Despite being neighbours, collaboration with UCL remains sporadic because time horizons for projects are so different. *"While university researchers work on projects that will be mature within 10 or even 20 years, our clients demand solutions to their problems within a few months,"* explains Tanguy Detroz. Nevertheless, Dapesco invests 10% of its turnover in research and development.

"Belgium benefits from its workers having a very high level of expertise and training and the country is demonstrating creativity in sustainable energy," says Tanguy Detroz, emphasising the excellent dynamics of the Tweed cluster.

... BUT ACTIVE ACROSS THE GLOBE

Dapesco generates around half of its turnover by exporting directly to France and indirectly to over 50 other countries. Dapesco does not approach distant lands at random, instead it is its major clients, companies like Lafarge — the global leader in cement manufacturing — or Ikea, which open it up to the international stage by calling on its services to meet their subsidiaries' needs. *"Dapesco's services have been present on the five major continents since 2013,"* confirms Tanguy Detroz.

The company is striving for large-scale international expansion in the next three years. With two people already in Paris, it intends to establish a presence with our French neighbours for reasons of cultural proximity. Above all, it aims to establish itself in Germany either by creating subsidiaries or through acquisitions. *"This country has undeniable potential,"* explains Tanguy Detroz. *"Indeed, it is home to a highly competitive energy market and its rates are among the highest in Europe, with genuine energy-saving policy. Dapesco's solutions will definitely turn out to be both useful and profitable there."*

Dapesco's services have been present on the five major continents since 2013.

CATEGORY ENERGY EFFICIENCY

COMPANY **GREENSKIN**

INTERVIEW WITH

Marc Hermans
CEO

Alexandre Bonnyns
EU Relations Manager

- Founded in **2008**
- Established at **Saint-Gilles**
- **6** employees
- Turnover: **EUR 90,000** in 2012
- Export share: **15 to 20%** in 2013
- Growth: **10%** in 2013
- Investment in R&D: **EUR 200,000** (total)
- Nominated for the Belgian Building Awards in 2011
- Greenskin Box® patented system received the Greenov Award 2013

ROOF GARDEN

Greenskin is positioning itself in the world of urban gardens, either on a flat roof or on a moderate slope. *"Considered initially to be an environmentalist gadget, urban gardens are now a fundamental trend throughout the world,"* says Marc Hermans. The green roof is experiencing a growth in reputation aided by its many advantages. Thanks to the evapotranspiration phenomenon, it protects the waterproofing membrane, strengthens thermal inertia and acts as a natural stormwater basin preventing flooding thanks to a buffering effect. In addition, this solution allows an urban biodiversity tissue to be reconstituted, it cleans the air and gives buildings an added value, both aesthetically and financially. *"In light of these virtues, the green roof is a real town management tool,"* says Marc Hermans.

The green roof is a real town management tool.

A COMPETITIVE ENVIRONMENT

There are many players trying their hand at this promising, but unfortunately *"much too poorly regulated"* market, says Marc Hermans. There are currently no standards in Europe in relation to green roofs. This void in regulations is leading to a somewhat dishonest environment, *"polluted by low-cost sub-products of questionable quality"*.

From its beginnings, Greenskin chose to market itself as an innovator by developing a green roof modular system. The start-up benefitted from support in the form of subsidies, but above all from the skills of various Belgian institutions such as the CSTC (Centre Scientifique et Technique de la Construction [scientific and technical centre for construction]), the SIRRIS (centre collectif de l'industrie technologique [shared business centre for start-ups in the technology industry]), the University of Gembloux horticultural technical centre and even the Brussels business agency.

Over and above its ease of access for its founders, the Belgian capital was chosen as Greenskin's stronghold for branding reasons. According to Alexandre Bonnyns, the "Brussels" brand carries weight and allows the company to position itself more easily compared to its partners.

GREENSKIN BOX®

Greenskin stands out in a much-coveted market by proposing a real innovation thanks to its patented system known as Greenskin Box®. In addition to the classic properties of green roofs, this has additional advantages in terms of safety, flexibility, sustainability and ergonomics.

Part of a true approach to eco-design (cradle to cradle), the Greenskin Box® is 100% recycled, reusable and recyclable. The polymer material chosen to manufacture the trays represents a compromise between excellent mechanical properties and minimal impact on CO_2 levels. From the outset,

the product was designed to facilitate all the steps of a project (assembly, disassembly, storage, transport, filling, maintenance, etc.). The model is compatible with standard building dimensions. It can be delivered on site in different forms, allowing garden projects of all sizes and kinds to be implemented: extensive roof gardens, gardens with built-in irrigation or small modular urban vegetable gardens.

"Competition with regard to roofs is very high, especially in towns where it has become a real challenge," explains Alexandre Bonnyns. The modularity of the Greenskin Box® constitutes an asset that allows it to be combined with other elements previously considered incompatible, such as solar panels, decking, greenhouses, lift shaft sheds, etc.

"We are presenting our solution as the new generation of roof gardens. We are the only company to propose a solution based on plots, because this is not a patented product, it's an entire system," confirms Marc Hermans.

Considered initially to be an environmentalist gadget, urban gardens are now a fundamental trend throughout the world.

MANUFACTURER AND RESEARCH FIRM

In addition to the design and marketing of its flagship product, Greenskin's defining characteristic also comes from its function as a research company. This second field of expertise puts it at the junction between the construction and landscaping sectors. It offers a full range of services from the preliminary draft with an architect to implementation and maintenance by specialist personnel. *"The end target is always to provide a sustainable and high-quality roof garden,"* says Alexandre Bonnyns.

FROM B2C TO B2B

This small 6-person company's development model comprises three stages. Originally, its clients were mainly from the Brussels private sector and the company carried out these projects independently. After this testing phase on its domestic market, it turned towards industrial sites, sub-contracting work to installers trained by the company itself. Greenskin's latest objective is to sell its licences to partners abroad.

Today, Greenskin makes 15 to 20% of its turnover by exporting to our Luxembourg, French and Dutch neighbours. However, it is aiming to be visible on a more international scale. Contacts have already been forged in many other European countries but also further afield, in countries like Canada and Chile.

"Our plan for developing export is based on partnerships," explains Alexandre Bonnyns. *"Sealers, landscape architects, construction materials wholesalers and nursery gardeners are among the many distribution channels for our products and services."*

Our plan for developing export is based on partnerships.

CATEGORY ENERGY EFFICIENCY

REstore

COMPANY **RESTORE**

INTERVIEW WITH

Jan-Willem Rombouts
Co-CEO

Pieter-Jan Mermans
Co-CEO

- Founded in **2010**
- Office in **Antwerp** (BE)
- Office in **Bristol** (UK)
- Forecast turnover for 2014: **EUR 3 million**
- **20** employees
- **EUR 4 million** in venture capital, raised in 2 rounds
- Patented technology: IT platform Flexpond™

Energy technology company REstore was founded in 2010 by Pieter-Jan Mermans and Jan-Willem Rombouts and is currently the only demand response aggregator on the European energy market, with a specific focus on Benelux and the UK. REstore managed to raise EUR 4 million of venture capital in two successful capital rounds (2011 and 2012), from a mix of venture capital firms, entrepreneurs and industrial families. These resources were invested in research and development and commercial expansion.

AUTOMATED DEMAND-RESPONSE

As electricity cannot be stored, electricity supply and demand must be balanced at all times on the electricity grid. Due to the growing penetration of renewable energy, characterized by volatile generation, imbalances between supply and demand on the grid occur more frequently, which can cause problems such as blackouts.

REstore offers a solution to this problem, using a fully automated demand-response system which is built around the patented high-tech IT platform "Flexpond™".

How does the process work? At peak times, the power demand from industrial consumers is temporarily reduced. Typically, the installations that can be used for this have "buffer capacity", so that this brief curtailment does not have a negative impact on the industrial process. "Curtailable" capacity is then bundled by the Flexpond software package, so that it has sufficient scale and reliability to supply the energy wholesale market and make it available to network operators and energy traders. These players will use the aggregated flexible power to restore the disrupted equilibrium on the electricity grid.

The system is end-to-end automated, meaning there is no manual intervention at any point in the process. Other advantages are the system's high degree of reliability combined with a lightning-fast response time, which means that REstore supplies capacity with greater reliability and speed than a gas-fired power station.

Among the markets on which REstore operates is the "primary reserve" or "frequency response" market - an energy reserve which must be supplied within 15 to 30 seconds. Together, these elements form the core of REstore's competitiveness and make it globally unique.

For the last 10 years, gas-fired power stations have been used for primary reserves, causing CO_2 emissions and high investment and operating costs. REstore supplies the same reserve by making use of buffer capacity which is inherently available at various industrial consumers, an approach which achieves the same result but without the CO_2 emissions and at a lower cost.

The company currently has more than 100MW flexible power in portfolio, which equates to the consumption of over 30,000 households.

This situation makes Belgium the ideal launch pad for commercialising Demand Response.

BELGIUM

The decision to set up in Belgium was driven more by the market than by location considerations. Pieter-Jan Mermans explains that *"in Europe, Belgium and Germany are the two countries which have relatively high renewable energy penetration compared to total installed generation capacity. In Belgium, 14GW of capacity is installed, but approximately 25% offered by renewable energy. The greater the share of renewable energy, the more imbalances will occur on the grid and the greater the need will be for alternative ways to overcome these imbalances. This situation makes Belgium the ideal launch pad for commercialising Demand Response."*

THE FUTURE

REstore has concrete plans to rapidly assume European dimensions. *"Our technology is scalable; whether we connect 100 or 1000 industrial energy consumers to our platform does not change anything to the way the Flexpond platform performs. So it would be unnecessarily restrictive to operate in just one or two countries"*, says Jan-Willem Rombouts.

"Quick and clear, that is our hallmark!"

Quick and clear, that is our hallmark!

DIRECTORY
OF COMPANIES

This directory is not exhaustive.

For more information please contact Flanders Investment & Trade (FIT), Brussels Invest & Export, the Wallonia Export and Investment Agency (AWEX) or the Belgian federations of industry (see 4.2 Federations).

TITLE	ZIP	CITY	REGION	SITE	PRODUCTION	ELECTRICAL SOLUTIONS	THERMIC SOLUTIONS	ENERGY EFFICIENCY
3B FIBERGLASS	4651	BATTICE	Wallonia	www.3b-fiberglass.com				•
3E	1000	BRUSSELS	Brussels	www.3e.eu	•	•		•
3M BELGIUM	1831	DIEGEM	Flanders	www.3m.be		•		•
4ENERGY INVEST	1420	BRAINE-L'ALLEUD	Wallonia	www.4energyinvest.com	•			
4INCH	7890	ELLEZELLES	Wallonia	www.4inch.be				•
AAQUA N.V.	2820	BONHEIDEN	Flanders	www.aaqua.be				•
AAT B.V.B.A.	2030	ANTWERPEN	Flanders	www.aatantwerpen.be	•	•	•	•
ABB	1930	ZAVENTEM	Flanders	www.abb.be	•	•	•	•
AELTARI INTERNATIONAL	1150	BRUSSELS	Brussels	www.aeltari.com	•			
AENERGYES	7904	PIPAIX	Wallonia	www.aenergyes.eu				•
AGC GLASS EUROPE	6040	JUMET	Wallonia	www.agc-glass.eu	•			
AIB VINÇOTTE	1800	VILVOORDE	Flanders	www.vincotte.com				•
AKKA BENELUX	1140	BRUSSELS	Brussels	www.akka-benelux.eu		•	•	•
ALL THERMIC SOLUTIONS (ATS)	4880	AUBEL	Wallonia	www.alltsolutions.com			•	
ALSTOM POWER BELGIUM	2812	MUIZEN	Flanders	ww.alstom.com	•	•	•	•
ALTRAN	1150	BRUSSELS	Brussels	www.altran.be			•	
ANSYS BELGIUM S.A.	1300	WAVRE	Wallonia	www.ansys-belgium.com				•
ARCELOR MITTAL LIEGE UPSTREAM	4000	LIÈGE	Wallonia	www.lrmgroupe.be	•			
AREVA WIND	1040	BRUSSELS	Brussels	www.areva.com	•			
ASPIRAVI	8530	HARELBEKE	Flanders	www.aspiravi.be	•			
ATELIER DE LA MEUSE	4000	LIÈGE	Wallonia	www.alm.be	•			
ATELIER DE L'AVENIR	4460	GRACE-HOLLOGNE	Wallonia	www.atelier-de-lavenir.be				•
ATM PRO	1400	NIVELLES	Wallonia	www.atmpro.be		•		•
AUTOMOTIVE ECOLOGY	1745	OPWIJK	Flanders	www.automotive-ecology.eu				•
BALTEAU	4141	SPRIMONT	Wallonia	www.balteau.be	•	•		
BELPOWER INTERNATIONAL	1120	BRUSSELS	Brussels	www.reibel.be	•	•		
BELWIND	8380	ZEEBRUGGE	Flanders	www.belwind.eu	•			
BESIX	1200	BRUSSELS	Brussels	www.besix.com	•	•	•	•
BIOWANZE	4520	WANZE	Wallonia	www.biowanze.be	•			
BISOL	3110	ROTSELAAR	Flanders	www.bisol.be	•	•		
BLUE HEAT B.V.B.A.	2820	BONHEIDEN	Flanders	www.blueheat.be			•	
BLUE PLANET ACADEMY & CONSULTING	1040	BRUSSELS	Brussels	www.blue-planet.be				•

TITLE	ZIP	CITY	REGION	SITE	PRODUCTION	ELECTRICAL SOLUTIONS	THERMIC SOLUTIONS	ENERGY EFFICIENCY
BLUE PLANET HYDROGEN	2000	ANTWERPEN	Flanders	www.blueplanethydrogen.com				•
BORIT N.V.	2440	GEEL	Flanders	www.borit.be	•			
BOSCH REXROTH	1070	BRUSSELS	Brussels	www.be.bosch.com		•	•	•
BURON & PARTNERS	8730	BEERNEM	Flanders	-		•	•	
CABLERIE D'EUPEN S.A.	4700	EUPEN	Wallonia	www.eupen.com		•		
CAPAX ENVIRONMENTAL SERVICES	1861	WOLVERTEM	Flanders	www.capax.be	•			•
CEGELEC	6041	GOSSELIES	Wallonia	www.cegelec.be		•		
CFE	1160	BRUSSELS	Brussels	www.cfe.be	•	•	•	•
CG POWER SYSTEMS BELGIUM	2800	MECHELEN	Flanders	www.cgglobal.com	•	•		•
CLIMACT	1348	LOUVAIN-LA-NEUVE	Wallonia	www.climact.com				•
CLIMAX	4540	AMAY	Wallonia	www.clima•-architecture.be				•
CO2 STRATEGY-MGMC SPRL	7181	ARQUENNES	Wallonia	www.co2strategy.be				•
CO2LOGIC	1000	BRUSSELS	Brussels	www.co2logic.com				•
COCKERILL MAINTENANCE & INGÉNIERIE (CMI)	4100	SERAING	Wallonia	www.cmigroupe.com	•	•	•	•
COFELY FABRICOM	1180	BRUSSELS	Wallonia	www.cofelyfabricom-gdfsuez.com		•	•	•
COGENGREEN	5190	SPY	Wallonia	www.cogengreen.com			•	
COLLIGNON ENG. S.A.	6997	EREZEE	Wallonia	www.collignon.net		•		
COMET TRAITEMENTS	6200	CHATELET	Wallonia	www.groupecomet.com		•		
CONNECT GROUP	8970	POPERINGE	Flanders	www.connectgroup.com	•	•	•	•
COPASS SPRL	7110	LA LOUVIERE	Wallonia	www.copass.be				•
CORETEC ENGINEERING	4031	ANGLEUR	Wallonia	www.coretec.be			•	
C-POWER	8400	OOSTENDE	Flanders	www.c-power.be	•			
DAPESCO	1348	LOUVAIN-LA-NEUVE	Wallonia	www.dapesco.com				•
DE SIMONE	6240	FARCIENNES	Wallonia	www.desimone.be	•	•		
DE SMET ENGINEERS & CONTRACTORS	1410	WATERLOO	Wallonia	www.dsengineers.com	•		•	
DECUBE	7110	STREPY-BRACQUEGNIES	Wallonia	www.decube-consult.com		•		•
DEME	2070	ZWIJNDRECHT	Flanders	www.dredging.com	•			
DERBIGUM	1651	LOT	Flanders	www.derbigum.be	•			•
D-TECH ELECTRONIC S.A.	4430	ANS	Wallonia	www.domestia.be			•	
DYNAMIA	4000	LIEGE	Wallonia	www.dynamia.be		•		
E. VAN WINGEN N.V.	9940	EVERGEM	Flanders	www.vanwingen.be			•	•
ECO²-LED	1930	ZAVENTEM	Flanders	www.eco2-led.be				•
ECOREM N.V.	2630	AARTSELAAR	Flanders	www.ecorem.be	•	•	•	•
EDF LUMINUS	1000	BRUSSELS	Brussels	www.edfluminus.be	•			
EDP RENEWABLES (GREENWIND)	1300	WAVRE	Wallonia	www.edpr.com	•			
ELECTRABEL GDF SUEZ	1000	BRUSSELS	Brussels	www.electrabel.com	•			
ELIA	1000	BRUSSELS	Brussels	www.elia.be		•		•
ELIOSYS	4000	LIEGE	Wallonia	www.eliosys.eu		•		
ELSINGOR	1400	NIVELLES	Wallonia	www.elsingor.be	•	•	•	
ENE	1150	BRUSSELS	Brussels	-		•		

TITLE	ZIP	CITY	REGION	SITE	PRODUCTION	ELECTRICAL SOLUTIONS	THERMIC SOLUTIONS	ENERGY EFFICIENCY
ENERGIES RENOUVELABLES DES ARDENNES	6880	BERTRIX	Wallonia	www.erda.be			•	
ENERGIUS N.V.	2340	BEERSE	Flanders	www.energius.be			•	•
ENERGREEN S.A.	1300	WAVRE	Wallonia	www.energreen.be		•	•	
ENERGY OPEN	7503	FROYENNES	Wallonia	www.eowind.eu				•
ENERGYICT	8500	KORTRIJK	Flanders	www.energyict.com		•		•
ENERGYTEC	5380	FERNELMONT	Wallonia	www.energytec.be		•		
ENERSOL	4651	BATTICE	Wallonia	www.enersol.be			•	
ENERSOLUTIONS	4651	BATTICE	Wallonia	www.enersolutions.be				•
ENFINITY BELGIUM	8790	WAREGEM	Flanders	www.enfinity.be	•			
ENGICON	8530	HARELBEKE	Flanders	www.geldof.be		•	•	
EOLUZ	2950	KAPELLEN	Flanders	www.eoluz.be	•	•		
EPIGAN N.V.	3500	HASSELT	Flanders	www.epigan.com				•
E-RATIONAL ORC SOLUTIONS BY BEP EUROPE N.V.	8200	BRUGGE	Flanders	www.E-Rational.net	•		•	•
EUROPEAN SOPRO ENERGIES	5580	ROCHEFORT	Wallonia	www.ese-solar.com			•	
EUROPEM N.V.	2500	LIER	Flanders	www.euro-pem.com			•	
FACTOR-X	1420	BRAINE-L'ALLEUD	Wallonia	www.theccgroup.eu				•
FAIRWIND	7180	SENEFFE	Wallonia	www.fairwind.be	•			
FIFTHPLAY	2018	ANTWERPEN	Flanders	www.fifthplay.com		•		
FORTECH	9170	SINT-GILLIS-WAAS	Flanders	www.fortech.be	•			
G & G INTERNATIONAL	2830	WILLEBROEK	Flanders	www.ggi.be		•	•	
GREEN ENERGY 4 SEASONS	6900	MARCHE-EN-FAMENNE	Wallonia	www.ge4s.be	•	•		
GREEN INVEST	1310	LA HULPE	Wallonia	www.green-invest.be		•		
GREENELEC EUROPE	6717	ATTERT	Wallonia	www.greenelec.be	•			
GREENSKIN DVMH	1060	BRUSSELS	Brussels	www.greenskindvmh.com				•
GREENSUN	1440	WAUTHIER-BRAINE	Wallonia	www.greensun.be		•		
GREENWATT	1348	LOUVAIN-LA-NEUVE	Wallonia	www.greenwatt.be	•		•	•
GRID PARITY CONCEPTS EUROPE B.V.B.A.	8760	MEULEBEKE	Flanders	www.gpceurope.com	•	•		•
HADDA INTERNATIONAL GROUP	8400	OOSTENDE	Flanders	www.haddagroup.com	•	•		•
HIGH WIND	2070	ZWIJNDRECHT	Flanders	www.high-wind.eu	•			
HINICIO	1030	BRUSSELS	Brussels	www.hinicio.com	•	•		•
HYDREX N.V.	2030	ANTWERPEN	Flanders	www.hydrex.be				•
HYDROGAZ	4460	GRACE-HOLLOGNE	Wallonia	www.hydrogaz.be			•	
HYDROGENICS EUROPE	2260	OEVEL	Flanders	www.hydrogenics.com	•			
HYDROMETAL	4480	ENGIS	Wallonia	www.hydrometal.be				•
ID4GREEN	4870	TROOZ	Wallonia	www.id4green.com		•		
IEMANTS	2370	ARENDONK	Flanders	www.iemants.com		•		
ILUMINAS N.V.	8800	ROESELARE	Flanders	www.iluminas.com				•
INNOVATIVE MICROBIAL BIOPROCESS (IMBP)	1070	BRUSSELS	Brussels	www.imbp.be			•	
INTEGRATO	1950	KRAAINEM	Wallonia	www.intergato.eu			•	

TITLE	ZIP	CITY	REGION	SITE	PRODUCTION	ELECTRICAL SOLUTIONS	THERMIC SOLUTIONS	ENERGY EFFICIENCY
ISOVER	9130	KALLO	Flanders	www.isover.be				•
ISSOL	4821	ANDRIMONT	Wallonia	www.issol.eu	•	•		
ISYS EUROPE B.V.B.A.	9111	ADEGEM	Flanders	www.isys-europe.eu	•			
JAN DE NUL GROUP	9308	HOFSTADE	Flanders	www.jandenul.com	•			
KEPPEL SEGHERS BELGIUM	2830	WILLEBROEK	Flanders	www.keppelseghers.com		•	•	
KEY DRIVING COMPETENCES	3001	HEVERLEE	Flanders	www.keydriving.be				•
LABORELEC	1630	LINKEBEEK	Flanders	www.laborelec.be		•	•	•
LAMCOL	6900	MARCHE-EN-FAMENNE	Wallonia	www.lamcol.be				•
LAMPIRIS	4000	LIÈGE	Wallonia	www.lampiris.be		•		
LIQUISOL	2520	OELEGEM	Flanders	www.liquisol.com				•
LMS INTERNATIONAL	3001	HEVERLEE	Flanders	www.lmsintl.com				•
LMS SAMTECH	4031	ANGLEUR	Wallonia	www.samtech.com				•
MAINTENANCE PARTNERS WALLONIE	5100	NANINNE	Wallonia	www.maintenancepartners.com		•		
MARCQ ET ROBA	1160	BRUSSELS	Brussels	www.marcqroba.com				•
MATRICIEL	1348	LOUVAIN-LA-NEUVE	Wallonia	www.matriciel.be				•
MERY-BOIS	4631	MERY	Wallonia	www.mery-bois.be				•
METERBUY	4031	ANGLEUR	Wallonia	www.meterbuy.com	•			•
MICROCONTRALL	5650	WALCOURT	Wallonia	www.microcontrall.com	•			
MORPHO-BIOMIMICRY	4030	LIEGE	Wallonia	www.morpho-biomimicry.be				•
NATURHOME	6670	GOUVY	Wallonia	www.naturhome.net				•
NEXANS NETWORK SOLUTIONS	1501	BUIZINGEN	Flanders	www.nexans.be		•	•	
NONET	5170	BOIS-DE-VILLERS	Wallonia	www.nonet.be		•		
NOZON TECHNOLOGIES N.V.	8570	ANZEGEM	Flanders	www.nozon.eu		•		•
NPG ENERGY	3700	TONGEREN	Flanders	www.npgenergy.be	•			
N-SIDE S.A.	1348	LOUVAIN-LA-NEUVE	Wallonia	www.n-side.com				•
NUMECA	1170	BRUSSELS	Brussels	www.numeca.com	•	•		•
NUMFLO	7000	MONS	Wallonia	www.numflo.eu				•
OCAS	9052	ZWIJNAARDE	Flanders	www.ocas.be				•
ODOMETRIC	6700	ARLON	Wallonia	www.odometric.be				•
OPEN ENGINEERING	4031	ANGLEUR	Wallonia	www.open-engineering.com				•
ORES	1348	LOUVAIN-LA-NEUVE	Wallonia	www.ores.net		•		
OWS N.V.	9000	GENT	Flanders	www.ows.be	•			
PANTAREIN B.V.B.A.	2800	MECHELEN	Flanders	www.pantarein.be				•
PARKWIND	3000	LEUVEN	Flanders	-	•			
PCIM (DOLCEA)	1325	CHAUMONT-GISTOUX	Wallonia	www.dolcea.be				•
PCO DISTRIBUTED ENERGY SYSTEMS	1340	LOUVAIN-LA-NEUVE	Wallonia	www.pco-des.com				•
PEPITE	4000	LIEGE	Wallonia	www.pepite.be				•
PERPETUUM	9051	SINT-DENIJS-WESTREM	Flanders	www.perpetum.be		•		
PIERRET-SYSTEM	6890	TRANSINNE	Wallonia	www.pierret-system.com				•
POLYWORKS CONCEPT	6260	FLEURUS	Wallonia	www.polyworksconcepts.be				•
POWER@SEA	2070	ZWIJNDRECHT	Flanders	www.poweratsea.com	•			

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PRAYON	4480	ENGIS	Wallonia	www.prayon.com	•			
PREFER	4400	FLEMALLE	Wallonia	www.prefer.be				•
PROMAT INTERNATIONAL	2830	TISSELT	Flanders	www.promat-international.com		•	•	
PSPC	5530	SPONTIN	Wallonia	www.pspc.be			•	
RDC ENVIRONMENT	1160	BRUSSELS	Brussels	www.rdcenvironment.be	•	•	•	•
REMANUFACTURING BEERSE REM. B	2340	BEERSE	Flanders	www.rem-b.com		•		
REMO MILIEUBEHEER N.V.	3500	HASSELT	Flanders	www.machiels.com				•
RENOGEN S.A.	4770	AMEL	Wallonia	www.renogen.be			•	
RENTEL	8400	OOSTENDE	Flanders	-	•			
RESTORE	2140	ANTWERPEN	Flanders	www.restore.eu		•		•
RONVEAUX S.A.	5590	CINEY	Wallonia	www.ronveau•.be				•
SADEMS	4460	GRACE-HOLLOGNE	Wallonia	www.sadems.com				•
SANHA FITTINGS	1740	TERNAT	Flanders	www.sanha.com		•	•	•
SCARABEES	3512	STEVOORT	Flanders	www.scarabees.be	•			
SGS BELGIUM	2000	ANTWERPEN	Flanders	www.sgs.com				•
SHANKS	1435	MONT-SAINT-GUIBERT	Wallonia	www.shanks.be			•	
SIEMENS	1654	HUIZINGEN	Flanders	www.siemens.be	•	•	•	•
SITA TREATMENT	4040	HERSTAL	Wallonia	www.sita.be			•	
SMARTROOF SOLAR	7160	GORDAVILLE	Wallonia	www.smartroof.be		•		
SOLINVEST	4020	LIÈGE	Wallonia	www.sol-invest.be		•		
SOLTECHNO	1060	BRUSSELS	Brussels	www.soltechno.be		•		
SPANOLUX	6690	VIELSALM	Wallonia	www.spanolux.com				•
SPATIAL BELGIUM S.A.	4031	ANGLEUR	Wallonia	www.star-apic.be				•
STÄUBLI BENELUX	8501	BISSEGEM	Flanders	www.staubli.be		•	•	•
STEEL S.A.	1348	LOUVAIN-LA-NEUVE	Wallonia	www.steel-sa.com		•		
SUNSWITCH	1348	LOUVAIN-LA-NEUVE	Wallonia	www.sunswitch.be		•		
SYLVA	9950	WAARSCHOOT	Flanders	www.sylva.be	•			
SYREG	4630	SOUMAGNE	Wallonia	www.syreg.com			•	
TECHNICEM	6240	FARCIENNES	Wallonia	www.technichem.be				•
THE SMART COMPANY	4031	ANGLEUR	Wallonia	www.theccgroupe.eu				•
THE SNIFFERS	2490	BALEN	Flanders	www.the-sniffers.com				•
TPF & TPF ECONOLER	1190	BRUSSELS	Brussels	www.tpf.eu	•	•	•	•
TRACTEBEL ENGINEERING	1200	BRUSSELS	Brussels	www.tractebel-engineering-gdfsuez.com	•	•	•	•
TUBELITE	1130	BRUSSELS	Brussels	www.tubelite.be			•	
TYPHOON N.V.	8791	WAREGEM	Flanders	www.typhoon.be			•	•
VANGEEL ELECTRICAL S.A. - MICRONISER	6001	MARCINELLE	Wallonia	www.micronisер.com	•			
VEGA	1731	ZELLIK	Flanders	www.vega.be				•
VENTIS	7904	TOURNAI	Wallonia	www.ventis.eu	•			
VICTOR BUYCK STEEL CONSTRUCTION	9900	EEKLO	Flanders	www.victorbuyck.be		•	•	
VIZIMAX EUROPE	1120	BRUSSELS	Brussels	www.vizimax.be		•		•
VLEEMO N.V.	2000	ANTWERPEN	Flanders	www.vleemo.be	•			

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VOESTALPINE BELGIUM	1853	STROMBEEK-BEVER	Flanders	www.voestalpine.com		•	•	
VYNCKE	8530	HARELBEKE	Flanders	www.vyncke.com	•		•	
WATERLEAU GROUP	3020	HERENT	Flanders	www.waterleau.com	•	•	•	
WH LOOS	2550	KONTICH	Flanders	www.whloos.be		•		
WIENERBERGER AG	8500	KORTRIJK	Flanders	www.wienerberger.be	•			
XANT	1000	BRUSSELS	Brussels	www.xant.eu	•	•		•
XYLOWATT	1348	LOUVAIN-LA-NEUVE	Wallonia	www.xylowatt.com	•		•	
ZENSOR	1050	BRUSSELS	Brussels	www.zensor.be		•		
ZERO EMISSION SOLUTIONS	9300	AALST	Flanders	www.zeroemissionsolutions.com	•	•	•	•
ZF WIND POWER ANTWERPEN	2550	KONTICH	Flanders	www.zf.com/windpower		•		

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