

2 Seas Magazine

SPECIAL FOCUS

INTERREG IV A 2 MERS SEAS ZEEËN

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A cluster initiative:

SAFE-ICE

research, innovation and business support for a
low-carbon economy

2 Mers Seas Zeeën

INTERREG IV A

FRANCE - ENGLAND - VLAANDEREN - NEDERLAND



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**Jos Delbeke**

Director-General for Climate Action
European Commission

Building a low-carbon economy is one of the great challenges of our time – but also one of the great opportunities. The European Union is committed to making the low-carbon transition, and we aim to achieve it in the most cost-effective way.

We have taken a major first step with our 2020 climate and energy targets, on which we are making good progress. Current projections indicate we will over-achieve the goal of cutting our greenhouse gas emissions by 20% below 1990 levels by 2020.

Building a low-carbon global economy is imperative to meet the internationally agreed goal of **keeping global warming below 2°C**, and so prevent the worst impacts of climate change. That is why, as part of the effort needed from developed countries, the EU has committed to a long-term emissions reduction of 80-95% below 1990 levels by 2050. But 'decarbonising' our energy system is also an economic necessity for the EU. We currently spend more than €1 billion every day on imported fossil fuels - sometimes from countries that are vulnerable to political instability, as recent events have shown.

By seizing the opportunity to develop our own sources of renewable energy and improve our energy efficiency, we can not only reduce this costly dependency but also boost our economy through innovation in new technologies, create jobs and make Europe more competitive. The European Commission's 2011 Roadmap to a competitive low-carbon economy sets out how we can meet our 2050 emissions target range most cost-effectively.

With 2020 now just around the corner, 2030 is the next major milestone on the road to the low-carbon economy. The Commission is proposing that, by 2030, the EU reduces its greenhouse gas emissions by 40% below 1990 levels. This target is ambitious but achievable. We also propose the creation of a market stability reserve to make the EU Emissions Trading System more robust and effective in driving low-carbon innovation.

In the transition to the low-carbon economy we can all learn from each others successes and failures. Clusters of diverse projects, such as SAFE-ICE, which involve businesses and communities from different countries can be a very effective tool for developing the most cost-efficient approaches and practices.

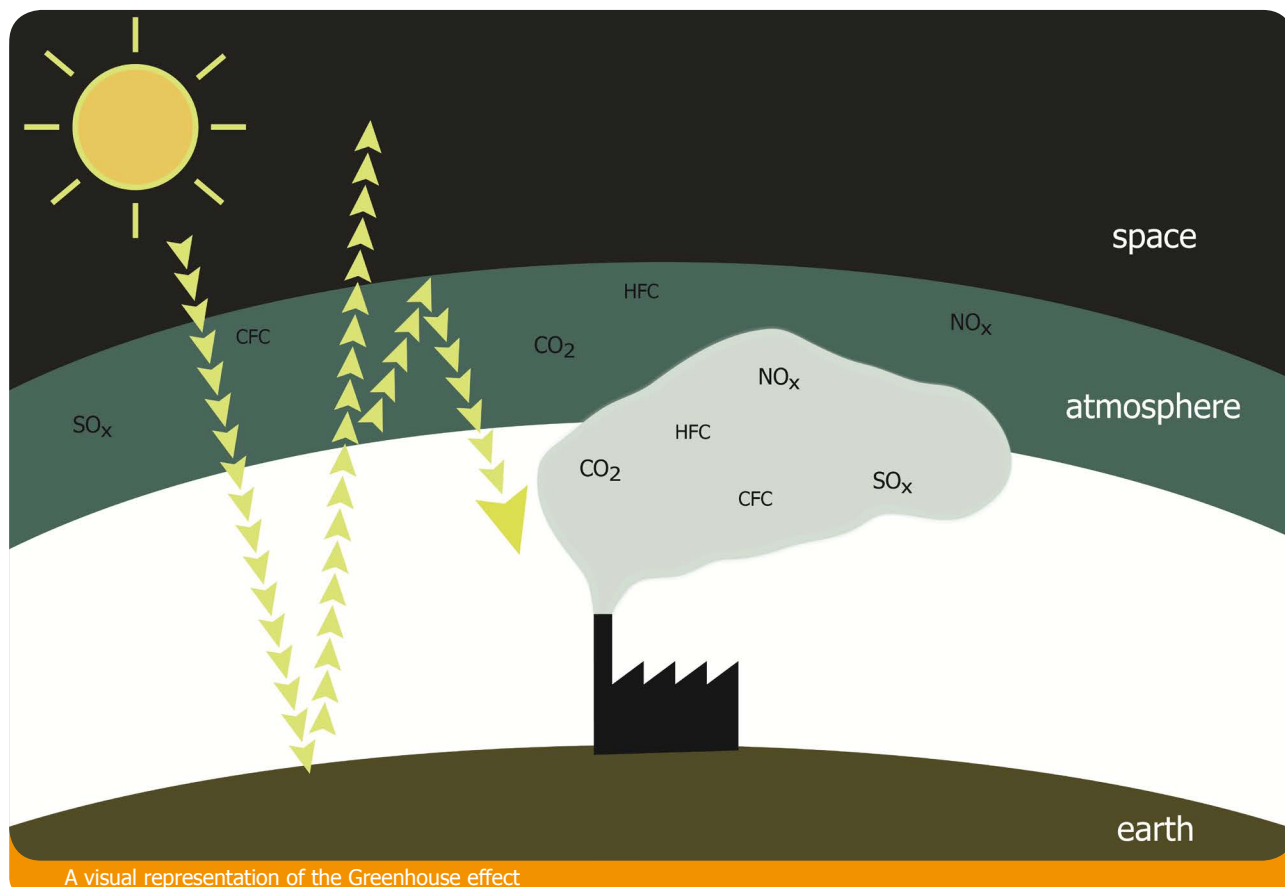
A handwritten signature in black ink, appearing to read 'Jos Delbeke'.

Jos Delbeke

Introduction

Climate, the pattern of weather in a particular region, evolves slowly over time. We only have to think of the prehistoric ice ages to realise that our climate is less stable than it appears. However, nowadays, our climate seems to change faster than ever before...

Over the last few decades, extreme weather conditions, such as floods, severe storms or persistent periods of drought appear more often. The combination of rising global average temperatures, the melting polar ice, and the increasing frequency of extreme weather conditions, have led climate scientists to believe that our world is getting warmer. Half of the most recent warming is caused by an increased concentration of greenhouse gases in the atmosphere (Houghton et al., 2001). Greenhouse gases are those gases present in our atmosphere that absorb infrared radiation and trap the heat in the atmosphere; a process similar to that of a greenhouse. These types of gases - amongst which are carbon dioxide (CO_2) and methane (CH_4) - allow the sun's energy in, but prevent most of the heat from escaping. As human activities are releasing large additional amounts of greenhouse gases, such as CO_2 , into the atmosphere, the greenhouse effect is intensified, and consequently, the temperature on Earth slowly rises.



Tangible consequences of climate change, such as temperature increase, changes in climate variability and substantial increases in sea level or average precipitation, go hand in hand with industrialisation and our increasing demands for energy. Since the Industrial Revolution (generally accepted as 1750), the atmospheric concentration of CO₂ has increased by around 40% (Blasing, n.d.). Today the majority of our energy is still supplied by coal or oil. As these fossil fuels contribute to the rise of atmospheric CO₂ concentrations, mitigation of the use of these energy resources is much needed to avoid the worst effects of climate change. We have to evolve towards CO₂-neutral energy systems and sustainable solutions, solutions that do not hijack the needs of future generations. By learning to manage our natural resources responsibly and by shifting our focus to innovation, we will not only reduce our consumption of carbon-intensive energy sources, but we will also protect our environment and reduce future costs. Consequently, **climate change not only represents a threat, but also yields opportunities.**

The 20 partners within the SAFE-ICE Cluster bring together their expertise and experience gained through 10 Interreg IV A 2 Seas projects (INTERREG IV A 2 Seas, n.d.) and wider work to share knowledge that will support better management of resources, new low-carbon innovation and a greater awareness of change amongst Europe's business community.

This publication provides an overview of the results of the first phase of the SAFE-ICE Cluster. In the first chapter the setting of SAFE-ICE is illustrated by reviewing the policy and market context of a low-carbon economy in Europe and by investigating the denotation of the term low-carbon economy. The second chapter explains the aim and objectives of the SAFE-ICE Cluster and introduces the Interreg IVA 2 Seas projects behind SAFE-ICE. The third chapter gives an overview of the results of the SAFE-ICE Cluster. Good practices demonstrate how the emission of carbon can be reduced at the level of individual businesses & buildings, business-to-business and business parks. Initiatives in various countries that support the supply and demand chain of the low-carbon economy are compared in the fourth chapter. In the final chapter future opportunities are explored.



Launch of the SAFE-ICE cluster, Hastings, United Kingdom, October 2013

The SAFE-ICE Cluster unites 20 partners from the coastal regions adjoining the Channel and the North Sea, of France, England, Belgium and the Netherlands. The mix of partners highlights the group's triple helix approach to exploring key issues from multiple perspectives with universities, public bodies and private organisations all being represented. The SAFE-ICE Cluster work is set within a backdrop of various European policies and strategies and an evolving market.

In this chapter we will look at the policy and market context of a low-carbon economy in Europe and we will discuss the different meanings of a low-carbon economy.

Policy context of a low-carbon economy in Europe

The consequences of climate change are not limited to faraway destinations, but also affect Europe. Some regions in Europe are more vulnerable to climate change than others. Southern Europe and the Mediterranean region are more likely to be confronted with heat and droughts, while the Alps

and Europe's far north will suffer from the consequences of the rapid melting of snow and ice. Coastal zones, deltas and floodplains will have to cope with rising sea levels and possible floods. All areas will be affected by more intense and frequent severe weather events like heat waves, flash floods and strong winds.

In an effort to try to minimise the effects of a changing climate, the leaders of the European Union have made a commitment to transform Europe into a low-carbon, resource efficient

economy. The European Parliament has agreed that at least 20% of the entire European Union budget for 2014-2020 will be spent on climate-related projects and policies. This triples the current share and could yield as much as €180 billion in climate spending in all major EU policy areas over the seven-year period (European Commission, 2014 b).

Climate and energy is a major theme in Europe's 10-year growth strategy 'Europe 2020', which sets out a new kind of growth for Europe, one that

is smart, sustainable and inclusive. There are targets to reduce greenhouse gas emissions by 20% from 1990 levels (to keep climate change below 2 °C), increase the share of renewable energy to 20% and increase energy efficiency by 20%. To achieve these targets, the Commission has recommended actions detailed in the 'Low-carbon economy 2050 roadmap' (March 2011) and 'Roadmap for a resource-efficient Europe' (September 2011). These communications are one of many policies that the EU has put in place to prevent dangerous climate change as part of the European Climate Change Programme (ECCP). In parallel, the European Commission and some Member States have developed adaptation strategies to help strengthen Europe's resilience to the inevitable impacts of climate change.

Market context of a low-carbon economy in Europe



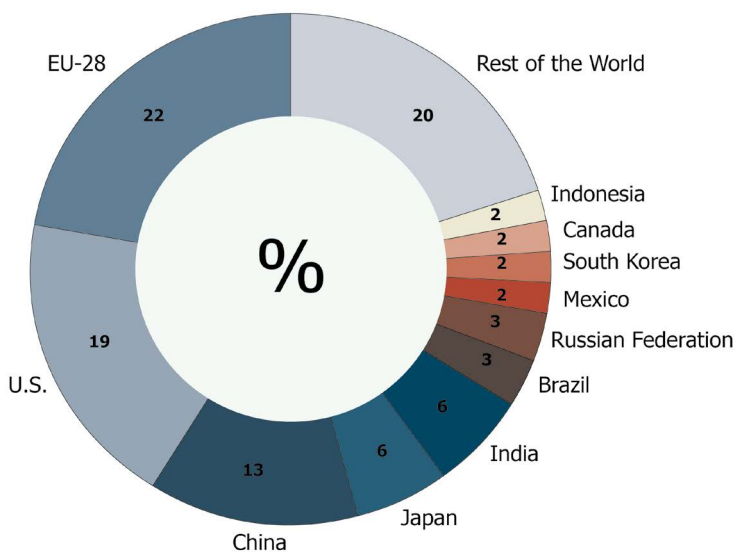
Value of LCEGS in €m for 4 EU member states

The global low-carbon environmental goods and services (LCEGS) market is worth around €4 trillion a year and is expected to grow at over 4% a year to nearly €5 trillion by 2015 (The Green Growth Group, n.d.). The EU accounts for a 22% share of this market as shown below, employing 7.8 million Europeans.

Belgium and the Netherlands) of the SAFE-ICE partnership are in the top 50 countries contributing to the total global sales value of LCEGS. These 4 countries account for 8% of the total global value. Each country has seen growth in the sector between 2010-11 and 2011-12.

The 4 Member States (UK, France,

In many countries, LCEGS is seen as a priority sector. This is true for the UK where the government was one of the first Member States to introduce legislation that set targets to reduce greenhouse gas emissions, the Climate Change Act 2008. As a result of this, The Carbon Plan has been drafted detailing how the UK will achieve these targets, whilst maintaining energy security and minimising costs to consumers. The view of the other Member States is less defined. However, the Flemish government, for example, puts a great deal of emphasis on innovative new products and services that potentially have a reduced impact on the environment, while the French government adopted the POPE law in August 2005. This law aims at cutting French greenhouse gas emissions by a



Share of global sales (%) of LCEGS sector

factor of 4 by the year 2050, in comparison to their 1990 level.

What does the low-carbon economy entail?

The term low-carbon economy

The understanding of the term low-carbon economy varies across the Cluster group both culturally and politically. Feedback from sector experts participating in the Cluster has highlighted some startling differences.

BELGIUM Low-carbon is not an expression that would be familiar to most businesses. The term Carbon Neutral or Green Economy is preferred. Sustainable energy also fits into the broader understanding of Green Economy.

UNITED KINGDOM The low-carbon market from a business perspective includes businesses who have green products/services or who are operating in an environmentally sound manner. However the UK government separates these into businesses that supply low-carbon goods and services (LCEGS sector) and those that demand these services by employing more resource-efficient business practices. Crucially, the low-carbon economy is seen as a growth area.

NETHERLANDS Green Economy is the more usual description used in the Netherlands.

FRANCE Green Economy is the terminology favoured in France with an increase in the use of Circular Economy and Blue Economy. All these terms complement the low-carbon economy and relate to an economy which is facing up to the challenge of climate change by promoting new resource-efficient behaviours and innovation.

Although 'low-carbon' is the chosen descriptor in most EU policies, many businesses found alternative terminology, like Cleantech or Green Growth, to have a more positive and dynamic resonance.

Resource efficiency

Resource efficiency must not be left out of low-carbon economy thinking. This is an area that businesses already understand and that can both streamline business processes and save them money, but will also contribute to EU-wide targets on efficiency measures. This thinking is already widely embedded and understood, and is driving an increase in demand for low-carbon goods and services. Despite the encouraging shifts we are already seeing in consumer attitudes and awareness, there are complexities preventing these from being translated into substantial shifts in purchasing choices, especially at the individual consumer level. The main issues are around information and price. Linking resource-efficient business practices to the broader term of low-carbon economy is more likely to resonate with businesses.

A SAFE-ICE definition for business – the low-carbon economy

The low-carbon economy is an economic system composed of buyers and sellers who put the environment and low-carbon at the heart of their business through consideration of resource efficiency in the way that they work and the goods and services that they offer and buy.

A low-carbon economy occurs where businesses ensure that they minimise their greenhouse gas emissions by practising resource-efficient processes and using goods and services that have a minimal impact on the environment. It is an economy where sellers offer goods and services that have reduced impact on the environment and produce these products without contributing to climate change, and where buyers demand products that will improve their environmental performance.

towards a low-carbon economy
from a business
perspective



Trade show JADDE, part sponsored by ECOMIND ©Ecomind

In the SAFE-ICE Cluster the knowledge gained from various Interreg IVA 2 Seas projects is combined.

In this chapter the abbreviation is explained and the various projects SAFE-ICE is based on are discussed.

The abbreviation explained

S SISCO
A ACE
F FUSION
E ECOMIND
I INSPIRERS
of
C Carbon
E Efficiency

The name of the Cluster, SAFE-ICE, incorporates the first letter of the five main Interreg IV 2 Seas projects on which SAFE-ICE is based. Within each of these projects, alternatives

to the carbon economy are sought on various levels ranging from individual businesses, business-to-business, and business parks, to market conditions and government policy.

The projects behind SAFE-ICE

The **SISCO** project aims to influence policy by bringing together people involved in planning processes to exchange knowledge on sustainable construction and by creating a cross-border centre of excellence.

ACE, Answers to the Carbon Economy, seeks practical and economical alternatives to the carbon economy at three levels: Individual Businesses and Buildings, Business-to-Business relationships, and Business Parks.

In the **FUSION** project, a range of business support services and tools are identified, tested and implemented in over 250 small and medium-sized enterprises working in the low-carbon economy (i.e. eco-innovative companies and eco-responsible companies).

Like FUSION, **ECOMIND** focuses on small and medium-sized enterprises. ECOMIND helps those enterprises to translate their eco-innovative ideas into commercially viable products and businesses and to introduce sustainable design into product development.

INSPIRER does not focus on enterprises, but on people. By means of new green space, recreation areas, measures to increase security and to favour biodiversity, quality of life is improved. The project also encourages people to reduce their energy consumption by focusing on the sustainable renovation of houses and the building of passive houses.

In the SAFE-ICE Cluster the knowledge and expertise of these 5 projects are complemented by 5 other Interreg projects.

ECOFAB, a project on eco-construction and sustainable development

Future Cities, a project that helps urban networks to face climate change

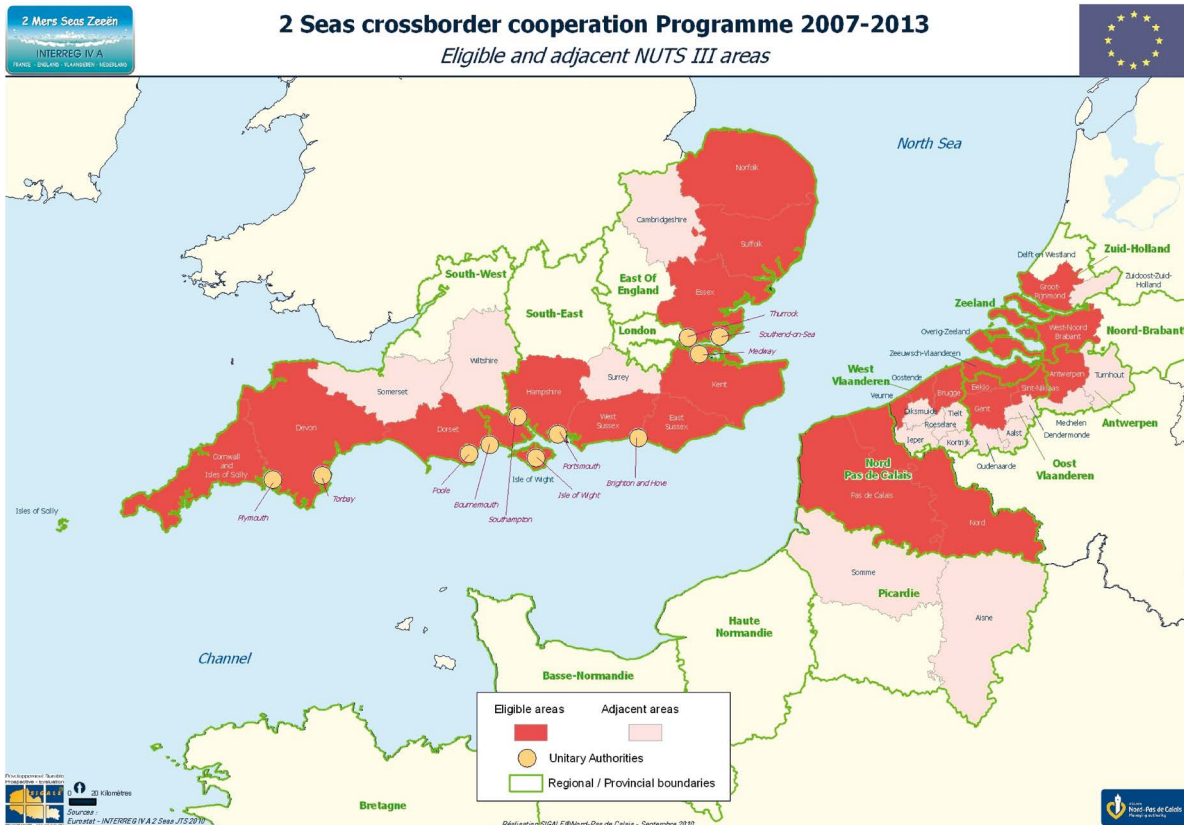
Ace for Energy, a project that promotes renewable energy

Answer, a project that focuses on energy-efficiency

Eco2Profit, a project aimed to reduce carbon emission and to increase sustainable energy on business parks

SAFE-ICE combines the results and lessons from those 10 Interreg projects, and develops a common understanding of what the low-carbon economy is.

The SAFE-ICE Cluster identifies what is required to promote a shift to a resource efficient, low-carbon economy from a business perspective across the 2 Seas region.



Map depicting the eligible (in red) and the adjacent (in pink) areas of the 2 seas Programme ©2 Seas INTERREG IV A Joint Technical Secretariat



The Nolet mill, Schiedam, the Netherlands ©municipality of Schiedam

To combine the results and lessons from the 10 Interreg projects SAFE-ICE is based on, several expert working groups were created. Each of these groups discussed good practices and identified barriers and opportunities experienced with individual businesses and buildings, business-to-business and business parks.

This chapter shows how businesses can optimise their energy use within their own premises and processes, how business-to-business relations can improve the reduction of carbon emission, and how implementations at a business park level help to reduce the energy use. Good practices in terms of research, innovation, and business support are highlighted, while future challenges are explored.

Overview of businesses and buildings

Introduction

The owners of small and medium-sized enterprises (SMEs) and large enterprises will play an important role in achieving Europe's climate and carbon objectives. Businesses use energy for buildings, lighting, heating, material

processing and production. On top of that, the transport of employees, raw materials and finished products also consume a considerable amount of energy. Businesses can, however, reduce their impact on the environment by implementing measures that support carbon efficiency. The challenge lies in finding measures that at the same time increase the profitability of businesses.

Besides individual businesses, buildings that accommodate those busi-

nesses or that house people can play a crucial role in the reduction of our carbon emission.

The turnaround towards a low-carbon economy does not happen overnight. The SAFE-ICE partners are noticing a gradual increase in the number of companies who are adopting more resource efficient ways of working. This evolution towards a low-carbon economy requires not only a change in behaviour, but also private investments, creative ideas, innovation and coop-

eration between governmental and private organisations and the public.

A variety of measures can be implemented, ranging from specific regulations and financial measures to the provision of information and advice. This set of measures is needed to create an environment that allows the development of carbon efficiency to gain momentum.

In this section the challenges faced by business support organisations and governmental bodies wanting to stimulate businesses to reduce their energy use and their consumption of resources are discussed. Additionally, the construction of low-energy buildings is discussed and an overview of tools that have been developed to support energy efficiency of businesses and buildings is provided.

Good practices

Regulation

The legislation that has been implemented in the partner countries to promote a low-carbon economy differs between each country. Expert feedback appears to have relatively limited impact at a small business level. The one common theme is that the main focus of the implemented legislation lies in energy efficiency. Some of the legislation focuses directly on energy savings of buildings or on improving industrial processes. Examples of these can be seen in obligatory environmental management schemes, that include energy saving opportunities; the requirement to build with a good Energy Performance Coefficient or the implementation of 'Best Available Techniques' via the EU industrial emission directive. Other legislation

may require indirect improvements of energy use. Product regulation (ecodesign or ecolabelling) includes energy consumption criteria and efficient use of resources to grant the label.

CASE STUDY United Kingdom

Steps to Environmental Management

Project funded by the South East European Regional Development Fund (ERDF) Competitiveness Programme 2007 – 2013 and Kent County Council through Low Carbon Futures project

Kent County Council developed 'Steps To Environmental Management' (STEM), launched in 2011. This step-by-step guide explains how to put an environmental management system in place within businesses or organisations. The scheme has three levels; Blue, Silver and Gold, with 'Gold' as the most ambitious level. STEM has been introduced to small and medium businesses (that is, businesses with 250 employees or less) in workshops delivered across Kent. The Council has worked with 11 local authorities and large organisations to run STEM workshops with their suppliers, helping to



green their supply chain and share the benefits of improved environmental management, such as reduced operational costs, improved reputation, legal compliance and the potential to win new business. Businesses that operate an environmental management system using STEM save, on average, £2,065 annually, reducing annual carbon emissions by 3.9 tonnes.

CASE STUDY Netherlands

Regional authorities regulate energy efficiency investments

Project SISCO
Part funded by the Interreg IVA 2 Seas programme

DCMR, the environmental protection agency of local and regional authorities in the Rijnmond region, implemented regulation that obliged businesses to make investments in energy efficiency with a pay-back time of 5 years. DCMR provided advice to all businesses in the area, who in turn had to draw up an energy efficiency plan and had to estimate the necessary budget for this investment. The obligation to invest triggered other businesses to offer their services as an energy service company or to present their energy efficiency measures.

Financial measures

Authorities can opt to support the transition towards a low-carbon economy with financial measures. Some of those measures have a long-term perspective, while others have a direct impact. There is proof that small grants for investments in carbon efficiency lead to a business investment of at least three times the original grants.

Authorities can also opt for in-kind subsidies. Instead of cash, vouchers can for example be issued that allow businesses to undergo a carbon scan or to make use of specific experts.

CASE STUDY United Kingdom

BSK-CiC provides energy grants for energy efficiency

Project Energy Grant500

Part funded by the South East

England Development Agency and the European Regional Development Fund

The Energy Grant 500 (EG500) actively drives small business action to reduce CO₂ emissions. With this measure BSK-CiC wanted to stimulate local market growth and regional supplier expertise. The project encouraged SMEs to improve their understanding of their energy consumption by reviewing their bills and looking around their premises to find simple low and no cost measures to reduce energy consumption and CO₂ emissions, including support for behavioural change. The stimulus for action was a programme of small grants of up to £500 each, allowing SMEs to make energy efficiency improvements. Grants were available for a range of pre-agreed measures. In feedback 91.8% of businesses confirmed that without the Energy Grant programme they would not have taken efficiency measures. This demonstrates that the project has been a stimulus for engagement between low-carbon suppliers and SMEs, and has led to better understanding of SME needs for low-carbon goods and services.

CASE STUDY Belgium

Coaching companies in Ghent Business Park Wiedauwkaai

Project ACE

Part funded by the Interreg IVA

2 Seas programme

Current energy performance regulations only cover a low percentage of the total energy use. There are less obligations for buildings such as industrial offices, show rooms and laboratories. In Ghent, a 'Coaching Path' (energy audit, follow-up guidance and advice on energy measures) was created for every new build. The requirement for a 'Coaching Path' was obligatory, as part of the development process, and the cost price was included in the purchase price of the ground. The City of Ghent gives a financial incentive for the implementation of measures that focus on low temperature heating and better insulation. The energy consultant has to check if the sustainable measures have been executed prior to paying the financial incentive. The goal of this project was to cover the total energy use of the enterprises and to identify the biggest opportunities for energy (cost) reduction. The City of Ghent predicts that this approach will lead to a reduction in energy costs by up to 20% on each new build.

Information for and advice to businesses

How to reach SMEs whose core business is not energy? A large number of tools and substantial finance is available, but how should the authorities get the message across? Although

authorities can support the transition to a low-carbon economy by providing information, advice on financial support or consultancy, this does not automatically lead to concrete implementations. The result is often an incentive for, or cooperation with, improvements. Authorities should fulfil the role of ambassadors rather than inspectors.

CASE STUDY Belgium

Selling conditions and guidance in Flanders

Project ACE

Part funded by the Interreg IVA

2 Seas programme

The WestFlanders Intermunicipal Association (wvi) provides free energy guidance to businesses located on its low-carbon business parks. The entrepreneur and his architect meet with wvi to discuss the primary building plans and the technical installations. wvi provides advice on energy regulations and on possible measures to reduce the energy demand or to optimise the energy use. Opportunities for investment in renewable energy are discussed and wvi gives information about available subsidies that can support those investments. wvi ensure that the selling conditions stipulate the consumption of green electricity. The businesses can buy green electricity through the grid, they can produce it themselves or they can buy carbon credits with the emission trading system to compensate their electricity consumption.

CASE STUDY Netherlands

A pool of architects in Schiedam for more sustainable buildings

Project SISCo
Part funded by the Interreg IVA
2 Seas programme

In Schiedam, a pool of architects qualified to support sustainable build or retrofit has been established. Architects play an important role as intermediate knowledge brokers. They give advice about the possible sustainability gain of the planned investments. The entrepreneur is informed at the right time in his decision making process during renovation or building about the various options of energy efficiency investments and their potential advantages. All entrepreneurs in specific pilot industrial areas are invited to make use of the free architect pool and to discuss their most profitable, sometimes creative, investment options. A design for an old Dutch windmill has been used for a new wind turbine that produces renewable en-

ergy for the production facilities and its international market position.

CASE STUDY France

Changing the working method of construction companies

Project INSPIRER
Part funded by the Interreg IVA
2 Seas programme

Habitat du Littoral (HL), a social housing association, tried to bring about a change of behaviour in construction companies. Together with future engineers of the Ecole des Mines de Douai, whom provided technical input, HL created a guide that informed all construction companies active on the construction site of the building techniques typical of passive house development. The content of the guide focused on topics such as working together, new behaviours & techniques, passive house standards and the air tightness test. The main contractor informed and monitored the various subcontractors. The behavioural

change was difficult to establish and did not happen overnight (INSPIRER, 2014).

Information for and advice to tenants

CASE STUDY France

Passive house development

Project INSPIRER
Part funded by the Interreg IVA
2 Seas programme

Habitat du Littoral are building 10 passive houses in Boulogne-sur-Mer. They are using this process, which is more expensive than traditional housing, to not only provide low energy usage homes (15kWh/m² per year) but to support the education of local builders and residents. Tenants will have access to online usage information and will have the ability to chat to energy ambassadors or technicians. It has been difficult to engage builders in behavioural change but working with university students and developing an information campaign has proven to be beneficial (INSPIRER, 2014).

Tools for business support

All SAFE-ICE partners experience difficulties persuading companies to take action. Collaboration between businesses and public bodies has to be further developed. The use of tools can help to discuss potential energy measures with SMEs. Specific case studies demonstrate the impact of energy measures. Some tools are developed exclusively for SMEs, while other tools can also be employed for larger industries. Most SAFE-ICE partners want



The Nolet mill, Schiedam, the Netherlands ©Hans, fotovlieger.nl



to attract new industries into existing business parks. Some tools support decision making in company management. These tools clarify the effect of a measure on the profit or the overall environmental performance. The table of instruments and tools provides an overview of financial and communicative implementation, besides various tools that enable businesses to move towards a low-carbon economy.

CASE STUDY Belgium

Ghent defines an energy management guidance route

Project ACE
Part funded by the Interreg IVA
2 Seas programme

As the City of Ghent observed that energy audits often did not lead to a sufficient energy efficiency increase, the City developed an energy management guidance route. This route consists of an audit, an analysis of all energy measures with positive returns, and a follow-up guidance to implement new interesting measures. Fifteen enterprises (with an energy us-

age between 1.000 MWh and 27.000 MWh primary energy) participated. It is essential that, throughout the guidance route, the Energy Action Plan is validated by the management. Measures concerning pressured air, relighting, insulation, heat recovery, usage of entrances and condensate pots, have proved to be interesting. Moreover, the acquired guidance was very useful for enterprises that wanted to obtain the ISO 50001 certificate. Thanks to the guidance route, energy reduction of up to 20% is feasible.

CASE STUDY Netherlands

Schiedam measures sustainability: the DCBA-Ω method

Project SISCo
Part funded by the Interreg IVA
2 Seas programme

It is possible to measure the level of sustainability of a building, infrastructure, and even a full industrial estate. It requires considerable investment to go from the minimum legal level (D) to the ultra-sustainable level (Ω). The main question remains whether it can

be justified economically. The municipality of Schiedam has developed the DCBA-Ω method, measuring the costs and the long-term values of investments in sustainability. It includes choosing the most efficient investments in building materials, energy production and transport and demolition. Testing has shown that most measures up to the level B+ will pay back. Additional investments may lead to an additional value in the long run, when they are combined with other investments.

Barriers and opportunities

BARRIERS

Although regulation has in some cases shown to be one of the driving factors to start innovations in energy efficiency, its use should be limited. Authorities may make use of their position as an 'authority' with the right to enforce. However, using this right may hamper their position as advising body.

type of measure	description
Financial	Green leasing. Obligations on energy and resource impact for landlords and tenants (Jones Lang LaSalle, 2012)
Financial	Green procurement. Governmental organisations buy products with minimum environmental impact (European Commission, 2014 b)
Financial	Scan vouchers. Small grants for making an energy or carbon scan.
Financial	Energy grants. Small grants for low-carbon economy investments, e.g. LED lights (BSK-CiC, n.d.)
Financial	Architect pool. Architects can be asked for advice at a reduced rate for new buildings or renovations. (Schiedam, 2014)
Financial	EU funds support. Subsidy helpdesk for finding and using EU funds.
Financial	Direct loans. A revolving fund is set up for specified loans in energy or resource efficiency.
Communication	Energy saving contest. Minimum two persons or organisations compete in energy saving measures. The one that has reduced the most CO ₂ , wins and receives extra media attention. (Energiestrijd, n.d.)
Communication	Access to information. Websites with information from various sources are made accessible via a site platform. In the SISCO project, for example, a supplier directory was created. (the Environment Centre, 2014)
Communication	Business manuals. Projects make case studies accessible. ACE, for example, produces case studies on low-carbon economy. (Power-Link, 2011)
Communication	Information brochures. Information made accessible in easy-to-read formats. Content on trias energetica, waste hierarchy, design principles.
Communication	Low-carbon services. Information on services and consultancies, e.g. energy service companies, carbon / energy scans, energy efficient building ...
Tools	STEM. Steps to environmental management (Kent County Council, 2014)
Tools	EMS. Guidance for environmental management systems (Epa, 2013)
Tools	BREEAM. Assessment method for sustainable buildings (BRE Global, 2014)
Tools	Environmental audit
Tools	Guidance energy efficiency (in Dutch). (Ministerie van Infrastructuur en Milieu, n.d.)
Tools	Sustainable design support (The Centre for Sustainable Design, 1995)
Tools	Energy ambassadors
Tools	SISCO and FUSION database of green suppliers (the Environment Centre, 2014) (BSK-CiC, n.d. b)
Tools	Online training program
Tools	DCBA-Ω – classification of energy efficiency and environmental investments (Brink, B. & Laute, P., n.d.)
Tools	Facilitation. Governmental organisations take up a role in facilitation (networks, meetings, workshops, ...)
Tools	Chalk board videos. Spoken word combined with visuals. ECOMIND (>30,000 hits) (Boon, J., 2012)
Tools	Award. FUSION gives awards to winners in different categories

Tools and instruments for business support

For businesses that are situated on a business park not owned by a public body, it is more difficult to re-enforce specific measures or to contribute to the content of the lease.

There can be a discrepancy between those who make investments in energy efficient buildings (the owners) and those who profit from those investments (the users).

OPPORTUNITIES

Interest is often sparked by self-interest of the business. Therefore, the (mainly financial) return of energy efficiency measures should be emphasised.

A clear list of top CO₂ savings to support business action can help SMEs to choose efficient investments.

The market itself is a driver for change. Specific measures such

as 'EnergyGrant500' or the 'Energy guidance route' challenge the market.

Enforcement of requirements for energy investment demands additional input from advisors and the supply of industry benefits.

Authorities have to further encourage businesses to invest in energy measures by providing sufficient information and support.

Overview of business-to-business

Introduction

Business-to-Business

Business-to-business (B2B) activities comprise of services, information and/or products that are exchanged from one business to another. These businesses do not necessarily have to be located within the same business area. Through joining forces, companies become more (cost) efficient. Resources and facilities can be shared, resulting in a higher reduction of carbon emissions. Within the SAFE-ICE Cluster the B2B expert working group researched how B2B investments and initiatives can increase resource efficiency and can promote a circular economy.

Specific B2B investments and initiatives

Sustainable collaborations between companies can create opportunities to reduce the carbon impact. These collaborations can be incorporated on various levels: resources, facilities and employees can be shared, while transport needs and resources can be managed in cooperation.

TRAFFIC MANAGEMENT

- cargo management
- shared commuter transportation
- shared parking space

RESOURCES

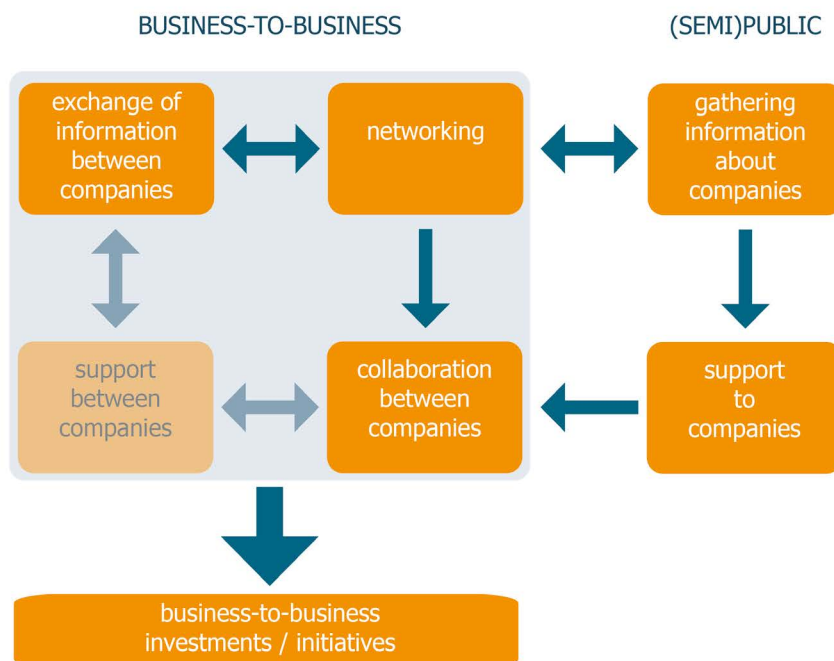
- collective buying of renewable energy
- heat recovery and exchange between businesses
- heat exchange between businesses and energy suppliers
- waste from one business serves as raw material for another business

FACILITIES

- waste reception facility
- bulking up waste and sharing waste contracts
- common collection & treatment of waste water
- on-site restaurant shared by several businesses
- shared renewable energy resources (photovoltaic energy, wind turbine, biogas, etc.)
- lower heat pipeline for heat exchange (intake and/or uptake)

EMPLOYEES

- pool of shared production employees, e.g. in case of high production demand
- shared reception, administration and/or catering
- shared waste reception facility for intake and quality control



Model of the 'B2B incubator'

B2B incubator: key success factors

Most B2B investments are the result of a process in which networking fulfils a central role. International network sites such as LinkedIn and national online network groups are used extensively by companies to identify potential partners. Exchanging information about good practices online or at business gatherings such as business conferences, events, and symposia, opens doors to new ideas, initiatives and potential collaborations. Through such business gatherings and network events potential partners can be sourced. New partners can also be identified through trusted business referrals by business peers, through trade publications, or through databases assembled by local authorities and support agencies. Support agencies and local authorities help to promote new ideas, offer expertise to groups of companies (e.g. carbon efficiency scans), commission feasibility studies, offer financial incentives and subsidies, organise events and consultation platforms and support collaboration and the forming of coalitions or clusters. Through the exchange of knowledge, financial support, research and feasibility studies, companies can give support to each other. In most cases, however, this remains a side activity of the company, not its core business. Those activities from the private as well as from the (semi)public side are represented in the B2B incubator model. All the elements in the B2B incubator are of significant importance as they contribute to collaboration, innovation, and the forming of coalitions between businesses, and can finally result in concrete B2B investments.

Good practices

In this section various good practices that showcase successful B2B investments in matters of networking, knowledge exchange and support to businesses are discussed.

Networking and knowledge exchange

In general, network events are not specifically focused on the low-carbon economy. However, business gatherings and other networking activities form an excellent opportunity to exchange ideas and to promote the benefits and opportunities that low-carbon solutions have to offer. Collective business buildings, in turn, can play a crucial role in the propagation of sustainable ideas.

CASE STUDY United Kingdom

Connecting businesses across borders

Project ECOMIND
Part funded by the Interreg IVA
2 Seas programme

ECOMIND has supported sustainable business growth and has facilitated the development and market penetration of new eco-technology products and services by linking businesses through cross-border events and workshops. In total, 126 events have been organised. Some of these events focused on business networking and exhibiting, while others facilitated companies to share knowledge and skills. Good examples of such cross-border knowledge sharing have been demonstrated by the 'Business Design Forum' at TU Delft University, where 19 UK companies spent time in

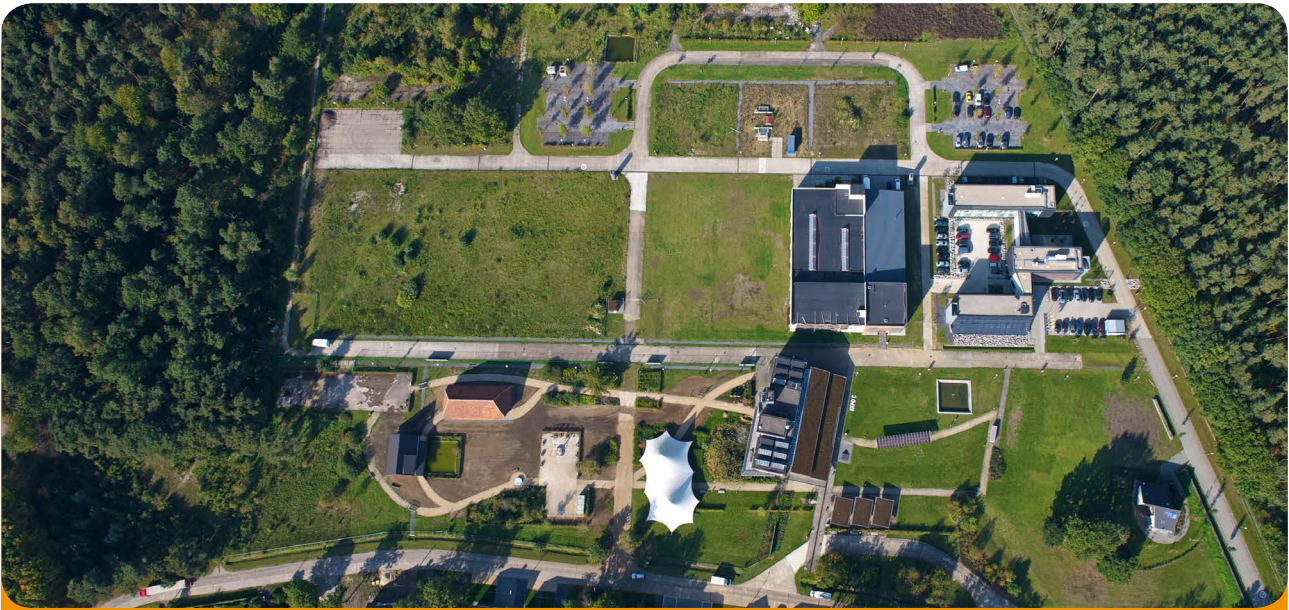
workshops looking at the application of sustainable design. New eco-technologies that were supported by the project include a new delivery method for sinking ground source heat pump piping, GEOMOL, (which has since won awards), Firefly solar working on solar generators and Evening Breeze, an innovative cooling system for beds. Data has been collected by carrying out surveys to assess the barriers and drivers for businesses to design/produce eco-innovative products and incorporate sustainable design principles into manufacturing. Over 500 businesses have been assessed in this way with around 350 going on to receive intensive support.

CASE STUDY United Kingdom

Low carbon Kent network group

Project FUSION
Part funded by the Interreg IVA
2 Seas programme

FUSION supports a network of businesses who are working together to support a shift to a low-carbon economy. The network, 'Low carbon Kent' (Kent County Council, 2011), has attracted over 1,000 members. The benefits of membership are, amongst others, access to free sustainable business advice from Kent County Council, invitations to various events including the annual Green Business Conference and access to the Steps to Environmental Management (STEM) scheme. The network has also developed a LinkedIn group with over 300 members. This online group is used to share ideas between businesses, link businesses and showcase good practices (LinkedIn Corporation, 2014).



The grounds of Kamp C ©Kamp C

CASE STUDY Belgium

Kamp C

Projects EXPO C, info on sustainable living and building; 'Green Valley Kempen'; Low energy business centre De Basis
Part funded by EFRO, Objective 2 and 5

Kamp C in Westerlo is facilitating companies in sharing knowledge on sustainability. The centre consists of a low energy public information zone and business space. The collective business building functions as an incubator centre for budding entrepreneurs active in the sustainability sector (construction and energy) and therefore forms a niche of entrepreneurs who work together. In the industrial zone, companies in the sustainable building and/ or renewable energy sector can buy or lease their own building and have the opportunity to work in a larger context. In their production they have to deploy environmentally sound products and technologies as much as possible, and deliver high-quality

end products or services in the sector of sustainable building and living.

Support to businesses

Databases used for business park management purposes, are not always shared among the businesses located at the business park. However, in order to draw up cases with entrepreneurs, transparency is key. An important role is put aside for support agencies and local authorities as they can offer expertise (e.g. carbon efficiency scans) and commission feasibility studies (e.g. heat networks).

CASE STUDY Belgium

Heat network 'Ghent Zuid 1'

Project ACE
Part funded by the Interreg IVA 2 Seas programme

Since 2007 a waste incinerator on business park 'Ghent Zuid 1' has generated steam that provides heating to a nearby hospital. This waste

incinerator still has some extra waste steam (considered green), which might be useful for other companies on the business park. In 2011-2012, the City of Ghent carried out feasibility studies for the extension of the existing heat network. Potentially interested businesses were contacted in order to list the supply and demand of waste energy on the business park. This research resulted in a possible route of waste steam from the waste incinerator. Following this first feasibility study, the interested companies started a still ongoing dialogue with the organisation managing the waste incinerator and carried out more detailed studies for technical and legal feasibility. A nearby company that is currently producing steam for its process with fossil fuels could make use of the steam from the waste incinerator and save a considerable amount of CO₂-emission (Power-Link, 2011).



CASE STUDY Belgium

Heat network Roeselare

Project ACE
Part funded by the Interreg IVA
2 Seas programme

MIROM, the intermunicipal association for waste collection and treatment, has its own incinerator in Roeselare. (Mirom, 2013) At present, the residual heat of 110°C is transported by a heat network of about 15 km to 22 customers. However, the heat network has a much larger potential. MIROM and wvi strengthened ties and investigated the feasibility of an extension of the heat network for the new industrial site Roeselare West and for a new greenhouse area for horticulture. A public contract for the design and technical development of this heat network is currently being drafted (Power-Link, 2011).

CASE STUDY United Kingdom

Eco-refurbishment of industrial stock

Project ACE
Part funded by the Interreg IVA
2 Seas programme

In Hastings in the United Kingdom, much of the existing commercial building stock has poor energy performance, as it was built prior to legislation brought in following the OPEC oil crisis in the seventies. HBC carried out various studies to identify the potential for carbon reduction interventions and investments in its factory units. These studies provided a comprehensive and compelling case for the eco-refurbishment of HBC's industrial stock. Under the ACE project HBC carried out a pilot refurbishment of six of its factory units, and an assessment of the impact of this was a 25% reduction in carbon emissions. However to achieve further improvements, it became clear that engagement with businesses to actively man-

age their energy and waste processes was needed. There are currently three Green Business Engagement Networks in Hastings to raise awareness among businesses and maintain momentum of actions and improvements.

CASE STUDY France

Circular economy

Project ACE
Part funded by the Interreg IVA
2 Seas programme

ECOPAL helps businesses to integrate environmental issues in their day-to-day activities. This is done collectively, by sharing means, knowledge and financial resources. Thanks to this approach, the members can focus on their core activities while contributing, through industrial ecology, to the circular economy.

ECOPAL stimulates companies to exchange information about their material and waste flows, in order to transform these flows into new resources for the territory and its companies.

Within the ACE project, ECOPAL has realised 133 collections of waste via 10 waste services. Of this waste, 262 tons were recycled. The implementation of principles of the circular economy had an impact on the employment of people in waste services: over 250 employees at Baudalet, over 50 employees at As-tradec, and 45 employees at Chimirec.

Barriers and opportunities

BARRIERS

As energy and resources management are not the core business of most companies, the budget and time these companies can allocate to sustainable development is limited.

Current legislation can hamper B2B initiatives. The use of (external) residual heat, for example, does not count towards the EPC certificate requirements.

Difficulties in exchange of electricity between companies.

The feasibility of (heat) networks is hampered by financial (huge initial investments and extensive payback periods) and legal (distrust between companies which results in very complex contracts) barriers.

Waste exchanges do not tend to work well as companies require secured materials delivery.

OPPORTUNITIES

Local authorities and agencies are well placed to provide support to companies. Although it is not their core business, companies should be stimulated to give support to each other. In the B2B incubator model, this is identified as a potential gap.

There is a perception barrier between the (semi)public and the private levels. The main goal is to operate and communicate on the same level, to speak each other's language, and to connect with each other's mind-set.

Although local authorities and agencies already help companies to disseminate their message, the possibilities of social media should be further explored to expand the networks.

Not all companies support the transport of their employees, and mobility plans are not frequently implemented by organisations.

Business networks are mostly business orientated. By thinking out of the box and expanding networks with professionals such as artists and architects, new insights and ideas can arise.

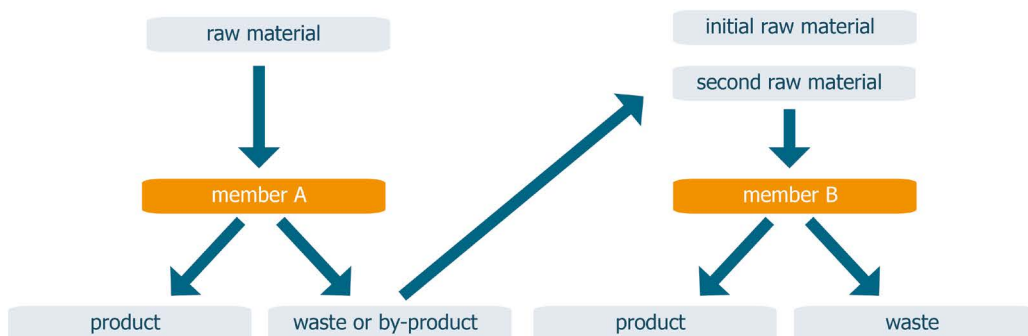
Let the current industrial system evolve:

- draw inspiration from natural mechanisms
- develop cooperation between actors
- optimise the local management of the flows



Through 2 major principles:

- mutualisation
- substitution



Schematic overview of industrial ecology ©ECOPAL

Overview of business parks

Introduction

Business parks, where businesses - sometimes oriented to a particular sector - are located in each other's neighbourhood, offer particular opportunities for a low-carbon economy. There is in general a minimum of co-operation between the majority of the businesses through e.g. business park management. In the development of a business park, 5 phases can be distinguished. Each of these phases has its own opportunities and barriers with regard to the integration of renewable

Purchase of land

Concept & design

Development

Selling/renting conditions

Management

energy production and energy efficiency. In this chapter, several good practices show how energy can be reduced on new and existing business parks in each of those five phases.

Good practices

The purchase of land

The first step in the development of a new business park is the purchase of land. To maximise the energy potential, the location of this land should

Brownfield land is unused or neglected industrial or commercial property, of which the expansion or development is hindered by the (potential) presence of environmental pollution.

Greenfield land, as opposed to brownfield land, is undeveloped land located in a rural or urban area.

depend on its possibilities for renewable energy production. In densely populated areas, such as Flanders or the southern part of the Netherlands, this is hard to achieve due to existing spatial structure plans and other spatial restraints. The bringing into use of unused land, designated for developing business activity, and the development of brownfield land can form a solution to this scarcity of land.

CASE STUDY Belgium

Bringing into use unused land

Project Onderhandelingssteams onbenutte bedrijfspercelen & Activeringsteams

Part funded by the Flemish Government, Enterprise Agency

In Flanders, an inventory was made of unused land assigned to business. In the Province of West Flan-



Business park Herdersbrug in Brugge, Belgium ©wvi

ders, wvi helped to activate 70 ha of this unused land, reserved on spatial structure plans for business activities, by negotiating with landlords.

CASE STUDY Netherlands

Regeneration of existing business parks

Funded by the municipality of Schiedam

In Schiedam, greenfield development is no longer possible. The municipality of Schiedam, therefore, invests in the

sustainable regeneration of existing, sometimes derelict, business parks and in the development of unused plots on existing business parks. As the location is fixed and the plots are small and scattered, the challenges in the field of energy efficiency and renewable energy production are great.

The design and concept of a business park

Experience teaches us that little can be done in the purchase phase. The design and concept phase, therefore, becomes even more crucial. It is far easier to include energy measures when they are foreseen in the plan-

ning phase than to take such measures during the design and concept phase.

CASE STUDY Belgium

Development of the new business park 'De Spie'

Project ACE
Part funded by the Interreg IVA
2 Seas programme

wvi cooperated with Ghent University to develop the energy design concept of the new business park 'De Spie' to be realised in Bruges. Together they researched what type of technologies can contribute to an energy neutral business park and what implications these technologies have on the spatial design. All aspects of the energy chain were examined: from energy sources to energy carriers and storage, energy efficiency and the actual energy demand of the business park.

CASE STUDY Belgium

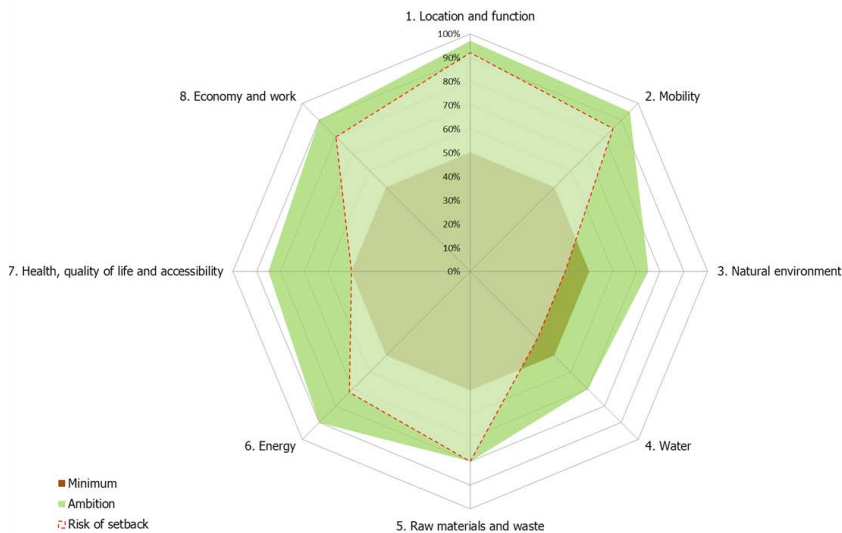
Sustainability measurement system

Project ACE
Part funded by the Interreg IVA
2 Seas programme

The City of Ghent developed a measurement system for sustainability throughout the planning and development phase of each business park. In this guidance and measurement tool (Milieudienst van de stad Gent, n.d.) business parks receive a score for each sustainability principle (e.g. energy, mobility, water, ...). A spider chart visualises how sustain-



Places where wind turbines, spar height = 90 meter, can be implemented on 'De Spie' ©wvi



The spider web visualises the score of a business park on each sustainability principle. ©the city of Ghent

able the business park will be and where improvements can be made.

CASE STUDY United Kingdom

Local Plan Planning Strategy

Local Plan Planning Strategies are part of the legal duties of local authorities in the UK

Local Plan Planning Strategy contains planning policies affecting those applying for planning permission for new developments. All developments must be designed to incorporate appropriate climate change mitigation and adaptation measures. Developers

are required to follow a hierarchical approach: first improve energy efficiency, then provide on-site renewable energy generation solutions, ultimately connecting to an existing renewable energy source outside the site. Developers are encouraged to meet higher standards than required nationally. Compliance with this policy is required to be demonstrated through the planning application.

The development of a business park

The development of an energy efficient business park greatly depends on its design. Sustainable tendering has become an important tool to achieve this energy efficiency. In the tendering procedure for the designer

of the infrastructure plan and for the contractor, the energy measures and feasibility studies need to be included.

CASE STUDY Belgium

Best business structure

Project ACE
Part funded by the Interreg IVA 2 Seas programme

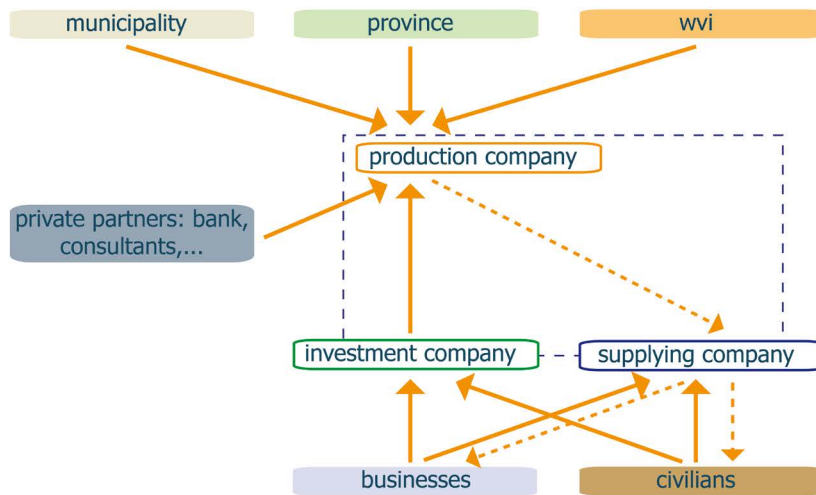
Adequate investment models for large scale renewable energy projects are hard to find, specifically those including different stakeholders such as local businesses, local governments, civilians, and with financial solutions in place. wvi commissioned a study to investigate this. In this work, the potential business structures are considered, highlighting their advantages and disadvantages.

To work together optimally an autonomous municipal or provincial company, in which all partners are represented, should be created. The best legal structure depends on the aim of the corporation.

- Will the partners:
- participate in the production of renewable energy?
 - participate in the delivery of renewable energy?



Schematic overview of a potential best business structure ©wvi



Schematic overview of potential partners and structures ©wvi

- participate in the production and delivery of renewable energy (single, double and multiple structure(s) are possible)?

The selling/renting policy

Energy measures can be enforced by including them in the renting/leasing/selling conditions.

CASE STUDY Netherlands & United Kingdom Renting conditions versus location

Funded by the municipality of Schiedam

In Schiedam, the renting conditions for plots stipulate that a tenant must complete the DCBA-Ω method (see page 13) and achieve a certain level before they can rent a plot to build

or to refurbish business premises Schiedam has the advantage that it is near to Rotterdam and that there is a big demand for business premises. Hastings does not have this advantage and struggles with the integration of energy measures. As these conditions are not implemented everywhere, businesses threaten to leave or to not rent the premises. Hastings is in an early stage of exploring how to integrate green clauses into the existing leases. The use of the DCBA-Ω method could help to raise awareness of

business park management Roeselare

management structure

- steering committee 2x/year
- install a business park association

cooperation

- thematic workshops
- yearly network event

mobility

- signage

environment

- info sessions on REU and water use
- thermal imaging scan
- joint purchase on energy and PV systems
- workshop compressed air
- scan sustainable building
- separate collection of small hazardous waste
- other separate waste collection

communication

- feedback on feasibility studies
- website
- e-newsletter

quality of the surroundings

- joint maintenance of green zone

staff

- job fair
- fire training
- joint flyer with vacancies
- child care

Activity plan for park management on business parks in Roeselare ©wvi

the tenants as the tool pin-points the potential advantages for businesses.

CASE STUDY Belgium
Developing selling conditions

Project ACE
Part funded by the Interreg IVA
2 Seas programme

Within the ACE project, the City of Ghent and wvi jointly worked out selling conditions that are currently being used in a pilot project in the Ghent region. A sustainable approach is implemented by providing coaching by an energy consultant, by rewarding rational energy measures, and by taking up a facilitating role to match heat supply and heat demand (see p. 13).

Business park management

Business park management is necessary to maintain the quality of a business park throughout the years and to avoid expensive redevelopment. The traditional tasks of a business park association or a business park manager are security, signposting and green maintenance. The challenge lies in integrating energy measures in business plans of business parks.

case study Netherlands
Pilot business improvement districts

No funding

A useful tool for management of existing business parks is the 'business improvement district' (BID) model that has been implemented within Europe in i.a. the UK and Germany. Currently,

several pilot projects are being set up in the Netherlands. Businesses draw up a business plan for a specific area. This plan must be agreed upon by a certain percentage of the businesses located within the district's boundaries. Once the business plan has been agreed and implemented, the local authority can collect taxes in order to fund measures within that area. The authorities are merely facilitators during the development of the business plan. The challenge to integrate energy measures in the business plan remains.

Barriers and opportunities

BARRIERS

The main barrier to the implementation of energy measures is the cost to businesses, as many measures remain more expensive, with longer returns on investment, than the 'business as usual' approach.

The remaining barrier in the selling/leasing/renting policy is that energy measures are not enforced everywhere. If businesses find the regulations too difficult to comply with, they can easily go elsewhere where fewer regulations might be in force.

It is time consuming for authorities to inform businesses of their individual gain when implementing sustainable energy measures. Businesses, for their part, are often mainly focused on their core activities.

OPPORTUNITIES

During the planning phase, the possibilities the site has to offer in the field of renewable energy and energy efficiency should be taken into account.

Properly informing the businesses of their individual benefits of sustainable energy measures is paramount for success.

Although until now the BID system (or BIZ in the Netherlands) has not often been used as such, it offers opportunities to embed energy measures in business park management.

CHAPTER 4

Supply and demand of services and goods



FUSION partner visit to Roll-Gom, a purpose built tyre recycling site to supply materials for their rubber wheel production unit in Tilloy-les-Mofflaines, France ©FUSION

In this chapter the demand and supply of low carbon goods and services are considered.

Overview

Several SAFE-ICE projects are based on opportunities provided for the use of low-carbon goods and services as of part of the project (e.g., ACE mapped potential for heat networks in business parks and ACE for energy mapped the potential for solar Photovoltaics in Gelderland). Low-carbon as a sector is difficult for buyers to identify and there is a real issue for companies wanting to promote their offers. Several projects attempted to support matching of supply with demand, developing supplier databases (SISCO, FUSION, and ECOMIND) to encourage local companies to promote their offers.

The projects ECOMIND and FUSION

have placed a strong emphasis on the development of business supply whilst other projects, such as ACE, INSPIRER and SISCO, have been focusing on technical exemplars such as green business parks, passive houses or new technologies (i.e developing demand opportunities) and highlighting new areas of demand.

CASE STUDY France, Belgium, United Kingdom

Discrepancy between the demand for passive houses and specialised companies

Project INSPIRER
Part funded by the Interreg IVA 2 Seas programme

Nowadays very few companies are organised and trained to build passive houses (houses which are completely airtight). It is highly difficult to change the behaviour of workers on construction sites, as they do not understand why they should change their work methods which were perfectly efficient before. The various resources available to achieve high energy performances are still rare and expensive. Furthermore, the legislation in the building sector does not evolve at the same pace as the thermal regulation (currently 2012 Thermal Regulation and soon the 2020 Thermal Regulation on passive house standards). Therefore, it is necessary to have incentives for innovation and change the behaviour when it comes to conceive and build houses to optimise the costs. (INSPIRER, 2014)

CASE STUDY France, Netherlands, United Kingdom

Lack of finance as a main barrier

Project ECOMIND
Part funded by the Interreg IVA
2 Seas programme

CASE STUDY France, Netherlands, United Kingdom

Assessing market demand

Project ECOMIND & FUSION
Part funded by the Interreg IVA
2 Seas programme

Supporting supply and demand

To realise the EU’s aspiration for an economy that has grown in a way that respects resource constraints and has decoupled growth from increasing greenhouse gas emissions to ensure that dangerous climate change is avoided, a global economic transformation is needed. This requires both policies and attitude/behaviour change. To instigate behaviour change in the business community, research, innovation, knowledge transfer and support are required. Each of these elements either support supply of low-carbon goods and services or promote demand, thus providing the shift towards a low-carbon, resource-efficient economy.

In a major cross-border survey carried out in 2011 during the ECOMIND project with procurers and SMEs in the Netherlands, France and the United Kingdom, it was clear that access to finance was seen as a major barrier to companies looking to develop or expand their eco-technology product or service. Finance was an issue for 33% of those questioned of which 13% wanted funding to commercialise new products. General support on business growth, planning, strategy and business structure were issues for 25% of the eco-tech group and finally 7% were concerned on the promotion and marketing of their new products.

Experience through workshops and action planning within the ECOMIND and FUSION projects further highlighted a barrier not always visible to the smaller companies, especially those that approached the market from a technology perspective, that of assessing market demand, understanding customer need and finding customers. There was also a clear disconnect, identified with many of the companies supported, between selling eco-technology and applying the principles of low-carbon to their own business.

research	innovation	business support	knowledge transfer
Why we need it to support SUPPLY of low-carbon goods and services?			
Identifies opportunities/barriers for growth in sector and provides evidence base to support growth.	Supports new ideas for low-carbon goods and services to move away from resource and energy intensive activities.	To support suppliers of low-carbon goods and services to access finance, prepare for the future, improve their marketing, and raise awareness of their products.	Linking businesses and universities together to innovate, research and develop and support.
Why we need it to support DEMAND of low-carbon goods and services?			
Identifies opportunities/barriers and provides solutions e.g. sources of funding.	Low-carbon goods and services are generally new concepts/ideas for buyers. Innovation is needed to better promote these products, to raise awareness and to change behaviour.	Most organisations/communities/residents are unaware of the products available to improve environmental performance of their facilities. They need support to understand the different technologies, the costs and benefits.	Better information to be provided to potential buyers. Trains future workforce for low-carbon economy.

Overview of how research, innovation, business support and knowledge transfer can support supply and promote demand

CHAPTER 5

SAFE-ICE business congress



Visit to the Logistic Innovation and Incubation Training centre in Laakdal, Belgium ©Laura Maes

On Wednesday the 23rd and Thursday the 24th of April 2014 the results of the SAFE-ICE cluster were presented and discussed at the SAFE-ICE business congress in Antwerp, Belgium. On Wednesday a visit was paid to examples of two good practices: Antwerp East Port in Beverdonk and the Logistic Innovation and Incubation Training centre in Laakdal. Interesting keynote speeches by Provincial Governor Cathy Berx and University of Lausanne researcher Guillaume Massard, a speed dating network session and a finger licking meatless buffet at Kamp C completed the first day of the business congress.

On Thursday morning presentations on sustainable businesses, business parks, B2B solutions, and market & policy implementations were presented at Elzenveld, Antwerp. In the afternoon four parallel workshops, covering the same topics, took place. A reflection on each workshop can be found in this chapter.

Businesses & Buildings

“We have more than sufficient information about increasing the energy efficiency. It is still a challenge to have us all act”. Ties Mouwen of the Dutch Youth Council said: “We are thinking too much and doing too little due to the analysis paralysis”. The Businesses & Buildings workshop concluded that

& we need all possible efforts. Governments should increase efforts in regulation (laws, energy performance standards and enforcement actions), financial instruments (CO₂ tax, subsidies, investment support) and advice. “But the authorities have to give the good example themselves!” Although the majority of the entrepreneurs experience pressure from governmental measures, they also have their own motivation such as lower

energy bills. Entrepreneurs are best motivated to act when informed by their direct colleague-entrepreneurs. They emphasize: “We want to play our roles, and it helps that local authorities are involved and support us”. In these times of decreasing national interest, cooperation at a personal level between governmental workers and entrepreneurs is very important.

Business Parks

With regard to selling/renting/leasing conditions, it was confirmed that each method has its advantages and disadvantages and that tailor-made solutions that take into account the framework conditions are needed. The business culture in West-Flanders ensures that entrepreneurs want to own their premises. The business park Landacres in the region of Boulogne, has a certification for the whole business park. In this way also the value of the individual premises is raised. Certification should of course include sustainable measures. In Schiedam leasing works very well, and, as the demand for premises is high, the local authority can integrate sustainable measures in the leasehold conditions.

Business park management tries to fill the gap between businesses and local authorities. This gap consists of technical, organisational, operational and strategic issues and also includes sustainable measures for a business park. If it is possible to pull the at-



Networking session at the SAFE-ICE business congress ©Michael De Rop



The business workshop at the SAFE-ICE business congress ©Michael De Rop



Demonstration of tools at the SAFE-ICE business congress ©Michael De Rop

tention of local politicians and to find them willing to support business park management in all its aspects, the businesses themselves will follow. Not only the costs should be taken into account. Perhaps the main focus should lay on the motivation and willingness to change.

Business-to-Business

By exploring new techniques and developing new products innovative companies can make a game change in sustainability and e.g. affect the

way we are heating buildings. However legislation can form a barrier for the approval of these new promising products.

Cooperation with universities is important to obtain the necessary qualifications. Technology is a necessity for a sustainable low-carbon economy. A condition for technology is the availability of sufficient skilled employees. Educational institutions and innovation centres are the basis from which new technology can arise. The number of technical scholars and students has to increase in order to meet the technology demands of our society. The realisation of sustainable projects can enable the dissemination of knowledge. These projects create opportunities for businesses to become more present in the community, to strengthen their network, and to communicate the lessons learned to other businesses across the sub region.

In the UK, the community around a business park is often involved in the creation of a sustainable business park, while in other countries there is a strict separation of both functions. Suggestions are to use a business



Visual harvesting during the SAFE-ICE business congress ©Michael De Rop



The SAFE-ICE flags depicting actions to reduce carbon emission in daily life ©Michael De Rop

building as a dance hall in the evening or weekend or to organise community events (information sessions, workshops, lectures, ...). A green wall between the business park and the community could consist of fruit trees and the community could organise the fruit harvesting.

Sustainable business parks should not only focus on energy but should also take into account water, mobility, working conditions. In other words: an integrated approach in business park planning and implementation.

Market & policy conditions

Through the cluster, we came up with a consolidated definition of the term 'low-carbon economy' that translated well across the Member States (see p.8). We disseminated this definition to delegates at the SAFE-ICE event using business case studies to demonstrate how we can achieve a low-carbon economy from a policy and

market perspective; how we can drive change to promote demand for low-carbon goods and services and support supply. Geanne van Arkel, Head of Sustainable Development at carpet tile manufacturer Interface, explained that their organisation focussed on sustainability as a response from a customer request to go above and beyond legislative requirements. Interface believe that for policies to be effective they need to have ambitious goals, encourage product transparency and promote a shift towards taxes based on raw materials and not labour. Pat McCarthy, Director at UK-based Cyclepods, explained how they achieved a 33% increase in profits due to changing some of their processes to be more eco-efficient, providing cycle storage facilities from recycled polymer manufactured in the UK not China.

These inspiring talks stimulated discussions on what is needed to support a shift to a low-carbon economy. It was felt that although policies have a role to play and can accelerate change, a clear long-term vision with strong

leadership and commitment is also required to change behaviours. Clear communication on product transparency and increased information on low-carbon goods and services is needed to get buy-in to take-action. Many small and medium businesses think of low-carbon as expensive, ineffective or unachievable – yet when it is communicated correctly using language relevant to business owners like cost reduction, bottom-line savings and reputational improvement, the topic becomes more accessible. Some believed that a bottom-up approach was needed with business pioneers leading the way, demonstrating achievements and driving demand through Green Procurement Policies. Through Phase 2, work will be done to draw out more from these discussions specifically around how to drive demand through procurement processes and use appropriate communication methods for a low-carbon economy.

CHAPTER 6

Conclusion and final remarks



Makerspace, supporting the growth of new innovative sustainable business ideas, Port of Rotterdam ©FUSION

Resource efficient businesses with low-carbon products and services have growth opportunities in a developing EU market. However, there remains only a limited demand by some key customers, including the public sector, in procuring goods that meet longer term goals. There is also a lack of awareness around the market potential of Low-Carbon Environmental Goods and Services, and an ignorance around the availability of low-carbon goods and services already on the market. Many smaller businesses do not understand the idea of a low-carbon economy, and this will hinder their ability to maximise their potential within a low-carbon supply chain.

In Flanders, partners report that SMEs are not ready for Europe 2020 and not looking to face the challenges of meeting energy efficiency targets or renewable energy and to maximise the increased competitiveness that this will bring. An example given by DCMR in the Netherlands is a company that achieved an energy reduction in their processes of 80% and became 50% cheaper on price, winning more contracts. Those who do not rise to this challenge will lose market share. Furthermore, the feeling is that EU legislation has not been translated nation-

ally in the member states; a situation noted in France, especially amongst those within the building and maintenance sector. In the Netherlands, there are signs that companies are looking at the longer game and are beginning to explore how they can begin to adapt their practices and policies to be part of the green economy. In the UK, where the low-carbon economy is seen as a growth area, there is more support available to businesses to become aware of the opportunities of the low-carbon economy and to understand how they can become part

of this supply chain and gain a market share as early adopters.

It was also clear through the work of several of the project partners that there were major challenges for businesses to work collectively on resource efficiency. On business parks, barriers of cost and legal structures need to be overcome to expand heat network development. Difficulties exist in exchanging electricity locally and of sharing waste, something that partners felt could be supported by the creation of Business Park Sustainability Plans. The team also felt that

the expansion of Business Improvement Districts could further enhance place based action. It was clear that for many smaller companies resource management is not core to their business and thus only limited time and budget is devoted to it. Similar issues were highlighted by the business and business to business teams, and several methodologies that have been tested by partners to drive change were reviewed and felt to be worth further testing. These included new tools, grants and information formats.

A message from businesses is that a focus on communication and marketing of the LCEGS sector is needed. Businesses need to be made aware of the benefits of resource efficiency that it is not just about *saving the polar bears*, but a much larger agenda about saving money, improving reputation, reducing risk of legal non-compliance and, of course, saving the planet! Large companies are starting to push this message through their supply chain but this is slow and, even then, there is still a lack of awareness around new low-carbon goods and services. Businesses don't know what an air-source heat pump is or a photovoltaic thermal panel – education is needed and it is needed quickly. Large public and private sector organisations need to lead the way and be drivers for these products – some may work, and others fail, but these are the options that we need to achieve for the low-carbon, resource efficient Europe that policymakers are after.

A look ahead

The work of the partners has revealed, during this first phase of collaboration, several areas that merit further exploration and development during Phase II of the project. These primarily respond to the following challenges:

- **The integration of energy measures in business park management plans through the BID/BIZ instrument;**
- **The promotion of heat networks and heat maps for the use of heat that otherwise gets lost;**
- **Green procurement driving the demand for development of low-carbon goods and services;**
- **The promotion of resource efficiency by applying a range of tools e.g. DCBA Omega tool developed in the Netherlands;**
- **The promotion of the benefits and opportunities for European SMEs in the Low Carbon, Resource Efficiency sector.**

Glossary of abbreviations and acronyms

B2B	Business-to-business
BID	Business Improvement District
EU	European Union
HBC	Hastings Borough Council
HL	Habitat du Littoral
LCEGS	Low-Carbon Environmental Goods and Services
SMEs	Small and Medium-sized Enterprises
STEM	Steps To Environmental Management
wvi	West-Flanders Intermunicipal Association

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