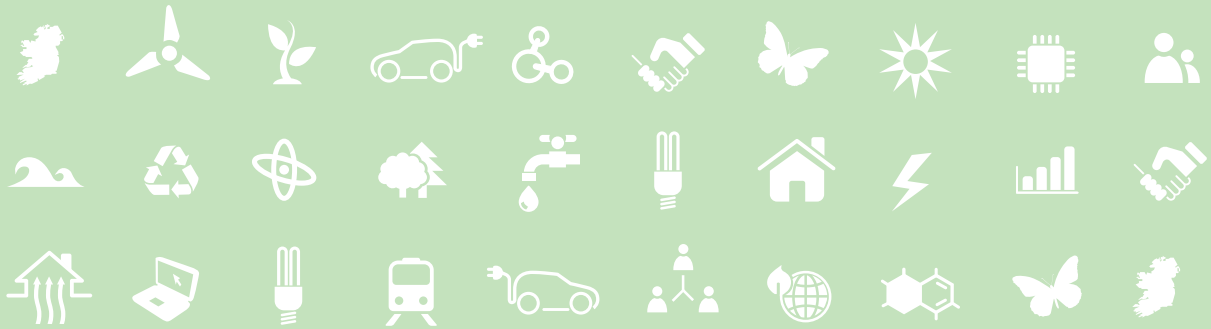


PROGRESS REPORT ON



GROWTH AND EMPLOYMENT IN THE GREEN ECONOMY IN IRELAND





Department of Jobs, Enterprise and Innovation

PROGRESS REPORT ON GROWTH AND EMPLOYMENT IN THE GREEN ECONOMY IN IRELAND

December 2013

This report was compiled by the Department of Jobs, Enterprise and Innovation (DJEI) in collaboration with other Government Departments and Agencies. It contains a number of case studies highlighting a small selection of Green Economy activity in Ireland since the publication of the Government Policy Statement on Growth and Employment in the Green Economy, **Delivering Our Green Potential**, in November 2012. Many thanks are due to a number of contributors from other Government Departments, agencies and industry who assisted in the compilation of this report, as well as to web and media outlets reporting on Green Economy activity in Ireland.

While every attempt has been taken to verify the information in this report, if you would like to bring anything to our attention in this context please contact us through the DJEI Green Economy mailbox. If you would like to help us compile a wider profile of activity taking place in the Green Economy through case studies, please also let us know through the DJEI Green Economy mailbox.

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CONTENTS

Foreword by Minister Richard Bruton, T.D.	1
1. Introduction	3
2. Green Products and Services	4
3. Green Financial Services	6
4. Energy Efficiency	8
5. Resource Efficiency	11
6. Waste Management	14
7. Water and Waste Water Management	16
8. Agriculture, Marine and Forestry	17
9. Green Tourism	19
10. Renewable Energy	21
11. Research, Development and Innovation	23
12. Clustering and Collaborative Action	25
13. Standards and Branding	27
Appendices	29

Case Studies

Box 01: SELC	4	Box 14: Treemetrics	17
Box 02: Ventac	5	Box 15: Origin Green	18
Box 03: BNRG Renewables	6	Box 16: Great Western Greenway	19
Box 04: Amarenco	7	Box 17: Green Hospitality	20
Box 05: Aramark Ireland	8	Box 18: Mainstream	21
Box 06: Woodfab Timber	9	Box 19: Renewable Energy	22
Box 07: Citi	11	Box 20: UCD Energy Institute	23
Box 08: SMILE Resource Exchange	12	Box 21: SolarPrint	24
Box 09: IKEA	13	Box 22: CIT Sustainable Buildings Testbed	25
Box 10: KMK Metals Recycling	14	Box 23: Quantum Smart Grid Heaters	26
Box 11: Wisetek	15	Box 24: DIT and DCU	26
Box 12: Wellman	15	Box 25: Recent Awards and Standards in the Irish Green Economy	28
Box 13: Butler Manufacturing Services	16		



Foreword by Minister for Jobs, Enterprise and Innovation, Richard Bruton T.D.



The Green Economy is one of the most dynamic and rapidly growing markets in the world. While many other sectors have struggled during the recession, it is estimated that in the five years to 2015, the market for green goods and services will have grown globally at an average growth rate of nearly 4% per annum.

The Action Plan for Jobs recognises that the Green Economy can be a key driver for economic growth and job creation for Ireland. In November 2012, the Government published *Delivering Our Green Potential* – a Policy Statement on growth and employment in the Green Economy. *Delivering Our Green Potential* affirms the Government's commitment to developing the Green Economy and sets out the actions the Government is taking to develop the Green Economy in each of its sub-sectors.

This Progress Report provides an outline of some of the key developments in the Green Economy in Ireland since *Delivering Our Green Potential* was published. It includes examples of enterprises and projects which are creating jobs, driving exports and improving competitiveness through their activities. Many more Irish companies have already established their credentials as world-leaders in providing green goods and services internationally.

Delivering the full potential of the Green Economy for Ireland is a long-term goal. However, this report shows encouraging progress since the Government's Policy Statement was published just twelve months ago.

The EU's plans for a low-carbon and resource efficient Europe by 2050 mean that more ambitious targets in waste management, carbon emissions, renewable energy and other similar areas will have to be achieved over time. However, these targets will also drive innovation and present tangible commercial opportunities for Irish enterprises.

The Government will play its part in supporting companies in the Green Economy by building on the progress made to date to generate sustainable economic development, improve competitiveness, increase our trade potential and contribute to jobs growth.

We hope that industry and other key stakeholders will work with us to maximise the opportunities that can be realised for Ireland in this important sector.

Richard Bruton T.D.
Minister for Jobs, Enterprise and Innovation

December 2013



1 Introduction

The term *Green Economy* covers a wide range of sectors that have in common the objective of providing goods and services in a sustainable way that reduces impact on the environment and contributes to the circular economy. In Ireland, this covers activities such as sustainable food production, tourism, green financial services, green products and services, waste and water management, renewable energy and energy efficiency.

The Green Economy presents a major opportunity for employment creation in Ireland and for the development of indigenous enterprises and will contribute to securing sustainable economic growth in the medium term. Comprehensive data on employment in the Green Economy in Ireland is problematic because of the breadth of the sectors it covers. Nonetheless, in 2010, the Expert Group on Future Skills Needs estimated that 18,750 people were engaged in just six sub-sectors of the Green Economy and that up to 10,000 extra jobs could be created in those sub-sectors in the five years to 2015. The Department of Jobs, Enterprise and Innovation will produce a preliminary study on benchmarking employment in the Green Economy in Ireland by the end of this year.

Green Economy jobs have a broad regional spread, as exemplified by enterprises active across many counties in Ireland, including Cavan, Dublin, Mayo, Cork, Offaly, Wicklow, Louth, Longford, Clare and Monaghan, as outlined in this report.

Ireland has significant strengths and advantages that it can leverage to exploit business opportunities in sectors such as renewable energy, smart grids, waste and water management, sustainable food, tourism, energy efficient products and services, and others.

IMPACT

Since its publication last year, the Government Policy Statement on Growth and Jobs in the Green Economy, *Delivering Our Green Potential* has attracted national and international media attention and has been broadly welcomed by industry. The Policy Statement has been used extensively by Government agencies to support the Green Economy. In addition, it has been used by representatives of the Green International Financial Services Centre to highlight Ireland's commitment to developing the Green Economy.

CONSULTATIVE COMMITTEE

In line with a commitment in *Delivering Our Green Potential*, the Minister for Jobs, Enterprise and Innovation has established and chairs a Consultative Committee on Jobs in the Green Economy, to identify emerging opportunities for Ireland. The Consultative Committee involves representatives from the enterprise sector as well as key Government Departments and agencies. The membership of the Consultative Committee is at [Appendix 1](#).

Inputs from the Consultative Committee will inform specific initiatives for inclusion in the Action Plan for Jobs in relation to the development of the Green Economy.

2 Green Products and Services

The high cost of energy, the finite supply of traditional raw materials and clean water, the setting of international emissions reduction targets, and the increasing demand from consumers for sustainable goods, are all driving global demand for new products, services, technologies and solutions in the Green Economy. Companies world-wide are also becoming increasingly aware of the financial savings and competitive advantage that arise from adopting an environmentally sustainable and resource efficient approach to their business. These advantages include lower costs for materials, energy, water, and waste management, and enhanced corporate profile in the community.

This demand for new products, services, technologies and solutions in the Green Economy provides abundant and durable employment opportunities for Ireland. A large number of Irish companies are producing or developing innovative products which are finding markets in the domestic and international Green Economy. Many of these companies are already successfully exporting their green goods and services overseas, and employ over 6,000 people in the process.

These products and services include energy efficiency equipment and materials such as insulation, thermal efficient glazing, lighting solutions, “intelligent” heating controls, energy meters, and related services such as data management, analytics and maintenance. Other areas that offer potential for Irish companies include technologies such as ground source heat pumps, small scale wind turbines, as well as services such as design, engineering, installation, Operations & Management, and monitoring of energy efficiency. In addition, there are **compelling commercial opportunities for businesses** in the areas of water conservation, and waste re-use, recovery and recycling.

Box 01: SELC - Export potential

Belmullet based **SELC (Smart Efficient Light Control)**, with 51 employees, recently completely refurbished the street lighting in **Crossmolina, County Mayo**. The use of **SELC's** innovative technology and products immediately cut Crossmolina's energy use by 45%, with commensurate savings. The upgrade also added the feature of monitored street lights. Locals have perceived an improvement in the quality of the light and the safety of areas with the new lighting in place. Due to the success of the Crossmolina project, Mayo County Council is now planning to refit all of the street lighting in the county as an exemplar project of the National Energy Services Framework ([see Appendix 2](#)).

SELC is widely regarded as a pioneer in street lighting control. In June 2013, SELC announced a collaboration with **Silver Spring Networks**, a leading US-based smart energy networks multinational. Silver Springs is teaming up with the Mayo-based company to expand its Smart City infrastructure platform by utilising SELC's expertise in street lighting control systems.

The Government can support the development of innovative products and services by actively implementing the Green Public Procurement Action Plan. Allied to an increased openness to innovative solutions in the public procurement process, this offers an opportunity for Irish-based companies to win contracts that will serve as references for the export of their goods and services.

Box 02: Ventac – Export Dividend

Blessington based **Ventac** design, manufacture and export noise control products for industrial vehicles and buses. Ventac have provided a high specification acoustic treatment for the New Bus for London. The new buses, which are being built by Wrightbus in Ballymena, were piloted in 2012 and the full production roll out of buses began in June 2013. All 600 New Buses for London will be in service by 2016. The Ventac treatment makes the bus markedly quieter – making the journey more comfortable for passengers and lowering noise emissions.

3 Green Financial Services

The **Green International Financial Services Centre (GIFSC)** has been working in partnership with industry, Government Departments and agencies to enhance Ireland's reputation as a location for green funds. Shortly after the publication of **Delivering Our Green Potential**, the Policy Statement was distributed at the launch of the GIFSC Global Roadshow at the Irish Consulate in New York. GIFSC has plans to grow green assets managed in Ireland to US\$200 billion by 2017.

Globally, investment in Green Economy companies and technologies is strong. Worldwide investment in renewable power generation alone is on the order of US\$200 billion annually. Investment in the Green Economy sector as a whole is expected to be over US\$1 trillion by 2020.

The **International Financial Services Centre (IFSC)** is one of the most sophisticated investment management locations in the world. This leaves Ireland well placed to become a world-class green financial management hub. Currently there are over US\$20 billion of environmental assets managed, deployed, serviced or domiciled from Ireland, a figure that has doubled in the last year and increased by a factor of six in the last five years.

Ireland is in a very strong position to grow its green asset management business for a number of reasons. As a world class international financial services centre, Ireland's overall funds industry currently services in excess of €2 trillion in assets. Within the emerging sustainability investment and finance sectors, Ireland offers a unique blend of expertise and proven experience in inter-related financial and industrial sectors including fund administration, asset management, project finance, renewable energy origination, turbine manufacture, equipment leasing, insurance and securitisation.

The existence of a world class renewables and cleantech enterprise sector encompassing Irish companies that have been globally active pioneers in the area for decades means that Ireland offers an unparalleled **pool of talented people**, professional services and services providers with the expertise to support the international and domestic development of green asset management. The combined expertise in the financial and enterprise sectors is what sets Ireland apart. A new breed of asset manager is being born and Ireland is the incubator. BNRG Renewables is an example of this new type of asset manager (Box 03).

In parallel, a project to green the IFSC area is well underway. The **Greening the IFSC** project was launched at Citi as a result of its leadership performance in the area of resource and energy efficiency (Box 07), which has also resulted in sizable, on-going cost-savings to the company. Companies participating in the project are: A&L Goodbody, BNY Mellon, Citi, KPMG, PwC, McCann FitzGerald, Matheson Ormsby Prentice and KBC Global Project Finance.

Box 03: BNRG Renewables

Irish solar farm developer **BNRG Renewables** has developed around 40 MW of solar capacity around Europe in 2013, making it one of the most prolific solar developers in Europe.

The **GIFSC** based company is combining financial and technical expertise to develop 7 projects in seven countries across three continents.



GIFSC has set the target of achieving local energy cost/carbon savings of 10 per cent and hopes to recruit half of the companies located in the **IFSC** to the project by the end of 2013.

Box 04: Amarenco – Jobs Dividend

Twenty new jobs will be created over the next three years with the opening of a new renewable energy asset management company called **Amarenco** in Dublin. Amarenco, which has an investment fund worth €150 million, will focus on solar photovoltaic investments in Europe. The first investment fund to be rolled out, the **Global Solar Income Fund**, launched in October 2013.

Founder of Amarenco, John Mullins former CEO of Bord Gais said “We are particularly pleased to register as an Irish company and headquarter the fund in Ireland mainly as a result of the talent on hand in Ireland from the cleantech and renewable sectors and because the **Green International Financial Services Centre** is ensuring a pipeline of talent for tomorrow through its investment with **Summit Finuas** of some €600,000 in new master’s and post-graduate certificates in environmental finance at Dublin City University.”

4 Energy Efficiency

Energy efficiency has now become an established services sector in Ireland, one that is labour intensive and brings economic gains to the consumer, business and country. The potential of energy efficiency in terms of the delivery of jobs is underscored by the inclusion of the objective of transforming Ireland into one of the most energy efficient economies in Europe by 2020 in the Action Plan for Jobs 2013. As well as the considerable job creation potential in this labour intensive sector, it is worth noting that direct exchequer savings of €200 million per annum are available through public sector energy efficiency alone.

There have been substantial developments in this area in 2013. In February, the National Energy Efficiency Fund (NEEF) was announced by the Minister for Communications, Energy and Natural Resources. The NEEF aims to provide €70 million to finance energy efficiency initiatives in the public and private sectors. Government has already committed €35 million as seed capital, while matching funding in excess of €35 million is being sought from private investors.

This Fund will be supported by the rollout of a National Energy Services Framework, which will deliver for the first time a comprehensive set of supports for organisations who wish to procure energy solutions through an energy performance contract.

In June 2013, the first tranche of exemplar energy efficiency projects were announced. These projects will 'road-test' the Energy Services Framework principles and prepare them to 'investment-grade' status. This will then enable them to discuss project finance options with banks, the NEEF or other financing entities. A list of exemplar projects is at **Appendix 2**.

The projections are that the NEEF will deliver up to 675, direct and indirect, jobs for each €10 million of expenditure. In addition, the Government has allocated €50 million to carry out insulation and energy efficiency works in 25,000 local authority houses.

The Sustainable Energy Authority of Ireland (SEAI) has a number of energy efficiency support programmes in place, which are currently keeping an estimated 3,500 people employed undertaking energy efficiency assessments and upgrades in homes and offices around the country. Their work with Irish enterprise¹ to help reduce energy costs has resulted in savings of millions of euro in firms that collectively employ over 100,000 people.

Box 05: Aramark Ireland – Jobs Dividend

Aramark Ireland, an integrated services company, announced in May 2013 the expansion of its **Energy Management Division** which will **create 25 jobs** over 18 months. Aramark has handled energy projects on behalf of several organisations, including Forfás, Liffey Meats (an exemplar project under the National Energy Services Framework) and the Royal Victoria Eye and Ear Hospital. The company expects its business to continue to grow as Europe moves towards a low-carbon economy with **jobs primarily based in Ireland** facilitating **services that are exported** to other EU Member States.

1 http://www.seai.ie/Your_Business/



These actions on energy efficiency are the cornerstone of the National Energy Efficiency Action Plan II, published in February of this year, and they will help Ireland to achieve its national target of 20% energy saving by 2020. The Government will spend €13 million on over 80 community energy projects around the country, under Better Energy schemes administered by SEAI. The projects include energy efficiency upgrades to over 3,500 homes, 80% of which are classed as energy poor, and more than 290 public and community buildings. Delivering the projects will involve the equivalent of over 300 full time jobs and will achieve almost €7 million annual energy savings. This is in addition to the **250,000 homes which have been upgraded** to date through the highly successful **Better Energy Homes** and **Better Energy Warmer Homes Scheme (Appendix 3)**.

Box 06: Woodfab Timber - Competitiveness, Jobs and Export Dividend

Woodfab are rebuilding their sawmill and installing a Combined Heat and Power (CHP) plant at their premises in Auhtrim, Co. Wicklow.

The new mill will mean that Woodfab is the only small log processor on the east coast – the closest mill to the UK market in Ireland. The CHP plant and new sawmill are designed to complement each other – sawmill residues will be used in the CHP plant to supply heat and electricity which will be used in the timber plant. This will save the movement of 600 trucks a year transporting residues away from the plant and will save the company an estimated €300,000 a year in energy costs.

The ultimate plan is to become a fully integrated energy efficient operation, from forest management and round timber trading, to sawmilling, energy generation from wood residues and production and marketing of garden products.

The project is expected to lead to the **employment of an additional 30 workers** at the plant, bringing the total workforce to around 50 people. Woodfab expect to **export around €10 million** of product per year once the facility is up and running.

There are a number of enterprises in Ireland already positioned to take advantage of the emerging opportunities created by the need for greater energy efficiency at national and global level. The SEAI is currently working on an Irish standard for Energy Efficient Design, building on Ireland's leadership in developing ISO 50001, the international energy management standard. The new standard puts forward an advanced methodology for industry-focussed energy cost reduction. Among the early adopters of the standard are Allergan, Diageo and Glanbia. The potential for substantial cost savings has been identified even at this initial stage of development.

The SEAI Large Industry Energy Network (LIEN) currently has 173 active members whose total energy use accounts for 70% (€900 million per annum) of the total industrial energy usage in Ireland. 73 of the members have achieved or are working towards certification to achieve ISO 50001 with average savings of 10% achieved to date. In 2012, SEAI assisted over 200 SMEs with a total of 2,000 employees and a total annual energy bill of €19.7 million to achieve savings of €2 million through advice and mentoring.

In addition to the job creation potential from stimulating and responding to domestic demand for increased energy efficiency, the energy management sector is very active in Ireland with considerable potential to grow into a major exporting industry. SEAI, in conjunction with a number of other agencies, is currently undertaking analytical work regarding Ireland's green job opportunity in the energy efficiency and renewable energy sectors as well as a macroeconomic modelling analysis of the benefits of sustainable energy in Ireland. Enterprise Ireland organised a Better Building conference in April 2013 that included a focus on showcasing Irish export-ready solutions and key Irish innovation in low carbon buildings to overseas decision makers, buyers and influencers.



5 Resource Efficiency

Promoting the efficient use of resources is an integral part of the EU's agenda for global competitiveness. Resource efficiency allows the economy to create more with less, delivering greater value with fewer inputs, using resources in a sustainable way and minimising impact on the environment. Resource efficiency encompasses efficiency in waste, water and input management, as well as energy efficiency, which is covered elsewhere in this report. Resource efficiency is also a central element of circular economy aspirations.

Resource efficiency offers the vision whereby every enterprise from the smallest micro-enterprise to the largest multi-national, and every public sector body from our hospitals to the houses of the Oireachtas are being run in the most resource and energy efficient way possible with the economic benefits accruing to the owners, employees and the taxpayer, and environmental benefits accruing to society as a whole. The World Economic Forum Global Competitiveness Report 2012/13 states that there are multiple studies and reports that support "a positive relationship between environmentally sustainable practices and productivity gains."

Maximising the potential of resource efficiency is a process in which the first steps are most often taken by tackling the low hanging fruit, the easiest and lowest cost steps that can be taken. The tangible gains from this process encourage enterprises and institutions to make the investment needed to gain greater efficiency in the longer term.

In Ireland, resource efficient practices are promoted by the Environmental Protection Agency (EPA) under their National Waste Prevention Programme (NWPP) and Enterprise Ireland through their Lean Business offerings, all of which offer a green strand as an integral part of developing a lean business model. The NWPP offers assistance to a wide range of sectors through its flagship Green Business strand and through other initiatives including Green Hospitality, Green Schools Programme, Green Healthcare and Local Authority Prevention Network. The Sustainable Energy Authority of Ireland (SEAI) works with the EPA and provides the necessary assistance for the energy efficiency elements of the programmes.

Box 07: Citi – Competitiveness Dividend

Citi (formerly Citigroup/Citibank) Irish HQ, in the **International Financial Services Centre**, started its green initiative in 2006 to target waste and reduce costs. This has now developed into a sustainable green agenda aimed at reducing Citi's environmental impact while improving competitiveness and enhancing their corporate image. Key metrics achieved include:

- » Energy consumption reduced by 40% despite increased building occupancy
- » Water consumption reduced by 750,000 litres
- » Waste production reduced and zero waste to landfill

Citi is in the process of migrating from the exclusive importing of electricity to CHP Trigeneration, which allows the generation of thermal and electrical energy. The installation also facilitates the export of any surplus heat via a localised **District Heating System** and the export of electrical energy to the grid when feasible to do so.

The Green Business strand of the NWPP has been operating for five years and delivers free resource efficiency audits and advice to businesses and other commercial or public sector organisations. The focus is on low or no-cost actions to make savings on water, waste and energy management. In 2012, a major focus was linking Green Business with other Government driven resource efficiency initiatives including the SEAI's activities, the Green Hospitality Programme and Bord Bia's Origin Green programme. Several guides have been produced and are available online² to show how businesses such as pubs, offices, farms, supermarkets and garages can reduce costs by implementing resource efficiency.

These initiatives lead to direct cost savings for industry, increasing competitiveness and profitability, and provide indirect competitiveness and market share benefits through improved brand image. A €1.2 million investment by the EPA in 2012 led to actual and potential savings for participants of over €16 million and cost savings will continue to accrue to businesses who maintain a resource efficient approach in the future (**Appendix 4**).

The EPA's recently renamed Green Enterprise programme (formerly the Cleaner Greener Production Programme) is a grant scheme to encourage Irish companies and organisations to implement cleaner, greener work practices. Green Enterprise challenges and assists organisations and companies to produce goods and provide services in more environmentally friendly ways and to minimise emissions through cleaner production methods. The objective is to achieve a balance between economic activity and environmental protection. The long-term aim of Green Enterprise is to ensure that cleaner, greener production and eco-efficiency become the established norm in Ireland. Such ambitions not alone contribute to national sustainability targets, but also deliver improved production efficiency, greater competitiveness and an enhanced image for participant enterprises. The programme is often held up as an exemplar programme by the European Union.

Box 08: SMILE Resource Exchange – Competitiveness Dividend

SMILE Resource Exchange, in Co. Cork (www.smileexchange.ie), is a free service for businesses that encourages the exchanging of resources between its members in order to save money, reduce waste going to landfill and to develop new business opportunities. Potential exchanges are identified through networking events, an online exchange facility, and a support team to assist throughout. For example, at the SMILE Cork 2012 event the connection was made that a member of **National Industrial Symbiosis Programme** was looking for crumb rubber as filling for cow mattresses and **PK Rubber** had this resource available from old tyres. The companies were put in contact with one another and an exchange of over 125 tonnes of crumb rubber was made.

SMILE is run by **Macroom E** and is supported by the **Environmental Protection Agency's NWPP**, **7 Local Authorities** and **9 County Enterprise Boards**. Around 1,000 members are currently registered with the **SMILE Exchange**, most of them SMEs.

2 <http://www.epa.ie/begreen/programmes/> and <http://www.epa.ie/begreen/begreenguides/>



Box 09: IKEA – Competitiveness Dividend

IKEA is a large multi-national employing 139,000 people with 300 stores across 44 countries. The **IKEA Ireland** store's internal waste management practices are now used as a model across the **IKEA** chain. The store has an Environment and Recovery Department that includes repackaging equipment so that products with damaged packaging can be repacked and sold.

A spare parts library is kept on site so that damaged products can be repaired. The company operates a take-back policy for customers who are purchasing certain new products (beds, mattresses, sofas) from the store. This furniture is offered in the first instance to members of the **Community Reuse Network** (www.crni.ie) – including **Busy Bees Furniture Recycling**. Material is also offered to Irish enterprises using the **SMILE Resource Exchange**. Furniture and other waste that is not up-cycled through the community or enterprise exchange is recycled by IKEA using one of a number of Irish private sector waste management enterprises.

The combined effects of the IKEA Ireland waste management strategies mean that 99% of the over 1,000 tonnes of waste generated by the Irish store each year is upcycled, recycled or recovered. Over 90% of this material is sorted in store. The successful implementation of this waste management strategy, which is now used as a model for new IKEA stores across the world, leads to **a saving of around €40,000 a year** for the Dublin store.

6 Waste Management

The cost associated with waste management for companies is on an upward trajectory. At the same time, there have been considerable improvements in how the Irish public view and treat waste. Good waste management presents an opportunity to businesses for valuable costs savings, can enhance a company's image and be a fruitful material source. The waste sector offers an important opportunity for innovative Irish companies to develop a range of goods and services around the prevention, reuse and recycling of waste.

Waste management and recycling targets for Ireland are primarily driven by EU policy and related targets towards improved environmental performance. It is certain that Ireland will have to increasingly improve its recovery and recycling rates in the coming years. The targets represent both a challenge and an opportunity for enterprise, with an often overlooked jobs potential for businesses that step up to that opportunity. The targets also represent an opportunity for cost savings for the wider enterprise base.

Ireland currently has a high dependence on overseas facilities for the processing of recovered materials and hazardous waste streams. In 2011, 73% of recovered waste mainly metals, paper, cardboard and glass went abroad for reprocessing. This high level of exports means that opportunities for creating jobs from reprocessing in Ireland are being lost. At the same time, some waste reprocessors based in Ireland are importing waste from other countries to fulfil their needs. In particular, despite the existence of indigenous plastics reprocessing and extrusion industries in Ireland, nearly 60,000 tonnes of plastics waste was exported in 2011 while 64,000 tonnes was imported to satisfy the needs of indigenous industry.

The recycling sector is labour-intensive and offers opportunities for sustainable jobs if increased reprocessing rates can be achieved in Ireland, supported by improved segregation of waste. There is strong evidence that well-functioning Producer Responsibility Initiatives are supporting a vibrant and profitable reprocessing industry in Ireland, in particular in relation to WEEE as the examples of KMK (Box 10) and Wisetek (Box 11) demonstrate.

Box 10: KMK Metals Recycling - Competitiveness Dividend

Offaly company **KMK Metals Recycling** was responsible for the dismantling and recycling of 7,600 e-voting machines in 2012. Seven of the firm's 75 staff were employed on the project.

According to the company's Managing Director the work was a small but 'very much profitable' component of their work last year.

KMK offered to pay over €70,000 for disposing of the machines in a tendering process where 4 of the 6 competing tenderers would have required payment for the service. This demonstrates the competitiveness of enterprises that adopt the highest **standards** and most **innovative methods** of recycling as well as the cost savings to their clients. As part of the project the large trolleys used to store the machines have been modified and are now used for Waste Electrical and Electronic Equipment (WEEE) collection around the country.

KMK considers that the scrutiny associated with winning a Government tender has enhanced their reputation due to their proven compliance with all required **standards**.

Box 11: Wisetek – Jobs Dividend

WiseTek has won a contract with computer security group **McAfee** to handle all of the group's redundant hardware. WiseTek is a "reverse logistics" company – taking redundant computer and electronic equipment for resale or to be broken down into parts so that valuable constituents, such as gold, are recovered. WiseTek will now handle all of McAfee's WEEE at its facility in Little Island, a second location in Thailand and a third site that will be opening shortly in Massachusetts, USA.

The Cork-based company is one of the first in Europe to be **accredited** under the **US Environmental Protection Agency R2** standard for electronics recycling and this was critical in winning the contract with McAfee.

CEO and founder of WiseTek, Sean Sheehan, was a finalist in the Emerging category of the 2013 **Ernst & Young Entrepreneur of the Year** programme.

PLASTICS

A potentially valuable stream for reprocessing in Ireland is in the area of plastics. An indigenous plastics reprocessing and plastics extrusion industry already exists in Ireland with capacity to expand. However key issues are the supply and quality of plastics for reprocessing. Currently most plastic waste is being exported and there are problems presented by the levels of contamination in plastic waste collected.

Waste collectors find it easier and more profitable to export their plastic waste when the global price and demand is strong. However, as with all commodity markets, the price of plastic is volatile and price and demand can fall dramatically, as in 2009. Moving beyond reliance on commodity export markets and building a robust indigenous plastics reprocessing industry, supported by improved segregation of waste, would provide a more sustainable solution for waste collectors. It would also result in the added value of plastic reprocessing being captured in Ireland, thus increasing jobs and growth in the Irish economy.

Box 12: Wellman – Jobs Dividend

Wellman International Limited celebrated 40 years of operation in Ireland by announcing a €5 million installation as the first stage of a 3-4 year investment plan for new technologies, supported by the Department of Jobs, Enterprise and Innovation through IDA Ireland. **Wellman employs 260 people in Mullagh, Co. Cavan.**

Wellman is Europe's largest PET (Polyethylene Terephthalate) bottle recycler, processing over 2.2 billion bottles each year to make their fibre products. The new investment will enable the Cavan operation to manufacture a higher value portfolio and maintain the current level of employment on site.

In 2012 Wellman was the recipient of the **Sustainable Exporter of the Year Award** from the Irish Exporters Association.

7 Water and Waste Water Management

Ireland has a comparative advantage in water, in that we have an abundant and clean supply, as well as a robust indigenous industry already leading the way in water and waste water management. At the same time there is considerable expertise in these areas across the local authorities. **Irish Water**, which is currently being established, will be a State company and will take over the water investment and maintenance programmes of the 34 county and city councils. The move of water sector functions from local authorities to a semi-State company is a major organisational change.

The establishment of Irish Water presents a range of opportunities for indigenous enterprises and is, in itself, an export opportunity. While much of the initial focus on Irish Water has been on the potential for important, if temporary, local job creation as part of the roll-out of water meters, there is a deeper and more sustainable set of opportunities presented by what is the primary infrastructure development project currently underway in Ireland.

A considerable amount of expertise has been built up across local authorities in water and waste water. By bringing this together in one organisation of a critical mass of c.400 employees, there is a new opportunity to brand Irish Water expertise in water and waste water and export this overseas. In addition, Irish Water has the opportunity to offer invaluable testbedding and demonstration opportunities to indigenous industry involved in water and waste water management.

Opportunities to **'plug and play'** new technologies and prove them in a public sector environment are invaluable research and marketing tools for industry.

Enterprise Ireland (EI) has an ongoing relationship with Irish Water, focussing on procurement and innovation through its Procuring Innovation Initiative. A key objective for the water and waste water management sector is to help companies focus on near European markets for growth in addition to the UK, which is the current main export market. EI also held three workshops in 2013 allowing client companies to showcase their technologies and learn about opportunities in the UK, Benelux and Gulf Cooperation Council countries.

Box 13: Butler Manufacturing Services - Export Dividend

In May 2013, **Butler Manufacturing Services Limited** shipped two of its BL4000 Blivet sewage treatment plants to Caribbean island Guadelope. **Exports, to 37 countries**, account for **over 70%** of the Longford based company's sales and are projected to grow by 50% over the next three years.

Butler attributes the sewage treatment system's success in international markets to the Blivet meeting the ISO 9001:2001 quality management **standard** and to the **innovative design** allowing the system to fit in a 40 foot shipping container.

8 Agriculture, Marine and Forestry

Ireland has a natural comparative advantage in the agriculture, marine and forestry sectors recognised in the Smart, Green, Growth, themes in **Food Harvest 2020**. The priority for growth across these sectors is to achieve efficient, environmentally sustainable production that delivers substantial growth, benefiting primary producers, processors and the food manufacturing sector. Achieving this objective will require a range of initiatives from harnessing new green technologies such as renewable energy, exploiting the latest developments in ICT and research and development, as well as implementing new programmes such as **Origin Green** communicating to customers at home and abroad that by buying Irish they are choosing to value and respect the natural environment. Sustainable Food Production and Processing was identified as a priority area for research based on the potential for economic return by the Report of the **Research Prioritisation Steering Group**.

Growth in global population and changing diets in emerging countries are expected to produce a 70% rise in global food demand by 2050. Agriculture and fisheries combined are one of Ireland's most important exporting sectors and there are extensive opportunities to increase output to meet growing global demand.

The challenge is to do so in a way that does not impact on greenhouse gas emissions, water quality, fish stocks or biodiversity. According to United Nations Environment Programme's *Green Economy Report*, green agriculture is capable of nourishing a growing world population at higher nutritional levels, switching from today's 2,800 Kcal availability per-person per-day to around 3,200 Kcal by 2050. Publicly funded Research, Development and Innovation supports the sustainable development of agriculture and the marine sector through Teagasc, the Marine Institute, a range of Higher Education Institutions and a number of research programmes.

The farming sector can gain sizable cost savings and meaningful environmental benefits from implementing resource efficient practices. The Environmental Protection Agency's National Waste Prevention Programme has recently launched a Smart Farming Initiative in conjunction with the Irish Farmers Association, Teagasc and others.

Box 14: Treemetrics – Jobs Dividend

Treemetrics is a Cork-based company specialising in technological solutions that improve measurement and management of forest resources.

The technology involves the use of 3D scanners that measure the shape, size and straightness of standing trees. This information is used to predict the quantities of log products that each tree can produce to assess their potential value, leading to a reduction in the quantity of trees cut and an increase in profits.

At the end of 2012, Treemetrics won **a major €800,000 contract** with the European Space Agency. The Enterprise Ireland backed company plans to recruit a further ten software engineers to **expand the workforce at its Cork facility to 30**.

One of the main messages being recognised, and acted upon by this sector, is that sustainability can add value to products and services and increase profits. This can be through the use of branding, standards and quality assurance schemes such as Origin Green (see Box 15) or through the use of ICT as in the case of **Treemetrics** (Box 14). At the same time companies like **Woodfab** (Box 06) are securing a more sustainable future and increased employment and activity levels by investing in renewable energy.

Box 15: Origin Green – Competitiveness potential

The **Origin Green Sustainability Charter** developed by **Bord Bia** is an on-going voluntary programme that seeks to demonstrate the commitment of Irish food and drink manufacturers to operate in the most sustainable way possible. The scheme has already generated interest from over 290 companies responsible for over 70% of Irish food exports. As part of the programme companies set out targets in the areas of raw material sourcing, resource efficiency and social sustainability issues such as health and nutrition and community and employee wellbeing. Company plans are verified by SGS, an international auditing body who look for 'stretch' targets. The objective is to have 75% of Irish food and drink exports sourced from Origin Green companies by the end of 2014.

9 Green Tourism

The tourism sector is an integral part of Ireland's Green Economy. The sector is built on our natural heritage and the richness of our natural resources. Emerging markets such as responsible tourism and eco-tourism have growth potential in Ireland. Outdoor leisure activities have been, and continue to be, a strong component of Ireland's attractiveness as a destination. As in other sectors, enterprises in the tourism sector can achieve cost and competitiveness benefits from implementing resource and energy efficient practices. In addition, tourism activities gain a strong reputational enhancement from being perceived as green.

Considerable investment has been made in tourism infrastructure around the country that capitalises on our natural green asset. As well as a wide network of looped and waymarked walks and our world famous national parks, new infrastructure such as Lough Key Forest Park in Roscommon, the Tralee Bay Wetlands Centre and the Great Western Greenway in Mayo, have a wide appeal nationally and internationally in a market that is increasingly seeking a bona fide nature-based responsible tourism offering.

Conventions are an important element of the tourism industry and increasingly, businesses looking for venues to host international conferences are seeking venues with green credentials. Ireland has developed a number of such venues in recent years, including the **Convention Centre Dublin, Croke Park** and the **Aviva Stadium**. Major festivals, such as the Fleadh Ceoil, the Rose of Tralee, the Galway Arts Festival and the Wexford Opera Festival, have also adopted a more sustainable approach to the organisation of their festivals. The Environmental Protection Agency's Green Festivals initiative supports such activities.³

Internationally recognised accreditation is a key marketing tool for green tourism. Programmes such as the **Green Hospitality Programme** have been established to assist the sector in improving its environmental performance. The Green Hospitality Programme helps a range of tourism enterprises from hotels to guesthouses, B&Bs and hostels to improve their environmental management and reduce costs. It has become the **standard** for environmental management in Ireland. The Green Hospitality Award enriches

Box 16: Great Western Greenway - Jobs Dividend

The **Great Western Greenway** cycle path is a good example of green, accessible, adventure tourism in Ireland. The project, completed in 2011 with funding of around €6m from Government Departments and agencies, has set the standard for cycling projects in Ireland.

An independent economic assessment concluded that overseas visitors using the Greenway are bringing around €2.8 million to the region and this has led to the extension of the local tourist season and the creation of **38 new full time equivalent jobs** in the local area and a further **56 existing full time equivalent jobs have been sustained**. A recent survey commissioned by Fáilte Ireland found that it is perceived as an outstanding facility by its users. Visitor numbers were 175,000 in 2012 and predicted to pass 200,000 in 2013. The Great Western Greenway was awarded **first prize** in the Exemplary Initiatives category at the prestigious **European Greenways Awards** in Portugal in September 2013.

There are a number of other proposals for Irish off-road cycling/walking routes or **Greenways** which would deliver projects of scale that can be presented in overseas markets as experiences in their own right.

the tourism product offered by the Irish hospitality sector through an internationally recognised **environmental certification programme**. The average saving for member hotels is €30,000, with the majority of savings achieved with no or low cost, as staff input is the main investment. The programme has support from stakeholders including **Fáilte Ireland, Irish Hospitality Institute** and the **Irish Hotels Federation**.

Other **accreditation schemes** in the sector include the Green Tourism Business Scheme, the Eco-certification Programme, EU Flower Eco-label, ISO 14001 (an environmental management standard) and BS 8901 (a sustainable event management system). Members of the Green Hospitality Programme have seen substantial financial benefits from participation in the scheme and there is extensive scope to spread and increase its impact throughout the sector.

Box 17: Green Hospitality – Competitiveness Dividend

The **Green Hospitality Award** is an EPA supported programme established to assist enterprises in the hospitality sector in becoming more resource efficient. In 2013 Green Hospitality launched an **Eco-Tourism Label**. A case study guide to describe the potential savings relating to better resource management in the hospitality sector was also launched. Programme metrics from 2012 are below:

- » 260 Members, including 145 hotels representing 25% of Irish hotel beds
- » 50 properties certified
- » 7,000 tonnes of waste prevented
- » 41.8 million KWh of energy saved
- » 380,000 m³ water saved
- » 9,000 tonnes of CO₂ saved
- » €6 million total savings for members



10 Renewable Energy

The development of renewable energy is central to overall energy policy in Ireland. Our wind and oceans provide exceptional renewable energy resources. The quality and reliability of these resources give us a distinct advantage compared to other European countries. Developing renewable energy will provide economic, as well as environmental benefits. Our strengths in terms of our skills in engineering, ICT and new technologies, and our adaptability and innovation provide a base for becoming a world leader in the research, development and testing of renewable energy and related technology, including **smart grids** and **smart cities** and **ocean energy** which have been identified as national research priorities as set out in Chapter 11.

OCEAN ENERGY

Being positioned on the edge of the North Atlantic, Ireland and Scotland between them are in a position to provide an entire **testbedding** infrastructure for marine energy that can be utilised by national, EU and private sector projects. Technologies in development are tested in progressively more challenging and realistic environments in a ladder style arrangement that begins in Cork, moves to Galway, over to Scotland and then back to Mayo for final testing in extreme open ocean conditions.

The Department of Communications Energy and Natural Resources will launch the national Offshore Renewable Energy Development Plan, which will outline the strategy to 2030 for marine renewables in Ireland. This also coincides with the new Foreshore Planning Bill and both initiatives will assist the development of a marine renewables sector in Ireland.

The **Hydraulics and Maritime Research Centre at University College Cork** provides an initial testing environment for marine energy projects in a wave stimulation environment with a Wave Flume and Ocean Wave Basin.

The **Galway Bay 1/4 Scale Test Site**, located around 1.5 km offshore near Spiddal, is an ideal testbed for ocean energy as it provides an excellent oceanic wave regime, sheltered harbour facilities and the renewable, maritime and environmental expertise that exists within the area. The 1/4 scale test site allows smaller scale devices, or those at an earlier stage in their development, to gain sea experience in less challenging conditions than those experienced at the full-scale wave and tidal test sites.

Box 18: Mainstream – Competitiveness Dividend

In August **Mainstream Renewable Power** announced the opening of a wind farm in Carickeeny, Co. Leitrim in conjunction with **IKEA**. Some of the electricity generated will be used to offset the power consumption of IKEA's Dublin and Belfast stores as part of a worldwide cleantech strategy by the retailer.

Construction of the Leitrim wind farm has begun. Mainstream will operate the plant for its 20-year life time. The wind farm site which could be operational in 2014, will have a capacity of 7.65 megawatts, and will comprise four turbines.

Technologies that have passed through the development stages in Cork and Galway progress to Scotland for further testing and development before returning to the Belmullet Wave Energy Test Site, where the performance of pre-commercial wave energy devices is tested in extreme open ocean conditions. In 2013, the Sustainable Energy Authority of Ireland (SEAI) have continued to progress the development of the national test infrastructure in Galway and Mayo.

This test site infrastructure creates potential for the indigenous development of products and management technologies, offering a significant export and employment opportunity in the medium term.

WIND ENERGY

Ireland has an opportunity to become a net exporter of wind energy. In January 2013, a Memorandum of Understanding on energy cooperation was signed between UK Secretary of State for Energy and Climate Change, Edward Davey and the Minister for Communications, Energy and Natural Resources, Pat Rabbitte, T.D. The next phase will be to complete the consideration of how Irish renewable energy resources, onshore and offshore, might be developed to the mutual benefit of Ireland and the United Kingdom. This will determine whether it is beneficial for both countries to enter into an Inter-Governmental Agreement under the Renewable Energy Directive to provide for renewable energy trading.

A number of large wind energy developers have indicated their intention to develop wind projects for export to the UK market when the Agreement is in place.

Assuming the successful completion of the political, planning and legislative requirements, there is clear employment potential in the projects proposed. Supply chain opportunities exist for Irish manufacturing companies in the construction and installation of wind farms. Having the right skills mix and enterprise capability available will maximise the indigenous job opportunities.

Box 19: Renewable Energy - Jobs potential

SEAI are undertaking a detailed analysis of the supply chain markets for renewable energy and energy efficiency technologies and services in Ireland. The focus is on how to maximise the local job creation dimensions of energy policy goals. This will include an indication of the potential for supply chain development associated with the expenditure required to meet our energy efficiency and renewable energy targets. An understanding of the barriers to supply chain development will be developed with a view to recommending policies and measures to enable the required supply chains to flourish in Ireland. **SEAI** are working closely with **Forfás, Enterprise Ireland and IDA Ireland** on this research.

SEAI are separately currently finalising a macro-economic modelling analysis of the economic benefits of sustainable energy in Ireland. This work is being undertaken with support from the **ESRI**. It will represent a significant improvement in the ability to predict the jobs impact of sustainable energy policies and programmes in Ireland.

Both pieces of work are due to be published in 2014.



11 Research, Development and Innovation

The Report of the Research Prioritisation Steering Group (2012) identified 14 priority areas of research for Government investment, based on greatest potential for economic return. Some of the priority areas are particularly relevant to developing the Green Economy in Ireland – **Sustainable Food Production and Processing, Marine Renewable Energy, Smart Grids and Smart Cities and Processing Technologies & Novel Materials**, although other priority areas will also contribute in some way. In February 2013 the Government announced investment in seven world class research centres of scale. The funding, €200 million from the state and €100 million matching funds from industry, will be provided over the next six years with a mid-term review.

One of the seven funded centres will focus on world-leading research to take advantage of Ireland's natural advantages in marine renewable energies – the **Centre for Marine Renewable Energy in Ireland (MaREI)**. The Centre, which was launched in November 2013, will look to generate energy technologies for industry from wave, tidal and floating wind devices. Ireland is one of the best locations in the world for the exploration of new marine renewable energy resources (see Chapter 10). MaREI will carry out world-leading research on all aspects required for the success of the marine renewable energy sector while also educating and training the next generation of engineers and scientists for the marine renewable energy industry. The Department of Jobs, Enterprise and Innovation, through Science Foundation Ireland, (SFI) will provide €19 million funding, while 45 companies will provide a further €10.5 million. The investment will help to support **77 highly skilled jobs** at the eight academic institutions involved in the project.

The Government-funded **Technology Centres** initiative is a joint initiative between Enterprise Ireland and IDA Ireland. The Technology Centres are public-private research **centres of excellence** connecting Irish companies and multinationals with the higher education sector to collaborate on research topics that promote economic growth by their direct relevance to industry agendas.

Box 20: UCD Energy Institute

A new **UCD Energy Institute** was launched in September 2013. The Institute will be a transformational resource for energy research in Ireland and internationally. A critical mass of world-class researchers focussed on a small number of strategically important themes will work in partnership with industry and the energy policy community under the auspices of the Institute.

The Institute will operate at a larger scale than previously realised in the Irish energy research community, enabling access to global partnerships and initiatives of scale that were previously inaccessible. The Institute is developing a major initiative **Future Grid Test Bed – Ireland** in collaboration with **EirGrid, ESB** and the **Electricity Research Centre**. This activity will feed into an international collaboration with U.S. and Danish researchers to advance a global level Energy Systems Integration Project.

A number of the Technology Centres fall within the Green Economy area including Biorefining and Bioenergy, Energy Efficiency, International Energy Research Centre, Data Analytics and Dairy Processing.

The Environmental Protection Agency (EPA) supports a range of research in the environmental technologies area, particularly in relation to water quality management, climate change adaptation and recovery of resources from waste. The EPA also provides support to Green Economy development and provides guidance on the commercialisation of environmental R&D outputs.

IBM have located their **Smarter Cities Technology Centre** in Dublin. The centre is part of the IBM's Smarter Planet programme, which looks at broad environmental issues. Projects located at the Dublin centre include smart water metering, energy use optimisation, electric vehicles smart charging in conjunction with ESB Ireland, and collaboration with the Sustainable Energy Authority of Ireland (SEAI) and the SmartBay marine test and demonstration facility in Galway Bay.

Smart grids involve the use of information and communication technology to accommodate large amounts of intermittent renewable energy and facilitate the management of energy demand. Ireland has a potential **first mover advantage** through existing expertise in ICT and the work of EirGrid in identifying and overcoming the operational challenges in managing high levels of intermittent renewable energy. The structure of our electricity market, with a single transmission operator and single distribution system operator, makes Ireland a natural testbed for the early deployment of the **smart grid** concept creating an opportunity for Irish based companies to generate new leading edge products and services.

In 2013, under the Government's Action Plan for Jobs, SEAI is completing a smart grid testbed infrastructure inventory and assisting the co-ordination of research topics (Marine Energy, Smart Grid and Smart Cities) with SFI and other State agencies.

Box 21: SolarPrint – Collaboration for Commercialisation

SolarPrint is an **Enterprise Ireland** supported company developing a technology that converts light from any source into energy. The technology platform allows intelligent wireless devices to be powered by ambient light.

SolarPrint Ltd and **Intel's Energy and Sustainability Lab** demonstrated a light-energy harvesting multi-sensing device for CO₂ and temperature control within buildings. Research into energy harvesting powered sensors aligns to the Intel Lab's wider **Sustainable Connected Cities** initiative.

12 Clustering and Collaborative Action

Based on its proven track record in collaboration and clustering, Ireland has a comparative and competitive advantage in its suitability as a testbed for products and services. For example, Galway Bay is an excellent test site for marine energy (see Chapter 10). Ireland is also ideally positioned to lead the way internationally on the implementation of smart grids and is currently an EU test site for Electric Vehicles.

The Sustainable Energy Authority of Ireland's **Sustainable Energy Communities** programme showcases integration of innovative sustainable energy technologies, practices and policies to aid capacity building and contribute towards achieving national targets. Dundalk, Dublin City, Tallaght and Tralee are exemplar communities that serve as testbeds for companies that wish to test and trial their technologies.

Clusters allow for convergence of knowledge, expertise and experience ultimately maximising the development of opportunities in the Green Economy. They can stimulate private sector innovation and investment and can act as **testbeds** for new products and services in areas such as renewable energy, energy and resource efficiency, as well as other activities. Testbedding - or using **living laboratories** - allows industry to test products in a real environment, receiving feedback from users.

A number of Green Economy **clusters**, The Green Way, Smart Eco Hub, Limerick Cleantech and Energy Cork, have emerged. **The Green Way** - a cleantech cluster based in Dublin - through its founding members⁴ provides access to infrastructure (buildings, lighting, networks, transportation systems and people) to companies that wish to test and trial new technology.

A crucial factor in the success of clusters is their scale and ability to replicate successful technologies and ideas. They must involve a suitably large number of companies to realise the benefits of clustering. Clusters also have the potential to forge links internationally and to access new markets for Irish goods and services, as evidenced by the announcement in May of a Memorandum of Understanding being signed between **The Green Way**, and the U.S. ACTION Cleantech Cluster. DCU Innovation Campus has just signed a strategic Memorandum of Understanding with ProjectSV in San Jose.

Box 22: CIT Sustainable Buildings Testbed

The **National Sustainable Building Energy Test Bed** facility was officially opened at Cork Institute of Technology's Nimbus Centre in November 2013.

The Centre will specialise in building infrastructure and services, heating and air conditioning, fire and security systems and power generation and is conducting research related to whole building energy and power management to capture retrofit opportunities that scale from a single building to multiple buildings at district level.

⁴ Dublin City Council, Fingal County Council, Dublin Airport Authority, Dublin Institute of Technology & Dublin City University, Ballymun Regeneration and North Dublin Chamber.

Enterprise Ireland is supporting a Passive House/Low Energy Building cluster under their **Pilot Clustering Programme**. The **cluster** includes a selection of leading Irish companies in the low energy space – Munster Joinery, MosArt, Thermohouse, SIP Energy.

Box 23: Quantum Smart Grid Heaters – Export potential

Quantum is the world's first smart grid-enabled electricity heater and a key component of a new space and water heating energy management system being pioneered by **Glen Dimplex**. The storage heaters connect to the electricity grid operator and are able to store excess renewable energy for release as heat when required. The company has invested €10 million in the project. **Dublin Energy Lab** at the **Dublin Institute of Technology** has been involved in the **testbedding** of the project, which has the potential to deliver substantial savings on home heating costs, along with considerable environmental benefits. The system was tested in 140 homes in a 'living lab' in Dublin city and Fingal with the assistance of Dublin's Cleantech cluster, **The Green Way**, in 2012 and the data from that trial is now being assessed by the Dublin Energy Lab.

The project also involved a range of installers, **Eirgrid**, **Dublin City Council**, **Fingal County Council**, **Electric Ireland** and was supported by the **Sustainable Energy Authority of Ireland**.

Box 24: DIT and DCU – Entrepreneurship and Innovation

Dublin City University (DCU) and Dublin Institute of Technology (DIT) are home to **exemplar incubation centres**, INVENT at DCU and Hothouse at DIT. Both centres drive entrepreneurship and support early stage companies and have a strong portfolio of cleantech companies.

At the start of 2013, in line with a commitment in the 2012 Action Plan for Jobs, the new **DCU Innovation Campus** was officially opened by the Minister for Jobs, Enterprise and Innovation. The Innovation Campus is a new **centre for innovation** in the cleantech sector and will be a location for cleantech startups, SMEs and larger companies. Dalkia, the utilities and energy management service provider became the first Innovation Campus tenant in November 2013.

13 Standards and Branding

Standards have a role to play in driving growth and jobs in the Green Economy. In Ireland and internationally, our standards are recognised as a badge of excellence. They have become an integral part of our private and public purchasing and procurement specifications. Standards can drive innovation in products and services. Achieving standards acts as an effective marketing tool for business. By developing expertise ahead of the rest of the world, Irish industry can seize the opportunity to create and expand markets for green goods and services. Green Economy standards continue to be developed across a range of sectors in Ireland including in energy management, hospitality and food production.

Achieving **accredited standards** is important to leverage new sales and growth in the Green Economy, particularly in the case of new and emerging technologies. For example, Wisetek's attainment of the US accredited standard for electronics recycling - R2 - was vital to winning new business there (Box 11).

A notable success for Ireland in the field of standards was the development of ISO 50001, the **international energy management standard**. ISO 50001 was based on an **Irish standard**, which was the one of the first of its type in the world. As a result Ireland now has one of the highest take ups of energy management standards in the world, giving a competitive advantage to Irish-based companies, indigenous and multi-national. The Sustainable Energy Authority of Ireland (SEAI) is currently working on a new Irish standard for energy efficient design, building on Ireland's leadership in developing ISO 50001.

Ireland has a tremendous advantage in its image as a green island. Origin Green, the voluntary sustainability development programme led by Bord Bia, and the Green Hospitality Programme, the Irish developed **environmental certification standard** for the hospitality sector are emerging as strong brands tied to rigorous standards.

The Green Way, through its national and international outreach, has created the brand "**cleantech Ireland**", allowing global markets to recognise Ireland as a key player in the cleantech market. Other programmes such as the **GIFSC** and the suite of initiatives under the **Green Enterprise** and **Green Business** programmes run by the Environmental Protection Agency are working to capitalise on the synergies between our green reputation and our environmentally green credentials.

The National Standards Authority of Ireland (NSAI) is the Government body with responsibility for developing and publishing Irish standards. Successful new standards arise out of close collaboration between industry, NSAI and the relevant Government agencies. Our strong **standards and branding** base can be leveraged more, in particular by promoting awareness amongst SMEs in all of the value of standards and branding to their business and growth.

Box 25: A Selection of Recent Awards and Standards in the Green Economy in Ireland

- » **Cylon** – an international leader in the development of energy management systems and services - was awarded a **Global Top 10** award by the **Global Cleantech Cluster Association** in November 2012.
- » 5 Irish companies – **Hanley Energy, SELC, Episensor, M2C** and **EPS Water** – were shortlisted for the 2013 **Global Cleantech Cluster Association awards**. SELC were selected as a global top 30 semi-finalist in the Lighting/Energy Efficiency category. Hanley Energy were selected as the top global company in the Cleanweb/IT category.
- » Rita Shah of **Shabra Plastics** was awarded an **International Alliance for Women Award** at the end of 2012 in recognition of advancing the economic empowerment of women.
- » **Trustwater**, which has developed innovative water saving technologies for business, won the **InterTrade Ireland/Irish Times National Innovation Award** for 2013.
- » **EPS**, a water and wastewater solutions company, will represent Ireland as National Champion at the 2013/14 **European Business Awards Programme**.
- » **SMILE Resource Exchange** won the **Local Authority Members Association Award** for Best Eco-friendly Initiative in January, 2013.
- » **Nualight** contributed to new European **LED Lighting Guidelines** as the expert contributor on standards required for high quality LED lighting in refrigerated cabinets.
- » **Origin Green** Member **Dawn Meats** was awarded the title of National Green Champion (Ireland) at the UK Green Apple Environmental Awards in November 2013.
- » The SEAI annual **Sustainable Energy Awards** are intended to encourage, recognise and reward excellence in energy management in the industrial, commercial, community and public sectors in Ireland. The 2013 winners were Kerry Local Authorities, Bagenalstown Community Project, Musgrave Group, Diageo Ireland –St. James's Gate Brewery, Sirius, Irish Navel Service, School of Chemical and Bioprocess Engineering, UCD, Dawn Meats and Cosgrave Developments.

Appendices

Appendix 1: Members of the Consultative Committee on Jobs in the Green Economy

Chair:

Richard Bruton, T.D.
Minister for Jobs, Enterprise and Innovation

Rita Shah,
Shabra Plastics

Paddy Prendergast,
C&F Group, C&F Green Energy

Pat Gilroy,
Dalkia

Michael Hayes,
KPMG

Joe Harford,
Joe Harford and Associates

Sean Noone,
SELC

Kenneth Spratt,
Department of Communications, Energy and Natural Resources

John McCarthy,
Department of Environment, Community and Local Government

Colm MacFhionnlaioich,
Enterprise Ireland

Declan Meally,
Sustainable Energy Authority of Ireland

Dara Lynott,
Environmental Protection Agency

Clare Dunne,
Department of Jobs, Enterprise & Innovation

Secretariat:

William Parnell, Orla O'Brien and Ciara Phelan,
Department of Jobs, Enterprise & Innovation

Appendix 2: Exemplar Energy Projects 2013

Exemplar Energy Projects 2013



The following organisations will work with the Sustainable Energy Authority of Ireland in the delivery of their projects to road-test innovative contracting methods outlined in the National Energy Services Framework

Boliden Tara Mines

Boliden Tara Mines is Europe's largest zinc mine. This project is a combination of Variable Speed Drives and state of the art controls systems to optimise the operation of their large ventilation fan system and will be funded through a third party financed Energy Performance Contract solution (EPC).

Fingal County Council

Following extensive trials which have been undertaken for new public lighting technology by Fingal County Council they propose a retrofit of up to 70% of their public lighting stock (20,250 public lights). This project will be delivered through a fully financed EPC solution.

Carbery Group

The Carbery exemplar project is centred on the installation of a new independently operated energy centre and switching the generation of base load (shared with CHP) to renewable energy. The project involves replacing five existing antiquated boilers on site with two new high efficiency boilers. One of the new boilers will be a biomass boiler (potential cash injection of €1.6 m into the local economy for fuel supply) and the second is a modern natural gas fired boiler to replace technology which is over 40 years old. This is to be delivered using a Local Energy Supply Contract (LESC).

Four Seasons Hotel

The Four Seasons is a luxury 5 star hotel in Dublin. This project involves a comprehensive retrofit of lighting, heating, controls and ventilations systems, whilst also retrofitting the building fabric. It will be delivered through an EPC solution.

GE Healthcare

Against a background of rising output and likely energy consumption and cost increases, GE Healthcare hopes to minimise the impact through outsourcing a number of energy efficiency upgrades through an ESCO. Areas targeted include boiler output optimisation, heat pump technology to utilise waste heat from production process, steam generation efficiency improvements, chilled water efficiency improvements, heat recovery from compressors and control and monitoring systems.

Carton Bros

Carton Brothers, an Irish family-run business, are proposing a project focused on upgrading of their processing plant and provender feed mill likely to include electrical and thermal system upgrades, fabric improvements, and process control system improvements and delivered through an EPC.

Health Service Executive West

Two projects are proposed for HSE North West where potential has been identified. The first project is to retrofit the boiler plant, controls and reduce the heating demand in Roscommon Hospital. The second project is to retrofit the heating plant, district heating network, BMS and reduce heating demand across the campus at Aras Attracta, Mayo. Both projects will be delivered through a combined LESL and EPC solution.

DIMPSCO

DIMPSCO are a part of the Irish owned Glen Dimplex company who manufacture a wide range of energy saving equipment. Dimpco in this instance will act as an aggregator as well as ESCO for the delivery of heating retrofits across six pig farms. The solution will have a robust Energy Performance Related Payments (EPRP) structure in the contract.

Dublin City Council

This Dublin City Council project is a deep retrofit of four leisure centres, including CHP to be delivered through a fully financed EPC solution.

Institute of Technology Tralee

IT Tralee has pursued energy efficiency improvements over recent years reducing their overall heating demand. This project will focus on retrofitting the heating generation plant for the campus installing biomass boilers and heating controls through a LESL solution.

Dublin City University

Dublin City University have two ESCO projects planned, starting with a single technology retrofit of the lighting in their multi-storey car park through an EPC solution. The next project is to retrofit the buildings in their Green Innovation campus, through a combined Local Energy Supply and Energy Performance Contract.

Irish Prison Service



The IPS has analysed various ESCO opportunities as a strategic option to retrofit their facilities, many of which date from the turn of the century. The first project is to retrofit the heating systems in the Wheatfield and Cloverhill prisons delivered through a combined EPC and LESC solution.

Radisson Blu



The Radisson Blu Hotel, Sligo is a 4-star 160 room luxury hotel and has a full range of leisure facilities. The proposed project involves the replacement of the existing heating system with a modern biomass fuelled boiler and is a priority for the organisation. The installation is being sourced through an combined EPC and LESC.

Kerry County Council



Kerry County Council has a strong record of implementing energy saving projects reducing energy costs for both the local authority and homeowners within the county. For this project, Kerry County Council plans to retrofit the entire 11,500 public lights in the county through a fully financed solution.

Roadstone Wood Ltd



Roadstone Wood Ltd is a subsidiary of CRH plc and is Ireland's leading supplier of building materials. Motors, water pumping and compressed air systems are all significant energy users and with ESCO support it is planned to assess and install more efficient equipment. Variable Speed Drives and control systems will be upgraded in a number of sites across the country, delivered through an EPC solution.

Kildare and Wicklow VEC



This project focuses on a retrofit of 17 schools within the expanded organisation of Kildare and Wicklow proposing a mix of measures bespoke to each school involving fabric insulation, heating plant and controls, lighting, BMS and benchmarking of schools to be delivered through an Energy Performance Contracting solution.

St. John of God Hospital



St John of God are at an advanced stage of assessing their Stillorgan site for a deep energy retrofit. The mechanical and electrical services across the campus will be upgraded and heating plant retrofitted. This retrofit is to be delivered through a combination of an EPC and LESC.

Letterkenny Institute of Technology



Following a number of energy efficiency projects which have successfully reduced the energy demand on the Institute's campus, the proposed project is a biomass and heating plant retrofit to be delivered through a LESC.

Tesco



Tesco Ireland is on track to reduce the carbon footprint from its operations by at least 50% before 2020 (compared to a 2006 baseline). They are investing in low energy technologies in their stores and continue to use innovative financing models such as energy performance contracting to retrofit these technologies across the estate.

Liffey Meats



Liffey Meats is one of Ireland's largest and progressive meat processing firms. They are upgrading processing and services at three facilities to include heat recovery from refrigeration systems, pipe and equipment insulation, new high efficiency steam generation plant, low energy effluent treatment plant and lighting. This is to be delivered using an EPC.

University College Cork



UCC, one of the first public bodies in the world to achieve ISO 50001 certification, has an on-going programme to retrofit their facilities. The specific exemplar project aims to utilise the ESCO model to strategically retrofit the electrical and mechanical facilities in a number of campus buildings.

Mayo County Council



Following successful implementation of a pilot street lighting project for Crossmolina in 2012 through an ESCO contract, this project proposes to retrofit all public lights in the county (12,000) through a fully financed EPC solution.

Building Fabric



Mechanical Services



Biomass Heating



Public Lighting



Electrical Services



More Information: www.seai.ie/Your_Business/Energy_Performance_Contracting/Exemplar_Projects/

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Appendix 3:



Better Energy Homes provides grants to homeowners towards home energy upgrades. **Better Energy Warmer Homes** provides home energy upgrades free of charge to vulnerable households.

The list below indicates the number of houses upgraded since the respective programmes commenced.

	Better Energy Warmer Homes	Better Energy Homes	Totals for BOTH schemes
Carlow	1,098	1,532	2,630
Cavan	1,476	3,052	4,528
Clare	2,357	7,998	10,355
Cork	10,781	21,752	32,533
Donegal	3,362	4,450	7,812
Dublin	11,263	24,252	35,515
Galway	4,421	12,536	16,957
Kerry	2,995	8,124	11,119
Kildare	2,934	3,935	6,869
Kilkenny	1,207	3,327	4,534
Laois	1,210	2,219	3,429
Leitrim	1,162	854	2,016
Limerick	4,579	10,750	15,329
Longford	1,000	1,292	2,292
Louth	3,431	3,969	7,400
Mayo	4,093	4,530	8,623
Meath	2,474	4,083	6,557
Monaghan	1,371	2,691	4,062
Offaly	1,704	1,708	3,412
Roscommon	1,980	2,416	4,396
Sligo	1,658	1,925	3,583
Tipperary	4,184	6,873	11,057
Waterford	3,427	6,030	9,457
Westmeath	1,798	2,280	4,078
Wexford	3,134	6,008	9,142
Wicklow	2,196	2,642	4,838
All Counties**	20,881	0	20,881
	102,176	151,228	253,404

**County details are not available for Better Energy Warmer Homes prior to 2009

Appendix 4: EPA National Waste Prevention Programme Outputs 2012

Programme	NWPP Investment (c. 2012)	Resource Efficiency	Actual and Potential Savings (in 2012)	Return on Investment (rounded)
Green Hospitality Award	€0.366M	7,000 t waste prevented 41,800,000 kWh energy saved 380,000,000 litres water saved 260 members 150 properties certified	€6.00M	16:1
Green Business Initiative	€0.34M	Water, energy and waste savings 700 active members 40 Resource Efficiency Assessments Typical savings of €70,000 per annum per company assessed	c.€3M	9:1
Green Healthcare Project	€0.148M	5,500 t waste could be prevented €210,000 measured savings in food in two acute hospitals, a 42% reduction in food waste at each	€5.29M	35:1
SMILE	€0.15M	783 members of scheme 387 waste-matches made 139 waste-matches in progress 6,687 t waste potentially diverted Numerous services and logistics traded	€0.675M	4.5:1
Green Homes	€0.2M	20,000 participant households 5,500 members of greenhome.ie website (a 32% increase on 2011) Est. €320 saving potential per high performing household	€1.6M	8:1



Notes

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