



new skills
for **green jobs**

GREEN JOBS COUNTRY REPORT - UK

Jo Pye
Chris Evans
Marchmont Observatory, University of Exeter

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1. INTRODUCTION

This report has been prepared by the Marchmont Observatory at the University of Exeter as the UK Partner in the *New skills for green jobs. A case for a more gender inclusive labour market?* Project.

The Marchmont Observatory is an independent research centre focusing on learning, skills and employment. Working with partners across the UK, but in particular with partners in the South West of England, the Observatory has developed a strong understanding of key labour market trends and has worked in depth on the green skills and low carbon agenda.

This report reflects the development of the UK's approach to green jobs and skills, tracks the latest policy developments and looks at initiatives on the ground.

The report is structured as follows:

- In Section 2 we look at the broader global policy context for UK policy developments.
- In Section 3 we provide an overview of policies which are contributing towards the development of the green economy.
- In Section 4 we provide an overview of related training policies, including the national education and training system, and recent strategy and forecasting developments in green skills training. We also highlight some of the key findings from the New Skills for Green Jobs: stakeholder workshop.
- In Section 5 we look in more detail at the gender analysis of existing green training practices, and in
- Section 6 we identify good or promising practices.

2. CONTEXT ANALYSIS

2.1 Global context for UK policy developments

The United Kingdom is a signatory to various international protocols and agreements relating to climate change and related risks. These are considered by the UK Carbon Trust to be 'major drivers' underpinning UK and EU emissions targets as well as UK legislation affecting the business environment. Relevant agreements include the United Nations Framework Convention on Climate Change, the Intergovernmental Panel on Climate Change, the Kyoto Agreement and the Copenhagen Accord.

The United Nations Framework Convention on Climate Change (UNFCCC) recognised in the 1990s that greenhouse gas emissions adversely impact upon our climate. The Framework Convention aims to encourage international governments to work together to achieve a stable and non-dangerous level of greenhouse gas concentrations. The Convention was opened for signature in the Rio de Janeiro Summit in 1992 and came into force in 1994. It has been ratified almost universally by 192 signatory countries. It places an onus on the more industrialised nations to recognise and mitigate greenhouse gas emissions for which they accept greater responsibility, and to support poorer nations in their own mitigation efforts. Under the Convention, governments are expected to share information about emissions levels and national policies; reduce emissions through developing national strategies; and cooperate with other governments to prepare for climate change.

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the scientific assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO), endorsed by the UN General Assembly, and draws on membership by 195 partner countries. As a scientific body, the IPCC objectively reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide to promote understanding of climate change and its potential environmental impacts. It does not conduct any research nor does it monitor climate-related data or parameters. Governments participate in the review process and the plenary Sessions, where the IPCC work programmes are formally adopted.

The UNFCCC sets out an overarching treaty framework to mitigate climate change which can be amended or augmented over time. Its first addition, the Kyoto Protocol, was initially adopted in 1997, committing signatories in developed countries to greenhouse gas reduction targets, and providing flexible mechanisms to stimulate investment in developing countries. The Kyoto Protocol became legally binding on 16 February 2005: 184 parties to the Convention have ratified it to date.

The Kyoto Protocol is an interim measure and it is anticipated that by the end of 2012, a new internationally-ratified framework will be needed to deliver higher emission reductions. Its current targets for reducing greenhouse gas emissions in developed countries amount to a 5% reduction from 1990 levels, to be met, monitored and recorded over the five-year period 2008-2012. The Protocol sets up three market-based mechanisms, which respectively cover:

- *Emissions trading*, creating a ‘carbon market’ that provides economic incentives for achieving reductions in greenhouse gas emissions;
- *a Clean Development Mechanism*, for developed countries to invest in projects that reduce emissions in developing countries; and
- *Joint Implementation*, for developed countries to invest in emission-reduction projects in other developed countries as an alternative to reducing emissions domestically.

The European Commission issued a consultation document on the European economy to 2020¹ just before the Copenhagen summit. It considers that the key drivers for EU 2020 should be thematic and focused on the following priorities:

- *Creating value by basing growth on knowledge* – enhancing opportunity and social cohesion through innovation in products and processes, harnessing education, research and the digital economy;
- *Empowering people in inclusive societies* – through skills acquisition, creativity and innovation, entrepreneurship and a smooth transition between jobs; and
- *Creating a competitive, connected and greener economy* – with increased productivity through reduced consumption of non-renewable energy and resources to stimulate growth and help meet environmental goals. Upgrading infrastructure, reducing administration and accelerating the market uptake of innovations were also expected to contribute.

The Copenhagen Accord is a successor programme to the Kyoto Protocol which was ‘noted’ by partner countries in December 2009 – neither accepted nor rejected. In relation to Kyoto, it is not considered to represent much progress as it is not legally binding, and does not represent a universal agreement to reduce greenhouse gas emissions. However, it brings together all major nations (including the US and China), acts as a strategic focus for individual countries’ activities, charts possible ways forward and maintains some momentum on tackling climate change through ‘Long Term Cooperative Action’, which is likely to shape international climate negotiations over the medium term to 2015. The following international commitments are covered in the Accord:

- The goal to limit climate change to 2°C;
- A new and additional funding commitment for developing nations of up \$30bn to 2012 and \$100bn annually by 2020 to be overseen by a Global Climate Fund;
- Binding actions on both developed and developing nations, with agreement on international monitoring, reporting and verification of some actions;
- And the establishment of new international technology collaboration and forestry mechanisms.

The Accord does not, however, tackle the following issues:

- No agreement on the exact level of 2050 emissions reduction.

¹Commission of the European Communities. Consultation on the future ‘EU 2020’ strategy. Brussels: CEC, 24 Nov 2009.

- No agreement on targets for emissions reduction by 2020 for either developed or developing nations – although individual countries' efforts are encouraged.
- No deadline set for turning the Accord into a more substantive and legally-binding treaty.

The European Council published its *Energy Roadmap 2050*² in December 2011, which set out a strategy and action plan for a low carbon 2050 that extended the Energy 2020 goals. The Roadmap provides a range of scenarios that explore routes towards decarbonisation of global energy systems. All scenarios proposed involve major changes being made to carbon prices, technology and networks, and aim to achieve an 80% reduction in greenhouse gas emissions. They share emerging elements in common which in turn support longer-term approaches to investments. In March 2012 a follow-up publication highlighted the need for rapid progress on implementing and promoting the resource-efficient Europe envisioned in the Roadmap, alongside a greener and more competitive economy³. To this end, the European Council called for agreement to be reached on the Energy Efficiency Directive by June, and underlined its strong support for an ambitious outcome at the Earth Summit 2012 Rio+20 United Nations Conference on Sustainable Development, which it hopes will include wide participation from the private sector and civil society. The European Council set out the following key principles to be addressed at the Conference:

- The Conference should advance the global transition towards a green economy;
- promoting environmental protection, contributing to poverty eradication and stimulating low carbon and resource-efficient growth;
- it should work towards clear operational targets and concrete actions at national and international level within agreed time frames;
- it should contribute to a strengthened global institutional framework for sustainable development which should include the upgrade of UNEP to a specialised agency;
- it should advance the work on global and coherent post-2015 goals for sustainable development, with regard to the Millennium Development Goals.

2.2 European Union context for UK policy developments and the UK National Reform Programme

The European Climate Change Programme (ECCP) outlines a climate change strategy to help prevent temperatures from increasing to more than 2°C above pre-industrial levels. The ECCP's strategy was agreed by the EU Council of Ministers in Spring 2007, which set three targets to be reached by 2020. These are otherwise known as Europe 20/20/20 and are summarised below:

- *Greenhouse gas emissions* - to be cut by 20% from 1990 levels.
- *Energy efficiency*– to be improved by 20%.
- *Energy from renewable sources*– to be increased to provide for 20% of all energy.

²European Council. Energy Roadmap 2050: Communication from the Commission, Brussels, Dec 2011. (COM(2011) 885/2).

³European Council. Conclusions March 2012. Brussels, 2 Mar 2012.

To achieve these targets, a range of policy measures was adopted in the UK, in particular the EU Emissions Trading Scheme and various regulations and standards: the Energy Saving Products Directive, the Energy Services Directive, the Large Combustion Plant Directive, and the Waste Directive. Two further directives have been highlighted in recent UK policy measures:

- *The EU Renewables Directive* sets a 15% target for renewable energy in the UK, lower than most other Member States due to the UK's poorer levels of installed capacity. Even at this level, meeting the target requires a dramatic expansion of renewable energy in the UK.
- *The Energy Performance in Buildings Directive* provides a common EU methodology framework for calculating energy performance of all buildings, minimum energy performance standards, energy performance certificates, and boiler- and air-conditioning inspections. It introduces agreed measurements of relative energy performance and the requirement for regular inspections and re-evaluations. The Directive requires higher standards for upgrading larger buildings and also improving standards for new buildings, so that they converge towards those of other Member States.

The UK Government's National Reform Programme reports annually on progress made towards EU climate change targets since publication of the EU Lisbon Strategy. For the purposes of this report, it is difficult to disentangle comment on the UK's National Reform Programme with its content, which basically lists UK policy measures achieved over the previous twelve-month period. Trends in UK national policy responses will be summarised in more detail in the next section below.

UK National Reform Programme annual documentation has been examined from 2005, 2007, 2009, 2010 and 2011. It is clear that the adoption of the European Climate Change Strategy in 2007 stimulated much activity in the UK, including the 2008 Climate Change Act which was to have far-reaching consequences in UK policy developments in 2009, which are listed below. To its credit, the previous New Labour government made a swift and comprehensive response to the EU legislative framework, producing a raft of strategies which, to an extent, are still active to the present day. Support for renewables, energy efficiency and microgeneration were strengthened under what were seen as 'transitional' measures towards a low carbon or green economy. New Labour also produced a consultation paper on *Meeting the Low Carbon Skills Challenge* in early 2010, just before it left office.

Looking at the coherence and interlinkages between policy proposals as reflected in the National Reform Programme documents, there would appear to have been an interruption in UK public policy development to support the green economy between May 2010 when the new Coalition Government came to power and the following twelve months to spring 2011. The Labour Government's Green Skills consultation did not finally emerge as a publication until November 2011 with the *Skills for a Green Economy* report, which considered that it was not a strategy document but rather a collection of evidence previously submitted to the consultation, rather watered-down from previous commitments. There were many proposals made in the 2009 policy documents which were not subsequently taken up by the Government. Others, however, were developed further but unevenly so – so that 2012 now contains a few headline 'flagship' initiatives which select elements of strategy to take forward, rather than provide a full range of proposals.

Generally, it would appear that the Coalition Government has shifted its overall focus towards supporting the ailing UK economy, rather than the green economy. The balance of National Reform Programme reports confirms this, with few green policies included amidst a much greater emphasis on financial measures to bring the UK back into recovery. In times of austerity, available budget is reallocated rather than assigned afresh. The recent announcements such as the incoming Green Deal Programme – whilst they seem to provide government support for the green economy and the green construction sector in particular – are mainly a fiscal instrument to encourage contributions by private householders. Other schemes have been discontinued – or relaunched under different banners - in order for pump-priming monies to be found. Much-vaunted government support as detailed in the National Reform Programme needs to be read between the lines, rather than taken at face value.

We now look in more detail at the run of UK policy since the Lisbon Programme commenced.

3. OVERVIEW OF POLICIES TOWARDS THE DEVELOPMENT OF THE GREEN ECONOMY

3.1 New Labour Government policies: 2000-2010

The following event timeline identifies a series of policy measures whose progress has been reviewed in the National Reform Programme annual reports:

- The 2000 UK Climate Change Programme set out a package of policies and measures designed to reduce the UK's emissions of greenhouse gases, including through the climate change levy, climate change agreements, and emissions trading.
- The G8 Summit in July 2005, where a package of actions to combat climate change was agreed focusing on improvements in energy efficiency, cleaner vehicles, aviation, work on developing cleaner fuels, renewable energy and promoting research and development.
- The UK's 2005 Sustainable Development Strategy, *Securing the Future*, which highlighted the potential of environmental technologies to contribute to a sustainable economy: driving new business and jobs and enhancing competitiveness while helping to meet environmental objectives.
- The 2005 Business Resource Efficiency and Waste (BREW) programme provided £284 million over three years to improve business efficiency, reduce waste and cut harmful emissions.
- The 2006 Stern Review⁴ on the Economics of Climate Change examined the implications of global climate change on the UK and world economies. It set out a detailed framework for climate change policy that recognised the transition to a low-carbon economy, bringing challenges for competitiveness but also opportunities for growth. Policies to support the development of a range of low-carbon and high-efficiency technologies were highlighted as 'required urgently'.
- The 2007 *Meeting the energy challenge* Energy White Paper was published by the newly-launched government Department of Energy and Climate Change. It set out a strategy to deliver energy security and accelerate the transition to a low carbon economy, with four policy goals: aiming to cut CO₂ emissions by some 60% by about 2050, with real progress by 2020; maintaining the reliability of energy supplies; promoting competitive markets in the UK and beyond; and ensuring every home is heated adequately and affordably.

Following the ECCP in 2007, in mid-2008 the UK Government consulted on how to increase the use of renewable energy in the UK to 15% by 2020, in order to meet its EU 2020 renewable energy target. Since that time, from 2008 onwards, there has been a sequence of important legislation enacted and national policy papers issued by central UK government. They have set

⁴Stern Review: the Economics of Climate Change. Oct 2006.

in motion policy frameworks seeking to develop various aspects of the low carbon economy, green industries and skills, alongside further studies and consultations which aimed to identify new low carbon measures that would be required.

- The Climate Change Act 2008 set out a long-term, legally binding framework to manage and respond to UK climate change, setting targets, allocating legislative powers and strengthening institutional frameworks. It provided for an 80% cut in greenhouse gas emissions by 2050 and 34% by 2020 (based on 1990 levels), five-year carbon budgets to cap emissions with required reports to Government, guidance on greenhouse gas reporting, the Carbon Reduction Commitment Energy Efficiency Scheme, and created the Committee for Climate Change.
- The Energy Act 2008: updated legislative elements of the 2007 White Paper, specifically relating to the availability of new technologies and emerging renewable technologies; strengthening the UK's secure energy supply; and protecting the environment and the tax-payer during a volatile energy market. New measures were first announced such as feed-in tariffs (financial support for low-carbon electricity generation in projects up to five megawatts), smart metering, and the Renewable Heat Incentive (financial support programme for renewable heat generated anywhere, from large industrial sites to individual households); others were strengthened, including the Renewables Obligation to promote microgeneration from diverse energy sources.
- The Committee on Climate Change (CCC) was constituted as an independent, expert body to advise the Government on the level of carbon budgets and on where cost-effective savings can be made. To ensure accountability and transparency, Government responds to the Committee's submission of annual reports to Parliament which monitor the UK's progress towards carbon targets and budgets. The Committee's first 2008 report⁵ was reviewed and updated in autumn 2009⁶ in view of the economic recession, and found that to achieve the necessary 'step change' would require fresh actions in: *power generation*, where current markets and instruments are not 'best designed' to deliver long-term decarbonisation, but require a fundamental review of policy; and *home energy efficiency improvements*, where government leadership and a more integrated 'whole house' approach would be appropriate. Both these themes have been carried forward into current Government green economy and energy policy in 2012.
- In spring 2009, a cross-departmental (covering Business, Environment and Skills) report⁷ identified key industry sectors where investment in low carbon initiatives would drive innovation. These include: carbon capture and storage, offshore wind generation, marine energy, nuclear energy and low carbon vehicles. Other green sectors with significant potential for growth include solar, biomass, hydro, waste management, geothermal, recovery and recycling, hydrogen and fuel cells, carbon finance and other environmental industries.

⁵Building a low-carbon economy: the UK's contribution to tackling climate change – the first report of the Committee on Climate Change. CCC, December 2008.

⁶Meeting carbon budgets – the need for a step change. Progress report to Parliament by the Committee on Climate Change, October 2009.

⁷BERR/DECC/DIUS. Investing in a low carbon Britain. April 2009.

An influential raft of policies published in summer 2009 signified a new policy impetus for the green economy in the UK:

- The UK government (Department for Energy and Climate Change (DECC)) published its *Renewable Energy Strategy* in July 2009, setting out policies and measures to meet the 2020 renewable energy target and increase sustainable renewable in energy, heat and transport. Targeted support for the green economy to 2012 included: additional investment in energy and resource efficiency in SMEs and public sector organisations; funds to support the development of a world-leading low carbon and advanced green manufacturing sector; and action to enable lending to renewable and energy projects.
- The Strategy announced an extension of the Renewables Obligation in the electricity sector and a new Feed-In Tariff to support small-scale generation. It also made provision for: a new Renewable Heat Incentive (RHI) to support the renewable heat sector (eg biomass), measures to facilitate sustainable biofuels in the transport sector, support and incentives for new and emerging technologies, establishment of the Office for Renewable Energy Deployment, new opportunities for UK business and jobs, significant carbon reductions and improved security of supply.
- DECC published a Strategy for Climate and Energy⁸, the *UK Low Carbon Transition Plan*, which set out the Government's plan to tackle climate change and policy covering the renewable energy industry supply chain. This focuses on protecting the public from immediate risk (adaptation), preparing to reduce emissions (mitigation), as well as stressing support for a new international climate change agreement. The UK Low Carbon Transition Plan also called for the development and transfer into new areas of existing STEM skills, including those presently utilised by the offshore oil industry. In the Plan, the pilot of a proposed Pay As You Save (PAYS) scheme to trial innovative new finance mechanisms for a whole-house energy-efficiency retrofit, providing householders with finance for the upfront capital needed to purchase energy efficiency measures was announced. This scheme has re-emerged in 2012 as the Green Deal 'Golden Rule' (see below).
- In July 2009, the Department for Business, Innovation and Skills (BIS) set out its position⁹ on opportunities within the low carbon economy to promote competitiveness and economic recovery. Development of green jobs was recognised as being important for future planning and forecasting. Skills to enable Member States' economies to respond effectively to climate change were seen as underpinning reduction of carbon emissions and promotion of new environmental industries. An EU-wide skills audit (as proposed by CEDEFOP) would identify skills required to support key sectors with the potential to exploit future demand or competitive advantages.
- In parallel, the wide-ranging 2009 *UK Low Carbon Industrial Strategy*¹⁰ set out the Government's current framework of support for low carbon economic activities. It identified drivers of fundamental change in four key areas: energy efficiency; boosting the low carbon energy infrastructure; low carbon vehicle development and production; and international recognition of skills, infrastructure, procurement, research and

⁸DECC. The UK Low Carbon Transition Plan: national strategy for climate and energy. July 2009.

⁹BIS. The Future of EU Competitiveness: from economic recovery to sustainable growth. July 2009.

¹⁰BIS/DECC. The UK low carbon industrial strategy. July 2009.

development, demonstration and deployment policies. The Strategy recognised the key role of government in working with leading employers and key strategic partners to stimulate demand, support business innovation and create the framework for developing low carbon skills in the UK workforce. It recommended that skills for low carbon goods and services be embedded into all professional training, and clearly defined a Low Carbon and Environmental Goods and Services sector (LCEGS) across three key areas of economic activity:

- *Environmental sector*, including energy, carbon and broader environmental consultancy, air pollution control, environmental monitoring and management, marine pollution control, waste management, recovery and recycling.
 - *Renewable energy sector*, including wind, wave and tidal, biomass, geothermal, hydro and photovoltaic energy generation and renewables consultancy.
 - *Emerging low carbon sector*, including alternative fuels such as nuclear, and alternative fuels for vehicles, carbon capture and storage, building technologies, energy management and carbon finance.
- At the end of 2009, BIS published its *Sustainable Development Action Plan*¹¹ which highlighted a range of initiatives covering: responses to environmental change; national, regional and local impacts during the transition to a low carbon economy, including key sectors and knowledge, skills and business practices in low carbon industries; global knowledge networks, international carbon markets and sustainable development investment in low carbon; Education for Sustainable Development (ESD), promoting low carbon issues in curricula, resources and teacher training; and public-private partnerships for government and international engineering and energy companies to invest in low carbon energy technologies.

Alongside these initiatives, New Labour Government departments published a range of further policy and strategy papers into the low-carbon economy in the period 2008 to 2010. These included:

- Department for Environment, Food and Rural Affairs (Defra), *Building a Low Carbon Economy – Unlocking Innovation and Skills (2008)*. Policy document covering various aspects of the low carbon economy including innovation, skills and the role of partnerships.
- BIS, *Economics Paper No. 1 – Towards a Low Carbon Economy (2009)*. Economic analysis providing the evidence base for the Low Carbon Industrial Strategy. Includes a detailed review of the economic case for intervention.
- Department for Business, Enterprise and Regulatory Reform (BERR), DECC, Department for Innovation, Universities and Skills (DIUS), *Investing In a Low Carbon Britain (2009)*. Sets out a programme of targeted investment linked to the Low Carbon Industrial Strategy.
- HM Government, *New Industry New Jobs (2009)*. Sets out agenda for creation of new employment from industries including low carbon activities.

¹¹BIS Sustainable Development Action Plan. 1 August 2009 – 30 March 2011. December 2009.

- Department for Transport (DfT), *Low Carbon Transport : A Greener Future (2009)*. Detailed low carbon reduction strategy for transport. Sets out actions DfT are taking to deliver cuts to meet obligations under carbon budgets to 2022 and beyond.
- HM Government, *Going for Growth: Our Future Prosperity (2010)*. Sets out a strategy for recovery – acknowledging the challenge of decarbonising the economy, but also identifies opportunities for growth from the low carbon economy.
- DECC, *Marine Action Plan (2010)*. Sets out a vision for the marine energy sector to 2020.
- DECC, *Warm Homes, Greener Homes (2010)*. Strategy sets out government plans for the energy efficient retrofit of 7m British homes by 2020.
- *EU 2020 Strategy (2010)*. EU consultation document contains a strong emphasis on developing low carbon economy activities, including: Renewables Obligation; Renewable Heat Incentives; Feed-in-tariffs; policies to directly affect the relative costs of renewable and non-renewable energy sources.

Over the same period, further government measures have been implemented covering community and domestic energy saving and energy efficiency, aiming to tackle fuel poverty. These have included:

- The *Community Energy Saving Programme (CESP)*, launched in September 2009, piloting the ‘whole-house’ approach, using intensive house-by-house, street-by-street delivery, to improve energy efficiency and lower household fuel bills in low income areas.
- The *Carbon Emissions Reduction Target (CERT)*, between April 2008 and March 2011, a legal obligation on energy suppliers to meet a carbon-saving obligation in domestic households. Energy suppliers meet this target by promoting, typically with subsidy, energy efficiency measures such as loft and cavity wall insulation.
- The *Warm Front Scheme*, for the period 2008-11 – allocating additional resources and increasing the level of grants.

3.2 Coalition Government policies – 2011 to date

By 2011, the new UK Government began to differentiate its own policies to support the green economy, continuing some of those of its predecessors and introducing others. The 2011 National Reform Programme report by the Coalition Government charted the following indifferent performance against EU 2020 indicator targets:

Indicator Target period	Current level	Reference
Total emissions of greenhouse gases from the UK as an annual impact indicator 2020 on 1990 levels	34% reduction by	27.9% 2009
Energy consumed in the UK that has been produced from renewable sources as an annual impact indicator	15% of energy to come from renewable sources by 2020	3.0% 2009
Energy efficiency installations	N/A 10.6 million homes with cavity wall insulation 12.9 million homes with loft insulation of at least 125mm (estimated)	January 2011

- Energy Act 2011 – provides for a step change in the provision of energy efficiency measures to homes and businesses, and makes improvements to enable and secure low-carbon energy supplies and fair competition in the energy markets. The Act includes provisions on:
 - The Green Deal - creates a new financing framework to enable the provision of fixed improvements to the energy efficiency of households and non-domestic properties, funded by a charge on energy bills that avoids the need for consumers to pay upfront costs.
 - The private rented sector – covering tenants’ requests for energy efficiency improvements and future minimum energy efficiency standards.
 - Energy Company Obligation – to take over from existing obligations to reduce carbon emissions (the Carbon Emissions Reduction Target (CERT) and Community Energy Saving Programme (CESP)), which expire at the end of 2012; and target measures at vulnerable households likely to need additional support.
- The UK Coalition Government’s 2011 policy papers, under the banner *Enabling the transition to a green economy*¹², reiterated the main messages above, including the contribution of government departments, and the significant role of procurement practice in disseminating the benefits of a green economy. Underlying the scale of the challenge and the range of stakeholders affected, the *Enabling the Transition to a Green Economy* suite of publications includes a specific guide by Defra to ‘green’ government procurement practices¹³, another for small businesses¹⁴, and the need for partnership working between Government and business¹⁵.
- The Coalition Government’s *Plan for Growth* of March 2011 includes a *Low Carbon review*, which sets out the key priorities for a low-carbon, resource-efficient economy. The review encourages investment in low carbon power (through the implementation of a

¹²Departments for Business, Innovation and Skills/Energy and Climate Change/Environment, Food and Rural Affairs. *Enabling the transition to a green economy*. 2011.

¹³Department for Environment, Food and Rural Affairs. *Greening Government commitments: operations and procurement*. February 2011.

¹⁴HM Government. *The move to a green economy: a guide for small businesses*. 2011.

¹⁵HM Government. *Enabling the transition to a green economy: Government and business working together*. 2011.

carbon price floor); supports infrastructure development(through the creation of a Green Investment Bank); promotes the development of new markets in green goods and services (for example, through measures such as the Green Deal and Renewable Heat Incentive); caps the costs of policies funded through energy bills (through a new framework to cap the impact of levy-funded support), and sets out arrangements for the funding of Carbon Capture and Storage (CCS) demonstration pilots.

3.3 Actions to meet objectives

- The Coalition Government's *Carbon Plan*¹⁶ of March 2011 sets out domestic and international actions on climate change for the next five years, focusing on efforts to decarbonise the power sector, improve the energy efficiency of buildings and reduce emissions in the transport sector.
- The Renewables Obligation, which places an obligation on electricity suppliers to source a specified proportion of their electricity from renewable sources, is currently the UK's main financial incentive for large-scale renewable electricity. The UK's ongoing Electricity Market Reform process is looking at ways to reform the Renewables Obligation as part of a wider set of measures to support low carbon generation, security of supply, and renewables and to promote fair competition. The UK's pursuit of renewable energy is also supported by the Renewable Heat Incentive, which provides long-term tariff support for homes and businesses installing renewable heat and will launch in autumn 2012.
- Department of Energy and Climate Change Microgeneration Strategy plans to improve quality, technology, skills and advice to consumers, communities, small business and the public sector (eg Microgeneration Certification Scheme or MCS)
- The Government is also establishing a Green Investment Bank (GIB) to provide funding for investments in low carbon infrastructure. The Bank will tackle the risk that the market currently cannot adequately finance and will catalyse further private sector investment. The Bank will begin operation in 2012-13, and will have borrowing powers from 2015-16, once the target for debt as a percentage of GDP has been met.
- The Government will improve energy efficiency through the Green Deal and Energy Companies Obligation. The Green Deal is an innovative financing mechanism which allows consumers to pay back the cost of energy efficiency improvements through their energy bills. It enables private firms to offer consumers energy efficiency improvements to their homes, community spaces and businesses at no upfront cost, and recoup payments through a charge in instalments on the energy bill. The programme is expected to roll out from autumn 2012 and participating stakeholders and industry sectors have been involved to date in the New Skills for Green Jobs project.
- The Government at Budget 2011 announced that the Climate Change Agreements (CCAs) with energy intensive industry would be extended to 2023 and the Climate Change Levy discount on electricity for CCA participants would be increased from 65 to

¹⁶Carbon Plan: http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/carbon_plan/carbon_plan.aspx

80% from April 2013. Under the CCAs, eligible sectors of industry receive this reduction in the Levy in return for meeting ambitious energy efficiency or carbon-saving targets.

- The Carbon Reduction Commitment is a mandatory scheme for large public and private sector organisations not already covered by the EU Emissions Trading Scheme (ETS) or Climate Change Agreements. The introduction of the Carbon Reduction Commitment (CRC) has already increased attention on energy efficiency amongst large public and private sector organisations.

4 OVERVIEW OF RELATED TRAINING POLICIES

4.1 The UK national education and training system

Responsibility for the education service lies with the Department for Education (DfE) and BIS. DfE responsibilities include planning and monitoring the education service in schools, ensuring the provision of integrated services for children, and bringing together policy relating to children and young people. BIS is responsible for science and innovation, skills, Further and Higher Education (FE and HE) and enterprise.

4.1.1 Education for young people under 19

The Education Funding Agency (EFA) for young people under the age of 19 has been launched in April 2012, replacing the Young People's Learning Agency. An executive agency of the DfE, the EFA has responsibility for the direct funding of the growing number of academies and Free Schools and all 16 to 19 provision. This will include the funding of 16 to 19 provision in FE colleges, sixth form colleges and independent provision. The EFA will also distribute school funding resources to local authorities for them to pass on, as now, to those schools that are not yet academies.

At the local level, the responsibility for organising publicly-funded school education lies with 152 top-tier or single tier local authorities. It is the duty of these authorities to secure sufficient suitable education and training opportunities to meet the reasonable needs of all young people in their area, including those who are over compulsory school age but under 19, or are aged 19 to 25 and subject to a learning difficulty assessment. In deciding whether education or training is suitable, the local authority must have regard to, amongst other things, the quality of the education and training and may challenge where this is poor or inadequate.

Local authorities also have a major role as providers of schools but this role is now reducing as a significant number of secondary schools are converting to become academies, which are independent of local authorities. Local authorities distribute government funding to maintained schools in their area, and apply a local funding formula. They do not fund academies or education and training for 16 to 19 year olds (although the funding for 16 to 19 year olds in maintained schools flows through local authorities).

Post-compulsory education divides broadly into two areas:

- Secondary education at school Age 16 to 18+
- Further education at sixth form college, FE college or tertiary college Age 16 to 18+

Secondary schools and sixth form colleges offer general/academic education, along with some courses in vocational/applied subjects. Further education colleges may offer a wider choice of vocational courses although many also offer general courses, and tertiary colleges offer both general and vocational education.

Qualifications are validated by awarding bodies (subject to statutory regulation) which offer a wide range of national qualifications. The highest general (academic) qualifications taken are General Certificate of Education Advanced level examinations (GCE A Levels), which are typically sat at age 18. A wide range of vocational qualifications is also available, which confer awards that broadly match school secondary qualifications at age 16 (GCSEs; equivalent to National Vocational Qualification (NVQ) Level 2) and tertiary qualifications at age 18 (GCE A Levels; equivalent to NVQ Level 3). Qualifications gained at this level can lead to admission to courses of HE, to further specialist training or to entry to employment.

4.1.2 Training and post-19 education

Since April 2010, the Skills Funding Agency (SFA) has been responsible for funding and commissioning post-19 education and training as a partner organisation of the BIS. The SFA replaced the Learning and Skills Council (LSC) which had the broader remit of planning and funding all post-16 education, and now funds and regulates adult further education and skills training in England.

The SFA's funding strategy is informed by government policy, the needs of businesses, communities and regions, and sector and industry bodies. It sees its mission as being to ensure that people and businesses can access the skills training they need to succeed in playing their part in society and in growing the economy, building the UK's skills towards economic recovery and enhanced future competitiveness. It provides the basic skills needed for today's economy as well as skills for new growth sectors and new industries.

The SFA invests more than £4 billion each year to fund training in colleges and learning providers. Its annual budget, targets and priorities are set by BIS through the Skills Investment Strategy, published each autumn. BIS issues an annual budget and a set of targets to the SFA. Colleges and providers are allocated funding based on their track record and against these priorities. They have flexibility to decide what mix of provision they will deliver to best meet the needs of their businesses and communities. Other key stakeholders for the SFA include the Association of Colleges and the Association of Learning Providers, and, on the employers' side, the Institute of Directors, the Confederation of British Industry and Federation of Small Businesses.

The SFA also houses the National Apprenticeship Service, which develops the relationships with employers needed to underpin work related training. The National Apprenticeship Service offers work-related training (Apprenticeships) to all age groups over the age of 16, whether school-leavers or already in work, living in England and not taking part in full-time education. Apprenticeships take between one and four years to complete depending on the level of Apprenticeship, the apprentices' ability and the industry sector. As employees, apprentices earn a wage and work alongside experienced staff to gain job-specific skills. Most training takes

place in the workplace; off the job, usually on a day-release basis, apprentices receive training to work towards nationally-recognised qualifications (NVQs). There are three levels of Apprenticeship available:

1 - Intermediate Level Apprenticeships

Apprentices work towards work-based learning qualifications such as an NVQ Level 2 Competence Qualification, Functional Skills and, in most cases, a relevant knowledge-based qualification.

2 - Advanced Level Apprenticeships

Apprentices work towards work-based learning such as an NVQ Level 3 Competence Qualification, Functional Skills and, in most cases, a relevant knowledge-based qualification.

3 - Higher Apprenticeships

Apprentices work towards work-based learning qualifications such as an NVQ Level 4 Competence Qualification, Functional Skills and, in some cases, a knowledge-based qualification such as a Foundation Degree.

Figure 1: Table of education and training choices, 14-19



Source: National Apprenticeship Service, 2012

4.1.3 Higher education

The national-level body with responsibility for funding HE is the Higher Education Funding Council for England (HEFCE). The direct costs of specific research projects are funded by the UK Research Councils, which are under the statutory control of BIS and have a remit across the UK. Higher education institutions include universities, higher education colleges and a small number of university colleges. Higher education institutions (HEIs) are diverse, ranging widely in size, mission and history.

In the UK, academic qualifications at this level are not national awards, but are granted by individual institutions, many of which have the power to award their own degrees and qualifications. Degrees and other qualifications offered by higher education colleges without degree-awarding powers are validated by external bodies such as a university or national accrediting body. Qualifications include higher education certificates and diplomas, foundation degrees, bachelor's degrees, bachelor's degrees with honours, and higher (postgraduate) degrees, such as master's degrees and doctorates. Undergraduate programmes leading to bachelor's degrees with honours (usually known as honours degrees) form the largest group of higher education programmes. Typical courses leading to an honours degree last for three years full-time although some courses are longer.

4.2 Social partners

The UK Commission for Employment and Skills (UKCES) works with the SFA and is a social partnership, led by Commissioners from large and small employers, trade unions and the voluntary sector. Its mission is to raise skill levels to help drive enterprise, create more and better jobs and economic growth. From 2011, its strategic objectives have included the provision of labour market intelligence which helps businesses and people make the best choices for them; working with industry sectors (including Sector Skills Councils) and business leaders to develop and deliver the best solutions to generate greater employer investment in skills; and maximising the impact of changed employment and skills policies and employer behaviour to help drive jobs, growth and an internationally competitive skills base.

Employers from all sectors feed in to the UKCES and its network of Sector Skills Councils (SSCs), linked to the specific training needs of industry sectors. Businesses are directly involved in developing and determining which qualifications are appropriate for their sector, through the mechanisms of Sector Skills Agreements which drive demand for skills and align provision with employer demand. These include the Skills for Justice Compact and the Joint Investment Framework with the National Health Service. National Skills Academies with public sector board members are increasingly influencing delivery and improving training quality through accredited specialist provider networks, such as the National Skills Academy for Care. For industry sectors with a green economy 'footprint', relevant Skills Academies include the National Academy for Environmental Technologies and the National Construction Academy.

Other important social partners for the delivery of skills training are the national Trades Union Council or TUC, with a large and effective network of regional local officers across a diverse group of unions representing industry sector workers. Since 1998, the TUC has received government funding to deliver the TUC unionlearn initiative, seeking to encourage informal and formal vocational training in unionised UK workplaces. The initiative makes use of a 'cascading' model to train up individual union learning representatives or ULRs in businesses who are empowered by their employers with dedicated time to arrange training courses for workers with providers, paid for by individual unions. TUC unionlearn has been consistently successful in fostering cultures of workplace learning for union members and their families, and is currently supported by BIS to extend its activities more widely into community-based learning. In recent years, the TUC has been involved in delivering a Green Workplaces initiative which has

developed a cohort of ‘green representatives’, who actively promote the benefits of energy efficiency, waste reduction and recycling and set these up in individual workplaces.

4.3 Recent strategy and forecasting developments in green skills training

A 2007 report¹⁷ commissioned by the Energy & Utility Skills SSC identified National Qualifications Framework-level descriptors for renewable energy jobs in wind, wave and tidal technologies; hydrogen and fuel cells; and biomass. It recommended that further detailed mapping be carried out of the National Occupational Sectors studied, which should also be benchmarked to international standards. It also recognised the links between green jobs and skills by calling for a full skills gap analysis to identify priorities for future policy and training developments.

In April 2009, the House of Commons Environmental Audit Committee announced an Inquiry into green jobs and skills policies which aimed to encourage low carbon investment and boost employment in environmental industries, with a focus on tackling the recession. The Inquiry sought to identify the nature of the jobs that might be created in green industries as a result of the green fiscal stimulus; the skills base for the UK environmental industries; and the effectiveness of government policies. Responses were received from a wide range of bodies including the UK Institute of Public Policy Research and industry Sector Skills Councils, some of which have later become involved in the new Green Deal flagship programme.

During the same period, the then-BERR (now BIS) published its views on new industries and skills¹⁸ that anticipated changes needed to Britain’s green economy. The report advocated an active approach to ensure that the UK’s skills capabilities and ability to secure jobs underpinned the UK’s global competitiveness. Low carbon skills feature strongly amongst the New Labour Government priorities in their 2009 Skills Strategy¹⁹. The Strategy identifies a particular urgency for action in low carbon and resource efficiency which ‘defy sector boundaries entirely, requiring a cross-cutting approach’.

BIS saw an important role for UKCES in helping to set national skills priorities by gathering strategic intelligence on sector and regional skills needs. SSCs have been tasked with identifying low carbon skills gaps and shortages in their sectors (see Green Deal below) and working in clusters for particular low carbon industries. They are also responsible for providing labour market information and skills forecasting for their industry sectors.

In early 2010, the previous Labour government issued its consultation paper, *Meeting the low-carbon skills challenge*²⁰, which acknowledged the strategic role of the supply chain, using ‘the power of public procurement to drive up demand for skills’. These included ‘generic management skills in sustainable procurement, lifecycle analysis, monitoring and measuring skills, carbon accounting, performance reporting, environmental management systems and risk

¹⁷Occupational and functional map for the renewable energy sector for Energy & Utility Skills. Report by Adams Associates for EU Skills, March 2007.

¹⁸BERR. Building Britain’s Future: new industries, new jobs. April 2009.

¹⁹BIS. Skills for growth: the national skills strategy. November 2009.

²⁰Department for Energy & Climate Change Low Carbon Skills Team. Meeting the low-carbon skills challenge. March 2010.

management'. Consultation responses were received from a range of bodies which referenced the need for green skills within the overall drive for the low-carbon economy.

The Work Foundation²¹ considered that the Government's commitment to reduce emissions of carbon dioxide under the Climate Change Act justified offering additional support to low carbon industries, which should herald a long-term shift towards low carbon economic activities. It called on government to 'exploit their foresight regarding this transition' through policies supporting private demand for and supply of relevant activities, ensuring a smooth transition and maximisation of job creation benefits. Speaking on behalf of business, the Work Foundation identified the following areas for public support that the low carbon economy could expect from Government:

- *Leadership*– support in the form of consistent signals regarding the future value of and demand for these activities;
- *Establishment of clear frameworks for investment*– clarifying future public funding and investment in ways which offer opportunities for private investors to compete to fund and finance attractive related ventures;
- *Skills supply*– offer confidence that publicly-dominated skills providers will offer the skills required to develop these activities.

By December 2010, and in response to submissions received, DECC²² identified technical, managerial and leadership skills as critical to 'develop and exploit existing and new markets' in the low-carbon economy. It noted that there was 'insufficient recognition across the supply chain of the need for low carbon or resource efficiency skills'. DECC considered that 'government contracts and procurement could help to stimulate capacity' for these, and recommended that such skills be built into business and management training courses. The need to alter mindsets and behaviours at workplaces was also highlighted, in order for changes to be made to business practices.

Policy links were also explicitly made with the new skills strategy of late 2010, *Skills for Sustainable Growth*²³, which, however, contained little specific reference to green skills. Nonetheless, the Government announced its intention to 'co-fund training programmes in new or rapidly changing parts of the economy, for example to meet skills needs arising from the transition to a low-carbon economy'. Subsequently, in 2011, stakeholder responses from the 2010 consultation on Low Carbon Skills was linked to the skills strategy and referenced in the recent report, *Skills for a Green Economy*²⁴. Feedback given was echoed in a 2011 Green Economy²⁵ strategy by UK green think-tank, the Aldersgate Group, which stated:

²¹Work Foundation, A 20/20 low carbon economy. 2010

²²Department for Energy & Climate Change Low Carbon Skills Team. Meeting the low-carbon skills challenge – a government response. December 2010.

²³Department for Business, Innovation and Skills. Skills for Sustainable Growth: strategy document – full report. 2010.

²⁴Departments for Business, Innovation and Skills/Energy and Climate Change/Environment, Food and Rural Affairs. Skills for a green economy. 2011.

²⁵Aldersgate Group. Greening the economy: a strategy for growth, jobs and success. 2011.

Strong evidence suggests that the UK does not have the necessary skills to make the transition to a green economy at the pace required, or the training arrangements in place to fill the gap. The Government must build on its national skills strategy to ensure that its support for skills and training matches the focus and ambition of its strategies for promoting investment in green innovation and infrastructure, as demonstrated by France's mobilisation plan for green jobs.

The transition to a sustainable economy will involve massive changes in business activity and every job in the UK will need to change to some extent. Building on existing knowledge and expertise will lay the foundations to deliver a more competitive economy. This should focus on improved education (particularly STEM subjects), building on existing skill sets and developing the sustainability knowledge of employees across the economy, as well as advancing the expertise of the civil service and ensuring a more joined up approach by Government. In terms of implementation, the new Local Enterprise Partnerships (LEPs) must play a leading co-ordination and implementation role.

The *Skills for a Green Economy* report was released by the Government in October 2011. It does not represent a national strategy or policy, but rather presents evidence collected to support low carbon skills development in the UK. It envisages:

A workforce skilled to deliver an economy that has “value and growth... while natural assets are managed sustainably... a thriving low carbon and environmental goods and services sector... [where] environmental damage would be reduced, while energy security, resource efficiency and resilience to climate change would all be increased”.

The report identified the following low-carbon developments in UK industry which would all have implications for developing specific green skills sets:

- Moving to low carbon energy production;
- Low carbon construction and retrofit;
- Decarbonising public and private transport;
- Resource efficiency in manufacturing;
- Reducing the energy usage of commercial buildings.

The *Skills for a Green Economy* report classed skills as ‘light green’ and ‘dark green’ respectively, representing a progressive spectrum of generic to specific green skills:

- Business sustainability skills: leadership, teamwork, advocacy, project delivery, customer service skills;
- Plumbing, building, electrics, planning, logistics, operator skills, resource management;
- Scientific discovery;

- Technological development;
- Engineering and mathematics.

The International Labour Organization and the European Commission concluded a joint management agreement on *Knowledge sharing in early identification of skill needs for the low-carbon economy*, with the aim of enhancing cooperation and knowledge-sharing in the field of early identification of skill needs. One UK stakeholder partner interviewed contributed to the underpinning research programme and kindly shared with the Green Jobs project team the resulting 2011 reports on green building and renewable energy skills. It may be assumed that the reports' conclusions apply to all EC member states and reflect general concerns.

*ILO Skills and occupational needs in green building*²⁶: The main conclusions of the report are:

- Skills can be used strategically to overcome barriers to green building;
- Scope exists for skills-led green building development strategies to complement current demand-led strategies;
- Social dialogue has an important role to play in the design and delivery of skills interventions for green building;
- Providers of education and training for the construction industries should prioritize green building;
- Initiatives should target the informal construction sector and migrant construction workers for green building skills development;
- All green building initiatives should have a skills component;
- Substantial numbers of people are needed with skills in building energy assessment and in providing advice on building energy efficiency;
- A range of initiatives should be developed to increase the supply of trainers;
- More innovation is needed in training delivery; and
- Employees of small construction businesses and independent contract workers require access to training in green building.

*ILO Skills and occupational needs in renewable energy*²⁷: The main conclusions of the report are:

- Plans by governments and others to develop renewable energy projects require a skills component;
- Pacing investment in renewable energy to smooth employment over time can benefit renewable energy businesses and employees by preventing booms and busts in demand for skills;

²⁶Skills and occupational needs in green building, ILO, Geneva, 2011

²⁷Skills and occupational needs in renewable energy, ILO, Geneva, 2011

- Smaller renewable energy projects require skilled crafts workers with sufficient breadth of skills to be able to do the work by themselves, or at least to cooperate effectively with others;
- There is a need for effective skills anticipation in renewable energy, and there is a particular need for developing countries to plan to maximize the local employment benefits of renewable energy projects;
- Initiatives to develop skills for renewable energy should aim to develop skills that are sufficiently portable so that they can be applied to new renewable energy technologies and outside the renewable energy sector;
- Scope exists to provide internationally-recognized industry certifications in renewable energy skills to complement national qualifications;
- Policy should focus on ensuring that the transition to renewable sources of energy is a Just Transition for those working in fossil energy sectors;
- Policy-makers promoting the transition to renewable energy need to take account of Decent Work principles when designing policies and interventions;
- Large-scale renewable energy projects in developing countries should operate effective corporate social responsibility strategies;
- Social dialogue has an important role to play in the design and delivery of skills interventions for renewable energy; and
- A range of initiatives should be developed to increase the supply of trainers.

4.4 The Green Deal

The Green Deal is a new government initiative which brings together into a Green Deal Skills Alliance the three UK Sector Skills Councils with a complementary 'footprint' covering the built environment: AssetSkills (energy assessment and advice for property managers), SummitSkills (for environment technologies and building engineering services) and ConstructionSkills (for installation and building fabric). The Green Deal was set up to respond to government analysis that 80% of all UK greenhouse gas emissions are generated by three sets of activities: electricity generation, heating homes and businesses, and powering cars and vehicles. It is designed to save energy in homes and communities by reducing emissions and making domestic properties and businesses more energy efficient, both existing buildings (which require 'retrofitting') and new builds. ConstructionSkills has calculated that the built environment accounts for 47% of all UK carbon emissions.

The Green Deal covers a 'collaborative approach' to low carbon, providing a range of measures, such as insulation, heating or lighting, to be installed in people's homes and businesses at no upfront cost. Green Deal is based on the principle that some energy efficiency related changes to properties pay for themselves, with millions of UK homes expected to benefit and considerable opportunities for job creation and skills development. Energy saving measures recommended for properties will need to be both appropriate to the individual property and

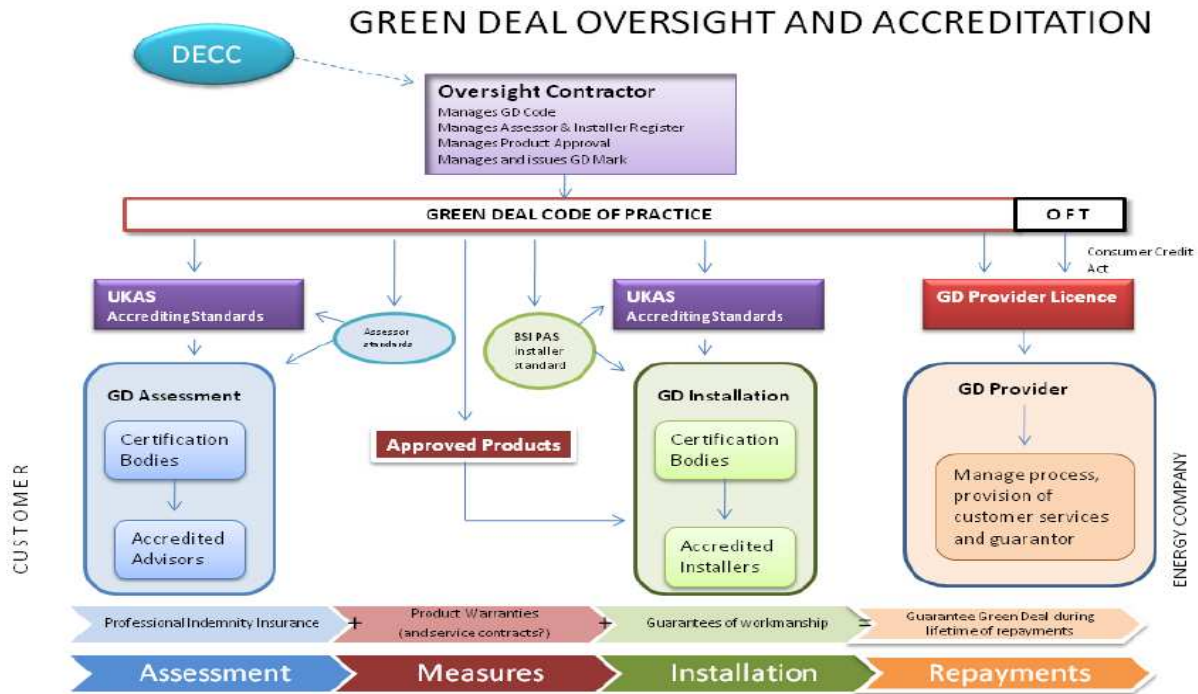
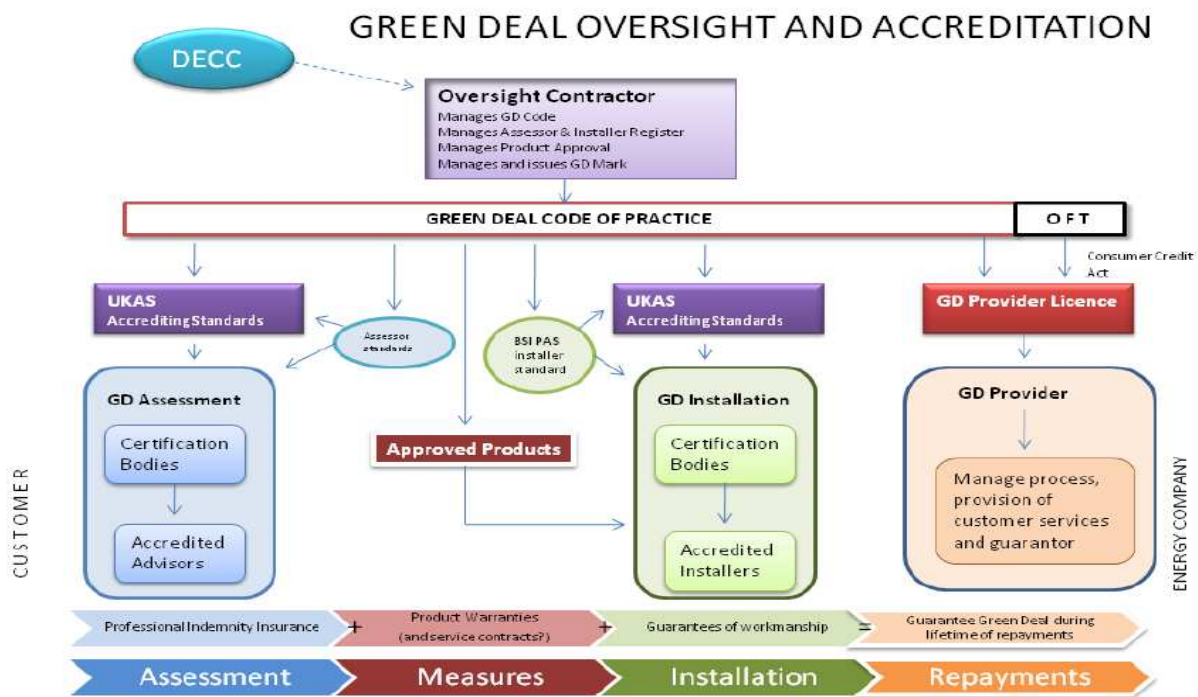


Figure 2: How the Green Deal works



Source: Department of Energy and Climate Change, 2012

The first phase of Green Deal is now complete, and funding has been secured from UKCES' Employer Investment Fund for the second stage of implementation which will last from April 2012 to March 2014. AssetSkills has developed a common Green Deal Adviser syllabus and qualifications to specify necessary knowledge and skills requirements and ensure consistency and quality, and training for assessors, installers and their trainers is about to commence. The Green Deal itself will be launched officially in autumn 2012 and the Green Deal Skills Alliance will work with the Government and the devolved administrations to monitor the roll-out of Green Deal training and qualifications.

4.4.1 ConstructionSkills SSC

With its high emissions profile as an industry sector, ConstructionSkills SSC has taken its national responsibilities for the built environment very seriously. It has developed a Low Carbon Construction Action Plan which seeks to:

- Demonstrate the benefits and opportunities of low carbon construction through leadership and cooperation across the private and public sectors.
- Create greater clarity in a complex landscape, enabling the industry to understand better the opportunities that will be available to them in the future.
- Ensure that we have the right framework of incentives and interventions to enable the market to flourish and the right levels of skills, research and innovation to enable and support growth.

The delivery of the Low Carbon Construction Action Plan will be overseen by a Green Construction Board which itself is part of a Green Council, convened by the Defra and BIS. The Green Construction Board brings together with industry representatives these and other central government departments: Energy and Climate Change, Communities and Local Government, and the Cabinet Office. The aim of the Board is to act as a forum for the Government and the design, construction and property industry to work together on long-term sustainability, for the construction industry to share its low-carbon research and development experience to create a 'knowledge database', and to create a low-carbon 'routemap' to illustrate the required carbon emissions from the industry and the measures that can deliver them up to 2050.

Of the SSCs participating in the Green Deal, ConstructionSkills is the one that arguably is furthest forward in trying to come to grips with low carbon skills and gender inequalities in its industry. We will cover this in more detail in the next section.

4.5 New Skills for Green Jobs: stakeholder workshop

With the timescale of the forthcoming Green Deal launch running in parallel with our project, the team took the opportunity to include representatives from AssetSkills, SummitSkills and ConstructionSkills in our workshop programme to introduce the Green Deal to delegates attending from across the South West region. Delegates were asked questions for discussion relating to skills forecasting and gender inequalities in green skills, and also to identify examples of good practice. Extracts from table discussions are included below and in the next section.

Many of those attending the Green Jobs workshop were unclear as to the benefits of the Green Deal, bearing in mind that many local authorities already heavily subsidise energy efficiency schemes for householders. It was felt that the 'unique selling point' of the Green Deal was unlikely to attract much interest and that the details of the scheme had, as yet, not been well thought through. Even though homeowners would be able to achieve enhanced energy efficiency ratings where the 'golden rule' was met, the time period to pay back investment was too long to make it an attractive option. Whether an individual property would be able to become

more sellable on the housing market through participation in the Green Deal remained uncertain.

There was an expectation that the demand for green skills training would have grown faster than it has. The recession has had an impact and is partially responsible for this lower than expected demand, as it has reduced the amount of building and constrained capital to invest in property improvements. Delegates also felt that levels of demand for green skills are largely a function of policy which is not 'free market' driven, but rather shaped by artificially imposed measures such as the level of taxes on fossil fuels applied by government, and feed-in tariffs (or FITs) that cover renewable energy microgeneration. The latter represented a challenging example of 'flip-flopping' by the UK government during the closing months of 2011, when financial support for individual households to generate their own electricity was suddenly withdrawn. The policy turnaround has acted to undermine confidence in government green proposals generally.

It was clear from table discussions that skills forecasting is not well developed in the UK and relies on inconsistent evidence collection according to various approaches. There are difficulties both with undertaking labour market research to quality standards and with translating research into action. Greater leadership is needed to define appropriate methods and mechanisms that can be applied across industry sectors to achieve definitive analyses for skills forecasting purposes.

5. GENDER ANALYSIS OF EXISTING GREEN TRAINING PRACTICES

The gender dimension of Green Skills and training is very underdeveloped and little understood in the UK at present. Gender equality issues in the workplace are covered separately by EU Equality and Diversity legislation but are not well researched in their own right, particularly as regards comparative data on industry sector participation. Industry-led Sector Skills Councils are tasked with providing labour market information and analyses²⁸ to enable skills forecasting, but even detailed modelling of individual sub-sectors does not normally reveal gender disparities. There has, however, been a certain amount of research done on female participation within STEM (Science, Technology, Engineering and Maths) disciplines, which, although it is not specifically related to Green Skills, can be extrapolated to an extent.

Fewer girls choosing STEM subjects leads to gender stereotyping in education with resultant occupational segregation in the workplace. Occupational segregation is one of the three main factors contributing to the gender pay gap alongside pay discrimination and unequal impact of caring. Without more females choosing the STEM route, occupational segregation will reinforce the current situation whereby 75% of working women are still found in just five occupational groups²⁹:

- Associate professional and technical (e.g. nurses)
- Administration and secretarial work
- Personal services (e.g. caring for children or the elderly)
- Sales and customer service
- Non-skilled manual work.

Traditionally, only a small proportion of STEM graduates have been female, and although this position has slightly improved, the gender gap in STEM graduates is still considerable. Since 1997, women have formed an increasing proportion of STEM graduates in all subjects apart from mathematical sciences. Overall, the female proportion of the stock of STEM graduates has increased from 27% to 36% between 1997 and 2004. However, the female proportion of STEM graduates still falls well below the non-STEM figure of 53%. In particular, the proportion of mathematical sciences has fallen by 2% to 25%, but the weakest female representation occurs in engineering where, despite an increase of 3%, only 7% of graduates are female³⁰.

A glance at the United Kingdom Standard Industrial Classification (SIC) codes does provide a certain amount of gender information across the industry sectors associated with Green Skills, but does not track participation in low carbon employment as such. Even the latest release (2007) of SIC codes covering skills for green occupations and industries does not sufficiently

²⁸SummitSkills Sector Skills Council. Potential training demand in environmental technologies in building services engineering: indicative training needs analysis using a scenario-based approach. Oct 2010.

²⁹STEM Choices: Equality and Diversity, 2009

³⁰ibid

take account of new areas of expertise, the interdisciplinary nature of work in the green economy, nor of linkages between different skills areas. Moreover, available broad data at industry level do not show the job functions performed by participating females, broken down according to geographical spatial area as shown in Figure 3 below. Further in-depth research is required.

Figure 3: Female workforce participation in ‘green’ industry sectors (SIC 2007)

	% Female	England	SW	HotSW
411 : Development of building projects		30%	27%	27%
412 : Construction of residential and non-residential buildings		23%	24%	25%
421 : Construction of roads and railways		14%	16%	13%
422 : Construction of utility projects		8%		
429 : Construction of other civil engineering projects		14%	16%	18%
431 : Demolition and site preparation		15%	12%	14%
432 : Electrical, plumbing and other construction installation activities		17%	14%	13%
433 : Building completion and finishing		18%	14%	14%
439 : Other specialised construction activities n.e.c.		16%	13%	13%

Source: Annual Business Inquiry/Office of National Statistics, Jan 2012

The SSC, ConstructionSkills, has been aware for some time of lack of participation of women in its industry sector, which has formed the basis of the few research studies which are available. Through its own Sector Skills Council Agreement³¹, the construction sector has identified the under-representation of women and ethnic minorities as a priority issue for the industry. Its own labour force statistics show that, when compared with the workforce as a whole, the sector remains amongst the most gender-imbalanced in the economy.

Currently women account for approximately 13% of the total employment in the sector in England, with over a quarter (27%) of non-manual or offsite jobs filled by women although less than 2% are employed in manual trades. The highest levels of women in these trades are in the South East, East, and South West. At 2.0% the South East has the highest levels of women in manual positions, much lower than the national average for all sectors of 38%.

ConstructionSkills in March 2012 completed an online survey into female participation in construction which showed that most respondents (60%) felt it was important for employers to attract more females into construction in order to ‘attract more talented individuals’ (47.5%) and to ensure that the workforce better reflected society’s demography (13%). For those who thought it was not important for industry to do more to attract women (9%), most suggested that activity in this area was ‘just political correctness’.

³¹ConstructionSkills Sector Skills Agreement.

The little existing research in the sector³² confirmed that working within male-dominated organisational cultures can be difficult for women. There is a need to establish networks, mentoring and support systems for CPD for women, both in terms of promoting professional development opportunities and in providing women with the necessary 'soft skills' in communication, people management and confidence-building that equip them to negotiate difficult working environments and male-dominated workplace identities.

At our New Skills for Green Jobs workshop, an academic expert³³ in the participation of women in the construction sector validated the above findings and presented the following analysis:

Women: 10.2% construction, 0.3% manual trades

- Painters and decorators 3%
- Floor and wall-tilers 1.4%
- Carpenters and joiners 1%
- Women make up 3% of all construction trainees
- Women make up 7% of all construction trainees in FE colleges.

Male workers dominate the industry in manual occupations where they constitute 99.7% of the private-sector workforce. It was noted that construction work sites were not family-friendly, and that additional considerations such as childcare for the (female) workforce tended to be gender specific and acted as perceived barriers to full workforce participation.

Delegates at the workshop made the following observations:

- The construction industry is battling against a poor image, which has served to put off many young entrants more generally, not only women.
- 'Traditional' employer attitudes towards flexible working and childcare are a challenge to female entrants.
- The sub-contracting nature of much construction work and a lack of building controls form a barrier to non-traditional recruits; female self-employment is one solution.
- The gender imbalance has to be seen as a cultural phenomenon, reinforced by the attitudes, behaviours etc of both men and women. The idea that women don't 'do' construction starts really early. The social environment within construction reinforces all of this, with on-site language, behaviours, etc.
- To create change you need employer buy-in. Rewards and punishments (e.g. sex discrimination) are important in creating change. However, the main issue is addressing culturally-embedded ways of being in different workplaces, i.e. the known, predictable behavioural norms that may make work there comfortable for some, but at the cost of excluding others.

³²Worrall, L. Barriers to women in the UK construction industry. Research by University of Salford for ConstructionSkills, 2009.

³³Clarke, Prof L. Personal communication. University of Westminster, 2012.

6. IDENTIFICATION AND COLLECTION OF GOOD OR PROMISING PRACTICES

In this section we highlight best practice in green training provision amongst partner FE colleges in the South West. These include:

Bicton College: Earth Centre

<http://www.bicton.ac.uk/about/newsInfo.php?id=173>

1. Identification

Title of the project/actions: Earth Centre

Responsible institution: Bicton College

Sector: Further Education Sector

Typology (vocational training course, in-company training; higher/tertiary education, etc.): vocational training courses – tertiary sector.

Duration (please specify whether it is a one-off activity or offered on a continuous basis): The courses will be a continuous part of the provision at Bicton.

Contact person: Chris Lorimer,
Director of Enterprise

Tel:01395) 56 2370

E-mail:info@earth.co.uk , Chris.Lorimer@bicton.ac.uk

2. Description (open answer)

Aim/objectives: The BictonEaRTH Centre is a dedicated training centre and conferencing space for renewable energy and sustainable building. Newly-opened, the centre hopes to attract close to 10,000 visitors for renewable energy training, conferences, events and general enquiries every year.

The EaRTH Building has been designed as a working facility to showcase and demonstrate the most up-to-date renewable technologies, including:

- Biomass Heating
- Grey Water Systems
- Ground and air source heat pumps
- Rain water harvesting
- Retro-fitted wall and roof insulation
- Reed bed filtration systems
- Solar PV and thermal

- Underfloor heating

Target group:

Businesses in local area.

Content/Curriculum:

The initiative will see sustainable practices established in all areas of the curriculum and additional courses will be introduced to cover vocational skills training in all areas of environmental and renewable technologies up to degree level including:

- Air Source and Ground Source Heat Pumps
- Biomass
- Hydro
- Installing and testing PV systems
- Sustainability
- Water recovery (domestic and commercial)
- Wind power

Organisation (e.g. desk/distance learning; ; teaching units; course work/project work; internships; on-the-job trainings):

Financing (e.g. EU/national/regional funds; participants' tuition fees; company funding):

EU funds

National funds

Regional funds

Average number of participants, disaggregated by sex:

New project so no information as yet.

3. Additional information (open answer)

The activity is linked to national/regional initiatives for the development of the green economy or environmental improvement and/or to training needs analysis?

The project is being supported by the local authority as part of their commitment to promoting the green economy in rural areas. Green skills have been identified as a priority and this project supports a range of activities which should improve the skills in this area.

4. Compliance with Good Practice criteria

Innovativeness

Innovative aspects: The activity is innovative due to its involvement by the local authority, support

by public and private sector partners, and community facing priorities.

Clear and adequate information

Availability of data on employment/career outcomes of participants:

Relevance

Is it possible to assess the relevance of the action in terms of reduced environmental impact? The project is at an early stage but there has been a good deal of interest from local companies in better understanding the technology that underpins the Earth Centre and deploying this knowledge in their own businesses.

Gender Impact

Is it possible to assess the gender impact of the action (e.g. criteria for selecting participants – including for in-company training contract typologies? The training activities take place during or outside office hours? Reconciliation measures foreseen to encourage the participation of people with care duties? Other measure to support a balanced gender mix?

Clear About Carbon

www.clearaboutcarbon.com

1. Identification

Title of the project/actions: Clear about Carbon

Responsible institution: Duchy College, but is a collaboration between:

- Eden Project
- University of Exeter Business School and Centre for Leadership Studies
- Cornwall Development Company
- Duchy College Rural Business School

Sector: Agricultural College

Typology (vocational training course, in-company training; higher/tertiary education, etc.): vocational training courses, in company training, educational resources.

Duration (please specify whether it is a one-off activity or offered on a continuous basis): The project is funded for four years but it is hoped that the approach will be sustainable in the longer term.

Contact person: P Holmes or Matthew Siggs

Tel: +44 (0) 1726 818811

E-mail: pholmes@edenproject.com

2. Description (open answer)

Aim/objectives:

Clear About Carbon is a four-year project involving four partners with a focus on building carbon literate public sector supply chains. The project is led by Duchy College with a focus on the producers and processors element of the supply chain. It is funded by the European Social Fund with a mission to find new ways to increase carbon and climate awareness within businesses and the public sector.

Working with staff in Cornish organisations, the project aims to identify the most successful methods of engaging them to reduce carbon within the public sector supply chain.

Clear About Carbon is working closely with a number of Cornish SMEs and organisations to determine what works, and what doesn't, when it comes to communicating with staff about climate change and the business opportunities that a low-carbon economy could offer.

By delivering outreach and training programmes to staff within the county, from Cornwall Council to Trewithen Dairy, the team is drawing valuable conclusions from its work with practitioners.

There is an Agriculture GHG Action Plan and a commitment to a 3MtCO₂e per year reduction from Agriculture 2018-2022. From 2022 onwards, there is potential for 7.5MtCO₂e reduction per annum.

There is an important new context for the farming and food sectors:

- UK Retailers will have to report their carbon emissions in 2013.
- Supply chain represents over 60% of an organisation's overall emissions.
- Farmers in the UK have already started reporting if they supply direct to their buyers (Pepsico-Walkers Crisps).
- Food processors have begun to feel pressure from downstream supply chain to report carbon,

passing it to their upstream suppliers.

Farmers are:

- installing renewables and investing in energy-efficient equipment;
- collaborating on supply chains;
- investing in precision farming equipment;
- investigating new tools and techniques;
- combining old and new techniques to get more from less;
- learning about carbon and what it means for their business.

The experience of Clear about Carbon is that farmers need to understand the basics of climate science in order to take ownership of the agenda. They need to know how to carbon Footprint their business and they need to know how to write a carbon management plan. They also need to know how to reduce their emissions or maintain the same cost of production whilst boosting productivity, i.e. making more from less.

Target group:

Business in Cornwall.

Content/Curriculum:

At the core of the project is the development of Carbon Literacy workshops and materials to provide Cornish Public and Private Sector for the transition to a low carbon economy.

The Clear About Carbon team is experimenting with different training approaches to encourage organisations in Cornwall to drive down their carbon impact.

As well as collecting research on this to report back at the end of our project, they are able to offer some places to Cornish professionals on the following courses.

For some businesses who meet the criteria, these are free.

- Carbon management training

Employees emerge from this accredited continuing professional development with the impetus and tools to set carbon budgets, carry out carbon footprinting and introduce a 'low-carbon' metric in to their organisation's sourcing policies. T J International, Cornish Energy and Watergate Bay Hotel are a few of the companies taking part.

- Leadership and management development

These workshops are designed to help senior management get to grips with how the low-carbon agenda relates to their organisation, and are facilitated by the University of Exeter Business School. Following staff participation in this training, the NHS Peninsula Purchasing and Supply Alliance is trialling carbon tracking through their procurement process.

- Carbon Management Module

This five-day course will help develop the skills to reduce business's or organisation's carbon footprint. It covers the legal, business and ethical imperatives for carbon management, and gives you the tools to implement your own strategy. The course is created and run by Cornwall College

through funding from Clear About Carbon.

Organisation (e.g. desk/distance learning; ; teaching units; course work/project work; internships; on-the-job trainings):

Desk and distance learning. E learning, workshops and online resources.

Financing (e.g. EU/national/regional funds; participants' tuition fees; company funding):
The project is funded by the European Social Fund Convergence Programme

Average number of participants, disaggregated by sex:
Information not available.

3. Additional information (open answer)

The activity is linked to national/regional initiatives for the development of the green economy or environmental improvement and/or to training needs analysis?

This is part of the European Social Fund Convergence programme for Cornwall which has as one of its priorities low carbon jobs and skills. It is also supported by the Cornwall Development Company, the economic development arm of Cornwall County Council and partners and is thus part of a wider Cornwall strategic approach. It has been identified as an exemplar nationally.

4. Compliance with Good Practice criteria

Innovativeness

Clear About Carbon is getting people to behave differently. It is engaging them with e-learning, workshops and seminars to make them 'Carbon Literate'. It is: translating the jargon into a business-friendly format; challenging and engaging them on the agenda via one-to-one consultations and peer-to-peer farm workshops; providing access to high level speakers and experts in the 'carbon' field; and using the Web as a Knowledge Exchange mechanism.

Farmers need a range of skills, such as the basics of Biology, Chemistry and Physics, to make the connection between farming and climate change. They need climate science skills to fill the knowledge gap. They need energy efficiency and resource-management skills. Numeracy and accounting skills are needed to measure energy and input/outputs from the business in order to calculate a carbon footprint (this can be a significant stumbling block).

Innovative aspects:

- The development of the Carbon Literacy materials, which are available for access to any user across the EU.
- The mode of learning is innovative in that it focuses on allowing farmers to learn by doing and

from each other, which is something that the agricultural community responds to.

- Best practice knowledge exchange from one farmer to another has no geographical boundaries.
- Change management is the biggest barrier to adopting low carbon in the farming sector and this project is demonstrating an effective approach to supporting the industry to adapt to change.

Clear and adequate information

Availability of data on employment/career outcomes of participants:

Qualitative feedback from participants has been collected during piloting of activities but it is too early to identify career or employment impacts.

Relevance

Is it possible to assess the relevance of the action in terms of reduced environmental impact?

The project places reduced environmental impacts at the core of its training initiatives for participants.

Gender Impact

Is it possible to assess the gender impact of the action (e.g. criteria for selecting participants – including for in-company training contract typologies? The training activities take place during or outside office hours? Reconciliation measures foreseen to encourage the participation of people with care duties? Other measure to support a balanced gender mix?

The project is aimed at participants of both genders and many of the procurement officers involved in training have been female.

National Construction College

<http://www.cskills.org/aboutus/newsandevents/news/newfunding.aspx>

1. Identification

Title of the project/actions: National Construction College

Responsible institution: Construction Skills

Sector: Industry Training Body

Typology (vocational training course, in-company training; higher/tertiary education, etc.): vocational training courses.

Duration (please specify whether it is a one-off activity or offered on a continuous basis): Ongoing operation and part of the role of the Sector Skills Council and Industry Training Body

Contact person: Andy Walder, Director

Tel: 0300 456 7441

E-mail: nationalconstruction.college@cskills.org

2. Description (open answer)

Aim/objectives:

As the training division of CITB-ConstructionSkills, the industry training board for the construction industry, the National Construction College is focused on creating a highly skilled, safe and professional UK construction workforce.

The NCC is Europe's largest construction training provider, delivering quality and affordable courses at eight sites and additional training venues for up to 25,000 learners each year. The College works with employers to provide both bespoke and specialist training, in addition to producing a wide selection of learning materials to complement training courses. Industry-led training is delivered in real life environments. Industry-focused instructors specialise in essential construction training in a range of areas relating to the construction sector and sustainability.

Target group:

Companies in the construction and their workforce current and potential.

Content/Curriculum:

The NCC delivers industry-led, first-class training in real life environments in each of the following areas:

- [Apprenticeships](#)
- [Construction and Specialist Building](#)
- [Health and Safety](#)
- [Leadership and Management](#)
- [Plant Maintenance](#)
- [Plant Operations](#)
- [Scaffolding and Access](#)
- [Surveying and Setting Out](#)
- [Sustainability](#)
- [Tunnelling and Underground Construction](#)

Organisation (e.g. desk/distance learning; ; teaching units; course work/project work; internships; on-the-job trainings):

Courses are delivered in classroom based and workshop practicals, with work experience, online distance learning and on the job training.

Financing (e.g. EU/national/regional funds; participants' tuition fees; company funding):

Funding comes from: national government; EU funds; tuition fees and company funding.

Average number of participants, disaggregated by sex:

No information available.

3. Additional information (open answer)

The activity is linked to national/regional initiatives for the development of the green economy or environmental improvement and/or to training needs analysis?

The activity is part of the work of the Sector Skills Council which is committed to the green economy. They conduct training needs and skills analysis to better understand the needs of the sector and lead in developing standards and accrediting courses for the sector. The SSC is at the forefront of new qualification frameworks development.

4. Compliance with Good Practice criteria

Innovativeness

Innovative aspects:

Construction Skills is the only Industry Training Board in the UK and is thus able to raise a levy from industry every year returning the money collected back in training grants.

They also have a network of Company Development Advisors who visit employers across the country, providing advice on how to get the best from their workforce. This places them in unique in position to lead the development of new industry led qualifications.

Clear and adequate information

Availability of data on employment/career outcomes of participants:

Relevance

Is it possible to assess the relevance of the action in terms of reduced environmental impact? Construction Skills is a key part of the Green Deal Alliance of SSCs, leading on upskilling the workforce to deliver the Green Deal. In support of this initiative a range of green skills qualifications and courses have been developed to support the industry move to a low carbon sector.

Gender Impact

Is it possible to assess the gender impact of the action (e.g. criteria for selecting participants – including for in-company training contract typologies? The training activities take place during or

outside office hours? Reconciliation measures foreseen to encourage the participation of people with care duties? Other measure to support a balanced gender mix?

The College – the training arm of CITB-ConstructionSkills – has developed ‘Women and Work’ training courses which will run until the end of March 2012, supported by the UKCES Employer Innovation Fund.

Through this initiative the National Construction College (NCC) trained up to 350 extra female construction workers across the UK this academic year.

The programme, designed by CITB-ConstructionSkills, aims to support the retention and progression of women working in the construction industry.

The NCC has also developed Fairness, Inclusion and Respect workshops aimed at those working within the construction environment and are delivering them at various locations throughout England, Scotland and Wales.

Women in Construction:

<http://www.womeninconstruction.co.uk/>

South West Women in Construction:

<http://www.swwic.co.uk/new/>

The National Association of Women in Construction

<http://www.nawic.co.uk/>

The Renewables Training Network

<http://www.renewableuk.com/>

1. Identification

Title of the project/actions:

Responsible institution: Renewable UK

Sector: Trade and professional body for the UK wind and marine renewables industries

Typology (vocational training course, in-company training; higher/tertiary education, etc.):

Duration (please specify whether it is a one-off activity or offered on a continuous basis):

Contact person: Steve Green, Director

Tel:0207 901 3009

E-mail: Steve.Green@RenewableUK.com

2. Description (open answer)

Aim/objectives:

In 2004, RenewableUK the wind, wave and tidal energy trade association, expanded its mission to

champion wave and tidal energy and use the Association's experience to guide these technologies along the same path to commercialisation.

Its primary purpose is to promote the use of wind, wave and tidal power in and around the UK. It acts as a central point for information for its membership and as a lobbying group to promote wind energy and marine renewables to government, industry, the media and the public. It researches and finds solutions to current issues and generally acts as the forum for the UK wind, wave and tidal industry.

RenewableUK has created the Renewable Training Network to tackle skills shortages in the renewable energy sector. It will focus particularly on highly skilled, experienced workers (such as engineers) wishing to make the transition into renewables industries. It will achieve this by offering new and innovative forms of training provision.

At present the sector is experiencing a rapid growth rate, a shortage of suitable recruits and a lack of quality-assured pathways for potential employees to become renewables specialists. To meet commitments made under the EU Renewables Directive, the sector needs to grow exponentially by 2020. For this to be achieved there needs to be a major upskilling of the current workforce and opportunities for new entrants to make a fresh start in the sector.

The Renewables Training Network will bring down the unit cost of training by bulk purchasing, and by increasing the capacity of training providers. It aims to

- Deliver training to 12,000 new entrants by 2016
- Continuing Professional Development training to 11,450 employees
- Recruiting 350 companies as members.

Target group:

The target groups are workers in the following sectors:

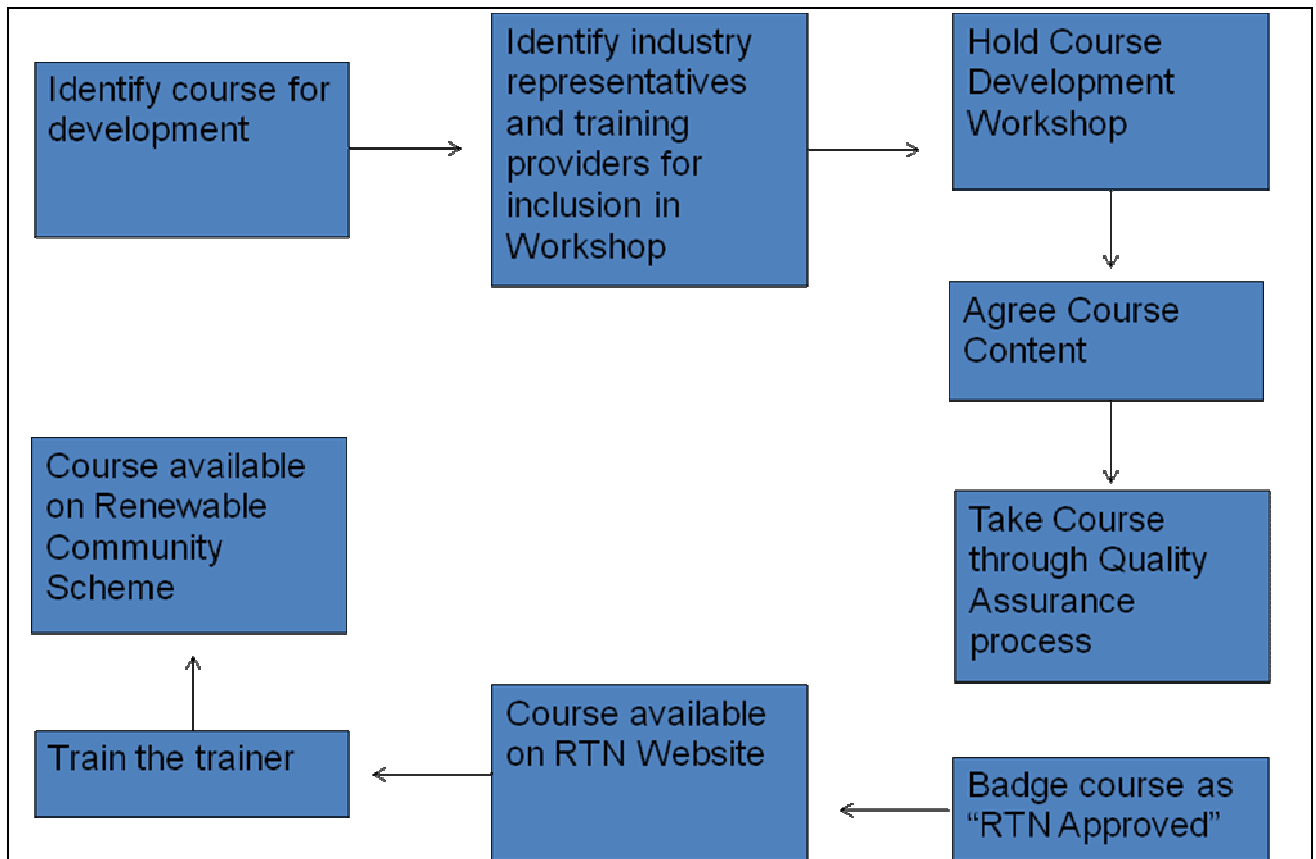
- Oil and gas
- Construction
- Energy
- Military

Content/Curriculum:

The courses and curricula are in development in line with the needs of employers. The role of the RTN is:

- Where multiple courses exist, RTN reviews these to define core content, and Quality Assures this to provide clearer training pathways.
- Where no defined courses exist, RTN brings industry partners together to develop courses for wider delivery.
- RTN works to open up clear and consistent training paths aiding SMEs.

Course development process is shown in the diagram



Organisation (e.g. desk/distance learning; ; teaching units; course work/project work; internships; on-the-job trainings):

The type of delivery has yet to be agreed – this will be decided with industry panels.

Financing (e.g. EU/national/regional funds; participants' tuition fees; company funding):

UK Commission for Employment and Skills investment (Growth and Innovation Fund)

Employer investment

Employer in-kind investment

Average number of participants, disaggregated by sex:

No information available as yet as project at commencement.

3. Additional information (open answer)

The activity is linked to national/regional initiatives for the development of the green economy or environmental improvement and/or to training needs analysis?

The project is funded as for of the government's Growth and Innovation Fund which is available to Sector Skills Councils and Industry Bodies to ensure that they develop new skills in the workforce. There is a string emphasis within the fund on supporting "green"skills approaches and this development is one such initiative. It is therefore one of a number of industry based skills projects supported nationally to develop new and innovative approaches which aim to:

Ease access to SMEs

Provide better linkages between SMEs and major market participants

Develop a highly skilled workforce

4.Compliance with Good Practice criteria

Innovativeness

Innovative aspects:

The industry is facing a potential shortfall equivalent to 45,000 skilled employees, and has forecast significant skills gaps if the industry does not respond immediately to the growing need for labour and skills. The current fragmented approach to training is seen as sub optimal in this context. The industry is recognising and responding through developing new approaches to collaboration, which ensure that the industry continues to tap into those benefits.

A fragmented approach leads to duplication of effort and in turn to higher costs. The RTN represents an innovative approach to making real inroads into this area, and ensure these factors do not become barriers to growth. Growth in offshore continues apace with a number of large projects coming online in the next 24 months.

The UK Commission for Employment and Skills recognised this as an innovative approach, awarding it significant financial support from the Growth and Innovation Fund.

One of the innovative aspects is the focus on quality assuring existing provision so that the quality and standards of an often wide and complex wide range of provision can be easily understood by employers and the workforce.

Clear and adequate information

Availability of data on employment/career outcomes of participants:

This will be available in future and is a requirement of the Growth and Innovation Fund.

Relevance

Is it possible to assess the relevance of the action in terms of reduced environmental impact?

It is too early to assess the relevance in terms of reduced environmental impact at this stage but

the aim is to ensure that the renewable energy industry is able to grow effectively by drawing on a skilled workforce.

Gender Impact

Is it possible to assess the gender impact of the action (e.g. criteria for selecting participants – including for in-company training contract typologies? The training activities take place during or outside office hours? Reconciliation measures foreseen to encourage the participation of people with care duties? Other measure to support a balanced gender mix?

Not at this stage.

Somerset College of Arts and Technology: Genesis Centre

<http://www.genesisproject.com/>

1. Identification

Title of the project/actions: Genesis Centre

Responsible institution: Somerset College of Arts and Technology

Sector: Further Education Sector

Typology (vocational training course, in-company training; higher/tertiary education, etc.): vocational training courses delivered by further education.

Duration (please specify whether it is a one-off activity or offered on a continuous basis):

Continuous

Contact person: Richard Harper, Environmental Technologies Manager

Tel: 01823 366528

E-mail: genesis@somerset.ac.uk

2. Description (open answer)

Aim/objectives: The Genesis Centre is a regional sustainable construction resource centre that:

- Delivers education and training in sustainable construction
- Focuses on the regeneration of traditional buildings
- Provides learning resources and materials, in a range of media, to other training and education partners in the region
- Delivers activities, curriculum packages and events to primary, secondary, further and university level education to promote sustainable practice beyond the initial construction remit.
- Explores, explains and evaluates cutting edge thinking in sustainable construction by introducing the use of sustainable practices and materials into mainstream construction industry

- Consists of a series of pavilions constructed of earth, straw, clay and timber, with living roofs, and a water pavilion demonstrating the latest water-saving devices
- Promotes energy saving and uses both solar and biomass forms of energy

Target group: The key audiences are primary and secondary schools, further and higher education students and Colleges and professionals from the construction industry as well as individuals involved in restoration and self build.

Content/Curriculum: The Centre provides a range of courses including:

[1 Day Carpentry Course](#)

[BPEC Solar Domestic Hot Water Heating Systems](#)

[Brickwork 1 Day Course](#)

[BTEC Level 5 HND in Applied Science \(Biology\)](#)

[Certificate in Access to Building Services Engineering](#)

[City & Guilds 2396 Electrical Design Course](#)

[City and Guilds 2394 Initial Verification Course](#)

[Construction Operations Apprenticeship](#)

[General Maintenance Course for Jobs Around the House](#)

[ILM Level 3 - Diploma in First Line Management](#)

[Level 1 Outdoor Adventures and Sport](#)

[Level 2 Apprenticeship in Hospitality Services](#)

[Level 2 Apprenticeship in Professional Cookery](#)

[Level 3 Award in Installation of Heat Pump Systems \(Non-refrigerant Circuits\)](#)

[Level 3 Award in Installation of Small Scale Solar Photovoltaic Systems](#)

[Level 3 Award in Installation of Solar Thermal Hot Water Systems](#)

[Level 3 Award in Installation of Water Harvesting and Re-use Systems](#)

[Level 3 Award in Understanding the Fundamental Principles and Requirements of Environmental Technology Systems](#)

[Level 3 Diploma in Enterprise and Entrepreneurship](#)

[Living Landscape](#)

[Maintenance Operations Apprenticeship](#)

[Plumbing 6189 Certificate](#)

[Plumbing City & Guilds 6035 Level 2/3](#)

[Retail Skills Apprenticeship Level 2](#)

[Sustainability Made Simple](#)

[Sustainable Water Management for Buildings](#)

Organisation (e.g. desk/distance learning; ; teaching units; course work/project work; internships; on-the-job trainings):

Most of the provision is college based part time and full time courses, with some courses offered online. On the job training is available in the case of apprenticeships.

Financing (e.g. EU/national/regional funds; participants' tuition fees; company funding):

Regional Development Agency

European Structural Funds

Learning and Skills Council (since replaced by Skills Funding Agency)

Tuition fees

Company funding

Average number of participants, disaggregated by sex: No information is available on participants.

3. Additional information (open answer)

The activity is linked to national/regional initiatives for the development of the green economy or environmental improvement and/or to training needs analysis? The Division of Construction at Somerset College is one of the Government's Centres of Vocational Excellence (CoVE), and the only one in the country which has received the award with 'sustainability' in its title. The Genesis Centre serves as a facility which helps people across the South West to access information on sustainable construction and which gives the opportunity to see high quality buildings which have been constructed using sustainable methods and was funded by the former Regional Development Agency as a regional resource.

4. Compliance with Good Practice criteria

Innovativeness

Innovative aspects: A unique feature of the Genesis Project is the Genesis Centre itself. This is an award-winning sustainable building used for the development and delivery of many of the learning programmes offered through the project. The Genesis Project is self-funding and offers bespoke educational programmes delivered either in the Genesis Centre or in-house throughout the year.

- Environmental Association of Universities and Colleges (EAUC) - Green Gown Award 2008 for Sustainable Construction
- On 2009 shortlist for EAUC Green Gown Award 2009 for Research
- Civic Trust Award 2008 - Benefits to the Community
- EAUC Highly Commended Award 2008 for CPD courses in sustainable construction
- Chartered Institute of Waste Management 2008 for environmental excellence
- Highly Commended Award in the RIBA Building Sustainability Awards 2006 for 'Sustainable Building of the Year Worth less than £2m'
- Short listed for RIBA Public Building awards 2007
- Award for Innovation at the Chartered Institute of Building (CIOB)/ Constructing Excellence awards

Clear and adequate information

Availability of data on employment/career outcomes of participants:

Relevance

Is it possible to assess the relevance of the action in terms of reduced environmental impact?

Lessons learnt from Genesis have been significant. Estates work across the College campus now considers sustainable practise in every area. Main campus rebuilding started in 2001 with the Technology centre which uses rainwater harvesting and heat centre isolation. All new build projects now aim for Breeam excellence status. Light sensor technology is now in most campus areas and new energy efficiency measures are continually adopted. Having benchmarked our carbon footprint in 2007 we now aim to reduce it year on year.

Recycling is strong at the College with recycling centres based outside all work areas and landfill bins removed from classrooms and offices which constantly challenges the whole waste mind set

The Staff Champions voluntary network is now 4 years old and nearly 10% of staff have joined or been involved in the network. Champions take part in numerous initiatives and champion sustainability in their own work area. This may be through student curriculum projects, office projects to reduce waste, work on energy usage, paper use, community initiatives with transition towns or villages and other local schemes. Many are involved in voluntary organisations and use their skills in College.

The College estimated its carbon footprint in 2007 and since then has reduced energy, landfill and much more. The 2009 carbon footprint will demonstrate some of the progress made towards being a zero carbon college. All new builds including the proposed new arts, sports and construction centres aim to meet maximum Breeam standards

All University level courses have sustainability written in to their curriculum and it is planned that all 16 - 19 years olds will learn about sustainable development either through their courses or the tutorial programme.

Gender Impact

Is it possible to assess the gender impact of the action (e.g. criteria for selecting participants –

including for in-company training contract typologies? The training activities take place during or outside office hours? Reconciliation measures foreseen to encourage the participation of people with care duties? Other measure to support a balanced gender mix?
The College maintains records of the numbers of female participants in its sustainable development courses.

South Devon College: Energy Centre

<http://southdevon.ac.uk/about-us/sustainability/renewable-technology-courses>

1. Identification

Title of the project/actions: South Devon College: Energy Centre

Responsible institution: South Devon College

Sector: Further Education Sector

Typology (vocational training course, in-company training; higher/tertiary education, etc.): No information

Duration (please specify whether it is a one-off activity or offered on a continuous basis): Ongoing.

Contact person: Paddy McNevin

Tel: +44 (0) 1803 540 725

E-mail: renewablecourses@southdevon.ac.uk

2. Description (open answer)

Aim/objectives:

The Energy Centre is a dynamic partnership facilitated by South Devon College bringing together key partners including Schneider, Worcester Bosch, SEMA, MITIE Group, Western Electric, Nu-Heat, British Ceramic Tiles, Havmain, Romag, Sunfarming, Torbay Development Agency, Green Tourist Business Scheme, Energy Saving Trust and REGENSW SW and others in a visionary project to kick start the green economy in the Bay.

The Energy Centre is a catalyst for private sector growth, opening up market opportunities in the green sector through activities specifically designed to drive up demand and promote growth.

These activities are:

- Providing high quality training and up-skilling opportunities in renewable technology installation and sustainable construction methods.
- Engaging SME's and identifying the incentives and benefits of installing renewable energy technology.
- Developing a "Vocational Internship Program" (VIP) for renewable technology and

- sustainable construction, linking with apprenticeships, Higher Education and Continuing Professional Development to raise skill levels.
- Creating near market product research and development facilities.
- Providing innovation and business pre-incubation facilities to support new business start-ups.
- Facilitating a unique demonstration, display and training facility open to all.
- Hosting awareness raising events aimed at homeowners and community organisations.
- Organising and promoting demand led seminars and networking days.
- Delivering grant writing workshops.

Target group:

Businesses in South Devon areas.

Content/Curriculum:

The College has already launched the first phase of its development with initial courses in renewable technologies including Solar Thermal and Photovoltaic systems & installation and will shortly introduce training in Air and Ground Source Heat technologies. The Energy Centre, currently based in interim premises on the main College campus, was formally opened on 10th May 2011 by Professor Sa'ad Medhat, Chief Executive of the New Engineering Foundation.

Organisation (e.g. desk/distance learning; ; teaching units; course work/project work; internships; on-the-job trainings):

No information available.

Financing (e.g. EU/national/regional funds; participants' tuition fees; company funding):

The project has been allocated £1.2m of funding from the first round of bidding to the Government's Regional Growth Fund to develop a new 'Energy Centre' which will form a hub to meet the growing demand for high quality accredited training in renewable energy and sustainable building.

Average number of participants, disaggregated by sex:

Training, re-skilling and up-skilling learner numbers created by the project are projected to grow to 1500 per year by the fourth year of the project with over 10,000 learners being re-skilled and upskilled over the first 10 years.

3. Additional information (open answer)

The activity is linked to national/regional initiatives for the development of the green economy or environmental improvement and/or to training needs analysis?

Dedicated innovation and pre-incubation space will facilitate and promote green sector start-up businesses in the supply chain. R&D facilities will enhance product development opportunities and lead to improvements in performance and profitability.

4. Compliance with Good Practice criteria

Innovativeness

Innovative aspects:

The Energy Saving Trust are supporting this “exciting, ambitious, innovative and very necessary response to the market need” having identified that subject to appropriate investment “in the south west alone it is estimated that over £2.5bn of sales and 15,000 jobs will be generated by the Feed in

Tariffs, the Renewable Heat Incentive and the Green Deal for energy efficiency” (extract from letter

of support from the Energy Saving Trust).

Clear and adequate information

Availability of data on employment/career outcomes of participants:

Relevance

Is it possible to assess the relevance of the action in terms of reduced environmental impact?

South Devon College will be working with its community to save costs and carbon.

The Energy Centre is an exciting partnership facilitated by South Devon College providing education and training, not just for businesses but for the local Torbay community. As well as offering a broad range of courses in renewable technologies such as Photovoltaic and Solar Thermal Installation, the Energy Centre is offering short information and training sessions for consumers. With rising energy prices and the need to use alternative or sustainable sources of energy, we want to help provide the information and guidance that householders and small businesses need to understand how they can save money and benefit from Government payments designed to make installing green technologies in our existing homes and businesses affordable.

Combined with raising awareness amongst business and domestic consumers the Energy Centre will fuel the cornerstone of an economic recovery in Torbay and South Devon, driving demand and ensuring manufacturers, suppliers and installers have the skilled workforce needed, directly leading to the creation of 407 private sector jobs. The Energy Centre will be an exemplar learning environment that brings together public and private partners to stimulate sustainable growth in Torbay and South Devon.

Gender Impact

Is it possible to assess the gender impact of the action (e.g. criteria for selecting participants – including for in-company training contract typologies? The training activities take place during or outside office hours? Reconciliation measures foreseen to encourage the participation of people with care duties? Other measure to support a balanced gender mix?

The initiative is not yet fully operational.

Strengthening the Environment Sector

<http://www.esf-works.com/projects/short-reviews/projects/401043>

1. Identification

Title of the project/actions: Strengthening the Environment Sector

Responsible institution: Cornwall College

Sector: Further Education Sector

Typology (vocational training course, in-company training; higher/tertiary education, etc.):

Vocational training, in company training, higher level skills (including post graduate), tertiary education.

Duration (please specify whether it is a one-off activity or offered on a continuous basis): Nov 2009 to Dec 2011

Contact person: Pete McGregor or Justin Olosunde (Business Development Manager)

Tel: 01209 617739

E-mail: ccho@cornwall.ac.uk

2. Description (open answer)

Aim/objectives:

Strengthening the Environmental Sector aims to develop and deliver innovative ways of improving skills in environmental goods & services in Cornwall & Isles of Scilly. It thus offers training provision to address key skills gaps in the Environmental Goods and Services Sector, developing the capacity to meet the skills needs of the emerging low carbon economy.

Strengthening the Environment Sector programme supports business growth in the environmental goods and services sector of Cornwall and the Isles of Scilly by building capacity, offering higher-level skills training, and providing advice to employees and managers.

The programme builds on the good work of the Key Sector programme (June 2008 – December 2010). It has developed targeted qualifications and, significantly, extended the definition of the environment sector from environmental technologies to environmental goods and services, ensuring that the current programme appeals both to established businesses and those looking to diversify to meet the needs of a low-carbon, resource-efficient economy.

The Strengthening the Environment Sector project aims to develop and deliver innovative ways of improving skills in environmental goods and services in Cornwall and the Isles of Scilly.

Target group:

The Strengthening the Environment Sector programme supports business growth in the environmental goods and services sector of Cornwall and the Isles of Scilly by building capacity, offering higher-level skills training, and providing advice to employees and managers.

Content/Curriculum:

From 1 April 2010, large companies and public sector organisations with energy bills of more than £0.5m per year are required to audit the carbon they generate. In response, Strengthening the Environment Sector has been working on eight capacity-building initiatives and the development and delivery of accredited courses that fill the skills gaps identified in the programme's research.

The capacity-building initiatives include an environmental goods and services skills plan to inform local, regional and national policy, and the publication and dissemination of business market research.

Accredited courses included Carbon Management (Level 5), Planning for Energy (Level 4) and Environmental Management (Level 3).

All courses can be delivered over a short period of time and are flexible enough to allow businesses to tackle them bite-sized. There is no requirement to do the whole NVQ or degree; rather, they can focus on accredited modules relevant to individual circumstances.

Organisation (e.g. desk/distance learning; ; teaching units; course work/project work; internships; on-the-job trainings):

Desk and distance learning; course and project work.

Financing (e.g. EU/national/regional funds; participants' tuition fees; company funding):
EU Funding
Skills Funding Agency – European Social Fund Convergence Programme.

Average number of participants, disaggregated by sex:

Targets - 448 people
(>312 with qualification at level 3)

3. Additional information (open answer)

The activity is linked to national/regional initiatives for the development of the green economy or environmental improvement and/or to training needs analysis?

The project links to the regional and national Environmental Skills Network National Skills Academy . It is part of a programme of support for the “green” sector in Cornwall supported within the Convergence programme.

4. Compliance with Good Practice criteria

Innovativeness

Innovative aspects:

The programme builds on the good work of the Key Sector programme (June 2008 – December 2010). It has developed targeted qualifications and, significantly, extended the definition of the environment sector from environmental technologies to environmental goods and services, ensuring that the current programme appeals both to established businesses and to those looking to diversify to meet the needs of a low-carbon, resource-efficient economy.

Clear and adequate information

Availability of data on employment/career outcomes of participants:

Yes

Relevance

Is it possible to assess the relevance of the action in terms of reduced environmental impact.

Gender Impact

Is it possible to assess the gender impact of the action (e.g. criteria for selecting participants – including for in-company training contract typologies? The training activities take place during or outside office hours? Reconciliation measures foreseen to encourage the participation of people with care duties? Other measure to support a balanced gender mix?

Much of the training provided, particularly to companies has been bespoke to fit with the needs of employees.

7. CONCLUSIONS

This country report shows that, following a promising start, there has been an interruption in UK public policy development to support the green economy between May 2010, when the new Coalition Government came to power, and the following twelve months to spring 2011.

Many of the proposals made in the Labour Government's policy documents have not been enacted by the new Government. Others, however, were developed further but unevenly so. As a result, the UK can point to only a few headline 'flagship' initiatives.

The recent economic troubles have come at a price to the green economy. The Coalition Government has shifted its overall focus towards supporting the ailing UK economy, with greater emphasis on financial measures to bring the UK back into recovery.

Recent announcements such as the incoming Green Deal Programme – whilst they seem to provide government support for the green economy and the green construction sector in particular – are mainly a fiscal instrument to encourage contributions by private householders. Other schemes have been discontinued – or relaunched under different banners - in order for pump-priming monies to be found. Much-vaunted government support as detailed in the National Reform Programme needs to be read between the lines, rather than taken at face value.

This lack of policy commitment is disappointing given both the need to shift to a low carbon economy and the groundswell of interest in this arena from individuals, businesses and providers of training and skills. The good practice examples show that, despite the lack of clear policy intent and financial support, developments and initiatives are blossoming, providing useful exemplars for further developments.

8. GLOSSARY

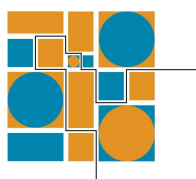
BERR	Department for Business, Enterprise and Regulatory Reform
BIS	Department for Business, Innovation and Skills
BREW	Business Resource Efficiency and Waste
CCA	Climate Change Agreement
CERT	Carbon Emissions Reduction Target
CESP	Community Energy Saving Programme
CoVE	Centre of Vocational Excellence
Defra	Department for Environment, Food and Rural Affairs
DfE	Department for Education
DECC	Department for Energy and Climate Change
DfT	Department for Transport
DIUS	Department for Innovation, Universities and Skills
ECCP	European Climate Change Programme
EFA	Education Funding Agency
ESF	European Social Fund
ETS	Emissions Trading Scheme (EU)
FE	Further Education
FIT	Feed In Tariff
GCE	General Certificate of Education
GIB	Green Investment Bank
GJA	Greener Jobs Alliance
HE	Higher Education
HEFCE	Higher Education Funding Council for England
IPCC	Intergovernmental Panel on Climate Change
MCS	Microgeneration Certification Scheme
NVQ	National Vocational Qualification
PAYS	Pay As You Save
RHI	Renewable Heat Incentive
SFA	Skills Funding Agency
SSC	Sector Skills Council
SME	Small and Medium-Sized Enterprise
STEM	Science, Technology, Engineering and Maths
TUC	Trades Union Congress
UKCES	United Kingdom Commission for Employment and Skills
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WMO	World Meteorological Organisation

Contact:

Marchmont Observatory/Slim
University of Exeter
St Luke's Campus
Heavitree Road
Exeter
EX1 2LU

T: 01392 264850
F: 01392 264966

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