

# STRATEGY FOR ENVIRONMENTAL TECHNOLOGIES IN THE BUILDING SERVICES ENGINEERING SECTOR

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GREEN SKILLS FOR A GREEN FUTURE  
BUILDING SERVICES ENGINEERING

Summit SKILLS

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## INTRODUCTION

The UK is on the cusp of a low carbon revolution! The green economy is seen by Government as an area of significant growth and should be supported, in the face of current economic uncertainty and global competition.

Concerns about climate change and the security of energy supplies are being matched by incentives to increase the uptake of environmental and renewable technologies. The feed-in tariff introduced in April 2010 provides long term financial support for technologies such as photovoltaic panels and wind turbines.

The renewable heat incentive, due to be launched in April 2011, also offers financial relief for technologies such as solar thermal panels and ground source heat pumps.

We believe that with these economic foundations, the market can develop quickly and provide an excellent opportunity for building services engineering to benefit.

This document describes how SummitSkills will be working on behalf of the sector to capture and exploit opportunities to help the UK move towards a low carbon future.

## SUMMITSKILLS' ROLE

This document describes what SummitSkills plans to achieve with relation to environmental technologies in the Building Services Engineering (BSE) sector. It was developed in recognition of work already undertaken, achievements so far and the landscape in which we will be working in future years.

Our core objectives remain our priority. Employer engagement, standards, qualifications and Labour Market Intelligence are essential to developing a highly skilled workforce for the BSE sector. Specifically, National Occupational Standards (NOS) continue to be important. Increasingly, employers are realising that good standards are not just the basis for relevant qualifications, but a valuable tool for effective and up-to-date operational management. Also important are economically valuable qualifications, which are the basis of a highly productive sector and therefore deserve public funding.

As an organisation with UK-wide responsibilities, SummitSkills has to balance its work to address the specific needs of individual parts of the UK. This plan recognises the important differences among the devolved administrations and the need to respond to them in innovative ways. It provides a clear picture of SummitSkills' role and ambitions for environmental technologies in future years. We will carry out this work in an open and accountable way, and welcome any comments and feedback.

It is also our intention to work collaboratively with other SSCs who have an interest in environmental technologies and renewable energy sources, and to form effective partnerships wherever this is the best way forward.

## ENVIRONMENTAL TECHNOLOGIES IN THE SUMMITSKILLS FOOTPRINT

This plan has been produced for the following environmental technologies:

- anaerobic digestion
- biofuels
- combined heat and power
- fuel cell technology
- heat pumps
- mechanical heat recovery ventilation
- micro hydro generation systems
- micro wind energy
- solar photovoltaics
- solar hot water heating
- water recycling



## BACKGROUND

SummitSkills has produced a Sector Skills Agreement (SSA) for the sector. The SSA highlighted the need to:

- develop and implement NOS for current and emerging environmental technologies for craft, technical and professional occupations.
- update and maintain qualifications to reflect renewable and environmental technology skills.
- ensure environmental technologies are fully integrated with other activities, such as the careers strategy and apprenticeship training frameworks.

In 2008, we undertook additional research into specific themes arising from the SSA. One of the themes researched further was environmental technologies in the sector. The key findings of this research were:

- the sector's current exposure to and competence in environmental technologies is limited. There is certain clustering of technologies around regions, with some areas showing interest in certain renewables technologies, but engagement overall is low.
- a high number of companies are waiting for market stimulation before they invest time and money in skills development and branching out into new technologies.
- the current supply of training opportunities is inadequate, both in quantity and in relation to formal qualifications and measurement against national standards.
- training in renewables remains largely the preserve of manufacturers. A sudden increase in the use of environmental technologies will create a heavy demand for training, which the supplier network will be unable to meet.
- London is particularly vulnerable because of the high commitment to developing new technologies, the Olympics, and the high number of proposed prestigious buildings that are likely to incorporate the most high-tech environmental solutions.
- the proliferation of rogue trainers who take advantage of the lack of accredited training must be considered.
- in some English regions, the wholesale development of training in certain new environmental technologies will be inappropriate, due to lack of demand. The clustering effect needs to be further investigated and action taken to match demand with supply.

The additional research also included Labour Market Information about the number of operatives in the sector who will need to be trained by 2011. Recent research has now produced these figures through to 2020.

Through the development of the SSA and the additional research, we recognise the need to provide strong leadership. This will ensure that not only does the sector engage with environmental technologies to an extent that achieves maximum benefits for the sector, but also to ensure that the sector achieves maximum impact for the UK targets for sustainability, carbon emission reductions and renewable energy generation, and energy and resource management.

## ACHIEVEMENTS TO DATE

SummitSkills and sector stakeholders have already made significant progress in the area of environmental technologies. Achievements to date include:

### 1. STANDARDS, QUALIFICATIONS AND COMPETENCE:

In response to the findings of the SSA, we have developed a suite of 16 NOS for Environmental Technologies; eight operative units and eight higher units. These NOS provide the platform from which employers in the SummitSkills footprint can develop their workforce, allowing them to advise on and/or undertake the design, installation, commissioning, servicing and maintaining of domestic and industrial/commercial systems, which incorporate current and emerging environmental technologies.

We have made good progress in encouraging and supporting the use of the NOS to define the competence requirements for any work and training relating to environmental technology systems. An example of this is the use of the NOS to develop and define the competence requirements for the Microgeneration Certification Scheme, and the alternative certification schemes in the devolved administrations.

Sector qualification structures have been reviewed and revised to incorporate environmental technology solutions. Development work is in progress to develop the new qualifications. This work is being aligned to the introduction of the Qualifications and Credit Framework (QCF) in 2011, the equivalent Scottish Credit and Qualifications Framework (SCQF), and the Credit and Qualification Framework Wales (QCFW).

### 2. BSE COMPETENCE ADVISORY GROUP:

The BSE competence advisory group was established by SummitSkills in December 2009 to:

- consider and advise on the minimum technical competence requirements for the Building Regulations Competent Person Scheme (as relevant to the building services engineering sector) and the Microgeneration Certification Scheme.
- identify and recommend where it would be sensible, appropriate and practicable to align the minimum technical competence requirements for Building Regulations Competent Person Scheme and the Microgeneration Certification Scheme (MCS).
- consider the implications of developing aligned competence requirements and the challenges that this represents together with providing guidance to government departments and other stakeholders to ensure best practice solutions and accurate consumer messages.

The advisory group has made good progress and has recommended competence requirements to MCS and the Competent Persons Forum for solar hot water, solar photovoltaic, heat pump, rainwater water harvesting and greywater reuse. The advisory group has a key role to undertake in removing the current confusion regarding industry recognised competence requirements for environmental technology systems.

### 3. MANUFACTURER AND SUSTAINABILITY STRATEGIC ADVISORY GROUP:

This strategic and advisory (formerly interest) group was established to provide a key link with product manufacturers and the group facilitates collaborative working with manufacturers, and other stakeholders that have an interest in sustainability and environmental technologies. Through this forum, we are able to identify emerging technologies and work with relevant stakeholders to identify skills and competence needs and develop timely training solutions.

# A SUMMARY OF OUR INVOLVEMENT IN EACH NATION IS GIVEN BELOW:

We work across all four countries of the UK, and environmental technologies is no exception. We are working closely with each government and relevant stakeholders in each of the four nations to ensure that the sector is fully recognised as the lead in sustainability, carbon emission reduction, renewable energy, and energy management. We are proactively involved in a wide range of forums and steering groups and our involvement is key to ensuring that labour market requirements are identified and that timely skills and training solutions are developed and deployed.

## **ENGLAND:**

We work collaboratively with all relevant central government departments and with each of the nine regional development agencies. We are a member of the Energy Saving Trust's Energy Efficiency Partnership for Homes Heating Strategy Group and are proactively involved in identifying and responding to the heating industry's skills and competence needs for environmental technologies.

## **NORTHERN IRELAND:**

We work closely with the Department for Employment and Learning and work in partnership with the Cross Sector Renewables Working Group to identify labour market requirements for renewable energy. As a result of this research, in 2007/08 a range of renewable energy training courses were developed and introduced, and these have recently been reviewed and updated. SummitSkills facilitated several focus groups to establish employer requirements for updating the existing training. Based on employer feedback, we engaged with lecturers in further education to revise the content of existing courses for solar water, heat pumps and biomass technologies.

## **SCOTLAND:**

We are working closely with the Scottish Government's policy Forum for Renewable Energy Development Scotland (FREDS), and the delivery of its Renewable Action Plan (RAP) Skills Framework for Action, along with its associated Energy Efficiency Action Plan, Scottish Renewables, and the Scottish Qualifications Authority in the development of new competence based qualifications for environmental technology systems.

We have also worked closely with our main Trade Association partners SELECT/SNIPEF & HVCA, and the Building Standards Division to support the development of a Scottish Certification Scheme to accredit installers undertaking the installation of micro-renewable technology systems.

We have also supported the development of an industry led Environmental Technologies Training Centre in partnership with a major manufacturer, with a target operational date of September 2010, that will ensure delivery of high quality skills training for the sector.

## **WALES:**

We work closely with the Welsh Assembly Government and relevant stakeholders to ensure that the sector is fully recognised as key in supporting Wales in meeting its low carbon aspirations and sustainability targets for both energy and water resource management. We are actively involved with the Zero-Low Carbon Hub Wales, the Existing Homes Alliance Cymru, the Built Environment Strategic Group and the Heads of the Valley's regeneration programme.

## OBJECTIVES RELATING TO ENVIRONMENTAL TECHNOLOGIES

SummitSkills has devised five strategic objectives to provide a clear understanding of the main and important areas of work on which we need to concentrate. These are:

### 1) LEADERSHIP

to provide visionary and practical leadership to enable the achievement of the vision

### 2) INTEGRATION

to integrate environmental technologies into the sector

### 3) SECTOR ENGAGEMENT

to encourage sector businesses and workers to engage with environmental technologies

### 4) TRAINING

to ensure that the sector has access to relevant and high quality training

### 5) PARTNERSHIP

to forge effective partnerships to deliver these objectives and support others in delivering their objectives

In the pages to follow, we outline each of these objectives and explain why these areas are important and how SummitSkills plans to approach them, how success will be measured and how we will deliver and evaluate the overall plan.



## LEADERSHIP

To provide visionary and practical leadership to enable the achievement of the vision.

### Why are we doing this?

It is essential that the BSE sector engages with environmental technologies.

The sector has the opportunity to realise significant commercial benefits and advantages from engaging with environmental technologies. Such engagement will make the sector more attractive to new entrants, will extend and enhance the roles of existing sector workers, will increase the turnover and profitability of sector businesses, and will help to future-proof the sector.

The UK targets for sustainability, carbon emission reductions and renewable energy generation, and energy and resource management will not be achievable without the contribution of the sector. We are already in a catch-up situation and to prevent further slippage it is essential that the sector fully engages with environmental technologies as soon as possible.

The key to realising and maximising the potential for the sector and to support the achievement of the UK targets is an appropriately skilled workforce. As a Sector Skills Council, SummitSkills is the appropriate organisation to provide the leadership to achieve the vision for the sector.

### What's the plan?

Our work against this objective has four main strands:

**Understanding:** we will undertake the necessary networking, research and analysis to ensure that we have a thorough and clear understanding of policy, the work market, technological developments, and employer and stakeholder needs for environmental technologies.

**Scenario planning:** we will develop scenarios for environmental technology deployment and from these scenarios determine labour market requirements. We will then use the labour market requirements to identify if relevant provision and capacity exists to deliver an appropriately skilled workforce.

**Raise profile:** we will continue to raise the profile of the sector through effective communication and publicity, highlighting the key role that the sector has in maximising impact for sustainability, carbon emission reductions and renewable energy generation, and energy and resource management.

**Innovation:** to identify opportunities for innovation and to encourage and support innovation. We will seek to push boundaries and work with sector stakeholders to break new ground. We will monitor technological developments and develop standards, skills and training solutions that enable sector businesses and workers to be innovative.

### What are the measures of success?

Our measures of success are:

We will produce and agree with relevant stakeholders an annual work plan for environmental technologies that includes details of activities for each UK nation.

An annual environmental scenario planning project is undertaken, related labour market requirements are identified and relevant actions are identified and incorporated into SummitSkills' business and operating plans.

Tangible recognition from government and external stakeholders that the sector is key for sustainability, carbon emission reductions and renewable energy generation, and energy and resource management.


Case studies and tangible evidence of situations where innovation has been encouraged and applied, and case studies of standards, skills and training solution development for innovation in environmental technologies.

 **Why are we doing this?**

Buildings contribute a high proportion of the UK's carbon emissions and as the existing building stock gets older this could increase. One method of carbon reduction is to integrate renewable energy sources into building services. Building services engineers already have the key skills and competencies that are necessary to ensure that this is done to best effect.

There will also be a growing demand for environmental technologies in new builds. Again, input from the sector is vital to ensure that the right technologies are used and that they are installed, commissioned and maintained correctly.


The integration of environmental technologies into the sector is therefore considered to be of paramount importance. The sector has a key role to play in mitigating climate change, enhancing sustainability and conserving resources.

 **What's the plan?**

Research undertaken for the SSA highlighted that sector employers and stakeholders view environmental technologies as being an extension of existing sector occupations rather than a new sector occupation.

SummitSkills will undertake the necessary work to fully integrate environmental technologies into the sector footprint with the aim of ensuring that:

- the sector, its businesses and workers are recognised as being key players in mitigating climate change, enhancing sustainability and conserving resources through the deployment of environmental technologies
- the sector is appropriately placed to maximise the contribution that it and the UK can make to mitigating climate change, enhancing sustainability and conserving resources
- sector businesses engage with environmental technologies as a routine work activity and recognise the benefits of proactively increasing their level of engagement
- the sector is appropriately placed to realise and maximise the commercial opportunities and profitability provided by environmental technologies

 **What are the measures of success?**

Our measures of success are:

The sector is recognised by potential new entrants as being key in mitigating climate change, enhancing sustainability and conserving resources.

The sector is recognised by UK governments and other external stakeholders as being key in mitigating climate change, enhancing sustainability and conserving resources.

Sector businesses and workers have access to industry recognised training and development solutions that support maximum and timely engagement with environmental technologies.

The number of sector businesses that offer products and services relating to environmental technologies shows an improving trend.

The deployment of environmental technologies in the sector footprint shows an improving trend.

 **Why are we doing this?**

Sector businesses and workers have significant influence over client decisions to deploy a particular product or technology. Without the engagement of sector employers and workers, the deployment of environmental technologies is likely to be insufficient to support the achievement of UK targets related to climate change, sustainability and renewable energy.

Engagement with environmental technologies offers significant commercial opportunities for the growth and profitability of sector businesses and for the sector as a whole. Failure to engage will damage the sector's profitability and encourage international competition to enter the market. Productivity performance in the sector may well fall behind foreign competition, as sector workers become less skilled compared to their overseas counterparts.

 **What's the plan?**


Our work against this objective has four main strands:

**Develop opportunity:** ensuring that sector businesses and workers at all levels have the relevant opportunities to engage with environmental technologies and to develop the necessary skills and competence as appropriate to their job role and/or aspirations.

**Promote engagement:** to promote the benefits of engagement with environmental technologies through collaborative working with sector stakeholders, through national and regional promotional activities, and through promotional materials such as case studies to communicate how sector businesses and workers have engaged with environmental technologies and the benefits that have followed.

**Remove confusion, provide clarity:** to remove confusion on how to engage with environmental technologies and to provide clarity regarding the skills and competence required to engage with environmental technologies.

**Seek funding:** to liaise with and to influence national and regional funding bodies with the aim of securing funding to support sector businesses and workers in engaging with environmental technologies.

 **What are the measures of success?**

Our measures of success are:

Relevant opportunities exist across the UK to enable new entrants and existing sector workers to develop and/or demonstrate industry recognised skills and competence to work with environmental technologies.

An increase in existing sector businesses and sector workers engaging with environmental technologies, This will be monitored through analysing training participation data, and membership of relevant industry schemes.

The availability of accurate and clear information about how sector businesses and individuals can engage with environmental technologies, including information on industry schemes, skills and competence requirements and related qualifications and training solutions.


Funding opportunities exist to support sector businesses and individuals in participating in training for the development of skills and competence for environmental technologies.

 Why are we doing this?

To effectively engage with environmental technologies, employers and sector workers need access to relevant and high quality training that provides them with relevant, flexible and high quality skills.

The emergence of new technologies presents opportunities, but also presents threats and challenges. Without access to relevant and high quality training there is a risk that some sector businesses and workers may unknowingly engage in training that is not based upon relevant standards, is not industry recognised and is therefore considered as non-economically valuable.

Government schemes such as the Microgeneration Certification Scheme and its alternatives in the Devolved Administrations, Building Regulations/Standards, and Competent Person Schemes (where these apply), require levels of minimum technical competence. It is vital that sector businesses and workers have access to relevant and high quality training that affords them the opportunity to participate in such schemes.


 What's the plan?

SummitSkills is working with employers and stakeholders in England to develop the National Skills Academy for Environmental Technologies. The aim is to develop a learning and assessment delivery network that is adequate to meet the sector workforce's current and future environmental technology development needs.

SummitSkills has already developed a suite of NOS for environmental technologies. The suite comprises units for both operative and higher occupations. We will work with relevant stakeholders to ensure that these standards are used as widely as possible to define competence requirements for the design, specification, installation, commissioning, inspection, service and maintenance of environmental technology systems in the sector footprint.

We will work with relevant stakeholders to develop qualifications and Continuing Professional Development (CPD) units that afford new entrants and existing workers the opportunity to access and develop economically valuable skills and competence for working with environmental technologies, and ensure that these are part of the QCF, SCQF and QCFW.

We will work with manufacturers, certification bodies and others that offer environmental technology training solutions to encourage and support the mapping of existing and new courses to the NOS.

 What are the measures of success?

Our measures of success are:

The NOS for environmental technology systems are recognised as and used as the platform from which the skills and competence requirements for environmental technologies are developed.

Nationally recognised qualifications and CPD opportunities as defined by the QCF, SCQF and QCFW are available for new entrants and existing sector workers at all levels, including those completing apprenticeship frameworks.

The competence requirements for government schemes linked to the deployment and/or installation of environmental technology systems are based upon the NOS for environmental technology systems, and link into the appropriate European Union Directives.

Manufacturers, certification bodies and other organisations that offer environmental technology training solutions recognise the benefits of mapping existing and new courses to the NOS for environmental technologies, and are actively involved in the process.

Sufficient capacity exists in each UK nation and region to deliver relevant, responsive and high quality training for environmental technologies.

## PARTNERSHIP

To forge effective partnerships to deliver these objectives and to support others in delivering their objectives



### Why are we doing this?

SummitSkills does not operate in a vacuum: employers, stakeholders and other partners have an interest in what we do and how we do it. Similarly, SummitSkills has an interest in what others do and how they do it. We recognise that a partnership approach and collaboration achieves a greater benefit and impact than that achieved through the application of individual effort.

SummitSkills recognises the enormity of the task of addressing the issues of climate change mitigation, sustainability and resource conservation. These issues are global issues. All countries, economies, sectors, businesses and individuals have an interest and therefore these issues need to be tackled using a collaborative approach.



### What's the plan?

SummitSkills has set up various networks as part of the SSA. Already in the UK nations and regions there are established and successful forums and we will use these forums to deliver our objectives for environmental technologies.

SummitSkills works closely with the UK Government and the devolved administrations, and we will continue to do so to ensure that the sector's interests in environmental technologies are known and valued; that the sector's potential contribution to addressing the issues of climate change mitigation, sustainability and resource conservation is known; and that the sector's need to maximise engagement with environmental technologies is communicated and acknowledged.

We will continue to work collaboratively with industry partners and with other SSCs and bodies to address the skills and competence relating to environmental technologies.



### What are the measures of success?

Our measures of success are:

Relevant partnership arrangements in place that effectively support the sector in engaging with environmental technologies, support the delivery of the sector's objectives for working with environmental technologies, and support other stakeholders in delivering their objectives.

The sector is recognised by government departments and other stakeholders as being a key partner for the deployment of environmental technologies, climate change mitigation, enhancing sustainability and resource conservation.

## DELIVERING AGAINST THE STRATEGY AND EVALUATING PROGRESS

Our reputation for responsiveness and high standards in all that we do is crucial to our success. Progress in delivering against this strategy will be assessed in part against the measures of success detailed against each objective.

Skills development is incremental and the road can be long and complex. We are committed to achieving the objectives stated in this plan, but recognise that some of the impact of our work is more likely to be seen and recognised by future generations.

Measuring our success will require an understanding of the positive impact of our work and the changes that we have helped to bring about for the deployment of environmental technologies, and the related availability and uptake of industry recognised training and skills development.

We will use a range of techniques, strategies and sources of information as evidence of this success including:

- external evaluations and employer surveys
- formal and informal stakeholder feedback
- demand for and satisfaction with our services
- securing new business
- nature and extent of media coverage
- success each year in delivering our annual programmes

We recognise that environmental technologies is an area that is subject to regular technological advancement. Government policy and regulatory requirements are also updated on a regular basis. We therefore recognise the need to review this strategy on an annual basis.



