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SummitSkills response to the consultation:

Meeting the Low Carbon Skills Challenge

A Consultation on Equipping People with the Skills to take Advantage of Opportunities in the Low Carbon and Resource Efficient Economy

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Executive Summary

- SummitSkills represents employers in 61,000 building services engineering businesses, which include the electrotechnical, heating and ventilating, refrigeration and air-conditioning, and plumbing industries.
- Businesses within our footprint design, install, commission, service and maintain domestic and industrial/commercial systems, which have begun to incorporate current and emerging microgeneration and renewable energy technologies.
- These technologies have potential to make a significant contribution to the achievement of the 2020 renewable targets and 2050 energy reduction targets. Our submission concentrates on green jobs and skills relative to these activities.
- Environmental technology skills need to be integrated into the traditional skills of existing building services engineering workers. As such, many of the skills required to meet the low carbon challenge are not new skills, but will be achieved through up-skilling the existing building services engineering workers and integrating environmental technologies into their existing skills mix.
- Skills for environmental technology systems, including microgeneration, are seen as an extension of existing electrotechnical, heating and ventilating, refrigeration and air conditioning, and plumbing sector occupations rather than requiring new occupations to be introduced.
- Existing building services engineering sector occupations provide for significant transfer of practical installation, testing, commissioning, inspection, service and maintenance skills for the environmental technologies.
- The number of workers needed in the sector will increase, but they will need the full set of building services engineering skills rather than just the specific skills for the environmental technologies.
- Employers are reluctant to top up the skills of their workforce without a clear indication of client or legislative demand.
- Employers need to be able to develop an entrepreneurial and enterprise culture, and to raise client awareness of the range of suitable environmental technologies available. Also, the Client's decision on a particular system, appliance or technology is often heavily influenced by the chosen installation business.
- It is important that the Government works with relevant stakeholders, including SummitSkills, to agree what would constitute an approved/qualified person in relation to the design, installation, commission, maintenance and repair of smaller environmental technology systems.

- Financial incentives and legislative changes, such as Feed-In Tariffs and the Renewable Heat Incentive, are likely to provide some stimulation to the market.
- There is currently no coherent structure for environmental technology training provision, and there is confusion about which qualifications meet industry standards, who offers these courses and how they can be accessed across the country.
- Without a concerted effort to develop such a skills infrastructure, the sector - and subsequently the economy - will simply be unprepared for the forthcoming boom in environmental technology design and installation, and the Government will struggle to meet its plans for the low carbon transition.
- The National Skills Academy (NSA) for Environmental Technologies is the solution. Co-ordinated by SummitSkills on behalf of the Building Services Engineering (BSE) sector, the NSA presents a coherent approach to how environmental technology training provision is developed.
- It will transform the current system into one which is *accessible, progressive, quality-focused, demand-driven* and *recognised*. It is an employer-led infrastructure that will revolutionise the way providers and employers communicate on training issues and will deliver innovative solutions for businesses and the wider employment market.

Introduction

SummitSkills welcomes this consultation into meeting the Low Carbon Skills Challenge. Employers in the Building Services Engineering (BSE) sector have a key role in assisting the UK to move to low carbon.

SummitSkills represents employers in 61,000 building services engineering businesses, which include the electrotechnical, heating and ventilating, refrigeration and air-conditioning, and plumbing industries. There are 613,000 employees across these industries and the sector accounts for approximately 3% of the Gross National Product (GNP) with £20bn of work being carried out each year.

Industry	Number of companies
Electrotechnical	23,000
HVACR	13,000
Plumbing	22,000
Consulting Engineers	3,000
Total	61,000

Businesses within our footprint design, install, commission, service and maintain domestic and industrial/commercial systems, which have begun to incorporate current and emerging environmental technologies. Currently these technologies include:

- solar water heating
- solar photovoltaics
- ground and air source heat pumps
- combined heat and power systems
- biomass and bioliquid
- micro/small-scale wind energy
- micro hydro generation systems
- fuel cell technology

These technologies have the potential to make a significant contribution to the achievement of the 2020 renewable targets and 2050 energy reduction targets, which the UK Government is committed to deliver. Our submission concentrates on green jobs and skills relative to these activities.

It is important for this consultation to recognise that low carbon is not a sector in its own right, but a theme that crosses all sectors; that it is not a new industry but an extension to an existing one. As such many of the skills required to meet the low carbon challenge are not new skills, but

will be achieved through up-skilling the existing building services engineering workers and integrating environmental technologies into their existing skill mix.

Currently unskilled and unemployed people will not have the necessary underpinning knowledge, competence or experience to successfully fill the jobs that this challenge will provide for the sector. All employees will need the full set of building services engineering skills rather than just the specific skills for the environmental technologies.

Financial incentives are needed to help building services engineering businesses develop into effective advocates and installers of the environmental technologies. The Client's decision on a particular system, appliance or technology is often heavily influenced by the chosen installer.

SummitSkills has a key role to play in forecasting skills needs through our Labour Market Intelligence, which is supported by employers in the sector.

SummitSkills response

Skills across the economy and for key sectors

1. What more can employers, schools and the Government do to promote the take up of STEM subjects by young people and encourage them to consider careers in low carbon sectors?

Employers

- Greater engagement and collaboration is needed between employers and schools to ensure that pupils are exposed to activities which are genuinely relevant to both their studies and to the low carbon industry. SummitSkills has initiated an Employer Ambassador programme across the sector in the last 2 years, in conjunction with STEMNET. Employers in the sector are now providing practical help and support in delivering activities aligned to the curriculum, such as leading activities on the environmental technologies, so students gain insight into and experience of business challenges relevant to the real low carbon world.
- There is a need for greater encouragement of young people to enter STEM studies by employers.
- Employers, in collaboration with their Sector Skills Council, need to understand and be able to provide clear, concise information on the career pathways into their sector.

Schools

- Schools need to do more to increase links with local employers in the building services engineering sector so that teachers and lecturers are able to a) continue gaining practical experience in the work place through placements and b) support the teaching they undertake, especially in new curriculum areas related to the environmental technologies.
- Positive, high-quality careers advice, which is based on accurate and appropriate information and delivered in an impartial manner, is absolutely crucial to encourage more people into Building Services Engineering (BSE). It is important to show the breadth of career opportunities available in the sector at craft, technician and professional levels, as well as the different opportunities available related to low carbon and sustainability.
- Schools need to embed low carbon and environmental technologies into the pre-14 and 14-19 curriculums as examples of the different technologies, and to provide real life experience of the new low carbon concepts being taught.
- Environmental technologies also need to be related to building services engineering industries and promoted as an extension of the more traditional skills for the future.
- Continued support for the Diplomas in Construction and the Built Environment and Engineering is very important as both provide STEM-related opportunities and have sustainability aspects embedded as BSE-specific units. Schools should be especially encouraged to promote the Built Environment and Construction diplomas in the Year 9 options for young people.
- Helping schools to include ideas to tackle the low carbon agenda within their curriculum material will help to make built environment sector jobs more attractive to those young people who would not have traditionally considered a career in a STEM-related occupation.

The Government

- The Government needs to have a mechanism to explain low carbon in a simplistic and understandable way for employers, together with a way of quantifying and demonstrating the new or different business opportunities it will provide. This will make it more relevant to employers and increase their tendency to want to engage as there is something potentially in it for them.

- Employers are reluctant to top up the skills of their workforce without a clear indication of client or legislative demand.
- The Government needs to promote the benefits of using competent persons to fit the new environmental technologies to consumers. It also needs to reduce the bureaucracy of the Microgeneration Certification Scheme (MCS) to encourage more small firms to join.

2. What more can universities, working in conjunction with businesses, do to help stimulate demand for the high level STEM skills required in the low carbon economy?

- Improve engagement with the Sector Skills Councils to ensure current and new curriculum is developed which meets employers' needs in a demand-led system, including bite-size training and Continual Professional Development (CPD) provision.
- Ensure new and updated provision is linked to the sector's National Occupational Standards.
- Develop contextualised curriculum to meet the needs of businesses, including flexible learning pathways to fit around work and easily accessible progression routes.
- Link with building services engineering manufacturers to identify and support appropriate research for the sector.
- Review how universities are funded to ensure they respond to the built environment industries and do not concentrate in curriculum areas that are easier to engage with; the BSE subjects are often expensive to engage with in terms of facilities and curriculum time.
- Collaboration between employers and institutions needs to take place to ensure that the development and delivery of foundation degrees and vocational work-based learning pathways are relevant to the current and future needs of the BSE sector in a low carbon world.
- Access to accurate information about provision and courses needs to be made easier for employers so that appropriate provision can be easily identified wherever it is in the UK.
- The academic year is often not convenient for employers – degrees take three years with contact time of only two to three days for seven months of the year. The availability of two-year part-time full degrees would be welcomed by many employers as more practical and appropriate.
- Where the need for new provision is identified, the cost and time associated with its development is a limiting factor i.e. it takes too long, it is too bureaucratic, etc. The streamlining of provision development in terms of cost and time would greatly help to close gaps in provision which can exacerbate new skills deficiencies.
- Universities and colleges are clients of the BSE Sector as they are funders of many sectors' estates. University and college tenders should include some requirements related to skills and training, which could supply impact to raise consumer demand for environmental technologies.
- Investment in environmental technology skills and their use in delivering government-funded contracts may lead to cost savings on government-funded construction projects and estate management.

3. How can more colleges and universities be encouraged to respond to the need for specialist skills in emerging low carbon sectors?

- Create best-practice forums in the university or college to share experiences with the appropriate stakeholders and partners.
- It is important that colleges and universities link with employer-led Sector Skills Councils to look at Labour Market Intelligence for the sector in their area so they are relating current and future provision directly to the demands of employers in the sector. This behaviour could be driven through their funding regimes.
- The development and integration of foundation degrees with vocationally-based subject courses is an important element to increasing access to STEM-related career opportunities for all those with the desire to succeed in the low carbon industry, whatever their preferred learning route. On this subject, the merit of vocationally-based courses should not be under-sold by any educational

<p>institution</p> <ul style="list-style-type: none"> • New and updated provision is linked to the sector’s National Occupational Standards. • Identify employer champions within a sector to work with a specific college or university and drive the provision to become demand-led. • Ensure that communications within the establishment make <u>all</u> relevant staff aware of updates in procedures and technologies, as well as ensuring that staff undertakes appropriate CPD on a regular basis.
<p>4. Is our overall analysis of the skills challenges, as outlined in this document, correct?</p>
<p>Yes, SummitSkills generally agrees with the overall analysis. However, there are some important omissions in the overall evaluation. These include:</p> <ul style="list-style-type: none"> • There is no reference to building upon existing skills, making up-skilling a priority to meet short to medium-term requirements. The skills and competence of the environmental technologies need to be integrated into the traditional skills and competence of existing workers. • To have a low carbon economy you need a competent qualified workforce to specify, design, install, commission, repair and maintain the environmental technologies, thereby ensuring customer/client confidence in them. • The workforce also need appropriate non-technical skills if they are to support the Government’s education process of encouraging the take up of environmental technologies. Employers need to be able to develop an entrepreneurial and enterprise culture, and to raise client awareness of the range of suitable environmental technologies available. • Overall there will be a general need for up-skilling rather than re-skilling in the low carbon areas as individuals take on new and expanded roles. The extent to which new jobs will be created is likely to be minimal; many of these “new” jobs will simply replace existing roles as they broaden and develop to cover new technologies. The BSE sector does not consider that a low carbon sector or industry actually exists in its own right; “green” jobs or responsibilities will exist in all sectors of the economy and touch all roles, with some becoming more specialist. • However, there is no mention of the cross sector action currently taking place, which includes The Low Carbon Steering Group and the Renewable Energy Skills Strategy.
<p>5. What are the best ways to quickly and effectively replicate the examples of good practice provided throughout this document?</p>
<ul style="list-style-type: none"> • Information sharing on good practice can be undertaken through government, SSC, employer, and trade association websites. Proactive sharing can take place using the database of MCS registrants as well as emailing the competent person registers of those employers who have been trained in the environmental technologies. • Providing this information to all trainers of the environmental technologies so they have the latest up-to-date knowledge of current experience and practice to share as part of their training sessions. The National Skills Academy (NSA) for Environmental Technologies is planning to hold a database of all employers and installers qualified in the various technologies. This can be used to support the spread of best practice across the sector.
<p>6. Is stimulating innovation in skills development and delivery the best way forward?</p>
<ul style="list-style-type: none"> • SummitSkills agrees that stimulating innovation in skills development and delivery is the best way forward. The demand for new and different skills from employers needs to move from being reactive in leading market change to proactive to support new policy developments. This is more likely to happen if skills delivery becomes more innovative and responsive to meet employer’s

needs. Employer demand for training will increase if all public-funded projects include and highlight the requirement to use approved competent persons.

- Funding mechanisms for new skills need to be flexible enough to facilitate delivery to industry and SMEs. Solutions are often modelled around bureaucratic funding mechanisms, which often limit innovation of delivery.
- In addition funding options should be considered to stimulate growth in environmental technology training, supported by an authorisation mechanism to ensure money is spent as it should be.
- A flexible approach is required to support the complex and rapidly changing requirements of the low carbon industries. There will be a need to support skills development interventions at all levels and not just full qualifications; modular/unit-based provision will be in high demand by employers. Funding should support a demand-led approach locally and not necessarily national programmes.
- Innovation in skills development and delivery will be difficult when demand is low and uncertain. Such innovation will follow once demand increases.
- Current government policies set ambitious targets for increasing the use of renewable energy, but our existing training and skills infrastructure for environmental technologies cannot currently support this.
- The latest government incentives, including Feed-In Tariffs and the Renewable Heat Incentive, are aimed at stimulating the market and will undoubtedly lead to a boost in the demand for skilled operatives to design, install and maintain environmental technology systems. This presents a huge challenge for the BSE sector and employers to ensure that it has the right skills in place to respond to this new business opportunity.
- Unfortunately at present there is no coherent structure for environmental technology training provision. There is confusion about which qualifications meet industry standards, who offers these courses and how they can be accessed across the country. A lack of joined-up training infrastructure teamed with a high forthcoming demand signals a major cause for concern if this situation is left unaddressed.
- Without a concerted effort to develop such a skills infrastructure the sector - and subsequently the economy - will simply be unprepared for the forthcoming boom in environmental technology design and installation, and the Government will struggle to meet its plans for the low carbon transition.
- The National Skills Academy (NSA) for Environmental Technologies is the solution. Co-ordinated by SummitSkills on behalf of the Building Services Engineering (BSE) sector, the NSA presents a coherent approach to how environmental technology training provision is developed. It will transform the current system into one which is *accessible, progressive, quality-focused, demand-driven* and *recognised*. It is an employer-led infrastructure that will revolutionise the way providers and employers communicate on training issues, and will deliver innovative solutions for businesses and the wider employment market.
- Vitally, it will ensure the Government has the workforce in place to meet its carbon reduction targets by developing, coordinating and planning the right skills at the right competency level. It will address the current skills issues by providing a single point of contact for monitoring and delivering skills of this type in a way that is not currently being done. The whole network will be linked directly into National Occupational Standards, and will provide consistent qualification, training and facilities backed by far-reaching communication to employers so providers are primed to deliver once demand kicks-in.

Decarbonising the Power Industry
7. How should employers and the Government plan for the future re-deployment of skilled workers from high to low carbon industries and ensure a just transition?
<ul style="list-style-type: none"> • National and regional government departments need to agree common levels of recognition of skills and competence in environmental technologies across the various competent person schemes. • Work should be undertaken with SSCs to ensure that industry recognised learning pathways are offered to up-skillers, re-trainers and the unemployed to train for low carbon technologies. • There is also a need for a single legislated and nationally recognised BSE Environmental Technologies “Passport” to recognise and promote installer competence so it is easily understood by the consumer.
8. For the power sector skills we have identified, what is the best way to accelerate skills development beyond what is planned?
9. What more can be done within the power industry and through government energy policy to promote energy-related careers to young people?
<ul style="list-style-type: none"> • Recognise the broader sector involved in the power industry, such as Building Services Engineering (BSE) with microgeneration, as well as street lighting and other lesser known skills areas.
10. How can we stimulate the demand for the skills required - from advanced R&D to crafts and technical - to meet the CCS market opportunity?
Decarbonising Buildings and Construction
11. Can the Zero Carbon Hub approach be used as a model for identifying skills needs and stimulate demand for those skills across the construction sector?
<ul style="list-style-type: none"> • For the Zero Carbon Hub approach to maximise its impact, it needs to recognise that the skills to produce zero carbon in the construction sector are across the total built environment and involve a number of sectors outside of construction e.g. Building Services Engineering (BSE). Therefore the Hub needs to engage with the whole of the built environment to increase its impact, engaging with the wider group of SSCs who represent these sectors such as SummitSkills, EU Skills, Asset Skills and ConstructionSkills.
12. What more could it do to deliver low carbon and resource efficient skills in all parts of the construction industry?
<ul style="list-style-type: none"> • The skills that are identified as needing development should be mapped to the relevant SSC in the wider built environment. Each SSC can then contribute the specific technical skills development for their sector, as well as working collaboratively on the more general management, supervisory and customer service skills which will cut across all sectors. This will also help to provide greater clarity of any new skill areas bridging traditional SSC footprints in the zero carbon world. • Employers will need to be incentivised and encouraged to take forward the business growth opportunities of a new low carbon market, and will need a delivery infrastructure to support this take up. • Without a concerted effort to develop such a skills infrastructure, the sector, and subsequently the

economy, will simply be unprepared for the forthcoming boom in renewable energy design and installation, and the Government will struggle to meet its plans for the low carbon transition.

- Currently the sector does not have a sufficient number of workers who are qualified to design install, commission, service and maintain environmental technologies. Of the 258,285 workers currently in the sector, our research shows that only a small percentage have currently received some training on environmental technologies, and most of this has not been to any agreed standard of technical competence.
- Additionally, building services engineering sector businesses can easily find themselves the victim of rogue training providers, particularly when there are emerging markets or other drivers to participate in training.
- A key feature of skills development is the need for economically valuable, industry recognised training that is based upon the relevant National Occupational Standards and which develops the skills and competence required for the environmental technologies. Clear signposting to the appropriate recognised training solutions is essential.

13. What more should the Government and industry do to ensure those retrofitting existing buildings have the necessary skills?

The Problem:

- The Government has already recognised that a growing market like low carbon will require new intermediate and higher level skills. The building services engineering sector has clearly identified up-skilling of the existing workforce as a key driver towards the competence required. Insufficient 'green' skills are a fundamental barrier that will affect low carbon growth.
- Employers will need to be incentivised to move forward with the up-skilling required by the move to a low carbon economy, and will need a delivery infrastructure to support this take up.
- The sector, and subsequently the economy, will be unprepared for the forthcoming boom in environmental technology design and installation unless there is a concerted effort to develop a skills infrastructure. As a result, the Government will struggle to meet its plans for the low carbon transition.
- The current lack of confidence and the impact of the downturn have played a major part in employers not up-skilling for the new environmental technologies in greater numbers. Introduction of FITS and the RHI in 2011 will help stimulate demand and therefore enable businesses with the right skills to compete more readily.

The Sector:

- The Building Services Engineering (BSE) sector will deliver the skills needed to fulfil the carbon reduction targets relating to local power generation and microgeneration. The BSE footprint clearly encompasses microgeneration, which is the generation of heat or power using technologies such as solar power, biomass or photovoltaics, for the production of electrical energy up to 50kW and heat up to 45kW thermal. This encompasses all the green installations for homeowners, small community projects and many commercial properties so a strategy for environmental technology skills development must be in place to deliver the national carbon reduction targets.

The skills needed:

- Through existing research and occupational mapping, it has been established that the skills for environmental technology systems are an extension of existing plumbing, heating and ventilating, refrigeration and air conditioning, and electrotechnical sector occupations, rather than new occupations in isolation.
- Vital additional skills are needed for this sector to understand these new technologies and how they need to be designed, installed, maintained and integrated with existing systems to deliver

maximum efficiency and carbon savings. In addition, the move to environmental technologies brings a need for more multi-skilling and multi-disciplinary work practices, and greater integration of installation and design skills.

- Retrofitting environmental technologies means they will be installed as part of a primary system. For example, solar panels are normally installed to support the primary hot water heating system in a dwelling or commercial property, and micro wind generators supplement the primary electrical power source drawn from the National Grid, although they may also contribute any spare power back into the National Grid.
- Integrating the new technology into existing primary systems can be complex. Ensuring the equipment is the correct size and the controls that operate it are installed and calibrated correctly requires a comprehensive understanding of the primary system.
- Through stakeholder consultation and research, SummitSkills has identified that the sector views environmental technology skills as being an integrated component of existing sector occupations and job roles. Existing sector workers in skilled, technical and professional occupations have the threshold of competence required to participate in environmental technology-related up-skilling (e.g. plumbers installing solar water heating panels and heat pumps, and BSE consulting engineers designing renewable technologies into new and refurbishment projects). Employers have determined that the minimum level of base competence to be able to up-skill in these technologies is at NVQ/SVQ Level 3.
- The provision of narrow skills training for specific individual technologies to people who do not have the understanding and competences of integrated building services systems will not enable these technologies to be appropriately installed, commissioned and operated in a manner that delivers their carbon reduction potential; very few of them can be utilised in a stand-alone environment. Inappropriate installation will be an investment failure and, most importantly, will dramatically suppress demand through bad press and lack of positive recommendation.

The up-skilling required: Installers and employers in the sector will require up-skilling in the following areas to be able to design, install, commission, repair and maintain new environmental technologies:

- **Design skills:** An environmental technology installed without proper planning, integration and controls will not have the desired impact and, at worst, could have a detrimental effect. Employees need to be trained in the full planning and installation process, from the correct design and sizing of the renewable installation for the building and the best positioning of the product for optimum performance, to the updating of controls and equipment in existing systems before its connection to the existing power and water systems, and ongoing control.
- **Product knowledge:** The core underpinning knowledge and understanding of the specific products is essential. For each technology there will also be specific technical issues that will need to be addressed, for instance electricians will need to understand the rules and regulations around connecting photovoltaic and wind turbine systems to the National Grid.
- **Commissioning and maintenance:** Specialist skills are fundamental for the commissioning, maintenance and servicing of these technologies after they have been installed. Without them, the systems will not work at their intended efficiency levels. Training is required to provide in-depth knowledge of particular systems, and enhanced diagnostic and fault-finding skills.
- **Innovation, entrepreneurship and business development:** The enhanced skills delivered by the Pilot Project will allow employers to gain confidence in their ability to work with new technologies. This is likely to stimulate further innovation, entrepreneurship and business development as they communicate their expertise to existing and potential clients. With increased skills and knowledge, the BSE sector can become more proactive in promoting the Low Carbon agenda to consumers, acting as a trailblazer for environmental skills.

Associated Skills: Installers and employers will need to be aware of the additional benefits of non-sector technologies that should be implemented in conjunction with the installation of appropriate sector environmental technology e.g. installation of cavity wall insulation, upgrading loft insulation etc., to maximise the benefit of the environmental technology being specified and installed. Installers and

employers should also be able to provide advice on how the Client can access the FIT, RHI, Green Loans etc., and be able to signpost to guidance organisations such as ETS, the Carbon Trust or local Energy Advice Centres.

The additional business benefits: New skills in environmental technologies will also lead to a more sustainable workforce for employers, enabling them to become more competitive both for their own business and for UK plcs:

- With higher skills, employers will become more responsive to customer needs and better equipped to seek out new business development and opportunities
- They will have a competitive edge when they bid for tenders, as they will be able to prove they have been trained by accredited, nationally recognised providers
- Tender pricing will also become more competitive. With the right knowledge, environmental technologies will be more appropriately-sized for their buildings, leading to jobs being more accurately priced. This leads to greater cost-effectiveness for a specific design of the right solution, rather than just a basic installation with an off-the-shelf package.
- Properly trained operatives can use both application and product knowledge to integrate their competence across all elements of the BSE sector. This is particularly important for competitiveness in retrofitting, as a high level of skills and knowledge will be required to maximise efficiency from technologies installed in existing buildings.

Market Drivers:

- Employers in the sector have been slow to top up the skills of their existing workers and allow them to work with the environmental technologies. Our research has shown that 90% of businesses employ less than ten people. The business owners are not natural entrepreneurs and are very cautious about spending money to up-skill their existing workforce without a clear need to do so. As a consequence they are waiting for client demand or legislation to drive their business into the environmental technologies market.
- The key driver for any business is customer demand. The Client's decision to select a particular system, appliance or technology is often heavily influenced by the chosen installation business.
- Secondary drivers include legislation e.g. changes to building regulations and incentives. If however, demand is stimulated before businesses have extended their workforce skills, clients will look to other countries where businesses already have these skills.
- The installation of environmental technology systems in sufficient volume to make a significant contribution to the 2020 and 2050 targets is unlikely without the engagement and support of UK building services engineering sector businesses. Once engaged, installation businesses have huge potential to stimulate the market and create customer demand.
- Further drivers to stimulate the market and to encourage sector installation businesses to engage with environmental technologies are essential. For example, funded training for up-skilling is likely to be an effective driver, particularly in the current economic climate.
- A reduced rate of VAT is currently applicable and the Government needs to make this more widely known to assist demand.

National Skills Academy (NSA) for Environmental Technologies:

- SummitSkills is working on behalf of the BSE sector to develop the National Skills Academy (NSA) for Environmental Technologies to help to ensure the UK has a skilled, competent workforce to install environmental technologies
- The NSA will be the key route for training and up-skilling installers to enable them to competently install renewable heat technologies. Through the NSA, we will ensure the UK has a sufficient number of correctly skilled individuals to fulfil the RHI's objectives.
- The Academy will also address the barriers of expensive technology and training facilities; providing practical training examples in 'real world' scenarios is very costly to providers and they cannot currently afford to install these facilities independently. By sharing resources via the

Academy, one provider can offer access to all environmental technologies across its regional partners and ensure employees are properly trained on practical as well as theoretical elements of environmental technology.

- The Academy will transform the number of people skilled and competent to implement the Government's vision for a low carbon future. It will build on the core competences in electrotechnical, HVACR and plumbing industries to allow the sector to understand new environmental technologies and how they need to be integrated with existing systems in order to deliver maximum efficiency and carbon savings. It will generate new and upgraded skills for employees in design skills, product knowledge, commissioning and maintenance, and finally innovation, entrepreneurship and business development.

It will develop skills to improve competitiveness: New skills in environmental technologies will lead to a more sustainable workforce for employers, enabling them to become more competitive both for their own business and for UK plcs. Employers will be better equipped to seek out new business development and opportunities; they will have a competitive edge when they bid for tenders, be more accurate in their pricing and tendering, and can apply their new knowledge to generate maximum efficiency for their customers.

It will boost the supply of innovative solutions to business: The Academy will be at the forefront of new environmental technology developments through its direct partnership and networks with manufacturers, their research and development (R&D) functions and R&D departments within Higher Education. The innovation generated by these partnerships will allow for knowledge-sharing, more accurate skills development, more innovative training methods and a continuous circle of research, product development and feedback between HE, manufacturers and employers.

It will increase investment in skills by employers: There is enthusiasm from employers to invest more in green skills if there were a suitable infrastructure. By creating a system of responsive, co-ordinated provision, employers will have more confidence to train their staff. Tailored training for individual needs, true clarity on where and how to access training, and linking to competence schemes will also boost investment as they become more comfortable with which training is accredited and the correct routes to follow to access grants under the various renewable incentive schemes.

Recognition of Environmental Technologies Competence:

- The retrofit market e.g. boiler replacements etc., offers a significant opportunity to increase the deployment of renewable heat technologies. However, as renewable heat technologies are typically more expensive than traditional technologies, many homeowners may need financial assistance in the form of a loan to finance the installation.
- Additionally, as the majority of homeowner decisions about boiler replacements and new heating systems are based on the recommendation of the plumbing or heating installer, there is a need to ensure installers and contractors are also fully aware of any financial assistance available for consumers so that they can advise their customers about renewable heat options.
- It is important that the Department of Energy and Climate Change (DECC) works with relevant stakeholders, including SummitSkills, to agree what would constitute an approved/qualified person in relation to the installation, maintenance and repair of smaller environmental technology systems.
- To this end SummitSkills has been instrumental in establishing the Building Services Engineering Advisory Group to advise on the minimum technical competence requirements of building regulations and the Microgeneration Certification scheme (MCS).
- The National Skills Academy (NSA) for Environmental Technologies will ensure that training provision is available for the installation and maintenance of renewable heat technologies. SummitSkills recommends that any RHI funding is linked to training that is based upon relevant National Occupational Standards.

<ul style="list-style-type: none"> • While SummitSkills is in full support of the MCS and the proposed requirement for the MCS in relation to the RHI, the fact is that a large number of building services engineering businesses view the MCS scheme as inaccessible and/or undesirable. Unless these issues are investigated and addressed prior to the introduction of the RHI, the success and impact of the RHI may be extremely limited by the MCS requirement. • In addition more work needs to be done on the definition of competence linked to such schemes. At present the MCS accredits companies and not individual installers, an issue which needs to be addressed to ensure homeowner installations are carried out by a competent installer. • SummitSkills is currently leading on the review and development of competences for the MCS to be aligned to the National Occupational Standards (NOS) for Environmental Technologies. To avoid a two or more tiered systems being created, SummitSkills believes that in addition to the current requirement for EN 45011 accreditation, any scheme recognised as being equivalent to the MCS should also have in place competence requirements derived from the NOS for Environmental Technologies and aligned to the competences required for the MCS.
<p>14. What more could be done to improve awareness of low and zero carbon regulations along construction industry supply chains to enable them to take advantage of new low carbon markets?</p>
<ul style="list-style-type: none"> • This question needs to be referred to the wider built environment and not just limit itself to the construction sector. There are industry supply chains in the wider built environment skill areas which need to have increased awareness of low and zero carbon regulations to maximise their opportunities in new low carbon markets. • Enhanced innovation, entrepreneurship and business development skills will allow employers to gain confidence in their ability to work with new technologies. This is likely to stimulate further business development as companies communicate their expertise to existing and potential clients. With increased skills and knowledge, the BSE sector can become more proactive in promoting the low carbon agenda to consumers, and act as a trailblazer for environmental skills.
<p>15. How should we capture and respond to the key skills demand and supply issues in the eco-towns projects, and share lessons learnt more widely?</p>
<p>Decarbonising the Transport Sector</p>
<p>16. What are the key technical disciplines involved in the transition to ultra-low carbon vehicles? How can we ensure the new skill requirements are met?</p>
<ul style="list-style-type: none"> • There will be significant demand for skills in establishing the electricity infrastructure that will support low carbon vehicles. This will exacerbate the skills deficiencies facing the building services engineering sector, especially as the charging points may also use environmental technologies.
<p>17. What more do we need to do to ensure that UK companies have the skills they need to capitalise on the transition to lower carbon aviation?</p>
<p>18. Are the skills priorities identified for the freight and logistics sector correct? What more do we need to do to ensure employers in the freight sector have the skills they require?</p>
<p>19. What more should the Government and employers do to ensure UK companies have the skills they need to capitalise on the electrification of rail and future rail projects?</p>

Decarbonising Supply Chains across the entire Economy
20. What more should the Government and employers do to up-skill existing and future workers in the forestry and farming industries, in particular to support emerging, and bioenergy, biomass processing and renewable heat sectors?
21. What actions should be taken to ensure that individuals working in carbon intensive industries have the skills to make the transition to a low carbon, resource efficient economy?
<ul style="list-style-type: none"> • There is a need to support all sectors in the transition to a low carbon economy. This will require developing awareness of the requirements of the low carbon transition, supporting the development of existing staff and the re-skilling of those entering the low carbon industry from other sectors.
22. Is our understanding of the skills needs in advanced manufacturing correct? How can these needs best be met in the short-, medium- and long-term?
23. What are the key skills challenges to deliver improved resource efficiency and low carbon in the service and support sectors?
<p>SummitSkills suggests the following are the key skills challenges in the local authority, housing association and building management areas to deliver improved resource efficiency and low carbon:</p> <ul style="list-style-type: none"> • Influencing and communicating with clients/customers – covered in the suggested programme as change management • Regulatory and compliance issues – carbon reduction reporting etc. • Awareness and technical skills to work with the new technology • Change management • Process modernisation management/control • Project management and sustainability-related skills for new technology
Skills for Adapting to Climate Change
24. What key skills will be needed to build adaptive capacity for climate change, enabling organisations to minimise risks and capitalise on the opportunities that climate change will bring?