



**energy&utilityskills**

## Sector Qualification Strategy <sup>1</sup>

<b>Sector Skills Council / Standards Setting Body:</b>	Energy & Utility Skills
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V17	29/11/07	H Igarashi	Revisions based on SSDA initial feedback to C Adams.
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## SECTION 1: Executive Summary

Energy & Utility Skills (EU Skills) is the Sector Skills Council for the electricity, gas, waste management and water industries. Employer led, the purpose of EU Skills is to serve all the industries represented within its footprint. This is achieved by working with employers, government and key partners and stakeholders across the UK. EU Skills identifies and assists in the development of the skills required by its industries to ensure competitiveness in an ever increasing global economy.

### **Purpose of the Sector Qualification Strategy (SQS)**

EU Skills and other Sector Skills Councils (and Sector Bodies) have a responsibility for ensuring that the skills needs of employers covered by their sector(s) are clearly defined. EU Skills has developed, in conjunction with employers and industry groups, its Sector Skills Agreements to identify the key priorities and drivers within its sector in each of the four countries. The EU Skills Sector Qualifications Strategy (SQS) follows on from the Sector Skills Agreements and builds on the work carried out in Stages 1 – 3.

The SQS provides strategic guidance to ensure the qualifications available to the footprint industries will encourage individual development and progression. The principles set out in the EU Skills SQS have been developed in consultation with employers, providers, Awarding Bodies, Qualification Regulators and Funding Bodies and are a true reflection of employer priorities for skills and qualifications development. The SQS will then lead to the development of country and industry specific implementation plans to ensure the priorities and vision, are delivered to the employers.

### **Vision**

***'The Vision of EU Skills is to provide solutions to develop the skills of the workforce across the footprint which will enable employees to contribute more effectively to the future profitability of their respective organisations'.***

### **Present**

Employers across the footprint who use existing qualifications are generally satisfied with them in terms of delivering competence although there are a number of areas that require addressing (Allison, Windmill 2007 pp.8). One issue in particular relates to the low uptake of Scottish and National Vocational Qualifications and other nationally recognised vocational qualifications. The reasons for low uptake are due to the specialised nature of the footprint, in addition, the current qualifications are numerous and duplicate learning rather than having core units of common learning and specialised pathways (Allison, Windmill 2007 pp.113). Consequently, many employers across the footprint rely heavily on bespoke in-house training for operative workforce development.

Employers in EU Skills' footprint support a concept of modular qualifications (Allison, Windmill, 2007 pp.108) with the flexibility that allows them to select training routes necessary to specific occupations. They also support the concept of a pick and mix approach to building qualifications containing skills and competence, underpinning knowledge and behaviours. There is also a lot of interest in work based learning routes built around delivery frameworks such as apprenticeships and foundation degrees in England. (Allison, Windmill 2007 pp.52) EU Skills has a number of apprenticeships and foundation degrees. A listing is provided in Appendix 2.

## Future Priorities

- National Occupational Standards will be updated in line with changes in the regulatory environment and changing job roles to ensure they are fit for purpose and can support the development and review of qualifications required by the sector. The updated NOS will include requirements to demonstrate behavioural skills.
- Vocational qualifications currently offered in the sector will be re-evaluated and a programme of rationalisation and modularisation undertaken to increase cost effectiveness for employers. The flexibility of modular qualifications will enable the development of training programmes using a mix and match system. This will allow employers to tailor qualifications through the import of credit rated units and learners will be able to receive credit for learning done in stages.
- Qualifications will be made more accessible and clear pathways for progression will be identified. Both accredited and un-accredited qualifications and training programmes will be matched to job specifications using a web based on-line database. This will enable ready identification of qualifications and training for specific job roles and those which promote particular career pathways. Higher level provision in science, maths and technology will be developed to enable progression from operational roles to supervisory positions.
- EU Skills will develop an 'endorsement' scheme to approve in house training programmes and bespoke qualifications used by employers. The endorsement programme will be used to demonstrate that in-house provision is meeting current National Occupational Standards and will also provide the evidence of common skills and synergies which will inform the content of future accredited qualifications.
- Under the provisions of the Leitch review, SSCs will approve qualifications prior to accreditation thereby ensuring that qualifications meet the training needs and purposes of footprint employers. EU Skills is currently involved in the VQ Approvals pilot which is lead by the Qualifications Curriculum Authority. All vocational qualifications which are developed for the EU Skills footprint and accredited on the QCF will have to be approved by EU Skills as fit for purpose. Awarding bodies will be required to submit draft qualifications for approval according to an agreed procedure to be assessed against criteria to be determined by the approvals pilot. EU Skills will work with Awarding and regulatory bodies in the other nations to secure SSC involvement in the development of vocational qualifications.
- The need to improve levels of basic and essential skills and health and safety awareness will be addressed across the footprint. There will be particular emphasis on improving basic skills acquisition and the health and safety record in the waste industries.
- There is an urgent need to increase the number of new entrants into the footprint sectors. This will be addressed with a programme of sustainable schools engagement involving initiatives to improve the image of the sector and by further development on 14 - 19 Diplomas in England, Apprenticeships and the Skills for Work programme, the 14 – 16 agenda in Scotland and the emerging 14-19 Work Based Learning Pathways in Wales and Welsh Baccalaureate.
- Future qualifications will be developed to include employability and behavioural skills

involving good communication, problem solving, and responsible behaviour for safety and work quality. In addition to skills for competence, employers also value these attributes in individuals and EU Skills is seeking ways in which they can be developed and assessed.

### **Taking the SQS forward**

The SQS will be subject to further consultation with the EU Skills Strategy and Development team, the Skills Solutions team in the National & Regional Offices and major stakeholders in the 4 Nations. An awarding body forum has been convened to consider qualifications renewal and future development work. Consultation on the SQS and further developments will be made available to employers in the EU Skills Update and via the company website.

The consultations will agree the action plans derived from the SQS and determine priorities for their implementation at national and regional level. All actions plans will be submitted for approval by the SSDA early in 2008. Action plans will be revised and updated on a 12 monthly basis.

## SECTION 2: Scope of the SQS

### 2.1 SCOPE OF THE SQS - SECTOR AND SUB-SECTOR COVERAGE

Energy & Utility Skills is the Sector Skills Council (SSC) for the electricity, gas, waste management and water industries. These sectors provide infrastructure services for much of modern society. A skilled workforce capable of performing in a highly technical environment is vital to the maintenance of an efficient and effective infrastructure and delivery of these services.

The EU Skills footprint workforce is relatively small. Data from our research puts the overall figure at 528,000 employees. This makes EU Skills the third smallest of the 26 SSCs, just ahead of Skillset (audio visual industries with 450,000 employees), and Skillfast (apparel, footwear and textiles and related businesses with 394,000 employees). By comparison, EU Skills has just 14% of the employee base of the largest SSC SkillSmart Retail (with 2.9million employees). (Allison, Windmill 2007 pp.81)

The occupational structure of the sector varies by industry. Across the electricity, gas (upstream) and water industries, there are relatively more professional, associate professional, skilled trades and customer services personnel employed than the UK average. Within waste management however, there are significantly more operatives and elementary grades employed. This is reflected in the nature of the activities undertaken within each of the industries. Electricity, gas (upstream and downstream) and water are highly regulated industries, which require, by law, a fully competent technical workforce. The waste management industry activities are generally lower skilled, requiring physical exertions, often within a hazardous work environment.

The sectors covered by EU Skills all have distinctive sub-sectors, all of which are covered by this SQS. They are:

#### 2.1.1 Electricity

The electricity industry covers the activities associated with the production, national transmission and local distribution of electricity up to, and including, the customer's meter.

Occupations include:

- **Generation**
  - Control & Instrumentation Engineer
  - Operations Technician
  - Maintenance Technician
  - Electrical Engineer
  - Supervisory/Management Roles
  - Electrical Power Specialist
  
- **Transmission and Distribution**
  - Overhead Linesperson
  - Cable Jointer
  - Electrical Fitter
  - Electrical Engineer
  - Supervisory/Management Roles
  
- **Supply**

Meter Operative  
Meter Technician  
Supervisory/Management Roles

### 2.1.2 Gas

The gas industry is split into the two sub-industries of *upstream* and *downstream*.

The upstream sub-sector is defined as the activities of transporting gas from beach terminals through the National Transmission System, into the Local Distribution System, and then up to, and including, the main control valve (usually adjacent to the meter). This sub-industry also includes the storage and re-gasification of Liquefied Natural Gas (LNG), the manufacture and distribution of Liquefied Petroleum Gas (LPG) and other bottled gases and the operation and maintenance of network infrastructure (e.g. pipe laying, repair, maintenance and storage).

Occupations include:

- **Gas Upstream**  
Gas Network Engineer  
Service Team Leader  
Main Layer Team Leader  
Technician  
Supervisory/Management Roles

The downstream sub-sector consists of all activities that take place on the customers' side of the main control valve (including the meter). The major element being gas fitters/installers (i.e. CORGI-registered gas installers). The research in this area is based on the generous provision of information from CORGI, who has provided data on both licensed organisations and individuals.

Occupations include:

- **Gas Downstream**  
Gas Service Engineer  
Commercial/Industrial Gas Engineer  
Service Engineer  
Project Manager  
Gas Appliance/Equipment Manufacturer  
Supervisor/Management Roles

### 2.1.3 Waste management

The waste management industry is primarily concerned with the management, collection, transport and treatment of waste material and recyclable materials.

Occupations include:

- **Site based**  
Treatment/transfer process operator  
Treatment/transfer general operator  
Landfill operative  
Clinical waste cleaner  
Treatment/transfer process operator  
Treatment/transfer general operator  
Landfill technician  
Weighbridge operator

Supervisory/Management Roles including landfill, civic amenities, incineration  
Waste technologist  
Environmental technician/consultant

- **Non site based**

Waste collection operative  
Recycling collection operative  
Recycling operative  
Clinical waste driver  
Waste collection driver  
Waste collection team leader  
Supervisory/Management Roles including waste collection, recycling, street cleansing and contract management

## **2.1.4 Water**

The water industry covers the activities of the regulated water utility companies, non-regulated subsidiary water utility companies (e.g. involved in construction, engineering, consultancy, laboratory services, etc.) and the supply chain (e.g. contractors, manufacturers, suppliers, etc.). Together they are responsible for the supply of clean water to customers up to and including the internal stop valve on the customer's property and the collection and treatment of waste water (collected through both public sewers and private drains).

Occupations include:

Craftsperson  
Wastewater Operator  
Production Operative  
Distribution Inspector  
Leakage Technician  
Field Technician  
Reservoir Maintenance Technician  
New Supplies Technician  
Asset Management Technician  
Process Operative  
Networks Control Technician  
Networks Service Technician  
Maintenance Operator

## **2.1.5 Contractors**

Working in support of the footprint industries are a number of contractors that carry out activities such as the installation, repair and maintenance of the electricity, gas and water network assets. Their employees are often required to be able to prove competence before being allowed to work on the network owner's assets. Consequently contractors need a multi skilled and mobile workforce in order to carry out their activities efficiently and economically.

Across the electricity, gas (upstream), waste management and water industries there are around 10,000 VAT-registered businesses, the majority of which are small and medium-sized. However, the majority of the workforce is employed by the larger businesses. In the gas (downstream) industry, there are 50,000 CORGI-registered businesses, of which 79.3% are sole traders. Only 18 organisations (0.4% of business units across the UK footprint) employ more than 250 employees. (Murphy, 2006 pp.5)

**Employers and employee numbers by industry Table 1.**

Industry	Employers	Employees
Electricity	945	68,500
Gas Upstream	135	19,000
Gas Downstream	23,065	117,000
Waste Management	6,130	141,000
Water	2,645	160,000

Source: Energy & Utility Skills LMI (Electricity 2004, Water 2004, Waste Management 2006)  
Annual Business Inquiry 2004

**Work force by EUS occupational groups. Table 2.**

	UK	England	Northern Ireland	Scotland	Wales
<b>Electricity</b>	<b>68,500</b>	<b>49,500</b>	<b>1,500</b>	<b>12,000</b>	<b>5,500</b>
Generation	18,000	13,500	500	3,000	1,500
Distribution and Transmission	22,500	16,000	500	4,500	2,000
Supply	21,500	15,500	500	3,500	1,500
Corporate Functions	6,500	4,500	*	1,000	500
<b>Gas (Upstream)</b>	<b>19,000</b>	<b>17,500</b>	<b>*</b>	<b>*</b>	<b>*</b>
40.21, Manufacture of gas	6,500	6,000	*	*	*
40.22, Distribution and trade of gaseous fuels through mains	12,500	11,500	*	*	*
<b>Gas (Downstream)</b>	<b>117,000</b>	<b>95,500</b>	<b>3,500</b>	<b>13,000</b>	<b>5,500</b>
45.33, Plumbing	117,000	95,500	3,500	13,000	5,000
<b>Waste Management</b>	<b>141,000</b>	<b>110,000</b>	<b>4,000</b>	<b>17,000</b>	<b>10,000</b>
Integrated Waste Management Companies	29,000	22,500	1,000	3,500	2,000
Public Waste Collection, Disposal Authorities and LAWDCs	60,000	47,000	1,500	7,500	4,000
SMEs – Collection, Processing and Disposal	45,000	35,000	1,500	5,500	3,000
Support Services - Consultants	1,000	500	*	*	*
- Contractors	3,000	2,500	*	*	*
- Plant/Equipment	2,000	1,500	*	*	*
Regulators	500	*	*	*	*
Others	500	*	*	*	*
<b>Water</b>	<b>160,000</b>	<b>134,000</b>	<b>6,000</b>	<b>13,000</b>	<b>7,500</b>
Water Companies and Utilities (Regulated)	37,000	28,500	2,000	4,500	2,000
Support Services - Consultants	15,000	12,500	500	1,000	1,000
- Contractors	30,000	23,500	1,500	3,000	2,000
- Plant/Equipment	30,000	25,500	1,000	2,000	1,500
Regulators	6,000	4,000	500	1,000	500
Others	14,000	12,500	500	1,000	500
Water Utilities Owned (non-Regulated)	28,000	27,500	0	500	0
<b>Sub-Total Employees of</b>	<b>505,000</b>	<b>406,500</b>	<b>15,000</b>	<b>55,000</b>	<b>28,500</b>
<b>Self-Employed</b>	<b>19,500</b>	<b>16,500</b>	<b>500</b>	<b>1,500</b>	<b>1,000</b>
<b>TOTAL</b>	<b>524,500</b>	<b>423,000</b>	<b>15,500</b>	<b>56,500</b>	<b>29,500</b>

Source: Energy & Utility Skills LMI (Electricity 2004, Water 2004, Waste Management 2006)  
Annual Business Inquiry 2004

## **2.1.7 Outside the Scope of this SQS**

### **Nuclear Power**

The operation of nuclear power stations is outside of the remit of EU Skills. The SSC with responsibility for nuclear power facilities is Cogent however, there is some overlap between the occupational roles in nuclear power stations and those employed in other areas of electricity generation, particularly in terms of operating and maintaining steam raising plant, steam turbines and connecting to the national electricity grid.

### **Renewable Energy**

EU Skills is taking the lead, on behalf of the Skills for Business network (SfBn) in developing the skills base of those employed in the renewable energy sub-industry. The generation of electricity, heat and power from renewable energy sources is an emerging economic activity, which is currently high on both the environmental and political agendas. As work is still on-going in terms of quantifying the renewable energy sub-sector and in identifying the skills needs and appropriate solutions, this SQS does directly cover the renewable energy industry at present, but these will be considered as part of the ongoing NOS developments as appropriate.

### **Other areas of the sector**

An inherent problem with any definition of the EU Skills footprint is the inclusion, or otherwise, of employees who undertake essentially non-technical specific activities such as; customer services, administration, billing and metering. These activities can be either undertaken "in-house" or outsourced to a third party, depending on the individual organisation. Only where these activities are undertaken in-house, by a directly employed workforce, are they included within the workforce estimates, and the SQS or where the skills involved in the job description e.g. metering, are predominantly sector specific.

## **2.1.8 Learners and Learning Provision**

### **Age range**

The learners that fall within the scope of the SQS include anyone aged 14 and over up to older adults. It includes those who may be working towards employment in the sector, new entrants to the sector and those already employed in the sector wishing to update their skills in any of the occupations listed in the previous sections.

### **National coverage**

In developing this strategy and the subsequent action plans, EU Skills covers each of the four countries that make up the UK. The SQS principles correspond with the national Skills Strategies in the four nations and implementation of the plans will take into account national priorities and agendas. The strategy will identify action plans for encouraging new entrants into the sector through the 14 -19 reform in England, 14 -19 learning pathways for Wales, 13 - 16 agenda for Scotland including Determined to Succeed, Curriculum for Excellence and Skills for Work opportunities.

### **Scope**

The EU Skills footprint uses accredited qualifications in all the nations and regions principally to attest to work force competence. Qualifications are also used to attest to the capabilities of new entrants and for the delivery of management and customer service skills. In addition, a substantial amount of training is delivered in-house and is not accredited or externally recognised (Allison, Windmill 2007 pp.111). A proportion of this training relates to the need for a licence to operate or

other recognised passport or registration scheme. EU Skills operates a registration scheme for the sector which currently holds details of over 70,000 individuals who require recognition of skills that may not be reflected within a qualification.

### 2.1.9 Qualification Provision

The EU Skills sectors have access to a variety of provision, both accredited and non-accredited. The main types of qualifications are indicated in the table below. Although apprenticeships and modern apprenticeships have been included as the qualifications that make up the frameworks they are strictly speaking, not qualifications. Employers in Wales operating in the area of waste recycling see apprenticeships in recycling as a recruitment and progression route.

Table 3.

Qualifications	QCF level	SCQF level	Use
<b>Accredited Provision examples</b>			
NVQ/SVQ	1-5	4 - (8 for level 4 and 11 for level 5)	Used mainly by employers due to regulatory requirements (as in waste management) or for providing core knowledge in Apprenticeships.
Apprenticeships	2-3	6-7	EU Skills has apprenticeship and modern apprenticeship frameworks across all sectors and the four countries. They are used to attract and train new entrants and to develop existing employees. EU Skills has also developed a Youth Apprenticeship (electricity) and Specialised Diplomas in Engineering and Construction (England only).
Professional Courses	Vary	Vary	Examples include NEBOSH Diploma (Health & Safety), CIWEM Certificate & Diploma. WAMITAB CoTC,
Foundation Degrees (FD) – England only	5	Not applicable in Scotland	Although still a relatively new development in the EU Skills footprint, EU Skills has worked with partners and developed Foundation Degrees in the following areas: Utilities Management Electrical Power Engineering Water Industry There are Waste Management and Renewable Energy FDs that have been developed without EU Skills involvement.
HNC/HND	5	7/8	HNCs and HNDs are used across the EU Skills footprint, usually in electrical and general engineering.
Degree and Post-graduate degree programmes	4-8	9-12	Many water industry and electric industry employees are educated to degree level prior to entry.
<b>Non-accredited provision examples</b>			
Employer Devised Training Programmes	Mainly at level 2	Mainly at level 5	These are used by employers for operators and new entrants to teach skills and competences required to carry out work effectively. They are mainly used in the water industry and many are BTEC qualifications outside of the regulatory frameworks. Large awarding bodies such as City & Guilds have traditionally developed bespoke provision for the sector.
Health & Safety Training	Vary	Vary	Used by employers across the sectors to ensure operatives (and others) conform to current health & safety guidelines and regulations.

### **2.1.10 Legislation and Compliance**

The industries within the EU Skills footprint are highly regulated and, as such, many of the employers are faced with compulsory training and assessment. Most of the companies training budget is allocated to meet regulatory requirements rather than to develop initiatives for other work force development. The exception to this rule is the Water industry which has a record of supporting and developing its employees with or without funding.

### **2.1.11 Non – accredited provision used by the sectors:**

#### **Electricity**

Electricity employers offer induction training and sector-specific training in electricity generation, transmission and distribution and overhead lines; tower maintenance; driver and forklift truck; rescue, health and safety and compliance; and confined spaces. Further training is offered in learning and development and management. Courses such as NEBOSH Diploma for Health and Safety are also valued as a recognised approach to health and safety in a sector where safety is paramount and accidents likely to be fatal. It would appear that other routes to health and safety are not as readily accessible to employers – or as tailored. Some training and qualifications from other sectors, such as arboriculture from LANTRA are also required when maintaining overhead cables.

#### **Gas**

The range of courses provided by gas employers are first aid and fire extinguishing; manual handling; boiler efficiency and parts; and hole excavation. More generic training for the sector includes customer service and telephone handling.

#### **Waste Management**

Waste management training is covered by CIWM, WRAP and WAMITAB courses, such as the Certificates of Technical Competence (CoTC). Other examples are fork lifting; LGV driver; health and safety and Dangerous Goods Safety Advisor training,

#### **Water**

Water companies also cover confined space and street works training as well as generic health and safety training. Many water companies offer BTEC courses outside of the regulatory qualification frameworks. Other awarding bodies also offer bespoke training courses for the water industry.

#### **Contractors**

Contractors require a range of provision and in recent years, with increasing length of partnership working, they have focused not only on asset management and network construction and maintenance, but on leadership and management for team leaders and supervisors (Allison, Windmill (b) 2007 pp 13). The qualifications sought differ to those relevant to asset owners for several reasons, and the market in which contractors operate is different to those they serve. Contractors' training and qualifications links closely to registration schemes where they are required to evidence competence to work on assets owned by others.

Data from the EU Skills registration schemes and employer skills survey in the EU Skills Stage 1 SSA, indicates that the uptake of recognised vocational qualifications is much lower than anticipated. In addition, working with sectors such as electricity and multi utility contractors has shown that they are investing in bespoke qualifications and training courses and trade tests. Mapping these inputs across the EU Skills footprint it becomes apparent that our employers recognise and deploy a wider range of development skills than those which can be acquired from

Recognised and funded vocational qualifications.

This is demonstrated in the following diagram Fig 1.

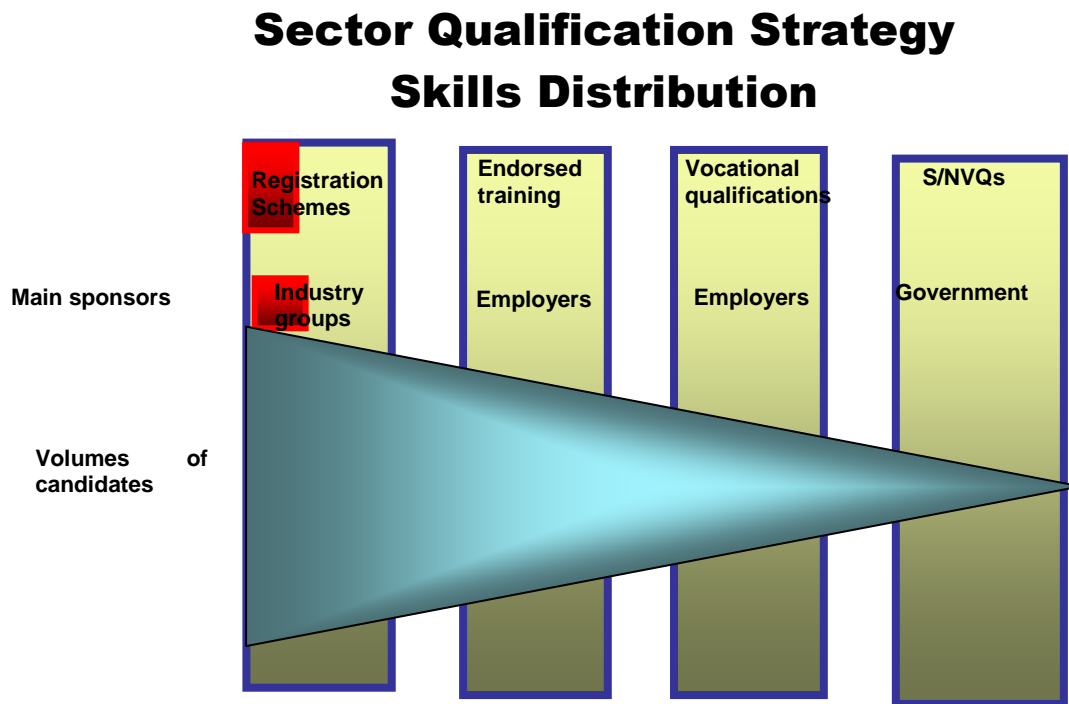


Fig 1.

## **2.2 KEY ISSUES AND PRIORITIES**

The research conducted through EU Skills' Stage 3 Sector Skills Agreement identified a number of issues and priority areas for the footprint, which will all impact on the way in which future qualifications are developed, viewed, used and valued by the sector.

### **2.2.1 Recruitment & Progression**

The effects of an ageing workforce profile throughout the footprint sectors (Allison, Windmill 2007(b) pp.32). combined with a generally poor public perception and understanding of the industries make recruitment and progression issues particularly important. Employers are keenly aware of the imperative to attract new recruits to the sector and also keep existing employees by offering opportunities for development and progression within their sector. Progression is also seen as part of a strategy to address the issue of management and leadership for the future of the industries (Murphy et al, 2007 pp 28,58 & 66). More candidates need to be developed for management and leadership roles at first line supervisory level and a framework and qualifications which enables professional development is seen as a priority across all the footprint.

### **2.2.2 Training and Qualifications**

Employers in all the nations are being driven by the need to up-skill sections of their workforces and contracted workforces quickly while keeping down costs and training time. Multi-skilling is seen to be the solution to this and it is a big priority for employers (Allison, Windmill 2007(b) pp.13, 38). Multi-skilling will be enabled by the development of credit rated qualifications comprised of modules which are complementary but eliminate duplication of learning. The modules will be developed from revised NOS. EU Skills will develop electronic systems to manage the development and matching of the qualifications against recognised job specifications.

### **2.2.3 Inflexibility of Training Provision**

The inflexibility and cost of training provision has driven many asset owners to develop in house training programmes which serve their needs directly but are unaccredited. (Allison, Windmill 2007(b) pp.91). In consequence, trained employees cannot easily use their training as part of a credit rated scheme and build up a learner profile which is recognised as part of a CPD programme. Moreover some of the in house training is not based on recognised NOS. EU Skills is working to develop a system for endorsing these training programmes as a first step in managing this kind of provision.

### **2.2.4 Employment Skills**

Softer skills are becoming a priority for employers who are increasingly aware of the benefits of encouraging employees in their self development. (Allison, Windmill 2007(b) pp.62). In all the sectors there is greater requirement for excellent customer care, correct behaviours, and other employability skills. EU Skills is working with employers to update NOS and occupational & functional maps in order to embed the requirement for learning and assessment of these skills.

### **2.2.5 Basic Skills**

Basic skills training, similarly has clear benefits for both employers and employees alike. This is a major priority in the waste management industry where a significant proportion of operatives do not have any qualification. (Allison, Windmill 2007 pp.27, 47). This inhibits progression and the acquisition of other important skills such as health and safety awareness. Health and safety and customer service are all strong drivers in the gas industry and support through funding and flexible

delivery and assessment is crucial as many employers in the sector are SMEs and cannot fund or support 'off the job' learning for their workforce.

### **2.2.6 Government policies**

This section provides an analysis of the synergies between the EU Skills vision and principles and UK and National policies.

Note: Tables of the results are for each of the nations is provided in Appendix 2.

EU Skills' vision for the future development of sector qualifications has a strong correlation with the direction of policy development across the four Nations. Each of the nations has its own policies, strategies and regulatory frameworks for workforce development, training and education. The strategic principles are related directly to changes to policies set out formally in documents such as the UK-wide Leitch Report, World Class Skills DIUS, The Skills and Employment Action Plan for Wales, The Skills Strategy for Northern Ireland and the Skills for Scotland: a Lifelong Scottish Skills Strategy.

Differences in national policy can provide opportunities in certain countries that are more suited to the needs of the EU Skills sector, for example the Specialised Diploma and Foundation Degree in England and the differences in age limit to Modern Apprenticeships in Wales and Scotland.

It is the role of EU Skills to work with the Sector's employers and each nation's Government, regulatory and funding bodies to influence policy development, implementation and delivery. EU Skills has set priorities for each region of England and each nation of the UK. A full analysis of government priorities and how EU Skills priorities fit within them is contained in the EU Skills Stage 3 SSA report in Sections 8,9,10,11 and 12. The overall differences in government policies and educational strategies will be taken into account during the development and implementation of Action Plans, with due consideration to the implications of resultant policy developments both nationally and regionally.

### **2.2.7 Impact of policies on EU Skills**

The UK-wide Leitch Review of Skills and an accompanying document from the DIUS, entitled World Class Skills have recently been published. They state there is a clear remit for SSCs and a vision for the UK to becoming a world leader in skills by 2020. Implementation requires major progress in literacy and numeracy, greater achievement at levels 2 and 3 linked to a substantial increase in the numbers of apprentices; and substantially increased numbers of adults qualifying at Level 4.

The main recommendations of the review were to:

- Increase adult skills across all levels. This will require additional investment by the State, employers and individuals.
- Route all public funding for adult vocational skills in England, apart from community learning, through Train to Gain and Learner Accounts by 2010.
- Strengthen employer voice and rationalise existing bodies by creating a new Commission for Employment and Skills reporting to central Government and the devolved administrations. The Commission will manage employer influence on skills, within a national framework of individual rights and responsibilities.

- Increase employer engagement and investment in skills. The SSCs will be empowered to deliver more economically valuable skills. Public funding for vocational qualifications will only be available where the content has been approved by SSCs.
- A new 'Pledge' will be launched for employers to voluntarily commit to train all eligible employees up to Level 2 in the workplace.
- Increase employer investment in Level 3 and 4 qualifications in the workplace and extend Train to Gain to higher levels. Apprenticeship volumes will be increased and engagement between employers and universities improved
- Create high profile, sustained awareness programmes to increase people's aspirations and awareness of the value of skills to them and their families.
- Create a new integrated employment and skills service to increase sustainable employment and progression. Launch a new programme to improve basic skills for those out of work.

Linked to this the Foster Report in 2005, FE Education and Training Bill 2006 and the FE White Paper in March 2006 places emphasis on vocational attainment and linking publicly funded qualifications to employment in the workplace.

The Scottish skills strategy provides a platform for SSCs to address the Skills needs of both employers and individuals and gives a clear remit for SSCs in the delivery of the strategy.

The Webb Review on Further Education policy in Wales will be due in January 2008 and will be taken into account on the SQS action plans.

The synergies between policies in each of the nations and EU Skills Sector Qualifications Strategy are outlined in Appendix 2

## **SECTION 3: SECTOR WORKING ENVIRONMENT**

This section provides an overview of the key features relevant to qualifications and other learning provision.

### **3.1 FEATURES OF THE WORKING ENVIRONMENT**

The working environments are diverse, though there are operational similarities which will support the implementation of multi skilling and modular qualifications. The EU Skills footprint industries are heavily regulated both in terms of providing public services and ensuring public safety. A consequence of that is the requirement to maintain a skilled and competent workforce. Training to meet regulatory compliance is a major part of training budgets.

The Energy & Utility industries, by virtue of their activities and services, work around the clock every day of the year. Employers are spread across the whole of the UK and are engaged fully with the diverse range of the sectors and sub-sectors. They do not have the capacity to release staff for training/qualifications. Future qualification provision will take into account methods of delivery to increase accessibility.

The electricity, upstream gas and water industries are all similar in that there are a relatively small number of large employers. By contrast, the downstream gas and waste management sectors are dominated by large numbers of SMEs and micro employers. (Allison, Windmill 2007(b) pp.26)

Whilst for the larger employers cost is not necessarily an issue, for the SMEs, it is of great importance. All employers are concerned about the flexibility, duration and availability (logistically or otherwise) of provision and EU Skills will work with awarding and funding bodies, providers and National Skills Academies to address this through the development of modular, credit rated qualifications which can be delivered flexibly.

Many employers undertake some form of internal and/or non-formal training. Much of this learning has been developed by the employer and is accredited by awarding bodies operating within the sector. Whilst these qualifications are not appropriate to inclusion on the NQF they may be particularly suited to the emerging credit and qualification frameworks.

As with many other sectors, the age profile of the workforce across the EU Skills footprint is an important feature. The sector employs more 35-44 and 45-54 year-olds than the UK average. (Allison, Windmill 2007(b) pp.32) This is even more marked in the case of the higher level occupations i.e. management, engineering and technical occupations (e.g. level 3+).

### **3.2 WORKFORCE TRENDS**

The purpose of this section is to provide an analysis of the sector's workforce trends for the future. This has been based on EU Skills research carried out for its Sector Skills Agreements.

#### **3.2.1 Ageing Workforce Profile**

Evidence derived from the Sector Skills Agreements research indicates the demographic profile of the workforce is ageing. This applies equally to the gas, water, electricity and waste

management sectors across the EU Skills footprint, though some issues are idiosyncratic to some sectors. Difficulties in recruiting increases the reliance of the industries on their workforce, at the same time driving up the level of skills required. The Water Industry in particular is faced with an increasingly competitive market for the recruitment of individuals with higher level skills.

National demographic data shows there are fewer young people available for recruitment. According to the National Statistics Office;

'The UK's population is ageing. Although the population grew by 8 per cent in the last thirty-five years, from 55.9 million in 1971 to 60.6 million, in mid-2006, this change has not occurred evenly across all age groups. The population aged over 65 grew by 31 per cent, from 7.4 to 9.7 million, whilst the population aged under 16 declined by 19 per cent, from 14.2 to 11.5 million'.

Based on assumptions from macroeconomic forecasts, it is predicted that employment in the footprint will decline between 2006 and 2014. Most of these losses will occur in England and Scotland with figures remaining about the same in Wales and Northern Ireland. (Murphy et al 2007(c) pp 34). It is expected that around 21,000 of these job losses will occur in the water industry and its supply chain; while around 8,000 jobs are expected to be shed in both the electricity and gas industries. Waste Management on the other hand is expected to increase by about 5000 except in Scotland which forecasts the biggest losses for this sector. Across Wales as a whole, there is a need to recruit and train some 705 employees each year. (Murphy et al 2007(b) pp 31), whilst forecasts for Northern Ireland indicate there is a need to recruit and train some 330 new employees each year.

Replacing employees far outweighs new recruitment so despite the falling employment forecasts it is projected that the electricity industry will need around 6,500 new recruits, gas will need around 24,000, waste management will need 32,000 and water will need 15,000 between 2006 and 2014, a grand total of 77,500 new recruits (Murphy et al 2007 pp 25).

The increased competition for new entrants will make both recruitment and the development and retention of existing staff main priorities in order to meet sector expansion targets and ensure adequate provision of resources. EU Skills' research suggests that there is significant support for a sustainable schools strategy led by EU Skills to attract new recruits into the industry, improving the sector's image and promoting it to potential new entrants (Allison, Windmill 2007(b) pp.139). Enabling progression within sectors through the flexible use of qualifications and licence to operate schemes is also seen as a significant step in alleviating recruitment problems.

### **3.2.2 Multi-Skilling**

The introduction of new technologies, the emergence of multi-utility companies and the application of total quality management is leading to the development of a multi-skilled workforce. This is true not only in the sense of workers having a wide range of technical skills, but also in the sense of workers having to combine technical skills, IT skills and softer skills, such as customer care and leadership. 87% of key players within EU Skills' footprint support the implementation of a multi-utility qualification (Murphy R, et al 2007 pp22).

The electricity sector has a clear priority to implement a multi-utility approach to recognising competence wherever possible. Contractors complain that sector specific qualifications are

not linked and yet share common competences. (Murphy R, et al 2007 pp26). Contractors working with different asset owners and moving from contract to contract have to regularly up-skill their workforce.

There are similar views in the gas and water sectors where employers see significant economic benefit from the maximisation of their workforce capability. Asset owners and contractors want to develop supporting frameworks which use a multi utility approach to network construction. This would optimise investment in those skills needed to meet regulatory requirements thereby allowing employers to invest in other areas of training.

### **3.2.3 Basic Skills Shortages**

A shortage in basic skills is particularly prevalent in the Waste Management Sector. This is in part due to low levels of uptake and achievement of formal qualifications among employees and partly due to an increase in the use of immigrant labour (Murphy R, et al 2007 pp63). This has an effect on the acquisition of health and safety knowledge among operators and in consequence there is a higher than average rate of accidents. These trends have highlighted the need to develop programmes that enhance literacy, numeracy and English speaking skills. In Wales this also includes the speaking of Welsh.

### **3.2.4 Higher Skills Shortages**

The emergence of new technologies e.g. renewable energy systems and 'cleaner' coal technologies in power generation will place further demands on the recruitment of science and technology graduates with expertise in power generation plant, renewable energy systems and carbon trading and sequestration (Murphy R, et al 2007 pp20). There are also fewer skilled science graduates entering the water industry. A schools strategy is required to develop new curricula, qualifications and delivery strategies to encourage young people's interest in pursuing careers within science. Higher Education Institutions also need to develop courses which support employer needs at higher levels.

### **3.2.5 Regulatory changes**

The EU Skills footprint is comprised of a number of highly regulated sectors. The future of those sectors will be shaped as much by the regulator as by its own actions. Regulatory influences that are driven by health and safety and environmental concerns are having a major impact on the demand for skills across the industries.

EU Skills is currently reviewing The Accredited Certification Scheme for downstream gas operatives with the Health and Safety Executive and Corgi and the Certificate of Technical Competence in Waste Management with the Chartered Institute of Waste Management, Department for Environment, Food and Rural Affairs and Waste Management Industries Training Board.

Environmental legislation will also continue to have an impact on the industry. The requirement for the ISO 14001 framework for the control of Environmental Management Systems will be commonplace across the industries. Qualifications of the future will have to provide competence and knowledge in order to meet with compliance of environmental laws and regulations.

## SECTION 4: Summary of current qualifications and other learning provision

### 4.1 Qualification Types and learning provision

Within the EU Skills footprint the range of educational provision extends from schools through to Higher Education.

Some of the qualifications used by employers in the EU Skills sector fall into the footprints of other SSCs. General engineering qualifications for example are the remit of SEMTA and Summitskills has a number of gas fitting qualifications which are not approved on the Corgi ACS scheme. EU Skills is committed to collaborative working with all SSCs that relate to qualifications used by EU Skills employers. This SQS however, covers only those qualifications that are recognised and approved by EU Skills and fall within this SSC's remit.

The diagram below sets out an overview of current provision, split into three categories: school provision; work based learning (including FE) and HE provision.

Table 4.

Schools GENERIC SKILLS, KEY AND CORE SKILLS AND EMPLOYABILITY	Work based learning and FE/HE KEY FOCUS WHERE COMPETENCE WITHIN AN OCCUPATION LIES	Higher education SKILLS SUCH AS ENGINEERING AND SCIENCE
14-19 Specialised Diplomas (England)  Welsh Baccalaureate  Youth Apprenticeships (England)  Skills for Work (Scotland)	NVQs, SVQs  VRQ's and Technical certificates  Apprenticeships  Foundation Degrees (England)  HNC/HND  Employer specific courses	Degrees  Post grad provision  MBA and Doctorates

A full list of VRQs, Diplomas, Higher level qualifications and Foundation Degrees available can be found at Appendix 2.

#### 4.1.1 NVQs and SVQs

National Vocational Qualifications and Scottish Vocational Qualifications (NVQs and SVQs, respectively) are competency-based Qualifications which confirm occupational competence in the workplace. They are almost exclusively used for the training of employees including apprentices and modern apprentices. A total of 90+ NVQs and SVQs exist in the EU Skills footprint, along with the availability of generic NVQs and SVQs developed by other SSC/SSBs including customer service, management and leadership and business and administration. A full list of EU Skills NVQs and SVQs is contained at Appendix 3. In Scotland the SCQF Level 9+ project will establish a framework for the development of vocationally focused Professional Development Awards (PDAs) at SCQF level 9 and above.

#### **4.1.2 Apprenticeships/Modern Apprenticeships**

Although not qualifications in their own right, Apprenticeship/Modern Apprenticeship frameworks, from Young Apprenticeships (England) through to Adult Apprenticeships are both recognised and valued across the footprint. It is acknowledged that there needs to be changes to the mandatory structures to best meet the needs of employers, such as the unitisation and credit rating of core components according to the emerging credit and qualification frameworks across the UK. EU Skills has frameworks across the UK for electricity, gas and water with plans to expand the provision to include the whole footprint as required by employers. Entry onto an apprenticeship is normally directly from school or college and employers require entrants to have achieved good grades in GCSEs/Standard Grades. Many entrants remain in skilled trade employment afterwards however, apprentices may progress through foundation degrees/HNC/Ds or in-house training.

#### **4.1.3 Vocationally Related Qualifications (VRQs)**

A total of 15 VRQs exist for the EU Skills sector offering knowledge based qualifications linked to an individual job role or particular area of work. VRQs are intended to provide the underpinning knowledge required within an area of work. Currently the use of VRQs in the EU Skills footprint is not large due to the requirement to attest to competence in the work place. See Appendix 2.

#### **4.1.4 Higher National Certificate (HNC) and Higher National Diploma (HND)**

HNCs (Higher National Certificates) and HNDs (Higher National Diplomas) are work-related (vocational) higher education qualifications. HNCs and HNDs are designed to provide the skills to academic knowledge to effective use in a particular job. There are currently two known HNCs specifically for the EU Skills sector, although there are many more generic engineering HNCs and HNDs which are used by the sector. Students wishing to take some Waste Management Foundation Degrees must complete the relevant HNC first. see Appendix 2

#### **4.1.5 New Diploma (England only)**

EU Skills has worked with five other SSCs and stakeholder groups to develop both the Engineering and Construction & Built Environment Diplomas. These are applied qualifications broad in scope and intended to attract students into the engineering fields and provide routes to all types of employment in the sector as well as a route to HE which is on a par with A levels. The Diploma requires the collaboration and support of employers the benefit of that being the potential to influence the development of potential recruits to the Energy and Utilities Sector. This broad qualification is designed to maximise pathways between academic routes and apprenticeships and also provides a route to higher education from level 3.

#### **4.1.6 Skills for Work (Scotland)**

From August 2007, a new range of Skills for Work Courses will be available. They are mainly for pupils in third and fourth year of secondary school, and they encourage young people to become familiar with the world of work. They provide a variety of practical experiences that are linked to particular careers. The Courses will help young people to develop knowledge and skills that will be important for employment – and for life in general. An Energy Skills for Work Course will be available from August 2008.

#### **4.1.7 14 – 19 Learning Pathways (Wales)**

In addition to the Welsh baccalaureate, this initiative provides the framework for a learning experience which incorporates, individual choice, breadth and flexibility with core learning including employability skills and work based learning.

#### **4.1.8 Foundation Degree (England only)**

EU Skills has developed, in conjunction with sector employers and other key stakeholders, a framework designed to support institutions offering foundation degrees to the sector. Increasingly HE Institutions and FE Colleges are seeking the support of the SSC. The framework will need to be revisited and revised as the landscape of Foundation Degree provision changes in light of the needs of the sector. There are Foundation Degrees in all sectors represented by EU Skills, although not all conform to the framework. Appendix 2 shows current Foundation Degrees

#### **4.1.9 Higher Education**

Employers point to a more positive partnering approach with training providers engaging more with the Higher Education infrastructure as a possible way forward. Both the water and electrical sectors use and value HE qualifications and there are numerous MEng courses with significant utilities engineering content. (UCAS 2007)

#### **4.1.9 Non Accredited Training**

A significant amount of training is delivered in-house and is often not accredited or externally recognised. Data from the NESS reports for 2005 indicate that over three-quarters of employers have either funded or arranged on-the-job or off-the-job training over the past 12 months. This compares with the EU Skills employer survey of 2006 where 39 of 40 of employers surveyed in electricity, gas, water and waste management had funded or arranged off-the-job (internal or external) training or development over the past 12 months. (Allison, Windmill 2007 pp.56).

51.5% of the EU Skills footprint has not trained any staff towards an NVQ in the 12 months prior to the Stage 1 SSA report (Allison, Windmill 2007(b) pp.94). This compares to an England average of 43%. The 2006 employer survey suggests that this is because of a preference for in-house training on sector specific skills, possibly driven by the specialist nature of the training and the lack of external provision.

Non accredited provision covers Health and Safety training, environmental awareness training and plant training, and bespoke industry training. In some cases accredited qualifications are incorporated thereby offering some level of consistency and quality assurance. The majority of however is not regulated. This approach provides flexibility and accessibility for the employer and learner in terms of content, duration, delivery and assessment. The standard of provision however, cannot be said to be consistent. Some are not based on National Occupational Standards or do not incorporate any formal assessment or certification.

## 4.2 Current use of qualifications

This section provides an analysis of the available information about take-up of current qualifications provision. Data Acquisition on qualifications other than S/NVQs has been difficult to acquire. For the most up to date data, Awarding Bodies are a potential primary data source and were approached directly and via the EU Skills Awarding Body forum. However, awarding bodies have been reluctant to provide take up and completion data, citing data protection and commercial confidentiality as reasons for non submission. Further, a significant proportion of the provision across the EU Skills footprint is delivered in house or through private training provision and therefore not publicly funded. It is very difficult to obtain data on the take up and completion of such learning. In consequence the development and presentation of equivalent tables of information for this section and the appendices has not been possible. Tables are constructed to display the information that is available.

Data acquired for the SQS has been taken from EU Skills Employer Surveys and other sources such as the QCA, LSC, Highlands and Islands Enterprise and Scottish Enterprise.

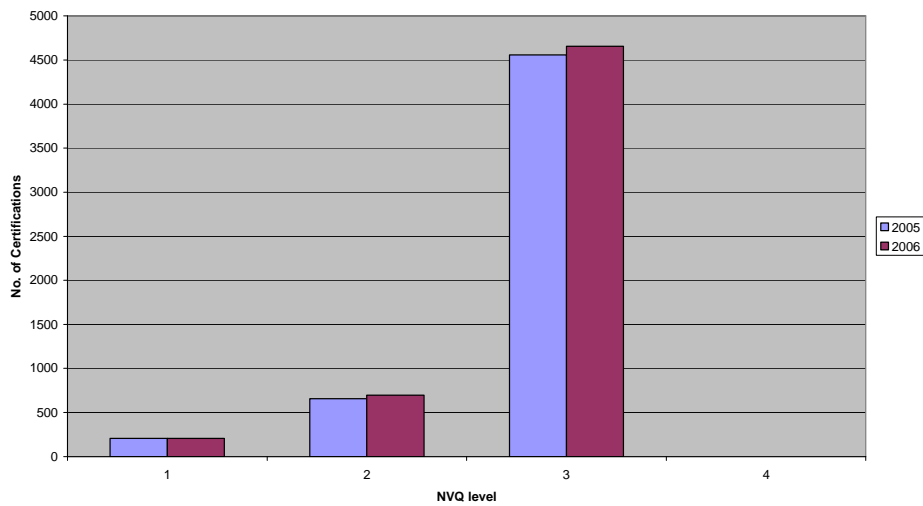
Table 5.

Sector	Level	Certifications	
		2005	2006
Electricity	1	204	204
	2	649	698
	3	4558	4655
	4	0	0
Water	1	156	156
	2	11649	11775
	3	53	68
	4	9	9
Waste Management	1	233	872
	2	1421	3554
	3	385	520
	4	5123	5791
Gas	1	204	204
	2	8336	11372
	3	8690	9871
	4	12	15
Multi Utility	1	0	0
	2	12	25
	3	0	0
	4	79	79

Appendix 2 contains of list of qualifications currently applicable to the EU Skills footprint. The tables in appendix 3 contain figures on the cumulative certifications of all S/NVQs throughout the footprint industries. The figures are summarised above in table 5. The data on certifications is compared in the bar charts below. The charts show the relative take up of qualifications for NVQ levels 1 – 4 across each sector and indicate at which level the main training activities are for accredited qualifications.

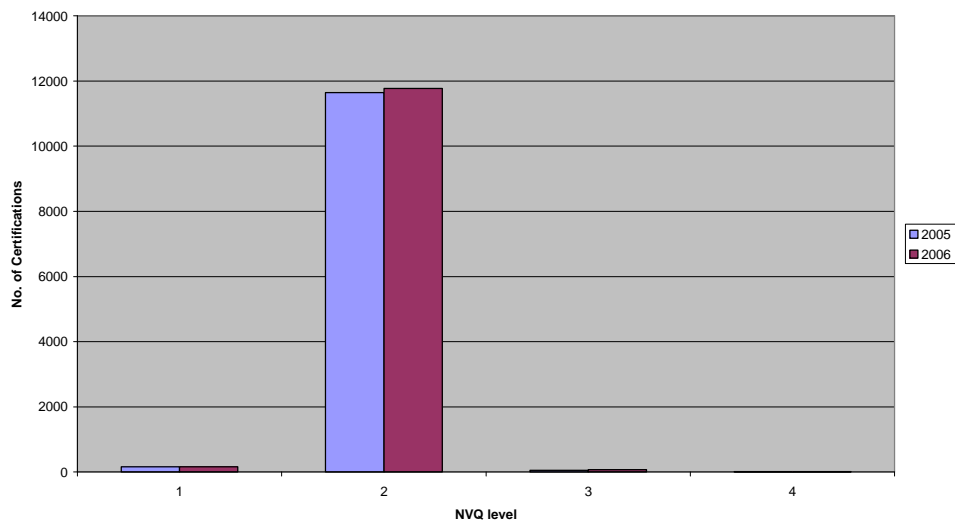
A separate table in appendix 3 lists the registrations and completions of S/NVQs

Electricity Sector Certifications 2005 & 2006



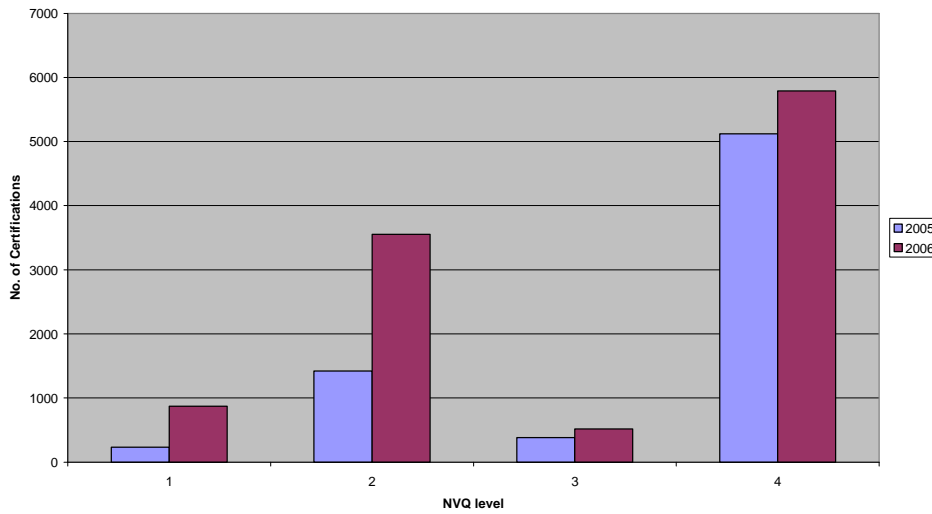
The electricity sector has modest increases across levels 1 to 3 and no NVQs at level 4.

Water Sector Certifications 2005 & 2006



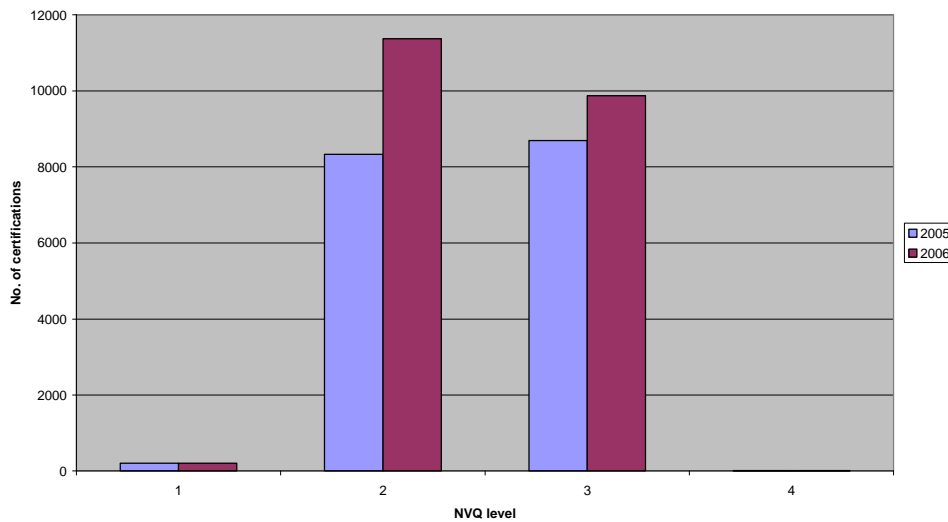
The Water sector focuses most of its competences for operators at level 2. The increase to 2006 was very small. Other levels have very modest uptakes.

Waste Management Sector Certifications 2005 - 2006

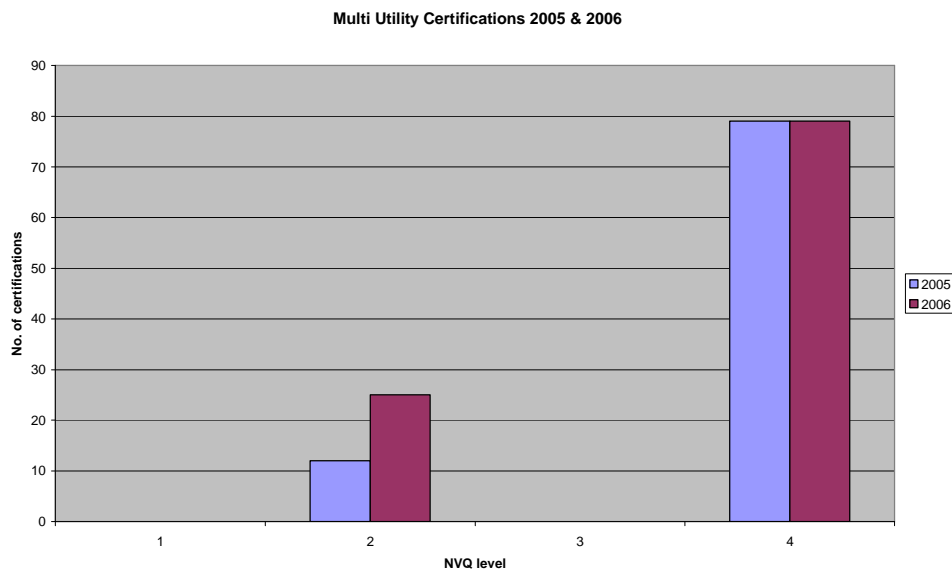


The Waste Management sector has the largest requirement for competences at level 4, due to the regulatory requirement for the Certificate of Technical Competence at level 4. The Waste Management sector is a growth area and all levels show a good increase in uptake of NVQs.

Gas Sector Certifications 2005 - 2006



The Gas sector is supported largely by NVQs at levels 2 & 3. Both levels show marked increases due largely to increasing uptake on upstream mains laying qualifications and downstream domestic gas maintenance qualifications.



Currently the number of Multi Utility certifications is very small. Qualifications listed for this section do not exclusively fit in any of the previous industrial sectors. Uptake is expected to increase with further demands for multi-utility competence.

### **Apprenticeships**

Completion rates for apprenticeships in the EU Skills footprint are significantly higher than the national average for most level 3 frameworks electricity being the exception. Level 2 completions are lower. The reasons are not clearly understood and may be due to a number of factors such as IAG on entry, the entrant's age and maturity and company support are thought to contribute significantly. In some cases level 2 students are promoted from the level 2 to the level 3 frameworks and do not complete the level 2 award. A report by the Chief Inspector of Adult Education in 2006 found that only nationally, only 51% finish apprenticeships.

### **4.3 MATCHING EMPLOYER NEEDS**

The purpose of this section is to describe employers' wants and needs and to identify the implications of these findings for the design of future sector qualifications.

#### **EMPLOYERS' USE OF CURRENT PROVISION**

##### **4.3.1 Overview**

Level 4 is the dominant qualification held by managerial, professional and associate professional and technical groups. (Allison, Windmill 2007 pp.65). Academic qualifications are usually presented by entrants to the industries at all levels, despite a large proportion of job roles requiring some practical competence. Employers recruiting apprentices for example, often require entrants to have a 5 – 6 GCSEs at grade C and above (or equivalent i.e. Standard Grades).

S/NVQ Level 3 qualifications are more prevalent among higher skilled trades found in the electricity and gas sectors. There are very low numbers of level 3 certifications in water and waste management industries which indicates a potential difficulty in finding suitably qualified employees to up-skill to Level 4 and managerial roles. Process and plant operatives are most prevalent in the water industry and are more likely to possess level 2 qualifications. There is a high incidence of employees possessing no qualifications in low and semi skilled occupations (esp. waste sector).

There is considerable regional variance in the uptake of qualifications. E.g. there are no enrolments for waste management in the South East, South West, West Midlands, Yorkshire & Humber and Scotland despite this being a major employment growth area. The Midlands has the highest qualified workforce of English regions and coincidentally has the highest proportion of EU Skills businesses. (Allison, Windmill 2007 pp.100).

#### **Employer needs for learning provision**

##### **4.3.2 Management**

The need to address issues of future management and leadership was identified by employers both in a 2006 survey and in feedback from individual employers. A shortage of quality management candidates was evident from the NESS05 data and separately in employer engagement events with contractors. The issue relates to providing sufficient and sustainable progression routes for the first line supervisory level, particularly for the contracting workforce where supervision and team leading are linked to network construction licences to operate. Management practices exist but there is no recognised standard across the industries. (Allison, Windmill 2007(b) pp.151).

Generic management and leadership learning and development are widely available throughout the UK. However, there are specific gaps in management and leadership learning and development relevant to the employer-defined needs of the energy and utility sector. EU Skills' Stage 1 research has identified an employer need for management and leadership training and in particular at first line management and supervisory levels which are pivotal to leading and managing performance and productivity improvements in our sector.

A recent study by consultants Hoshin for EU Skills, indicated the need to consider the higher skills which drive economic efficiencies in companies as well as those competences which primarily meet regulatory requirements.

### **4.3.3 Other Skills & Qualifications**

Health and safety and customer service are both important aspects of delivering a service. Increasingly employers require employees to develop excellent customer care and other employability skills in addition to good health and safety awareness and. Employers are seeking ways in which these skills can be addressed in revised occupational & functional maps and NOS so they are better incorporated into job profiles.

The ACS scheme in the gas industry is an important industry driver. (Allison, Windmill 2007(b) pp.152). However, many employers in this sector are SMEs and cannot fund or support 'off the job' learning for their workforce and consequently seek delivery methods together with funding sources which will improve accessibility.

In the water sector there is a need to demonstrate competence of network designers and therefore appropriate national occupational standards will need to be developed leading to a new S/NVQ and professional accreditation to Eng Tech level.

The Bomel Report (2004) 'Mapping health and safety standards in the UK waste industry' shows the overall incident rate is four times the national average, and the fatal incident rate ten times the national average. The largest proportion of accidents requiring more than three days off are due to handling activities during waste collection activities. The waste management industry has a high percentage of manual, low-skilled operators, some of whom may not have had a complete school education. This inhibits these individuals from undertaking further learning and development. Additionally the influx of foreign nationals to the waste management industry has also highlighted the need to develop programmes that enhance an individual's literacy, numeracy, and English speaking skills. The need to develop qualifications and training that improve basic skills and health and safety is of paramount importance to this sector.

The waste management sector has identified a number of problems with the use of the CoTC qualification (technically competent management). Principally it doesn't recognise the contribution of other roles and corporate support systems and does not permit any flexibility for employees to achieve competence by other routes. There are also an increasing number of exemptions (Murphy et al 2007 pp 47). The sector considers there is a need for a licence to operate scheme to be developed. Such a scheme would demonstrate technical competence through a number of modular qualification suites at levels 1 to 3.

### **4.3.4 Technical, Sector-Specific Training Provision**

Where there is no public or private training provision, much of the technical, sector-specific training is delivered in-house by employers. Training schemes are only recognised by the particular company that uses them and consequently, individuals cannot transfer credit or recognised training to other asset owners. Employers are keen to have this in house training provision reviewed and endorsed by EU Skills as a license to operate scheme so that it is approved fit for purpose against a standard procedure

The development of licence to operate schemes within a sector will enable the competence of operators to be recognised across the sector. Where schemes are credit rated, individuals will also be able to have acquired previous learning credited toward the achievement of other qualifications. A framework of "licence to operate" schemes built on industry agreed standards offers a cost effective method for companies to ensure only safe and competent

people undertake activities on assets. The schemes may be extended to a national skills register. At present, the water and electricity sectors are pursuing these possibilities with interest from other sectors.

#### **4.3.5 Recruitment & Progression**

As the footprint industries have lesser numbers of employees in recent years, the pool of available resources for promotion to management positions has diminished. Employers have all recognised the need to recruit staff and also retain staff through internal development and clearly defined career progression routes. The public image of the footprint sectors is not good and understanding of the potential career opportunities has to be improved in order to attract new entrants.

A collaborative approach, to an industry standard framework is required to improve external recruitment and/or facilitate internal progression for people to operate effectively at the first line manager level and above. If necessary, the framework could facilitate operational recruitment for a number of employers or alternatively, used as a benchmark standard on a local basis. (Allison, Windmill 2007(b) pp.151).

Qualifications providing entry opportunities into the industries need to actively promote the opportunities young people have within the EU Skills sector. Considerable developmental work needs to be done in 14 - 19 education to inform and attract students to the possibilities of working in the footprint. This includes the development of employer engagement and work experience models for initiatives such as the Apprenticeship schemes, Welsh Bacculaureate (14 – 19 Learning Pathways) and the English Specialised Diplomas. Young people value employers who offer a structured career progression and opportunities to develop.

Energy & Utility Skills will seek with the other funding agencies to develop targeted recruitment programmes e.g. women into work, armed forces, overseas workers and other alternative recruitment possibilities. (Allison, Windmill 2007(b) pp.159).

#### **4.3.6 Higher Skills and Graduate recruitment**

Employers across the footprint, but particularly in the water sector are concerned that higher education graduates do not have the particular expertise required for their industries. To meet the challenges faced by the Water industry, particularly with reference to higher level Skills, EU Skills will seek to develop programmes that enable Higher Education Institutions to design and deliver courses which support the workforce development of employers.

One particular initiative which would raise the profile of the need for HE to work with employers would be the establishment of a 'Water Academy' of HEIs and employer leaders to support the development of higher skills. This would be similar to the Power Academy for the electricity industry, which is seen as a key initiative to encourage graduates to enter the industry.

#### **4.3.7 Accessibility of provision**

Employers across the footprint have noted the inflexible nature of some qualifications and delivery models. This applies to apprenticeship/modern apprenticeship frameworks and the delivery of some provision in FE. (Allison, Windmill 2007(b) pp.142). Private training providers are considered to provide more flexible training and are more responsive to their needs than FE institutions. Significantly however, whilst private training providers receive the majority of their income from individuals or businesses, government funding is principally

directed through the FE route. The associated costs are principal drivers behind employer's demands for greater flexibility and a modular approach to building a competent work force.

#### **4.3.8 Funding**

Funding for qualifications is currently based on complex calculations across the UK with a distinct lack of understanding by employers of the variety of systems in place to fund qualifications across the UK, not only work based learning but FE and HE. In order to deliver the above initiatives it is essential that funding of learning is reformed to support the achievement of units rather than full qualifications.

## **SECTION 5 OTHER SECTOR USES OF QUALIFICATIONS**

### **5.1 QUALIFICATIONS IN THE REGULATION OF SECTOR PRACTICES**

The main activities of the electricity, gas and water industries are highly regulated, which essentially sets price limits for organisations every five years. This “stop-start” cycle of planning and funding makes workforce and infrastructure planning a difficult process to undertake.

The relatively short (five year) regulatory cycle provides little incentive for a sustained up-skilling program (Murphy et al 2007 pp 16). However, without sustainable investment in new resources and the related staff training and development requirements, the available pool of labour is reduced with potential inflationary pressures created on wages and outsourcing of contracts. The objective is to influence the regulator to recognise the skills agenda within regulatory settlements and to develop more sophisticated regulatory mechanisms which minimise cyclical effects. Potential solutions will require detailed consideration, expertise, and collaboration between organisations, their supply chain partners and contractors.

Due to the technical nature of many of the job roles and the constantly evolving face of the industry, staff are continually required to maintain their professional development to satisfy regulatory requirements. For example in the Waste Management industry the Certificate of Technical Competence (CoTC) can only be gained by an employee achieving a level 4 NVQ.

#### **5.1.1 Waste Management**

The Environmental Protection Act 1990 (Part II) and subsequently, the Pollution Prevention and Control (England and Wales) Regulations 2000 have created a licensing regime for the waste management industry.

A requirement of this regime is the concept of ‘Technically Competent Management.’ This requires that a technically competent person must control activities carried out under the authorisation of a licence or permit for a particular site. An individual is deemed competent to manage a particular facility site if a relevant Certificate of Technical Competence is held for a particular facility type and attends that site for a prescribed minimum time.

Currently, a CoTC can only be achieved by obtaining a single specific qualification for a particular facility type. There is no subsequent requirement to demonstrate continuing competence. Not all staff working on site holds qualifications. In Scotland, for example, the Qualification Regulators, in appraising competence of personnel on sites recognise skills definitions that include:

- Certificate of Qualifying Experience (CQE)
- Provisional Certificate of Technical Competence (pCoTC) (which will need to be converted to a full CoTC)
- SEPA assessment of technical competence where the type of facility is not listed in the Waste Management Licensing Regulations, 1994 (as amended).

#### **5.1.2 Gas**

In response to the industry’s needs, EU Skills developed the S/NVQ Gas Network Operations (GNO) suite of qualifications to replace the old gas distribution awards. This S/NVQ is awarded by City and Guilds (scheme number 6029) and operatives achieving the qualification at Level 2 can work as service laying or main laying operatives. If both options are taken then two certificates are awarded. This qualification is unique among S/NVQs in that it is time

limited and holders are obliged to renew their qualification at 5 year intervals. This qualification ensures the operative is competent and compliant with operational safety and is up to date with the industry's materials and regulations. These qualifications are used as evidence to register in the appropriate category with EU Skills.

All contractors' operatives undertaking to work on the networks must now take this GNO qualification. This includes personnel that have the older GWINTO GD cards that are expiring. EU Skills manages the registration scheme for this qualification.

Personnel in service or mains laying must complete relevant S/NVQs to demonstrate knowledge and practical competence to an appropriate level. From January 2004, all new entrants to the gas industry who need to enter National Grid sites must hold the Gas Network Safety Passport (GNSP). This one day course covers health, safety and the environment when working on a gas site. National Grid and Scotia Gas Networks do not require that their own employees hold the passport, only visiting contractors.

The Fundamental Gas Safety five-day awareness course must be completed by any personnel working on a gas site. It allows trainees working towards GNO Level 1 to gather evidence and is valid for one year. The Cross Country Pipeline Health, Safety and the Environment (CCPHSE) one day course is for any personnel working on the large gas main pipes. The passport is valid for three years.

Downstream Gas is also regulated. Primary legislation states that all installer companies and operatives in the industry must be registered by CORGI. Hence CORGI maintains a record of all installers and operatives legally able to work with downstream gas, organised via the Accredited Certification Scheme (ACS).

### **5.1.3 Water**

There are currently no regulatory requirements for qualified skilled labour in the water industry.

EU Skills is promoting the Network Construction Operations (NCO) registration scheme as a framework that will form the basis of a system of certification. The NCO is based on the Gas Network Operations (GNO) scheme but only covers water supply networks. The intention is that it will be part of a suite covering gas (NCO(G)) and electricity (NCO(E)). Once employees have successfully completed all three elements stated in the course they will be registered on the NCDO Water scheme on the EU Skills registration database and issued with an EUSR card showing the NCO Water endorsement. This will be valid for 5 years. EU Skills is also currently working with the industry to develop competent operator/analyst/designer frameworks.

As a result of changes in the Water Act developers are now able to lay water mains [s](#) on new housing estates. An organisation wishing to lay mains has to be registered with Lloyds register on the Water Industry registration Scheme (WIRS) as operated by Lloyds. One of the allowed tasks is the design of housing mains networks.

### **5.1.4 Electricity**

The UK's electricity distribution networks are operated by a small number of licensed asset owners. To work on or near the low voltage live networks, employees and contractors have to work in accordance to the asset owner's distribution safety rules. The electricity industry (generation, transmission and distribution) has a long-standing tradition with delivering robust training and assessment against nationally produced safety rules and engineering

recommendations.

The Office for Gas and Electricity Markets (OFGEM) and the Office for the Regulation of Electricity and Gas (OFREG) in Northern Ireland regulate the economic aspects of the electricity sector, promoting competition and setting price controls in what are still semi-monopolistic markets. The Health and Safety Executive ensures that all business activities are undertaken in a manner that will not compromise the safety either the workforce or the public.

**Variation in the four countries**

There is little variation across the four countries as legislation and regulation for the sector is UK wide.

There are at present no specific qualification used to promote customer confidence because the industries within the EU Skills footprint is highly regulated

## **SECTION 6: How the SSC Will Help Realise the Future**

### **SECTION 6: How the SSC will help realise the future**

#### **6.1 Vision of future qualifications**

EU Skills has been working towards a shared understanding of industry requirements between the SSC, employers, regulators, funding and awarding bodies and training providers across the 4 Nations. The Vision of the Sector Qualifications Strategy for EU Skills is based upon EU Skills, Sector Skills Agreements 1- 5. The SQS will define the processes by which future qualifications will be designed and delivered to meet the needs of employers across the EU Skills footprint.

*'The EU Skills Vision is to provide the solutions to develop the skills of the workforce across the footprint to enable employees to contribute more effectively to the future profitability of their respective organisations'.*

The Vision of the SQS will be implemented in the following strategic principles. The principles provide statements of the strategic aims which will guide the development of future qualifications across the EU Skills footprint. All qualifications which are developed for use by footprint employers are required to adhere to the principles set out in this section.

#### **Principles**

##### **1. Updating and Further Development of NOS**

EU Skills is currently undertaking an update of the occupational & functional maps in consultation with employers across the footprint to identify the functions which are need to perform a particular job role correctly. These functional maps will inform the updating and development of our National Occupational Standards.

EU Skills was involved in the QCF test trials and by deploying the lessons learned from those trials, EU Skills will determine the best format for presenting the NOS within the EU Skills footprint.

#### **Implications for future qualifications**

Where required, new qualifications will be developed with learning outcomes which accurately reflect the updated NOS. Employers are requiring updated NOS to include employability and behavioural skills. Existing qualifications which are due to be renewed will also need to be reviewed and amended where necessary to align with new NOS developments.

##### **2. Mix and Match approach with Modular Qualifications.**

Significant trends in the workforce which include greater use of multi-skilling and the increasing age-profile of the workforce present particular challenges in the design of new qualifications. EU Skills is developing a framework of small, credit rated units of learning. Using flexible rules of combination, these units can be assembled into a recognised coherent learner profile to meet the needs of a particular job role. This framework will provide a more flexible approach to up-skilling of the existing workforce and which is more attractive to new

entrants who need to develop appropriate skills quickly. The framework will recognise learning and achievement at all relevant levels. The implementation of the framework will be supported by a web-driven data base system which will enable the mapping of units of learning against job roles within clearly defined progression routes. A reliable registration system is already in operation to enable employers to identify workers who are competent to work on their assets.

#### **Implications for future qualifications**

The qualifications for the EU Skills footprint will be comprised of credit rated modules. The modules will be designed to enable the formulation of coherent learning profiles for each of the sectors across the footprint.

Rationalisation in the number of modules will be achieved by developing national occupational standards which can be used across the industries in the footprint and then reflecting the different industries' specialisms through the evidence routes of the credit-rated units.

Where appropriate, existing qualifications may be used if they can be restructured and credit rated as suitable modules within a coherent framework. EU Skills will work closely with Awarding Bodies to reach agreement on the revision of existing qualifications or development of new qualifications according to employer demand. The registration scheme will continue to provide support to employers who need workers to provide evidence of competence

### **3. Accessible Qualifications and Clear Progression Pathways**

Matching the qualifications within the EU Skills footprint framework to sector job roles will enable the identification of combinations of units or qualifications that enable or promote particular career pathways. Higher level provision in science, technology and mathematics needs to be improved especially across the water sector to promote progression from operational roles to supervisory positions.

#### **Implications for future qualifications**

Skills and knowledge which underpin occupational roles are currently identified using O&FMs. In addition to this, EU Skills will be developing an on-line system which matches the learning in small credit based units to the skills and knowledge identified as being required to perform a particular role. This will permit a more flexible approach to work force development. The online system will readily enable the identification and tracking of emerging progression pathways. EU Skills will develop programmes that enable Higher Education Institutes to design and deliver courses which support and promote the work force development at levels 3 and 4.

### **4. Endorsement of in-house training**

In Oct 2007, The operating principles of an endorsement system were set out and are being piloted in the water sector during 2007-8. The scheme endorses in house training schemes which matches employers' provision against quality criteria and standards. The endorsement criteria, which require evidence that training is based on NOS, provides a framework for competence and skills across the sector that support workforce development across national boundaries. This framework will also be used to support the growing workforce of contractors operating within the footprint to enable a level playing field of technical competence for competitive businesses

#### **Implications for future qualifications**

The use of modular qualifications provides a blend of competence, knowledge, understanding and behaviours which offers significant economic benefit to employers by maximising workforce capability and removing duplication in training. It is envisaged that this will enable an uptake of accredited training provision.

However, as shown in section 2.1, many employers favour bespoke, unaccredited training solutions which provide certain valued skills in preference to funded and accredited qualifications which they perceive to lack breadth. The endorsement scheme will support this particular training strategy and initially provides employers with a choice. Strategically, endorsement will provide intelligence of common competences and synergies that can inform the development of qualifications which will be used to provide accredited and funded provision in the future.

## **5. SSC Approval of Footprint Qualifications**

Under the Leitch review SSCs will be required to approve qualifications prior to accreditation on the QCF thereby ensuring that qualifications meet the training needs and purposes of footprint employers. EU Skills is currently involved in the VQ Approvals pilot which is lead by the Qualifications Curriculum Authority. EU Skills is now working with awarding bodies and the QCA to develop standard procedures and approvals criteria for the process.

### **Implications for future qualifications**

All vocational qualifications within the EU Skills footprint will have to be approved by EU Skills as fit for purpose. Awarding bodies will be required to submit draft qualifications for approval according to an agreed procedure to be assessed against criteria to be determined by the approvals pilot. Broadly the criteria will fall within the following categories; Purpose, Content, Structure, Title, Credit Transferability, Assessment Strategies. EU Skills will become a key organisation in the development of demand led, accredited qualifications for the energy & utilities footprint industries. It is known that some qualifications relevant to the EU Skills footprint (esp. downstream gas) have been developed without the approval or knowledge of EU Skills. The approvals process will help bring this type of development under control. EU Skills will work with relevant partners and stakeholders in the other nations to establish appropriate mechanisms to ensure qualifications are fit for purpose.

## **6. Health and Safety**

There is a need to address and maintain health and safety awareness across the footprint. In addition to protecting employees and reducing risks and liability, maintaining safe working environments and improving health & safety knowledge is seen to be a key issue in preserving a good corporate image.

This is true of all regulated industries which serve public interests. It is however, particularly noticeable in the Waste Management Industries where the level of attainment of skills and knowledge of operatives is low compared to other sectors. Public safety in downstream gas activities is also of paramount importance.

### **Implications for future qualifications**

EU Skills is developing a virtual learning environment specifically to raise awareness of health and safety issues in the waste management industries. The programme will be in 2 parts. At NQF level1 it will be entitled 'Day 1 Induction Module'. At level 2 there will be 'Full Induction/Refresher Modules'. The Accredited Certification Scheme for downstream gas operatives is currently under review. There have been concerns regarding the competence of some operatives who have achieved ACS status via unapproved routes. The review will determine and enforce the correct framework for achievement.

## **7. Basic Skills Improvement Programme**

New entrants to the footprint will have the benefit of having achieved functional skills through the national initiatives being introduced into the school curriculum in Sept 2008. Research has identified the need to improve basic and essential skills for the existing workforce. This is an issue for employers across the footprint but is of particular importance in the Waste Management Sector where the completion of even basic qualifications of new entrants is very low.

### **Implications for future qualifications**

Basic and essential skills will be improved across the footprint using a programme specifically designed according to employers needs. From research into identifying basic skills needs and current best practice there will be a pilot of a Basic Skills Improvement programme in consultation with employer groups. The complete BSI programme will then be made available to provide opportunities for individuals to improve their basic skills. Future qualifications will include learning outcomes which embed the development of basic skills.

## **8. Sustainable Schools Engagement**

The footprint needs to recruit sufficient numbers of new entrants to provide for continuity and growth. The sector relies largely on SET skills and knowledge which are currently unpopular among school pupils and do not attract candidates of the right calibre. Qualifications need to be developed which widen participation and captivate the interest of school pupils in key engineering subject areas. A schools strategy involving apprenticeships and the 14 – 19 initiatives in England and Wales and the 14 – 16 agenda in Scotland will ensure employers have the human resources to meet ongoing turn around and the needs of future expansion.

### **Implications for future qualifications**

A sustainable strategy involves designing qualifications which maximise employer interest and enable employers to participate in and support schools curriculum development.

The new English Diplomas are being developed in consultation with employers as a means to widen participation and increase uptake and retention in full time post 16 education along the recommendations of the Tomlinson report and the Government 14 – 19 White Paper. The Webb Review of December 2007 provides important detail relating to skills needs, use of resources, bilingualism and future governance arrangements.

Occupational learning such as the English Young Apprenticeship and Northern Ireland Pre-apprenticeship programmes are being developed which employ multi-utility approaches to increase participation and transferability. EU Skills will influence the further development of Skills for Work Course in Scotland

## **9. Development of employability skills**

In addition to Skills and Competences, research has indicated the potential of other factors which contribute to the development of an effective employee. Behavioural skills involving good communication, problem solving, and responsible behaviour for safety and work quality are no longer assumed by employers to be inherent. Employers value these behaviours in individuals and are seeking ways in which they can be developed.

EU Skills recognises the need to determine the extent to which they can be identified, and how they can be assessed and recorded.

### **Implications for future qualifications**

These type of development skills are now being incorporated into qualifications for national entitlement in schools and colleges. EU Skills is developing new NOS which are incorporating the need for learners to demonstrate behaviours which show they are taking responsibility for work quality, problem solving and communicating skills during the assessment of practical skills.

## **SECTION 6.2: Past and future dialogues and working relationships**

This section aims to demonstrate that EU Skills has taken into account the views of other stakeholders and partners in the development of its SQS, vision and principles.

EU Skills developed an Engagement Strategy throughout its SSA processes and has worked and will continue to work across all four countries with employers, trades unions, and key stakeholders through several fora and one to one consultations.

EU Skills has set up and convened a joint forum for awarding bodies, regulators and government agencies specifically to consult on the development of the SQS. There have been 3 meetings to date to discuss the progress of the SQS development and to consult with the forum representatives on the key issues to be addressed. The forum will continue post SQS approval to assist with consultations arising out of the implementation of the SQS and to agree the actions resulting from the SQS.

EU Skills have held talks with the with the SQA, QCA on regulatory issues and SQS and held regular meetings on strategies and NOS, qualifications development and the credit project with City & Guilds. In addition EU Skills have consulted with Edexcel about VRQs for apprenticeships. CABWI about water and confined spaces, WAMITAB on Waste Management issues and NPAL on qualifications approval. AQA, C&G, OCR, Edexcel, ABC Awards, EAL, IMI, Lantra and CITB were all involved with EU Skills and the Engineering Diploma Development Partnership on the development of the New Diplomas. There is ongoing dialogue with SQA Awarding Body on future joint working activities.

EU Skills has also worked closely with regulating bodies throughout the UK, such as HSE, OFGEM, CORGI, Defra, SEPA and trade and professional bodies across the footprint. EU Skills will continue to reinforce the SQS through the aforementioned fora, ensuring a greater understanding of the qualifications required by its sectors.

### **6.2.1 Gas (Upstream)**

The sale of gas networks brought new asset owners to the industry and EU Skills established a Network Policy Forum in mid 2006 to enable skills issues to be addressed collectively. This Forum has been well supported by all Networks and has been the main conduit for talks about the Sector Skills Agreement and emerging SQS.

### **6.2.2 Gas (Downstream)**

A new structure for the management of the primary registration vehicle (the Accredited Certification Scheme, (ACS) was implemented in 2006 and this has helped significantly with employer engagement and consultation. One of the new committees within the structure is

the Industry Liaison Group (ILG), which is made up of employers and practitioners impacted by ACS. EU Skills provides Secretariat services to this group of and this offers us access to the whole community, thereby enabling discussion of priorities and potential solutions.

An HSE review is underway of the management of safety in the downstream gas industry. EU Skills has been involved in the review and this has been most helpful in identifying specific issues. Changes to the ACS are reflected in the SQS and there is general employer support for a more flexible framework of standards and qualifications and clear entry and career development routes. EU Skills recognises that, to add most value for employers, much of this work will need to be addressed on a cross SSC basis with Summit Skills also involved.

### **6.2.3 Water**

The principal strategic group for the Water Sector is the Water Industry Skills Steering Group (WISSG). This group has been formed since the creation of Energy & Utility Skills and consists of representatives from all dimensions of the Water Sector.

The purpose of this group convened by EU Skills is to develop the skills programme for the Water Sector. The group developed a scenario planning workshop in Belfast in July 2006. From this workshop and the supporting research, a number of emerging themes were developed. These were presented to WISSG in September 2006 and formally adopted by Group. The emerging themes were presented to the Council of Water UK and were formally endorsed by the Council members on the 17<sup>th</sup> November 2006. This provides a clear mandate to Energy & Utility Skills to develop an action plan for the water sector. The SQS draws on this development work.

### **6.2.4 Electricity**

Consultations with employers raise certain themes which were used as the basis of an electricity industry scenario planning exercise held in October 2006 for employer and trade union members of the EU Skills Senior Electricity Forum. The findings from these activities were collated, analysed and prioritised alongside wider SSA research activities. The outputs of these research activities inform the SQS of the strategic issues relating to qualifications development for the electricity industries and its contractors.

### **6.2.5 Waste Management**

During late 2005 to early 2006, EU Skills undertook a comprehensive labour market investigation of the waste management industry which included significant and wide-ranging employer and stakeholder engagement – primarily through face-to-face discussions. The engagement process concentrated on the larger employers, mainly due to their employing a significant proportion of the industry's workforce. Additionally, a large-scale postal survey was undertaken amongst the SME employer base who are notoriously difficult to consult and interact with.

As a result of these combined activities, a briefing paper based on the survey and LMI outcomes was developed which highlighted the key issues that the industry faces at the moment. The waste management priority issues are specifically addressed in this SQS.

### **6.2.6 Contractors**

Contractor workshops were held on 8<sup>th</sup> September and 8<sup>th</sup> November 2006 in order to discuss issues and the best way to tackle them. Subsequently, a working group consisting of key individuals from a number of the main contractor organisation was held in December 2006 specifically to consider the elements required for a level 3 supervisory qualification and to

agree the shape and content of a multi-utility qualification.

### **6.2.7 Collaboration**

Collaborative working arrangements are being encouraged between employers, providers and employees to plan, profile, update, record, recognise and certify skills and knowledge using the qualifications and programmes available.

Across the UK, EU Skills has been working closely with the following organisations

- Environmental Services Association (ESA) and Health and Safety Executive in the development of a Health & Safety scheme and CoTC for Waste Management
- The water sector regulator to open up access to the water network whilst retaining the safety of the water supply.
- HSE and CORGI as the downstream gas industry goes through regulatory change.

Schools and Further and Higher Education Institutions private providers across across the four countries will be involved in the SQS delivery through the emerging EU Skills Sustainable Schools Strategy and other partnership arrangements.

### **Agreements with partners**

Energy & Utility Skills has Terms of Reference in place for working with awarding bodies, employers and other key groups.

### **6.3 Practical help for partners and stakeholders**

The purpose of this section is to outline the practical help that other partners and stakeholders can expect from EU Skills towards realising its vision.

#### **UK Wide**

EU Skills will work with employers, awarding bodies and other key stakeholders to continue to update the current NOS and related products as appropriate. Initial updated Occupational and Functional Maps will be developed to inform the NOS

Current work for revising existing standards is outlined in the table below. Table 6.

<b>Industry Sector</b>	<b>Action</b>
Electricity	Occupational and Functional Map for electricity
	Research to evaluate whether the current sector NOS reflect the industry's current practices and make recommendations for revision
	Complete review of NOS underpinning electricity vocational qualifications
Water/multi-utility	Developing NOS to support a competent designer for multi-utility networks
Gas	Update of network NOS for gas and realignment with updated O&FM
	Downstream gas feasibility study to revise the use of NOS supporting it and developing a better competence based framework
Multi-utility	Multi utility network construction occupational mapping and interim NOS development and pathway
Waste Management	Wholesale review of NOS for waste management sector
All sector	Continue analysis and evaluation of O&FM and NOS gaps and updates

### **Future Provision**

The purposes of EU Skills intended qualifications in summary are:

- Whole occupational competence (such as would result from a credit-rated full N/SVQ or whatever the future name will be – e.g. diploma of competence)
- Smaller qualifications attesting to competence and which reflect job roles (as opposed to entire occupation)
- Knowledge based qualifications of varying sizes to provide learning for those in a development situation
- Sustainable schools provision alongside the present 14 – 19 initiatives across the 4 nations

#### **6.3.1 Waste Management Sector**

EU Skills will work with waste management stakeholders to develop a suite of qualifications, based on NOS that support competence at levels 1, 2, 3 & 4. These qualifications will be part of a suite which will also be used for CoTC, thereby enabling employees to progress through their sector. Complete suites of qualifications will also be developed for electricity, gas (upstream) sectors and frameworks for gas (downstream)

EU Skills is also developing qualifications to support basic skills training in the waste management industry. These need to be supported by programmes that ensure that employers and employees are provided with relevant information, advice and guidance to facilitate learning activities and to ensure that training providers are prepared and able to build their capacity to routinely deliver quality provision in non-traditional settings.

#### **6.3.2 National Occupational Standards**

Consultations with employers have emphasized the need to have clearly expressed definitions

of competence. EU Skills will continue the development (& revision) and establishment of appropriate National Occupational Standards. National Occupational Standards and Qualifications need revising to reflect the skill sets required. E.g. the electricity industry has a long standing tradition of robust training and assessment against nationally recognised safety rules and engineering recommendations. However, each set of standards has its own rationale, and while in use, they must be recognised as having great value for a specific sector or occupational group. Any discussion/negotiations regarding the future of EU Skills NOS must recognise that any changes seeking to develop a greater coherence across the standards must respect the rationale for the development of the existing standards. Future NOS development will also have requirements to demonstrate self development and employability skills.

### **6.3.3 Flexible Qualifications Frameworks**

EU Skills will be providing the rationale and structures for the development of a flexible framework of qualifications comprising coherent, credit rated modules with embedded functional skills. Working with awarding bodies on new qualifications and through the VQ approvals process, this approach to qualifications design will enable asset owners and contractors to rationalise qualifications development, removing the need to do different qualifications with overlap in content and enabling them to tailor the qualifications to their job roles. Common routes and synergies will be identified and work done to create more streamlined and cost effective routes to competence.

### **6.3.4 Funding**

Working with government agencies, awarding bodies and funding providers EU Skills will try and influence a redirection of funding priorities. Presently, most value added training takes place in private training provision whereas funding is directed to FE colleges.

### **6.3.5 VQ Approvals**

EU Skills will work with the Management Standards Centre and, through its VQ approvals process with awarding bodies, will ensure that the appropriate mix of management and leadership units is contained within future qualifications intended for supervisory levels, thereby leading to better skilled managers and leaders. EU Skills will be examining ways of identifying the developmental skills which occur in organisational environments with a view to developing learning and qualifications that promote those skills or by incorporating them into the design of vocational qualifications.

In the gas sector, there are qualifications devised by colleges that do not meet the needs of new entrants in terms of ensuring their competence. These qualifications need to be identified and work done with the awarding bodies who own these qualifications to ensure that they are linked to competence as assessed by Corgi to enable qualifications to allow new entrants to work legally in the sector.

### **6.3.6 Higher Education**

EU Skills will develop a HE Strategy to develop a consortium of HEIs to work with employers, providers and awarding bodies to influence the content and delivery of programmes and promote a star network for delivery and assessment. EU Skills will continue working with In collaboration with HEIs and Foundation Degree Forward and Providers on their Foundation Degree framework (or equivalents) to ensure that they are flexible, responsive and meet the needs of employers.

### **6.3.7 Apprenticeships**

Over half the footprint (61%) employ apprentices but employers also want to see improvements made to the Apprenticeship framework in terms of the context, delivery style and funding resources for the programme. EU Skills will continue to work with employers, providers and other stakeholders to review the apprenticeship frameworks across the footprint and 4 nations in line with SfBAAG/MAG conditions of approval. This includes the Youth and Adult Apprenticeships, Modern Apprenticeships for Scotland, work on the Scottish Credit Qualifications Framework and the apprenticeship programmes in Northern Ireland.

### **6.3.8 Sustainable Schools Engagement**

EU Skills is an influential partner in the development of qualifications, standards and frameworks for schools programmes involving the 14-19 age group in England, Scotland, Wales and Northern Ireland and are emerging as a high priority. Diplomas were developed in collaboration with awarding bodies after rigorous and exhaustive consultation with employer groups, professional bodies, unions, schools and colleges. Considerable developmental work still needs to be done in the pre-16 education arena.

Future qualifications will need to be designed which increase diversity and widening participation by providing an engaging learning experience in the context of the footprint industry and which also develop the employability skills of the individual. This includes the development of specialised learning units for the Diplomas, a New Applied Mathematics qualification for HE entry and employer engagement and work experience models for initiatives such as the Diplomas, Welsh Baccalaureate and the development of future apprenticeship frameworks. In Wales the 14 – 19 Pathways initiative sets out a learning route based on individually tailored learning programmes with wider choices and a learning core of work based learning and essential skills.

### **6.3.9 Endorsement of Non-accredited Training**

EU Skills will develop and promote an Endorsement Scheme for the approval of unaccredited learning to establish a common standard for in-company bespoke training. An online job/competence matching tool will enable EU Skills to map qualifications and training provision against NOS and occupational maps to ensure that it is fit for purpose and can be validated and assigned a credit rating.

## **6.4 Updating the SQS**

This section describes how EU Skills will monitor and evaluate the SQS to ensure that it is successfully implemented and kept up-to-date.

The content of the strategy will be reviewed annually against the principles set out in Sections 1 and 6.1 both internally through EU Skills business plan; and with key partners and stakeholders, e.g. through the regular meeting of the Awarding Body Forum and employer forums. Further review will take place against milestones set out in the emerging action plans concerned with each of the key proposals.

To enable accurate judgments to be made as to the success of the strategy, EU Skills will develop and implement effective procedures (through its various groups) to gather data

concerned with registrations and achievements of both existing and newly developed qualifications. An increased level of dialogue with awarding bodies and Qualification Regulators in particular will be developed through strengthened Awarding Body Forum to include those awarding bodies who offer relevant qualifications both accredited and non-accredited

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**England – synergies between SQS and policy initiatives**

<b>SQS Principles</b>	<b>Leitch Review</b>	<b>World Class Skills</b>	<b>QCF framework development</b>	<b>14-19 Reform</b>
Development of NOS	Increasing flexibility of qualifications framework	Vocational qualifications based on the needs of employers	Supports QCF development through unit-based, modular qualifications	-
Modular Qualifications	SSC approval of qualification structure	Demand led approach to funding of qualifications	Qualifications made up of credit rated modules	-
Accessible Qualifications and Progression	Increasing sustainable employment and progression	Increased responsiveness to employer needs	Rationalisation of provision and transferability of skills across sectors	Diploma units are transferable across lines of learning
Endorsement of in house training	Increases relevance to employers	Accreditation of in house training through the QCF	Underpins development of QCF	-
VQ Approvals	Only SSC approved VQs will go on the QCF	Colleges and other providers should be able to offer their own qualifications, subject to SSC	Only approved qualifications will be allowed on QCF	Diplomas developed by SSCs ASL units approved by SSCs
Health & Safety	Employer demand led training	No public subsidy, of courses which help employers meet their statutory obligations	-	-
Basic Skills Programme	New legislation on funding will entitle adults to free training in basic literacy and numeracy skills	Increase in basic skills acquisition for adults to 95%	-	Diplomas encompass functional skills attainment
Sustainable Schools & sector attractiveness	14 – 19 reform and implementation of the New Diplomas	14 – 19 reform and raising age of participation to 18	Diplomas are credit rated on the QCF framework	Diplomas are designed to attract students to stay in post 16 education
Developing employability Skills	raising standards of employability and basic skills	Entitlement to free training for 19 – 25 and level 3 apprenticeship, Skills Pledge, HE employer engagement	Transferability of skills across footprint sectors through credit rated units	Embedded PLTS and functional skills in Diplomas

Sources: Leitch Review  
 DIUS World class skills  
 Working specification for the Qualifications and Credit Framework tests and trials

## Scotland – synergies between SQS and policy initiatives

<b>SQS Principles</b>	<b>Leitch Review</b>	<b>Scottish Skills Strategy</b>	<b>SCQF framework development</b>	<b>Group Awards</b>
Development of NOS	Increasing flexibility of qualifications framework	Qualifications based on NOS provide relevant learning experiences that relates to employment	Sector Skills Councils supporting SCQF level and credit to standards	National Progression Awards must be aligned with NOS
Modular Qualifications	SSC approval of qualification structure	Strategy promotes flexible provision which is increasingly responsive to the needs of individuals and employers.	Supports SCQF development through unit-based, modular qualifications	Ensure range of awards are linked to EUS registration scheme
Accessible Qualifications and Progression	Increasing sustainable employment and progression	Promotes links between qualifications to allow individuals to receive appropriate credit for the learning and provide flexible pathways	The SCQF encourages life long learning by enabling progression and development.	Scheme allows modular acquisition of National Certificates and NPAs
Endorsement of in house training	Increases relevance to employers	Changing demographic profile drives need to recognise prior learning and the certification of existing skills.	Implementation of the SCQF will depend on effective mechanisms for recognising prior informal learning	-
VQ Approvals	-	-	-	-
Health & Safety	Employer demand led training	-	Transfer of credit between related programmes enables cross sector delivery	Ensure awards scheme covers sector requirements
Basic Skills Programme	New legislation on funding will entitle adults to free training in basic literacy and numeracy skills	Builds on existing frameworks to define appropriate levels and mix of essential skills, with reference to SCQF levels. High levels basic skills are key to development of other skills	Supports 'Skills for Scotland' life long learning strategy	Core skills will meet employment and progression needs. Nat.Certs will incorporate opportunities to develop Core Skills.
Sustainable Schools & sector attractiveness	14 – 19 reform and implementation of the New Diplomas	New curriculum will encourage schools to provide pupils with increased opportunities to build work related knowledge, experience and skills	Supports 'Skills for Scotland' life long learning strategy	-
Developing employability Skills	raising standards of employability and basic skills	Skills Strategy promotes the development of essential skills to increase employment opportunities	-	Supports Scottish Government's Skills for Scotland strategy

Sources: Leitch Review

## Wales – synergies between SQS and policy initiatives

<b>SQS Principles</b>	<b>Leitch Review</b>	<b>Skills &amp; Employment Action Plan</b>	<b>CQFW framework</b>	<b>Learning &amp; Skills Measure 14-19 Pathways</b>
Development of NOS	Increasing flexibility of qualifications framework	Vocational qualifications based on the needs of employers	Supports CQFW development through modular qualifications based on employer needs	-
Modular Qualifications	SSC approval of qualification structure	Demand led approach to funding of qualifications	Qualifications made up of credit rated modules	Welsh Baccalaureate using parts of New Diplomas
Accessible Qualifications and Progression	Increasing sustainable employment and progression	Increased responsiveness to employer needs	Rationalisation of provision and transferability of skills across sectors	Diploma units are transferable across lines of learning
Endorsement of in house training	Increases relevance to employers	Accreditation of in house training through the QCF	Underpins development of QCF	-
VQ Approvals	-	-	-	-
Health & Safety	Employer demand led training	-	-	-
Basic Skills Programme	New legislation on funding will entitle adults to free training in basic literacy and numeracy skills	The new Basic Skills Strategy includes free tuition for literacy and numeracy.	-	The 14-19 Learning Core will establish Key Skills, Basic Skills, and Welsh Language skills as an entitlement for all 14-19 year olds.
Sustainable Schools & sector attractiveness	14 – 19 reform and implementation of 14 – 19 Pathways in Wales	Increase the participation, performance and retention of 16-19 year olds in education and training.	-	Learners have entitlement to an individual learning programme from a wide range of academic and vocational courses
Developing employability Skills	raising standards of employability and basic skills	Prioritise funding to ensure everyone has essential skills to take up and maintain employment	Transferability of skills across footprint sectors through credit rated units	Pathway supports development of employability and social skills

Sources: Leitch Review  
Skills & Employment Action Plan for Wales  
Learning & Skills Measure for Wales

## Northern Ireland – synergies between SQS and policy initiatives

<b>SQS Principles</b>	<b>Leitch Review</b>	<b>Essential Skills</b>	<b>QCF framework development</b>	<b>Northern Ireland Skills Strategy</b>
Development of NOS	Increasing flexibility of qualifications framework	Vocational qualifications based on the needs of employers	Supports QCF development through unit-based, modular qualifications	Government in Northern Ireland is investing in these SSCs to be the definitive representative voice of employers in each sector
Modular Qualifications	SSC approval of qualification structure	Demand led approach to funding of qualifications	Qualifications made up of credit rated modules	-
Accessible Qualifications and Progression	Increasing sustainable employment and progression	Increased responsiveness to employer needs	Rationalisation of provision and transferability of skills across sectors	Diploma units are transferable across lines of learning
Endorsement of in house training	Increases relevance to employers	-	Underpins development of QCF	-
VQ Approvals	-	-	Only SSC approved qualifications will be allowed on QCF	-
Health & Safety	Employer demand led training		-	-
Basic Skills Programme	New legislation on funding will entitle adults to free training in basic literacy and numeracy skills	-	-	NI Essential Skills Programme is a critical component of the Skills Strategy designed to raise the foundation of literacy and numeracy skills within the Northern Ireland workforce,
Sustainable Schools & sector attractiveness	-	Key Stage 4 (age 14-16) and at post 16 are offered a wide range of vocational subjects within the curriculum	-	Careers (EIAG) Strategy is aimed at encouraging increased participation in education, training and employment.
Developing employability Skills	raising standards of employability and basic skills	Essential skills programme embraces wider employability skills	Transferability of skills across footprint sectors through credit rated units	NI Strategy supports need to develop employability skills

Sources: Leitch Review  
Northern Ireland Skills Strategy  
Working specification for the Qualifications and Credit Framework tests and trials

**Electricity**

<b>Title</b>	<b>Level</b>
BTEC Nat Cert/Dip. Eng tech Ops/Maint	3 VRQ
BTEC Nat Cert/Dip. Elec & Electronic Eng.	3 VRQ
Certificate in Engineering (Entry level)	Entry
Certificate in Engineering	5 HL
Graduate Diploma in Engineering	6 HL
Post-Graduate Diploma in Engineering	7 HL
Higher Professional Diploma in Engineering	4 HL
Advanced GCE in Engineering	3 GCE
Advanced Subsidiary GCE in Engineering	3 GCE AS
Certificate in Electrical Technology Engineering	3 VRQ
Level 1/Level 2 GCSE in Engineering (Double Award)	1, 2 GCSE

**Gas**

<b>Title</b>	<b>Level</b>
Domestic Nat. Gas Inst & Maint. (C & G 6132-22 100/4785/2)	2 VRQ
Domestic Nat. Gas Inst & Maint. (C & G 6132-22 100/4785/2)	3 VRQ
Complex Domestic Nat. Gas Inst & Maint. (C & G 6132-33 100/4786/4)	3 VRQ
Gas Emergency Services Operations	3 VRQ
Certificate in Energy Efficiency for Domestic Heating	3 VRQ
Diploma in Domestic Energy Assessment	3 VRQ

**Waste Management and Recycling**

<b>Title</b>	<b>Level</b>
Principles and Practices of Sustainable Waste Management Award	3 VRQ
Award in Waste Treatment Technologies	4 (original NQF) HL
BTEC National Diploma in Applied Science	3 VRQ
Higher Professional Diploma in Landbased Management	4 (original

	NQF) HL
HNC Waste Management – University College, Northampton.	

### Water

Title	Level
Certificate in Water Engineering	2 VRQ
Diploma in Water Engineering	3 VRQ
BTEC National Diploma in Applied Science	3 VRQ
Certificate in the Protection of Water, Environment and Recommendations	3 VRQ
HNC Water Operations with Management	HNC

### Foundation Degrees

Title	University	Implementation	Starts Yr1	Starts Yr 2	Completions
Utilities Management (2 years)	University of Central Lancashire and Bolton Community College	From March 2006	17	15	0
Electrical Power Engineering	Aston University and Walsall College	From Feb 2007	50	-	0
Waste Management (3 yr P/T)	University of Salford	From Sept 2005	24	15	0
Waste Management (3 yr P/T)	University of Northampton	From Feb 2005	No uptake. HNC is mandatory pre-requisite and HNC completions go to BSc (Hons)		
Sustainable Waste and Environmental Management	University of Northumbria	From 2005	V. low uptake from implementation – course may be discontinued		

Figures are provided by the University Departments.

## **EU Skills Related Qualifications**

### **Degrees**

Biology  
Micro Biology  
Chemistry  
Materials  
Physics  
Chemical Processing and Energy  
Undergraduate diploma in pollution control  
Water/Environmental Management  
MSc Environmental Management

### **BTEC Qualifications in Engineering sector**

#### **BTEC Nationals in:**

BTEC National Certificate in Mechanical Engineering  
BTEC National Diploma in Mechanical Engineering  
BTEC National Certificate in Manufacturing Engineering  
BTEC National Diploma in Manufacturing Engineering  
BTEC National Certificate in Operations and Maintenance Engineering  
BTEC National Diploma in Operations and Maintenance Engineering  
BTEC Nationals Certificate in Electrical/Electronic Engineering  
BTEC Nationals Diploma in Electrical/Electronic Engineering  
BTEC National Award in Engineering  
BTEC National Certificate in Engineering  
BTEC National Diploma in Engineering

#### **BTEC First in :**

BTEC First Certificate in Engineering  
BTEC First Diploma in Engineering  
BTEC First Diploma in Engineering (Maintenance)  
BTEC First Diploma in Engineering (Manufacturing)  
BTEC First Diploma in Engineering (Electronics)

#### **BTEC Introductory Certificate & Diploma in Engineering**

BTEC Introductory Certificate in Engineering  
BTEC Introductory Diploma in Engineering  
Edexcel GCSE in Engineering  
Edexcel GCSE in Manufacturing Technologies  
Edexcel GCE AS in Engineering (180 GLH)  
Edexcel GCE AS in Manufacturing Technologies  
Edexcel GCE in Engineering (360 GLH)  
Edexcel GCE in Manufacturing Technologies

#### **Engineering Diploma Development**

Level 1 Principal Learning in Engineering  
Level 2 Principal Learning in Engineering  
Level 3 Principal Learning in Engineering

#### **BTEC Higher Nationals NQF Level 5**

BTEC HNC in Manufacturing Engineering  
BTEC HND in Manufacturing Engineering  
BTEC HNC in Mechanical Engineering  
BTEC HND in Mechanical Engineering

BTEC HNC in Operations Engineering  
BTEC HNC in Operations Engineering (Instrumentation and Control)  
BTEC HND in Operations Engineering  
BTEC HNH in Operations Engineering (Instrumentation and Control)

BTEC HNC in Electrical/Electronic Engineering  
BTEC HNC in Electrical/Electronic Engineering (Electrical)  
BTEC HNC in Electrical/Electronic Engineering (Electronic)

BTEC HND in Electrical/Electronic Engineering  
BTEC HND in Electrical/Electronic Engineering (Electrical)  
BTEC HND in Electrical/Electronic Engineering (Electronic)

**NVC approved BTEC Foundation Degrees**

BTEC Fd in Electrical Engineering  
BTEC Fd in Electronic Engineering  
BTEC Fd in Electrical and Electronic Engineering  
BTEC Fd in Mechanical Engineering  
BTEC Fd in General Engineering  
BTEC Fd in Manufacturing Engineering  
BTEC Fd in Operations Engineering

**Certifications of NVQs in EU Skills Footprint 2005 & 2006**
**Appendix 3**

The information in the table below is summarised in a table in section 4.2 showing uptake by level per sector. The data is taken from the EU Skills Core Data Set Version 5 provided by the QCA.

Title	Level	Total Certifications	
		2005	2006
Domestic Natural Gas Installation	2	685	916
Domestic Natural Gas Installation	3	250	352
Domestic Natural Gas Installation and Maintenance (ACS)	2	3675	5177
Domestic Natural Gas Installation and Maintenance (ACS)	3	496	779
Domestic Natural Gas Maintenance	2	1140	1499
Domestic Natural Gas Maintenance	3	1655	2311
Gas Emergency Service Operations (ACS)	3	2867	2996
Gas Network Engineering	3	1370	1374
Gas Network Operations	1	1567	2159
Gas Network Operations - Craft	3	1	8
Gas Network Operations – Mains laying	2	276	684
Gas Network Operations – Service laying	2	536	1068
Gas Services Installation	3	686	686
Gas Services Installation	2	N/A	1043
Gas Services Maintenance	2	594	595
Gas Services Maintenance	3	765	765
Gas, Service Installation and Maintenance	2	390	390
Gas, Service Installation and Maintenance	3	204	204
Public Utilities Distribution (Natural Gas)	3	396	396
Controlling Water Operations (Process)	3	29	29
Distribution Control	2	11	25
Laboratory Operations (Water)	1	19	19
Laboratory Operations (Water)	2	42	42
Laboratory Operations (Water)	3	6	6
Leakage Control	2	58	90
Leakage Control	3	2	5
Maintain Water Supply (Network)	3	12	21
Managing Waste Collection Operations	4	14	14
Monitoring the Water Environment	2	50	51
Operating Process Plant	2	220	N/A
Operating Process Plant (Sludge)	2	719	719
Operating Process Plant (Waste Water)	2	1191	1191
Operating Process Plant (Water)	2	770	770
Operating Process Plant (Water/Waste Water/Sludge)	2	N/A	266
Public Utilities Distribution	2	625	658
Sewage Treatment Operations	2	1429	1429
Waste Management Operations	1	438	N/A
Waste Management Operations	2	467	N/A
Waste Management Supervision	3	14	N/A
Water Distribution (Mains Laying)	2	2332	2332
Water Distribution (Service Laying)	2	2815	2815
Water Fittings Regulations Enforcement	3	4	7
Water Industry Operations (Sewerage Maintenance)	2	127	127
Water Services - Technical Distribution Operations	3	0	0
Water Services Operations - Distribution Control	2	194	194
Water Services Operations (Distribution Control)	2	392	392
Water Services Operations (Foundation)	1	137	137
Waterworks Operations	2	674	674
Cables and Joints: Installation and Maintenance (Electricity Distribution)	3	380	380
Control and Instrumentation Equipment: Installation and Maintenance (Electricity Generation)	3	203	203
Electrical Plant and Equipment: Installation and Maintenance (Electricity Generation)	3	171	171
Electricity Distribution and Transmission Engineering	3	457	485
Electricity Distribution and Transmission Engineering Support	2	98	98
Electricity Generation (Fossil-fired Systems); Operating and Controlling Power	2	421	421

Station Boilers			
Electricity Generation (Fossil-fired Systems); Operating and Controlling Power Station Coal Plant	2	0	0
Electricity Generation (Fossil-fired Systems); Operating and Controlling Power Station Systems (Fossil-fired)	1	150	150
Electricity Generation (Fossil-fired Systems); Operating and Controlling Power Station Turbines	2	0	0
Electricity Generation (Fossil-fired Systems); Operating and Controlling Power Station Units	2	0	0
Electricity System Technology Engineering	3	14	83
Electricity System Technology Engineering Support	2	37	86
Engineering Maintenance (Couplings and Bearings - Power Generation Plant)	2	10	10
Engineering Maintenance (Drives and Brake Systems - Power Generation Plant)	2	7	7
Engineering Maintenance (Electrical Actuators and Cable Installation - Power Generation Plant)	2	0	0
Engineering Maintenance (Electrical Plant and Systems and Technical Support Services - Power Generation Plant)	3	22	22
Engineering Maintenance (Fabrication and Welding - Power Generation Plant)	2	0	0
Engineering Maintenance (Instrument Maintenance - Power Generation Plant)	2	1	1
Engineering Maintenance (Lifting and Handling and Scaffolding - Power Generation Plant)	2	1	1
Engineering Maintenance (Measurement and Control and Technical Support Services - Power Generation Plant)	3	76	76
Engineering Maintenance (Mechanical Plant and Systems and Technical Support Services - Power Generation Plant)	3	34	34
Engineering Maintenance (Pipework and Valves - Power Generation Plant)	2	1	1
Engineering Maintenance (Pneumatic and Hydraulic Actuators - Power Generation Plant)	2	7	7
Engineering Maintenance (Switchgear, Lighting, Heating and Batteries - Power Generation Plant)	2	0	0
Engineering Maintenance Support Services (Access and Scaffolding - Power Generation Plant)	1	0	0
Engineering Maintenance Support Services (Ancillary Electrical Equipment - Power Generation Plant)	1	2	2
Engineering Maintenance Support Services (Fabrication and Welding - Power Generation Plant)	1	13	13
Engineering Maintenance Support Services (Low Pressure Pipework Systems - Power Generation Plant)	1	0	0
Gas Network Engineering Management	4	12	15
Installing and Maintaining Electrical Sub-Station Plant and Apparatus	3	26	26
Installing and Maintaining Electricity Transmission Sub-Station Plant and Apparatus	3	13	13
Joining and Terminating Distribution and Transmission Cables	3	40	40
Mechanical Plant and Equipment: Installation and Maintenance (Electricity Generation, Transmission and Distribution)	3	240	240
Metering Equipment: Installation and Maintenance (Electricity Distribution)	3	7	7
Operating and Controlling Power Station Systems (Fossil-Fired) - Assistant Unit Operation	2	20	20
Operating and Controlling Power Station Systems (Fossil-Fired) - Boiler Operation	2	15	15
Operating and Controlling Power Station Systems (Fossil-Fired) - Boiler Plant	1	0	0
Operating and Controlling Power Station Systems (Fossil-Fired) - Coal Plant Operation	2	2	2
Operating and Controlling Power Station Systems (Fossil-Fired) - General Plant	1	12	12
Operating and Controlling Power Station Systems (Fossil-Fired) - Turbine Operation	2	16	16
Operating and Controlling Power Station Systems (Fossil-Fired) - Turbine Plant	1	0	0
Operating and Controlling Power Station Systems (Fossil-Fired) - Unit Operation	3	21	21
Operating and Controlling Power Station Systems (Fossil-Fired) - Water Treatment Plant	1	27	27
Operating and Controlling Power Station Systems: Fossil Fired (Electricity Generation)	3	473	473
Operating Multiple Electricity Generation Systems	3	78	78
Operating Single Electricity Generation Systems	2	13	13
Overhead Lines and Equipment: Installation and Maintenance (Electricity Transmission and Distribution)	3	690	690
Substation Plant and Equipment: Installation and Maintenance (Electricity	3	406	406

Transmission and Distribution)			
Telecommunications Equipment: Installation and Maintenance (Electricity Transmission and Distribution)	3	9	9
Thermal Material and Associated Equipment: Removal, Preparing and Fixing (Electricity Generation)	3	0	0
Utilities Control Centre Operations	2	5	18
Utilities Metering Operations	2	7	7
Utilities Network Planning and Management	4	6	6
Wiring Systems and Appliances: Installation and Maintenance (Electricity Distribution)	3	1198	1198
Laboratory Operations	4	9	9
Landfill Operations (Inert Waste)		N/A	278
Managing Incineration Operations (Special Waste)	4	12	12
Managing Incinerator Operations - Special Waste	4	40	40
Managing Landfill Operations - Biodegradable Waste	4	154	154
Managing Landfill Operations - Special Waste	4	813	818
Managing Landfill Operations (Biodegradable Waste)	4	56	56
Managing Landfill Operations (Special Waste)	4	194	194
Managing Transfer Operations - Biodegradable Waste	4	743	748
Managing Transfer Operations - Clinical or Special Waste	4	1481	1489
Managing Transfer Operations (Special Waste)	4	130	130
Managing Treatment Operations - Biodegradable Waste	4	84	86
Managing Treatment Operations - Clinical or Special Waste	4	551	554
Managing Treatment Operations (Special Waste)	4	27	27
Managing Waste Collections Operations	4	7	11
Regulating Waste Management	3	0	N/A
Regulating Waste Management	4	0	N/A
Treatment Operations - Inert Waste	3	304	308
Treatment Operations (Inert Waste)	3	3	3
Transfer Operations - Inert Waste	3	N/A	43
Waste Management Operations	1	233	872
Waste Management Operations	2	1421	3554
Waste Management Operations: Civic Amenity Site	3	3	12
Waste Management Operations: Closed Landfill	3	3	5
Waste Management Operations: Inert Waste	3	49	84
Waste Management Operations: Managing Incineration	4	5	8
Waste Management Operations: Managing Landfill Hazardous Waste	4	58	83
Waste Management Operations: Managing Landfill Non-Hazardous Waste	4	28	59
Waste Management Operations: Managing Transfer Hazardous Waste	4	311	604
Waste Management Operations: Managing Transfer Non-Hazardous Waste	4	125	206
Waste Management Operations: Managing Treatment Hazardous Waste	4	145	260
Waste Management Operations: Managing Treatment Non-Hazardous Waste	4	145	238
Waste Management Supervision	3	23	65
Energy Management	4	73	73

Source: Reproduced from EU Skills Core Data Set Version 5 provided by the QCA

## Take up and completion of Apprenticeship frameworks in the EU Skills sector Appendix 4

### England and Wales (and Northern Ireland where applicable)

Framework title	Level	Starts 2005/06	Completions	Rate %
Electricity	2	18	0	0
Electricity	3	202	54	27
Water	3	0	n/a	0
Gas	2	134	32	24
Gas	3	533	427	80
Framework title	Level	Starts 2006/07	Completions	
Electricity	2	18	5	28
Electricity	3	202	60	28
Water	3	50	36	72
Gas	2	137	55	40
Gas	3	540	475	88

Source: EU Skills Apprenticeships Data from Individual Learner Records and employer monthly returns.

### Scotland

#### Modern Apprenticeships Completions to March 2005

Framework Title	Achievements		
	Male	Female	Total
Electricity Supply and Distribution	3	0	3
Gas Industry	98	5	103
Water Operations (process)	0	0	0

Source: Update from G Mackay, Sector Skills Alliance Scotland