

Today's investment - tomorrows asset: skills and employment in the Wind, Wave and Tidal sectors

Report to the British Wind Energy
Association

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SQWenergy

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Executive Summary

1. The Wind Wave and Tidal (WWT) sector is forecast to grow significantly over the period to 2020. Key to fuelling this growth will be the development of a skilled workforce. Through a process of research and consultation with employers and organisations involved in workforce development, key occupational and skills areas within the sector have been identified. Forecasts have been made of the likely demand within these occupational areas and the current and planned supply of skills relevant to these areas has been examined. The issues for the sector in competing for, and attracting skilled staff have been examined and a number of indicative actions proposed to address these issues delivered through enhanced influence, direct action and partnership.

Background

2. SQW Energy was commissioned by BWEA to undertake a qualitative analysis of the skills policy landscape relating to Wind, Wave and Tidal Stream technologies (WWT) in the UK.
3. Parallel to this piece of work being commissioned, BWEA commissioned a supporting study¹ which undertook a quantitative assessment of the employment issues associated with the wind wave and tidal industries in the UK. This complementary piece of work analysed in detail employment by sector and occupational category. It also provided an assessment of the employment needs of the industry in relation to various scenarios of delivery, broken down by category.

The context: delivering national targets for renewable energy....

4. Under the European Union's 20% renewable energy target, the UK is required to provide 15% of all its primary energy from renewable sources by 2020. Given the comparatively lower starting point for the heat and transport fuels sector, it is widely recognised and accepted that at least 35% of national electricity demand will need to come from renewable sources if this target is to be met.

....through skilled people

5. One of the key issues determining success in meeting these targets will be the availability of an appropriately skilled and qualified workforce which currently operates in a global market environment. Government policy recognises the significance of skills, which is one of the five key drivers of productivity² identified by HM Treasury.
6. The ability to deliver an adequately qualified and educated supply chain of young people, the future employers and employees within the WWT sector, is critical to its future development. As such it represents a key area in which the sector must improve its performance in order to achieve the national renewable energy targets and remain competitive in the globalising economy.
7. This report summarises the skills landscape relating to Wind, Wave and Tidal Stream technologies (WWT) in the UK, identifies where competing demands for the same skills are likely to come from in the period up to 2020, and examines the implications and challenges for the sector and ways in which it might address these challenges.

¹ Employment opportunities and challenges in the context of rapid industry growth, Presentation to BWEA, Bain & Company, September 2008

² Together with Enterprise, Innovation, Investment, and Competition

1: The skills landscape

Policies and Players

- 1.1 The skills landscape is a crowded and complicated one. Policies and organisations (players) change over time and vary across the four nations that make up the UK. Many of those working within the skills arena view it as a sector in a permanent state of change. Indeed some agencies seemed to have lived with an almost constant state of actual or potential re-structuring over the last 10 years.
- 1.2 Despite this, it is possible to identify a number of key policies which have shaped current thinking on skills and workforce development and organisations that are central to the delivery of WWT's skills needs. These are considered in the following paragraphs.

Key policies - reviews of training and skills support for businesses

- 1.3 In 2001 a consultation was undertaken by the then Department for Education and Employment (DfEE) on the role of the National Training Organisation (NTO) network³. As a result of this process a national network of Sector Skills Councils (SSCs), supported by a new government agency – the Sector Skills Development Agency (together comprising what was known as the Skills for Business Network) was established, beginning in 2001.
- 1.4 This network was designed to cover the four nations, with 25 SSCs eventually established. Key tasks for the SSCs were to help tackle the productivity gap which was evident between the UK and other industrialised nations such as the USA, France and Germany, improving basic skills for employability and upskilling the workforce – helping to ensure that employers got recruits with the skills they needed.
- 1.5 Progress in these areas was reported in 2003 in a Government White Paper⁴ by the then Department for Education and Skills (DfES)⁵. Progress was re-examined as one of the key areas within the 2005 interim Leitch Review⁶. The interim report committed the final Review to identifying the UK's optimal skills mix for 2020 to maximise economic growth and productivity. It also sought to set out the balance of responsibility for achieving that skills profile and considered the policy framework required to support it. The final report showed that urgent action was required to raise achievements at all levels and across most sectors.
- 1.6 Pervading themes within the recommendations were the need to engage employers, employees and the wider community and to create a more positive attitude to learning. The debate engendered by Leitch has recently led to the launch in April 2008 of the UK Commission for Employment and Skills (UKCES) which replaced the SSDA⁷. The UKCES is charged with raising the UK's prosperity and opportunity by improving employment and skills across the entire economy. Ultimate responsibility for overseeing these developments (within England) now rest with the Secretary of State for Innovation, Universities and Skills⁸ in consultation with Ministers in Scotland, Wales and Northern Ireland.

³ Building a Stronger Network: Developing the role of National Training Organisations: Department for Education and Employment Consultation Paper, 2001

⁴ 21st Century Skills: Realising our Potential (National Skills Strategy White Paper); Department for Education and Skills, 2003

⁵ The government department with overall responsibility having been reorganised in the intervening period

⁶ Interim report: Skills in the UK: the long term challenge; DfES, 2005

⁷ The establishment of the UK Commission was a key recommendation of the 2006 report by Lord Sandy Leitch: "Prosperity for all in the global economy – world class skills"

⁸ A further change with the Department for Innovation, Universities and Skills (DIUS) now having lead responsibility

1.7 The past decade has seen considerable change in relation to workforce skills' policies and responsibilities for delivery, together with changes in the bodies of Government with oversight for policy and delivery. For reasons of brevity this summary cannot claim to be exhaustive – for example it does not detail the differences in policy and oversight within Scotland, Wales and Northern Ireland. All of these are important to acknowledge as they introduce variations in emphasis relating to priorities, delivery and accountability, however the examples provided serve to illustrate the complexity and dynamic nature of the skills policy landscape as it has developed over the past decade.

Who's who – key players

Sector Skills Councils

1.8 Across the UK the Sector Skills Councils (SSCs) are the key organizations responsible for tackling the skills and productivity needs of their UK-wide industry sectors. SSCs aim to increase the competitiveness of the sectors they represent. Key activities that the SSCs undertake include providing labour market intelligence, identifying skill needs at all levels, influencing the UK's education and learning infrastructure, mapping training and education supply to ensure it meets sector demand and raising skills demand among employers in their sector. Approximately 85% of the UK workforce is currently covered by an SSC.

1.9 The SSCs that are most relevant to the WWT sector are EU Skills, Cogent, Semta and ConstructionSkills. These organisations are described in more detail below.

- **EU Skills** is the SSC for the electricity, gas, waste management and water industries. There are currently 77,500 people employed in the UK electricity industry and EU Skills is responsible for all parts of the electricity sector including, generation, transmission and distribution.
- **Cogent** is the SSC for chemicals, nuclear, oil and gas, petroleum and polymers. As such, there is a dominance of science, engineering and technical employees. Cogent comprises 886,000 employees (industry estimates) with a GVA of approximately £85,000 per worker.
- **Semta** is currently the one of the largest SSCs. Its footprint covers science, engineering and manufacturing technologies, including the marine sector. The Metals, Mechanical and Electrical (MME) sectors alone employ 800,000 people in 55,000 establishments. The Marine sector is a small segment of SEMTA's footprint. It covers an additional 56-57,000 employees in shipbuilding and repair, boat building and repair and marine equipment manufacturers.
- **ConstructionSkills** is the SSC that represents the construction industry. The footprint for the sector is wide ranging, encompassing everyone from architects to bricklayers. Overall the SSC covers 1.2 million workers, 175,000 construction firms and 23,500 professional practices.

UK Commission for Employment and Skills

1.10 The newly formed UK Commission for Employment and Skills (UKCES) is responsible for funding and monitoring the performance of SSCs. The Commission has responsibility for providing cover for those industries that fall outside the SSCs. It will also be responsible for re-licensing Sector Skills Councils during 2008-09.

Other organisations and initiatives

1.11 Other relevant organisations and initiatives include:

- **ECITB** (Engineering Construction Industry Training Board): ECITB is a levy raising body which provides funding for courses and range of other products and services. Amongst other activities, they offer and accredit courses for the construction industry and provide grants,

train apprentices, and provide safety passport training, Assuring Competence in Engineering Construction certificate, and vocational awards.

- **Diplomas:** these aim to provide young people with the skills, knowledge and experience needed by different employment sectors through theoretical study and practical experience. Diplomas will begin in 2008, in subjects such as Engineering and Construction and the Built Environment. There are three levels, with the advanced being equivalent to 3.5 A-levels
- **Foundation Degrees:** these combine academic study with work place learning to equip people with relevant knowledge and skills to improve performance and productivity. Foundation degrees must involve employers in design and development to ensure that the skills delivered in this work-based qualification are an asset. Flexible delivery of Foundation degrees means organisations can keep operating while up-skilling
- **Compacts:** SEMTA has agreed the first Train to Gain Compact to provide skills funding for the Science, Engineering and Manufacturing Technologies sector Funding is available for NVQ Level 2 and 3 training, Skills for Life together with All-Age Apprenticeships
- **Apprenticeships:** these combine a mixture of on the job and off the job learning working towards nationally recognised qualifications. Over 180 different Apprenticeships are currently on offer across 80 sectors of industry
- **National Skills Academies:** a number of NSAs have been established and Government has recently announced that a new National Skills Academy for Power has been given the go-ahead. NSAs aim to rationalise the vast number of current qualifications and provide a 'quality mark'. They are designed to offer new qualifications, reflecting gaps in the current system, developed by working with employers from relevant sectors
- **Train to Gain:** the service provides expert, one-to-one skills advice and simplify access to training and workforce development for employers. Access to a range of services is provided from Investors in People, skills for life (literacy, numeracy and IT) basic skills through to leadership and management training.
- **Careers Advice**⁹ and **Careers Scotland**¹⁰: both provide impartial information, advice and guidance relating to careers and training opportunities supported by extensive databases of course information and dedicated phone lines.

- 1.12 This list indicates some of the more significant organisations and initiatives currently operating which are relevant to skills development across the UK. Further information has been supplied in a Stakeholder database that has been developed for BWEA as part of this project.
- 1.13 As the above summary of policies and players shows, the skills arena, like many other areas of public sector policy, is an ever changing one. Important organisations will wax and wane over time or may be abolished, merged or restructured. Equally importantly, individuals (key to the development of effective and constructive relationships) within these organisations will also change.
- 1.14 For these reasons the landscape described above can only be a 'snap shot': the danger lies in regarding the situation as static. For the WWT sector it will be important to proactively monitor changes and seek to inform and influence skills developments for the overall benefit of the sector – replicating the behaviour of many other sectors in the UK economy.
- 1.15 In the following section the nature of supply of labour and skills within the sector, and the types of skills needed, are considered in more detail.

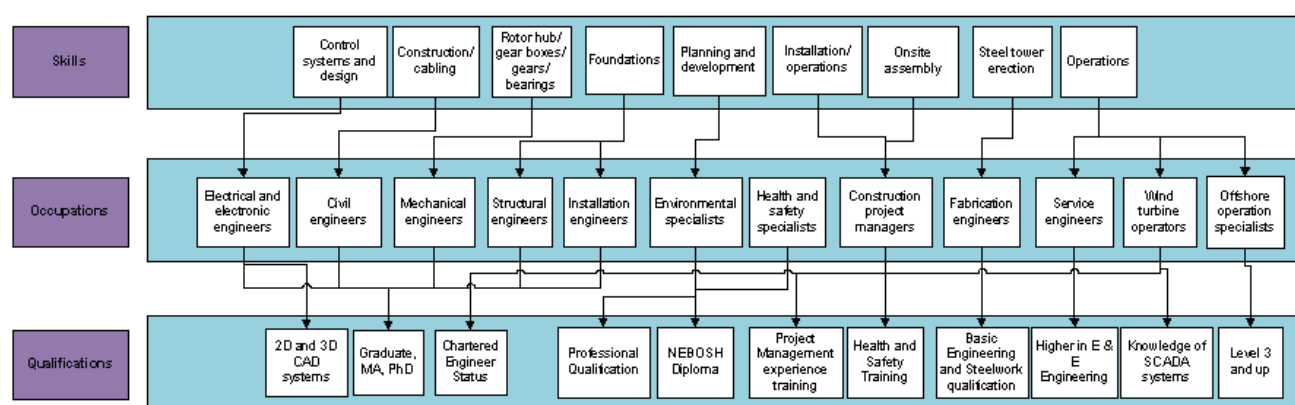
⁹ Until recently learndirect Careers Advice

¹⁰ Until recently run by learndirectScotland

2: Which skills are important to the Wind, Wave and Tidal sector?

- 2.1 A number of occupations have been identified as being important to the sector. These occupations were identified from the Occupational and Functional Map of the UK Renewable Energy Sector developed by EU Skills and subsequently discussed with BWEA. Central to these occupations being able to undertake their functions effectively is an appropriate and continually updated skill set.
- 2.2 Figure 2-1 below summarises the key occupations for the sector and the typical qualifications associated with these occupations. Many of the occupations are characterised by a requirement for higher level skills, including degree, post graduate or professional qualifications including Chartered Status.

Figure 2-1 : Skills, Occupations and Qualifications within the WWT sector



Source: SQW Energy

The current supply of skills

- 2.3 Currently in excess of 50 courses are available from a range of training providers varying from Universities to private training providers across the UK. The types of skills training offered also vary from full time undergraduate or postgraduate (e.g. the University of Edinburgh offers a Bachelors course in Mechanical Engineering with Renewable Energy), vocational qualifications (such as City and Guilds which offer a National Vocational Qualification in Fabrication and Welding Engineering) to part time, short course professional and others (for example Northumberland College which offers a Diploma for Wind Turbine Technicians). Further information on the range of education and training available relevant to the sector is provided in a separate Directory developed for BWEA.

Growth projections for occupations relevant to the sector

- 2.4 Information provided by the SSCs for competing sectors discussed in the previous section –science, engineering, manufacturing and marine¹¹, electricity, gas and waste water¹², oil and gas, nuclear and polymers¹³ and engineering construction¹⁴ - indicate that these sectors will require almost 149,000 additional professionals (mostly engineers and project managers) and technicians by 2014 in order to satisfy growth and replacement demand.

¹¹ <http://www.semta.org.uk>

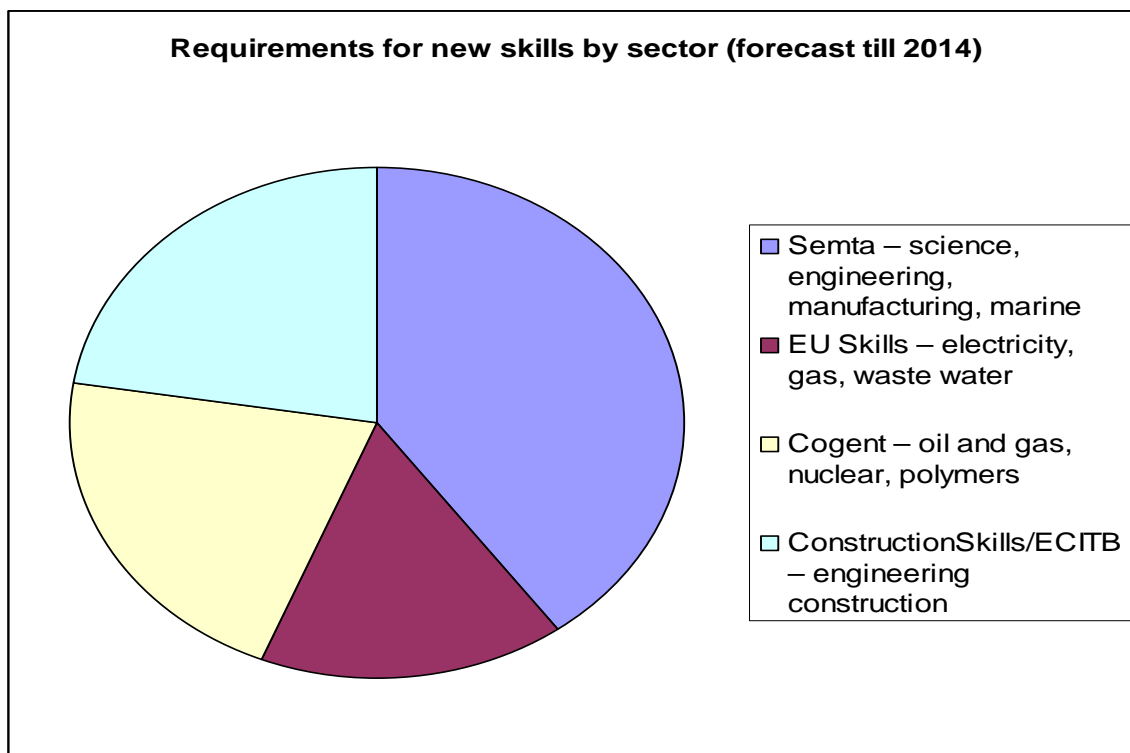
¹² <http://www.euskills.co.uk>

¹³ <http://www.cogent-ssc.com>

¹⁴ <http://www.constructionskills.net> and information provided by ECITB

2.5 Figure 2-2 shows how the SSCs for these sectors anticipate demand to be made up. All sectors expect to see considerable growth over the next six years to 2014. Data beyond 2014 are difficult to obtain as it extends beyond the planning cycle that SSCs work to in the development of their Sector Skills Agreements (SSAs) – the central tool by which they work with employers and Government to inform future skills policy. It is recognised by EU Skills that at the time of development of their SSA, data on some future employment requirements were limited and consequently under-estimate the contribution of WWT to overall sector needs. However, discussions with organisations including EU Skills suggest that these upward trends are likely to continue. These will be influenced by issues including an ageing workforce and as major infrastructure projects such as nuclear new build and decommissioning, carbon capture and sequestration, cogeneration and possible barrages on the Severn and Mersey move towards implementation. In addition, overall projections may increase as the level of sectoral intelligence within SSCs improves.

Figure 2-2 : New skills requirements by sector



Source: SQW Energy

Growth projections for the Wind, Wave and Tidal sector

2.6 Within the Wind, Wave and Tidal sector there are currently approximately 4,800 full time employees (FTEs) working across a range of functions. The wind sector's value chain (which currently represents the majority of employment) has been split into a number of categories based upon supporting work undertaken elsewhere¹⁵: Planning and Development, Design and Manufacturing, Construction and Installation, Operations and Maintenance and Technical, Financial and Legal Services. The largest growth area, and the focus of this study, has been primarily on the first four phases of the value chain, as these require the most technical and highly skilled occupations.

¹⁵ Employment opportunities and challenges in the context of rapid industry growth, Presentation to BWEA, Bain & Company, op cit

2.7 Three scenarios have been modelled and fed through from this supporting study to reflect potential outcomes in relation to the growth of the sector and consequent employment growth and demand for skills. These are:

- Slow growth (referred to as ‘static’ in the work undertaken by Bain & Co.) – based upon the assumptions of a lack of political support for WWT, most manufacturing and skills reside outside the UK, and there is limited or no export
- Solid progress (base case) – based upon assumptions of clear political support for the sector, an almost self supplying manufacturing industry, and limited export
- Dynamic - based upon assumptions of political support for ambitious targets, clusters with wind turbine manufacturing and the export of offshore expertise and components.

2.8 Projections for the WWT sector in the period to 2020 suggest significant employment growth, and with it significant requirements for skills development in all areas of the value chain. Figures for **total** employment in the WWT sector are shown below in Table 2-1.

Table 2-1: Projected total employment (FTEs) within the Wind Wave and Tidal sector

Year	Sub sector	Slow Growth	Solid Progress	Dynamic
2014	Wind, Wave & Tidal	12,000	14,500	18,000
2020	Wind	23,100	35,900	56,900
	Wave & Tidal	350	1,600	2,100

Source: SQW Energy

2.9 Before 2014 the majority of growth is anticipated in the wind sector, with little forecast growth for the wave and tidal sectors, for this reason it is not possible to split projections for the sectors in 2014. By 2020 however, modelling suggests that these two sectors may employ between 350 and 2,100 FTEs, although the wind sector will still dominate overall employment within the sector, with 57,000 FTEs employed within a total employment pool of approximately 59,000 FTEs.

2.10 In terms of anticipated additional employment within the sector, it is clear that whatever the scenario considered, these projections represent considerable growth within the sector from the current employment levels of approximately 4,800 FTEs. Within six years it is anticipated that the number of FTEs within the WWT sector will have more than doubled from 4,800 to 12,000 based upon the most conservative scenario, whilst the dynamic scenario reflects an almost four-fold increase in employee numbers within the sector. By 2020, the estimated numbers of individuals working in the sector will have increased by between approximately 500-1250% compared with employee numbers in 2008.

2.11 Within this anticipated growth, demand will vary across different areas of the value chain described in paragraph 2-6. In Table 2-2 demand for **new** employees is shown for all scenarios in six and twelve year’s time.

Table 2-2 : Number of additional employees needed for each part of the value chain by 2014 and 2020

	Total Additional employees required by WWT sector	Planning & Development (11%)	Design & Manufacturing (26%)	Construction & Installation (29%)	Operations & Maintenance (25%)	Technical, Financial & Legal Services (9%)
2014 Slow growth	7,170	790	1,865	2,080	1,790	645
2014 Solid Progress	9,630	1,060	2,505	2,790	2,410	865
2014 Dynamic	12,895	1,420	3,355	3,740	3,220	1,160
2020 Slow growth	18,710	2,060	4,865	5,420	4,680	1,685
2020 Solid Progress	32,710	3,600	8,505	9,485	8,175	2,945
2020 Dynamic	54,210	5,965	14,095	15,720	13,550	4,880

Source: SQW Energy

- 2.12 The figures presented in this section show that the number of individuals employed within the WWT sector is forecast to grow considerably between now and 2020. Whilst it is likely that the overall requirements for growth and replacement demand of professionals and technicians across the sectors is likely to increase in number as SSC data is refined, it is still likely that the total numbers within WWT will represent a significant proportion of overall numbers within the EU Skills footprint. The exact trajectory of growth is not yet clear and will be in part dependent upon a number of external factors which will become clearer over time. However, even if the most pessimistic of scenarios – that of slow growth, becomes reality, there will still be profound implications for attracting new, appropriately skilled, experienced and qualified entrants into the sector. It will also place requirements on businesses within the sector to ensure that the training and upskilling of those currently working within the industry is planned effectively and strategically.
- 2.13 In the following section the implications of this anticipated growth on the demand and supply of skills relevant to the sector is considered.

3: How healthy is the supply of skills?

- 3.1 Section Two examined the nature of likely growth within WWT until 2020 together with the types of skills associated with occupations required by the sector. It also acknowledged the varied (and growing) supply of training and skills development offered by a range of organisations throughout the United Kingdom.
- 3.2 The previous section also referred briefly to the competing nature of demand – a range of sectors will be in competition with WWT for the same types of individuals able to undertake the same types of jobs with often similar (generic) skill sets.
- 3.3 Whilst the overall numbers of new entrants to the sector projected in 2014 is not huge by comparison with the overall projected requirements identified by the four SSCs closest to WWT (9,360 in the base case solid progress scenario, compared with 148,600), the sector will still need to compete in an open market with other sectors which perhaps have a higher profile within more mature industries. In addition, by 2020, the needs of the WWT sector are anticipated to have grown considerably, underlining the importance of effective intervention to ensure that supply of skills meets future demand.

Currently....

- 3.4 At present, evidence from the sector suggests that there are difficulties associated with obtaining individuals with the correct types of skills needed for the sector.
- 3.5 This was felt to be particularly evident in relation to identified occupational shortages of project managers, structural engineers, electrical engineers and overhead linesmen. Similarly, a number of skills shortages and gaps were identified by sector based companies in respect of higher level skills amongst engineers, offshore capabilities (operational and technical skills) and broader experience relevant to the sector.
- 3.6 A parallel study¹⁶ gathered feedback from over 100 companies active in the sector which suggested that companies are adopting compensating practices to tackle a number of occupational and skills shortages. The types of approaches adopted include transfer of workload to existing staff, recruiting relevant staff from other firms in the WWT sector and wider industry, attracting staff through attractive remuneration packages (which it is suggested is leading to pay inflation in certain areas of the sector) together with attempts to import skills through recruitment of staff from overseas. However, all those involved in the study recognised that such practices were neither sustainable nor sufficient to meet future demand.

...and looking to the future

- 3.7 Data from within the sector suggests that companies are being forced to adopt short term “pinch and pay” type strategies to address their immediate skills needs; this is recognised as being unsustainable. In the longer term the solution must lie in a more strategic approach to developing activities to encourage the largest possible “funnel” of appropriately skilled and engaged potential employees. Such potential employees will be at different stages of their educational and skills development: entering higher, further or vocational training of various types, or within the schools system.

The supply of graduates

- 3.8 Overall the potential supply looks promising for graduates. There is significant estimated growth in UK engineering and technology graduates – an estimate by (the then) Department of Trade & Industry

¹⁶ Employment opportunities and challenges in the context of rapid industry growth, Presentation to BWEA, Bain & Company, op cit

forecasts 3.6% annual growth over the period 2004-2014¹⁷. However, although the overall pattern of growth is encouraging, inevitably the headlines mask some specific issues.

- 3.9 One example is around electrical and electronic engineering where the number of home acceptances into electronic and electrical engineering courses has decreased from 5,100 in 2001/02 to around 2,900 in 2005/06. At the same time the number of foreign students enrolled on such courses has increased by 41%¹⁸. This may suggest potential problems of recruitment in the future and possible issues relating to retention of graduates in the UK upon completion of their studies. This is in contrast to the situation relating to general and mechanical engineering where the number of home acceptances has increased slightly over the same five year period¹⁹.
- 3.10 Therefore, whilst there are some discipline areas of potential longer term concern, overall projections for engineering and technology graduates suggests growth to 2014. In addition, a review of organisations offering courses more tailored to the specific needs of the sector has identified over 50 undergraduate/postgraduate courses with renewable energy elements. Interviews with some of the institutions offering these courses also suggest that they are becoming increasingly popular and that the expectation is that the number of admissions to these courses will grow.

Vocational training and the supply of apprentices

- 3.11 There are also ambitious plans for growth in apprenticeship numbers. Currently, the number of apprenticeships is relatively high in electro-technical and engineering²⁰. The present supply of apprentices should also be viewed against the backdrop of the Government's plans to increase the total number of apprenticeships from 10,000 to 400,000 by 2020²¹. This will also have the potential to increase the number of entrants to the sector. In addition, a number of institutions are developing tailored course provision, such as Northumberland College's Level 3 course for technicians for wind power stations.

Young people

- 3.12 At an earlier stage in the skills 'supply chain', the number of young people aged 16-18 is forecast to drop over the period to 2020²², which will serve to reduce the overall pool of young people available to this sector as well as all others. However, data relating to 'A' level results at B or higher in science, technology and maths in 2008 show an increase of 30% since 2003.
- 3.13 This suggests that the educational attainment of potential recruits to the sector in relevant subject areas is improving. Data relating to Scottish Higher achievement in similar subjects also indicates a relatively large number of students taking Science, Technology, Engineering and Mathematics (STEM) subjects (potentially) of relevance to the WWT sector.
- 3.14 This section has examined the overall likely nature of demand for skills within the sector together with the current situation relating to the supply of skills – both 'near market' and more long term. In the following section the implications are reviewed together with number of possible actions that the sector may wish to consider to ensure that it is able to draw upon the biggest pool of appropriate labour as is possible.

¹⁷ Science, Engineering and Technology Skills in the UK; DTI, 2006

¹⁸ Skills Electricity Generation Engineer/Scientist Skills Shortage; EU Skills, 2008

¹⁹ Skills Electricity Generation Engineer/Scientist Skills Shortage; op cit

²⁰ Apprenticeships in learning annual average; Learning & Skills Council, 2007; Modern Apprenticeships numbers in training; Skills Development Scotland, 2007

²¹ Education and Skills Bill; HM Government, 2007

²² Government Actuary Department projections indicate that between 2008 and 2020 the number of 16 yr olds is forecast to drop from 789k to 715k and the number of 18 yr olds is due to drop from 809k to 687k.

4: Implications and actions

- 4.1 The previous sections have described the context and rationale for this study – to be in a position to deliver the challenging targets for renewable energy outlined by the European Union, the WWT sector will undoubtedly need to grow through to 2020 (and beyond).
- 4.2 One of the key elements underpinning this growth will be a skilled workforce reflecting the current and future needs of the sector. The ability to obtain and retain such a workforce will in part be influenced by the sector's profile with key players within the skills arena, recognition by policy makers of the sector's significance, a reflection of this in skills policies together with actions taken by the sector itself.
- 4.3 Supporting work suggests that the most technical and highly skilled occupations will be the most important within the sector's value chain in terms of growth. Modelling of employment growth and consequent demand for skills within the sector points to significant growth from the current (2008) position in terms of FTEs employed within the sector by 2014 and onwards to 2020.
- 4.4 Feedback from companies within the sector suggests that currently there are difficulties with recruiting individuals with the types of skills needed. Compensating practices adopted within the sector to tackle these issues are not sustainable and will not meet future demand.
- 4.5 In the longer term, the situation looks potentially more positive. The overall supply of graduates within the broad subject areas of engineering and technology is estimated to grow, although overall growth projections may mask some decreases in specific disciplines of relevance to the sector. The number of organisations offering courses more tailored to the specific needs of the sector is also growing, seemingly fuelled by a desire amongst Higher Education Institutes to offer courses more closely aligned to the needs of industry.
- 4.6 Similarly, there are also ambitious plans for growth in apprenticeship numbers and there is some evidence of the Further Education sector beginning to develop sector specific training. Within schools data relating to 'A' level results at B grade or higher in science, technology and maths in 2008 show an increase of 30% since 2003, although overall, the number of young people aged 16-18 is forecast to drop in the period to 2020.
- 4.7 The types of skills that the sector is likely to need over the coming decade across the value chain are well defined. It is important to recognise that the sector will need to compete in an open market to ensure that skills development resources are directed towards the needs of WWT rather than to other sectors which perhaps have a higher profile with policy makers, representative bodies, providers and funders.
- 4.8 However, the focus upon skills within WWT is timely. There is currently an opportunity to influence – increasingly, there is a recognition of the link between skills, productivity and competitiveness at the highest levels within the public sector. Allied to this is an awareness of the fundamental role that employer involvement plays in ensuring a demand-led agenda for skills – ensuring that *businesses* get the skills they need rather than the skills that *providers* think they need. At the same time, new reforms²³ to improve the delivery of adult and young people's skills will result in a wholesale change to the planning, delivery and funding regime to meet business needs.
- 4.9 Consequently, a number of specific actions are put forward for consideration by the WWT sector, the overall objective being:

²³ Raising Expectations: enabling the system to deliver, Skills White Paper; DIUS, 2008

- to deliver, at an increasing rate, the appropriate supply of skills to the sector by:
 - influencing careers choices (from school to recent graduates and competing sectors)
 - increasing the number of graduates/technicians from relevant courses
 - increasing retention and the internal capacity to train

4.10 This objective can be achieved through focussing upon three areas: Influence, Direct Action and Partnership/Alignment of Activities.

Influence

4.11 EU Skills is the SSC with specific responsibility of the needs of the sector. It is important that the WWT sector, through BWEA and others, develops a close and effective working relationship with the SSC in order to ensure that it understands and represents the skills needs of the sector. The sector should proactively engage with, and contribute to, EU Skills' activities such as the direction of the recently announced National Skills Academy for Power, the SSC licensing process as well as inputting to Working Groups such as the Power Sector Strategy Group and its sub groups.

4.12 In addition, the sector should seek to work with the SSC and industry to identify and create appropriate National Occupational Standards suites which are capable of being mapped to National Vocational Qualifications (NVQs) together with mapping WWT occupations to appropriate NVQs.

4.13 The sector may also wish to consider developing a dialogue with a number of other organisations including SSCs with a relevance to the sector - Semta, Cogent and ConstructionSkills together with other key players including ECITB and UKCES. Other organisations that the sector should seek to influence in relation to skills issues are listed in earlier sections and the Stakeholder Database and include Government Departments and Devolved Administrations across the four nations of the UK, and funding organisations including the LSC, Higher Education Funding Council for England (HEFCE) and the Scottish Funding Council (SFC). In addition, the sector should consider developing links with professional institutions for whom skills issues are important, such as the Institute of Mechanical Engineers (IMechE) and the Institute of Civil Engineers (ICE).

Direct action

4.14 Together with activities which seek to influence the activities of others, BWEA, its members and the sector overall have the opportunity to take direct action themselves in areas where they can act as a catalyst. Indicative activities include encouraging EU Skills to identify a nominated individual with responsibility for renewables and contributing to the EU Skills re-licensing process by providing input to UKCES²⁴.

4.15 The sector should also consider how best to communicate and promote existing skills opportunities for employers such as Apprenticeships, Diplomas, Train to Gain and Integrated Skills Brokerage. The most obvious organisation to take a lead on such activities is BWEA. Underpinning such activities is a need for actions to ensure that there are sufficient trainers and mentors within the sector, adequately trained to support apprenticeship programmes in the longer term.

4.16 Given the developing nature of skills development within the sector, it may also be prudent to consider how best to track and gather data on the employment destinations of WWT graduates. This would provide valuable market intelligence on the numbers being retained within the sector, the reasons for those leaving the sector and to help inform decisions relating to skills and training provision and development.

²⁴ <http://www.ukces.org.uk/relicensing>

- 4.17 The sector may also wish to consider developing a focus upon regions where WWT is of strategic importance to the regional economy and socio economic agenda. Through the identification of a 'test bed' region, opportunities may arise to develop activities relating to skills development. These could include funding for investment in training facilities, funding for retraining and inputting and influencing the emerging Employment Skills Boards.
- 4.18 Finally, the sector should lead on actions aimed at gaining brand recognition across the WWT sector through speaking at conferences, press articles and other PR events reflecting the importance of skills, in particular emphasising the opportunities for skills development and upskilling within a growing and technologically advanced industry.

Partnership and alignment of activities

- 4.19 In relation to partnership and alignment of activities, the sector's greatest assets are its significance as a growing industrial sector (from a policy and public perspective) together with a vocal and active membership able to articulate the demand for skills. BWEA should seek to lever these assets through partnership and alignment of activities with relevant organisations. Activities relevant to the skills needs of the sector include lobbying with professional bodies for electrical and mechanical engineers to be placed on the immigration shortage occupation list. Other activities include working with EU Skills to examine the opportunities for a sector specific Information, Advice and Guidance service to include WWT data similar to those operated by a number of SSCs in partnership with Careers Advice.
- 4.20 BWEA and its members also have a role to play in aligning activities to support the broader actions relating to promoting the attractiveness of sector undertaken by, amongst others, the Royal Academy of Engineering, IMechE and ICE. Related to this are actions aimed at STEM development undertaken by a range of bodies including Science Learning Centres, Technology Colleges and the British Association for the Advancement of Science. The development of a culture where these disciplines and associated occupations are regarded as attractive career options will be of obvious benefit to the sector as it grows to 2020 and beyond.

Towards an Action Plan

- 4.21 The preceding paragraphs have described a number of activities that BWEA and its members may wish to consider in order to ensure that the WWT has enough employees to meet its future needs. These activities would be best delivered through a combination of influence, direct action and partnership. All however, will require an investment – of time, resource and knowledge by organisations within the sector if the WWT sector is to realise the objective of securing the appropriate supply of skills to the sector.
- 4.22 The timescales over which these actions need to be undertaken vary – some represent quick wins, achievable over relatively short periods, whilst others will take longer to deliver, being more strategic in nature.
- 4.23 The next steps for BWEA and its members in addressing the current and future skills needs of the WWT sector will be the development of an action plan which determines priorities for intervention, timescales, the resources required together with the role of differing organisations within the sector. Gaining agreement on these issues will enable the sector to take action to develop the skills needed by the companies within the industry - a key future asset for the wind, wave and tidal sector.