Potential Training Demand in Environmental Technologies in Building Services Engineering

Trend Analysis 2008-2009 and Indicative Training Needs Analysis

SummitSKILLS

The Sector Skills Council
for Building Services Engineering

This report looks at the development of environmental technologies in the building services engineering sector between 2008 and 2009, a year when there has been an unprecedented recession in the UK.

Over 2000 companies took part in the research each year, which included both single site and large multi-site companies. Because the same research methodology was used in both 2008 and 2009, it is now possible to observe trends beginning to emerge and develop.

Current engagement in environmental technologies

There is an obvious grouping around a number of key technologies in England, notably solar water, CHP and heat pumps. Micro wind and rainwater harvesting only appear in one region each (the South West and the East of England respectively) suggesting that the other technologies currently remain underdeveloped within the sector.

Table 1: The three most engaged-in environmental technologies in the English regions

East Midlands	East of England	London	North East	North West	South East	South West	West Midlands	Yorks & Humber
Solar water 38%	ASHP 52%	CHP 24%	Solar water 9%	CHP 31%	Solar water 33%	Micro wind 60%	CHP 32%	CHP 20%
CHP 21%	Rainwater harvesting 29%	Solar water 23%	CHP 7%	Solar water 29%	ASHP 31%	CHP 29%	Solar water 26%	Solar water 18%
GSHP 18%	Solar water 16%	ASHP 12%	ASHP 5%	GSHP 27% ASHP 27% = 3rd	GSHP 21%	GSHP 28%	GSHP 22%	GSHP 12%

As in England, the devolved nations show a strong leaning towards solar water, CHP and pumps. Scotland is the only nation or region in the UK where biomass makes an appearance, possibly because of the geographical nature of that country.

Table 2: The three most engaged-in technologies by devolved nation

Northern Ireland	Wales	Scotland
Solar water 46%	Solar water 13%	Solar water 57%
CHP 31% = 2nd	CHP 11%	Biomass 39% = 2nd
GSHP 31% = 2nd	ASHP 10%	Rainwater harvesting 39% = 2nd

Although these technologies are the most popular ones, engagement in many in the UK is still less than 20%.

The change in engagement in environmental technologies between 2008 and 2009

With the exception of CHP, GSHP, bio-fuel and fuel cell, all the other technologies show an increase in engagement, with the largest increases in engagement seen in biomass (14%), rainwater harvesting (13%), micro wind (9%) and photovoltaics (6%).

Table 3: The change in engagement in environmental technologies between 2008 and 2009

	Percentage increase/decrease
Solar water	+1%
Photovoltaic	+6%
CHP	-6%
Micro wind	+9%
GSHP	-4%
ASHP	+4%
Biomass	+14%
Bio-fuel	-1%
Micro hydro	+1%
Fuel cell	-1%
Rainwater harvesting	+13%

Potential training demand

The following section estimates the number of operatives in the BSE sector who will need to be trained by 2012. This estimate is based on the current number of operatives who work with the technologies, and the number of operatives in companies that say that they are considering engaging with the new technologies.

The training needs figures are presented in two ways. First, the figures for trades that SummitSkills would not normally expect to be engaged with some of these specific technologies (e.g. plumbers who claim to fit photovoltaics, or electricians who claim to fit solar hot water panels) are shown in table 4 and 5. These are the companies interviewed in 2008 and again in 2009 that specifically stated they currently are or would be interested in being engaged with them. Second, adjusted figures are also presented (table 4a and 5a) that take into account the industries that SummitSkills believes will actually be engaged in the technologies because they have the base competencies required to install them.

Table 4a: Total potential training need for the BSE sector by environmental technology and nation

	England	Northern Ireland	Wales	Scotland
Solar water	127,482	5,090	9,027	15,042
Photovoltaic	99,204	4,204	11,241	9,455
CHP	100,031	3,785	3,706	11,312
Micro wind	79,383	3,176	3,295	8,469
GSHP	100,599	4,075	4,158	12,337
ASHP	89,021	3,548	3,704	9,839
Biomass	62,204	2,899	2,411	11,030
Bio-fuel	41,880	1,977	1,869	5,169
Micro hydro	31,851	1,635	1,496	3,958
Fuel cell	39,712	1,319	1,661	4,636
Rainwater harvesting	77,904	2,508	3,163	15,088
Total	**849,272**	**34,216**	**45,731**	**106,335**

Table 4b: Total potential training need for the BSE sector by environmental technology and nation – SummitSkills adjusted figures

	England	Northern Ireland	Wales	Scotland
Solar water	59,451	2,264	3,808	7,032
Photovoltaic	52,587	2,223	6,180	4,466
CHP	43,693	1,590	1,561	5,305
Micro wind	48,685	1,979	2,161	5,111
GSHP	52,346	2,032	2,022	6,814
ASHP	43,857	1,676	1,718	5,155
Biomass	26,157	1,151	975	4,828
Bio-fuel	17,382	757	715	2,350
Micro hydro	16,484	865	799	1,984
Fuel cell	20,071	712	883	2,137
Rainwater harvesting	37,395	1,151	1,530	7,268
Total	**418,108**	**16,400**	**22,352**	**52,450**

Table 5a: Total potential training need for the BSE sector by environmental technology and English region

	East Midlands	East of England	London	North East	North West	South East	South West	West Midlands	Yorks & Humber	Total
Solar water	11,775	19,036	18,158	7,495	13,061	17,250	12,232	14,844	13,631	127,482
Photovoltaic	8,463	18,917	16,798	3,390	8,625	12,530	8,152	12,068	10,261	99,204
CHP	9,199	15,251	13,821	3,977	10,537	14,415	10,246	12,046	10,539	100,031
Micro wind	7,501	13,502	10,601	3,266	8,962	11,123	8,725	7,059	8,643	79,383
GSHP	8,018	15,280	11,841	4,409	10,572	17,393	10,616	12,002	10,468	100,599
ASHP	7,681	16,377	10,895	4,120	9,633	16,680	6,463	7,778	9,395	89,021
Biomass	4,837	10,603	7,265	2,564	7,421	9,779	4,549	8,457	6,729	62,204
Bio-fuel	4,149	5,188	5,842	2,100	4,323	8,019	3,223	3,989	5,048	41,880
Micro hydro	2,967	4,246	5,420	1,666	3,402	4,505	2,367	3,464	3,814	31,851
Fuel cell	3,143	5,112	6,236	1,710	3,676	8,939	2,888	4,034	3,974	39,712
Rainwater harvesting	6,552	13,155	9,482	3,701	8,615	11,531	7,598	9,701	7,568	77,904
Total	**74,285**	**136,667**	**116,359**	**38,398**	**88,827**	**132,164**	**77,059**	**95,442**	**90,070**	**849,272**

Table 5b: Total potential training need for the BSE sector by environmental technology and English region – SummitSkills adjusted figures

	East Midlands	East of England	London	North East	North West	South East	South West	West Midlands	Yorks & Humber	Total
Solar water	5,235	8,133	7,223	3,883	6,594	8,258	6,387	7,186	6,553	59,451
Photovoltaic	4,430	10,521	10,399	1,498	3,968	5,971	3,708	6,924	5,168	52,587
CHP	3,889	6,017	5,145	2,011	4,997	6,785	4,965	5,265	4,620	43,693
Micro wind	4,828	8,846	7,076	1,827	5,138	6,209	4,649	4,548	5,564	48,685
GSHP	4,108	7,196	5,192	2,595	5,850	9,425	6,076	6,358	5,544	52,346
ASHP	3,676	7,255	4,643	2,315	5,127	8,744	3,582	3,861	4,653	43,857
Biomass	2,007	3,983	2,643	1,212	3,376	4,521	2,130	3,475	2,810	26,157
Bio-fuel	1,684	2,027	1,936	1,011	1,984	3,482	1,545	1,557	2,156	17,382
Micro hydro	1,521	2,430	3,238	733	1,533	2,185	1,133	1,736	1,974	16,484
Fuel cell	1,638	2,804	3,619	733	1,686	4,202	1,360	2,066	1,962	20,071
Rainwater harvesting	3,097	5,664	3,970	2,011	4,482	5,789	3,889	4,691	3,800	37,395
Total	**36,113**	**64,876**	**55,084**	**19,830**	**44,735**	**65,571**	**39,426**	**47,667**	**44,805**	**418,108**

Appropriate skills level to install environmental technologies

Although some companies may choose to specialise in installing environmental technologies only, the vast majority of companies are generalists and will install these technologies when they come across them. This means that installation levels vary between companies, with some installing only a couple of technologies per year, while others may install a couple of units (or more) per week.

With the exception of the East Midlands (-17%) and South East (-3%), the English regions have showed an increase in demand for level 3 competence since 2008 (10%). Work needs to be done in East Midlands and South East to encourage companies to see these technologies as better suited for installation purposes to level 3 competence, rather than level 2. The current policy of SummitSkills, partners and stakeholders within the sector is that level 3 competence is the level required for the installation of these technologies.

With the devolved nations, Northern Ireland bucks the trend towards level 3 as the requisite competence level, which is surprising given the amount of environmental technology training there is in the province. However, generally the trend is towards an increased awareness that the competence levels required to install environmental technologies is at level 3.

Conclusions

In the short-term (24 months), the sector is currently ill-equipped to cope with a surge in demand for renewable and low carbon solutions.

Over the longer term to 2020, significantly higher numbers of operatives in the sector will need training in a range of these technologies to meet the business needs of their employers. Alignment of the supply and demand of environmental technologies is crucial to prevent overheating of the supply network and the proliferation of rogue trainers.

SummitSkills recommends that together with partners and stakeholders the following actions are taken:

- Continue to educate the sector about the nature of the environmental technologies available and increase awareness
- As an initial policy, it is recommended each nation concentrate on the three environmental technologies with the highest current engagement (in the case of England this would be considered at regional level)
- Develop units and qualifications for a formal qualification structure for the sector to assess the value of the training received by operatives and support training providers in regions with a growing renewables market
- Continue to strongly promote the message of level 3 competence for environmental technologies in the sector, particularly in the East Midlands and the South East of England

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