

## C Demand Side

### 4 Sub-sector Analysis and Case Studies



#### 4a. Case Study: Electricity Industry

*Energy & Utility Skills (EUSkills) is the Sector Skills Council (SSC) for the electricity, gas, waste management and water industries. As an employer-led organisation, its purpose is to help employers identify their skills needs and then provide effective solutions to improve their business performance. EUSkills is actively working to establish itself as a focal point for business and industry (large or small) and government, working together.*

Utilities are often perceived as a Cinderella sector; taken for granted, but essential to the smooth running of the UK economy for enterprise and at home.

The utilities sector in the UK has come something of a full circle. Originally established as a large number of small, private companies subsequent tranches of legislation allowed, and then required, the formation of nationalised utility monopolies. Under the Conservative Governments of the 1980s and 1990s, the process was reversed with initially gas and then electricity and water utilities being privatised.

Post privatisation, the gas, electricity and water industries were required by their economic regulators to produce year-on-year efficiency savings, a challenge they met through a mix of genuine downsizing and outsourcing of activities to contractors. The outcome is that employment in these industries has fallen by about 50% in the last 20 years.

The resulting lack of turnover and workforce renewal left the utilities with a workforce significantly older than the UK average. A recruitment crunch point is looming around 2020 when the 60's 'baby boomers' come up to retirement age. This will be repeated in 2040 with the retirement of the 80's 'baby boomers'.

Against this background much of the UK's utility infrastructure is overdue for renewal. Major investment is being planned to replace some 18,800 km<sup>85</sup> of old cast iron water mains in the next five years and OFGEM<sup>86</sup> allowing an additional £1 billion in new investment in electricity distribution by 2010.

To deliver this programme will require a significant amount of skilled manpower. In 2006 EU Skills' research<sup>87</sup> noted the need for an additional 45,000 Level 3 technicians and 20,000 managers between 2006 and 2012 just to maintain the status quo.

A key barrier to recruitment is the near invisibility of the utility organisations to the public. This was identified in EU Skills' analysis of the National Employer Skills Survey (NESS) 2006 and in industry scenario planning workshops undertaken as part of the EU Skills Sector Skills Agreement (SSA) research in 2007.

85 OFWAT 2008 [www.ofwat.gov.uk](http://www.ofwat.gov.uk)

86 OFGEM 2004 [www.ofgem.gov.uk](http://www.ofgem.gov.uk)

87 EU Skills Sector Skills Agreement Stage 1 report 2006 [www.euskills.co.uk](http://www.euskills.co.uk)

To investigate this further, in 2008 EU Skills commissioned a piece of research on behalf of the Power Sector Skills Strategy Group (PSSSG) into the perceptions of the public of the electricity industry. In a telephone survey of 1,000 respondents were asked to rate their knowledge of the electricity industry on a scale of one-to-ten (where ten was the greatest amount of knowledge and one the least) at between one and four. In their answers four out of five respondents rated their awareness at between one and four. Whilst not entirely unexpected, the findings highlighted the scale of the awareness problem.

This finding was echoed in the focus groups run as part of the research. Participants exhibited a limited awareness of electricity generation but had no clear idea of how it reached their homes and businesses. By contrast participants were able clearly identify the importance of electricity to modern life, one participant noting that *'life would be medieval without electricity'*.

In another part of the exercise the participants were asked to describe what they felt were typical roles in the electricity industry. Seven pen portraits of roles within the electricity industry emerged from the discussions. These comprised:

- > The sparky (electricians);
- > The boiler suited meter reader;
- > The eccentric scientist;
- > The grey executive;
- > The salesman;
- > The high risk engineer;
- > The contact centre girl.

The roles were notably male dominated with the only female role being notably stereotypical. This perception of a male-dominated technical industry was a constant thread through the qualitative research. While this particular piece of research relates just to the electricity industry there is a belief within EU skills that a very similar picture would emerge for the gas and water industries.

This thinking is supported by the findings of the Relevance of Science Education (ROSE) project<sup>88</sup> run by Oslo University. This work examined the attitude of 15 year old students across 40 countries to science and technology, investigating a number of factors including gender and the state of development of the participants' country as measure by the Human Development Index<sup>89</sup>.

The research identified a very strong inverse correlation between the state of development of a country and the attitude of its 15 year olds to science and technology with girls rating science and technology lower than boys. In short, the more developed a country, the less its 15 year olds are interested in science and technology, and it is worse for girls than boys. This suggests that the challenge of attracting new entrants into the Energy and Utility sector is much more than a UK problem and is actually global in nature.

Traditionally utility organisations have employed a higher proportion of graduates than the UK average, a reflection of the technical nature of these industries. Worryingly for the utility sector, graduate recruitment is expected to become increasingly competitive. UK demographic data from the Office of National Statistics (ONS) shows a 9% reduction in the number of young people (18-25) in the population in 2030 compared to 1970. This suggests a corresponding reduction in the overall number of graduates, regardless of subject.

The situation among Engineering and Technology graduates may be proportionally less favourable. Whilst the number of graduates studying E&T subjects at UK HEIs has grown slightly over the last five years, increasing competition from a widening choice of university courses means that E&T student numbers are not growing as fast as the overall student population and will inevitably fall when the overall number of young people reduces.

88 <http://www.ils.uio.no/english/rose/>

89 The HDI combines three basic dimensions: **Life expectancy at birth**, as an index of population health and longevity; **Knowledge and education**, as measured by the adult literacy rate (with two-thirds weighting) and the combined primary, secondary, and tertiary gross enrollment ratio (with one-third weighting) and; **Standard of living**, as measured by the natural logarithm of gross domestic product (GDP) per capita at purchasing power parity (PPP) in United States dollars.

This reducing supply of appropriate graduates contrasts with anecdotal evidence highlighting increased competition for graduates in China, while producing a large volume of home grown talent, is increasingly targeting graduates from European universities for its highest profile roles. Alongside this a recent article in the FT<sup>90</sup> noted that Germany is increasingly suffering a shortfall in graduate numbers. In response the German Government is considering relaxing its graduate residency rules, among other things halving the salary level required for a graduate to become a permanent resident.

With few countries being immune from issues of adverse demographics and the limited appeal of the utility sector as a career choice global competition for graduates is only likely to increase.

The reducing volume of potential and actual graduates contrasts with increases of 38%, 18% and 47% in the age bands 35-44, 45-50, and 50+ respectively. This shift in age profiles is reinforced by the ETB's finding that modal age band for Chartered Engineers in 2007 was 50-54, compared to 40-44 in 1988. To round out the picture data from the Government Actuary's Department shows that for the average UK business around 70% of its 2020 workforce has already left compulsory education. Whatever the skills issues of 2020 will turn out to be, the 30+ age group will need to be part of the solution.

One of the positive findings of the PSSSG research was that as participants were exposed to increasing amounts of information about the electricity industry they became increasingly engaged with the idea of pursuing a career in it.

Whilst considerable cynicism was exhibited about the current 'green' initiatives of the industry, regarding these as little more than 'green-washing', there was a consensus across many of the groups that a *genuine* green agenda would make the sector more attractive to them as a potential career choice.



While many of the pressures noted above have each been seen in some form before they are beginning to build up layer on layer in manner which suggests existing recruitment strategies will no longer be adequate. There is a clear requirement for the utilities sector to raise its game in recruitment so that it can put the sector forward as a well-paid, attractive, serious career proposition to compete with those sectors currently seen as being more dynamic and exciting.