East of England Skills for Energy

Research Report

prepared for

Department of Trade and Industry (DTI), Learning and Skills Council Norfolk, Cogent, ECITB, Energy & Utility Skills and SEMTA

by

IFF Research Ltd

November 2004

FOREWORD

DTI – Claire Durkin

Maintaining a sustainable and secure supply of energy for the UK is a priority for the Government. Given the diverse nature of our energy industry, effective collaboration is essential, and this means that we all need to work together – government, industry and the Sector Skills Councils – in order to maximise the full potential of the UK energy industry's skills and resources. Strong relationships become even more important at a time of rapid change. This report is a successful demonstration of four Sector Skills Councils, key stakeholders and industry working together to identify both the strengths and areas for development for the energy industry. It sets the scene to ensure that the East of England continues to be a significant contributor at the centre of the industry, playing a vital part in the supply of energy for the whole of the UK.

The report outlines a practical way forward but positive action is needed now in order to make a real difference – one that is tangible and engages local companies. I'm confident that together we can drive the skills agenda forward and ensure the long-term competitiveness of our energy industry. I'm delighted to be able to support this important piece of work.

PILOT - Mike Salter

The North Sea basin is now mature and yet only just over half of the UK's known oil and gas resources have been produced. It is believed significant volumes are still to be recovered – potentially up to 30 billion barrels of oil equivalent (boe). Since January 2003, PILOT, the government industry scheme, that promotes the long-term health of the UK continental shelf (UKCS), has supported the development of a "Strategic Agenda for Skills " – which provides a cohesive framework for collective industry action to attract, retain and encourage skills development within the workforce. Activities include the Upstream Technician Training Scheme and "Opportunities – *in oil and gas*" a graduate attraction programme.

As companies seek to keep the UK continental shelf competitive, maximise the economic recovery of its remaining reserves and slow down production decline, a competent and creative workforce will be critical to carry the North Sea forward, safely and effectively, into the next phases of its development. This report demonstrates that the East of England is well placed to play an important part in the continuing development of offshore oil and gas production as well as in other energy sector businesses.

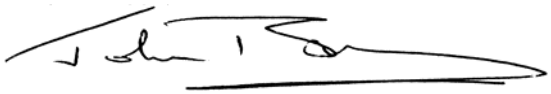
LSC – John Brierley (LSC Norfolk)

The Learning and Skills Council has supported this significant research as we believe the energy sector will be of critical importance to the East of England in the 21st Century.

The region demonstrates its many natural assets through offshore production in the Southern North Sea, nuclear energy production at Sizewell, the Bacton Gas Terminal, existing onshore and offshore wind energy production with further planned developments in grown fuel. We have both small and large companies able to rise to this challenge with public agencies supporting their development. All of this expertise will contribute to UK plc through direct employment and through revenues earned by exports. The energy industry operates in a global market.

The sector has the potential to continue to provide good quality employment with well paid jobs, creating sustainable prosperity. However, for it to be successful it is essential that it recruits and develops people with the right skills and competence to meet its needs. To plan effectively we must ensure that accurate information can be supplied to employers, individuals considering employment in the energy sector and those agencies who provide advice and guidance to both young people and adults. Collaboration on this scale needs a focus and we recognise the role played by the SSC partnership led by Cogent and supported by EEEGR in helping build relationships to achieve effective working in delivering this report.

This report recommends actions to drive this agenda forward and we are committed, with our partners, to support the regions businesses to make these opportunities a reality.



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EAST OF ENGLAND ENERGY GROUP

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1 Executive Summary

1.1 This report details the findings of a study conducted among employers operating in the primary energy production sector in the region covered by the East of England Development Agency (EEDA). The research covered a total of 42 such companies, plus one training provider specialising in safety and survival training for the offshore oil and gas industry. The aim of the study was to throw light on business challenges and workforce, recruitment, skills and training issues affecting the sector in the region.

1.2 While we talk in the report of 'the Energy sector' it needs to be borne in mind that the sector is extremely diverse in activity and scale, and covers multinational companies as well as single site organisations employing just a handful of staff.

1.3 Despite this diversity, many of the issues affecting employers such as areas of recruitment difficulty and an ageing workforce were broadly shared. Further, it was not uncommon to find employers with skills and experience in one area of operation looking to transfer these skills into likely growth areas, such as the renewables sector. These factors should serve as an incentive for the four SSCs and other support organisations with an interest in the Energy sector in the region, to work together to tackle some of these shared issues. A further incentive for more co-ordinated activity is the widespread view among employers that the East of England has lost out to Aberdeen as the focus for the Energy sector in the UK. There was hope that the East of England could become a centre for the renewables sector, but this too was felt to require concerted effort and support.

1.4 The Energy sector in the region has an ageing workforce. Within the companies interviewed for the survey, only 5% of employees were aged under 25 and only a quarter were under 35. Employers estimate that a quarter of the workforce (28%) will retire within the next 10 years. Furthermore the significant number of major projects planned nationwide suggests that more employers will be seeking to recruit from a diminishing pool of skilled workers. This coupled with current skills gaps and the need for greater investment in training suggest that the industry's recruitment and skills issues can only become more problematic.

1.5 There was general concern about the lack of apprentices and young people being taken on in the industry. This was put down to the traditional reliance on companies such as Shell and BP to undertake this role no longer being valid as they scale down their operations in the region, and a reluctance of young people in the area to want to work in the sector. It was also evident that many employers were reluctant to take on inexperienced staff, whether school leavers or graduates.

1.6 Difficulty attracting young people (of the right calibre) was felt to relate to there being poor understanding of the career opportunities that the sector can offer and the sector being associated with unattractive working conditions. These issues were all areas that employers felt the SSCs and other support organisations could work to tackle, for example establishing links with local schools and colleges to improve knowledge and understanding of the sector and the opportunities it provides.

1.7 Recruitment difficulties were reported across a range of occupations, including control and instrument technicians, control and instrument engineers, electrical and electricity generation technicians and engineers, level 3 staff within various occupations with good supervisory and leadership skills, and production personnel. These recruitment difficulties often impacted on business performance, such as increasing costs (for example, having to pay consultancy rates to bring in relevant skills) and limiting their capability to take on new work.

1.8 Employers facing recruitment difficulties are increasingly looking to recruit from further afield, including overseas, rather than train up people from scratch. Support agencies such as the SSCs need to consider ways that they can work with employers and educational establishments to increase the numbers of people entering learning in suitable areas to support the occupations where numbers of skilled staff are lacking. Not that all sub-sectors within the Energy sector appear to be facing the same image problem. In the renewables sector, where significant growth is expected though admittedly from a relatively small base, employers report far fewer recruitment problems and a very positive image among young people. This may be one useful hook to capture the interest of young people in the Energy sector more widely.

1.9 SSCs and support agencies also need to work with employers and local colleges to build up learning provision suited to the needs of the sector -despite its importance to the local economy, there was little sign of colleges working closely with the sector to adapt and tailor provision to meet its distinct needs.

2 Introduction and Background

2.1 This report details the findings and implications of a study part funded by the DTI and the Learning and Skills Council Norfolk and managed and co-ordinated by Cogent, Energy & Utility Skills, SEMTA and the Engineering Construction Industry Training board (ECITB) – the latter is not a Sector Skills Council but is playing its part in supporting the Skills for Business (SfB) network. The project is in many ways unique involving three Sector Skills Councils, ECITB, DTI, regional partners and employers collaborating to carry out research and implement solutions that will benefit the Energy industry in the East of England.

2.2 The study collected and analysed intelligence from operators and contractors working in primary energy production (i.e. not including transmission and distribution) in the East of England in order to provide an up to date understanding of the short, medium and long term issues facing the sector, in particular in respect of skills, training and recruitment.

2.3 The decision was taken to provide a report which focussed on new developments in the region (e.g. the arrival of new operators in the oil and gas sector, the growth of the renewables sector and decommissioning in oil and gas and nuclear). It therefore complements and also updates and consolidates existing knowledge as a basis for taking action, rather than being a comprehensive survey of labour market issues. As discussed later in this chapter, a large number of studies and reports have been produced relevant to the energy sector in the East of England, though most look at one sub-sector (e.g. oil and gas, renewables or engineering in general) or cover geographies broader or narrow than the East of England.

2.4 A number of rationales lay behind the commissioning of the study, in particular:

- The sector could be characterised as being both dynamic and fast changing but at the same time highly vulnerable to external factors. In the latter regard, one example is its exposure to the decisions of a relatively small number of key players whose decisions can have significant affects for local suppliers. The announcement by Shell in 2003 that Shell Exploration and Production's Southern North Sea assets will be run from the Netherlands with its Lowestoft presence being rundown, and the recent announcement by BP that it is ceasing production of lubricants at Coryton with the expected loss of some 200 jobs, are just two examples of this. The result is a relatively high volatility in the numbers employed in the sector within the region. The dynamic and volatile nature of the industry in this regard makes it particularly desirable that companies have the potential to adapt and diversify, and that the workforce has up to date, transferable skills.
- A number of studies have pointed to various current or potential labour market difficulties for the sector in the region, including an ageing workforce, difficulties attracting young people into the sector and persistent problems recruiting for various specific occupations (for example, control and instrumentation engineers and technicians). There has been little sign that these reports have led to co-ordinated and sustained action in the region to tackle these issues. In part this may be because of the diverse nature of the sector and that previous reports have often concentrated on a specific sub-group within the wider Energy sector (renewables, oil and gas etc). With the recent creation of the SSC network and the opportunity this offers for a reappraisal and fresh approach, the recognition of the fluid nature of the workforce across the sectors which the energy-related SSCs cover, and the desire of the SSCs to work together to tackle labour market issues affecting their related sectors, this study offers the opportunity to raise the profile of the issues affecting the Energy sector, and to act as the starting point for more concerted and co-ordinated action to tackle these issues.
- More generally, it is clear that most parts of the Energy sector operate within a highly competitive market place both in a national (especially from Aberdeen) and international sense, and this further emphasizes the need to make the area an attractive and competitive place for employers to operate. One key element of this of course is the need for a supply of suitably trained and skilled workers.

2.5 There are also well known structural issues affecting the sector which are impacting on skill requirements and will continue to do so, and this makes it particularly important that decision makers have access to up to date information on skill requirements and skill deficiencies, and on labour market issues more generally. Key trends include:

- The growth of the renewables sector in the region and the potential for further significant growth including the development of further offshore wind farms following Scroby Sands which commenced operation in July 2004. This is closely tied to government policy. Across the UK as a whole renewables account for about 3% of power supply, and the target for 2010 is for 10% of electricity to be from renewables, and the aspiration for 2020 is for this figure to be 20%.
- The sale by major operators of mature assets in SNS to smaller, independent operators, examples including Perenco acquiring BP's operated assets in SNS, and Tullow Oil acquiring ConocoPhillips' interest in the Hewett field.
- The move to decommissioning in the nuclear sector and offshore oil and gas sectors
- In Engineering Construction, the plans for significant new build projects (see Appendix G) in addition to the current requirements of repair, maintenance and decommissioning.
- Longer term, falling production of oil and gas. For example the UK is now in transition to being a net importer of gas.

Background on the Energy Sector in the region

2.6 The Energy sector in the East of England plays a key role in the area's economic well being. That said, exact and reliable estimates on such figures as the number employed in the sector are hard to come by. As a recent report commissioned by Norfolk LSC in 2003 that examined priority sectors commented:

'It is virtually impossible to get a wholly reliable picture of the scale and distribution of energy sector employment in Norfolk. Even at a national level, the Skills Dialogue report for Gas, Water and Electricity Industries (July 2002) remarks that official and NTO estimates for employment in the Utilities sector vary between 140,000 and 500,00 people!'

2.7 The following figures represent some of the estimates for employment within some of the Energy sub-sectors:

- A recent report of 2003 by OTM Consulting estimated that 2,100 people were directly employed in the oil and gas industry in the East of England, and 10,000 worked in the region within the supply chain to the sector. In addition the report suggested that there were some 3,000 'induced' jobs depending on the oil and gas sector.
- ECITB estimate that a minimum of 750 workers are employed in the energy sector across the East of England, with this number increasing considerably at times of large outages.
- In the nuclear sector approximately 800 are employed at the two Sizewell power stations, and some 400 at Bradwell, with some supply chain based around this (though the numbers employed in this regard are uncertain but assumed to be relatively small scale).
- Reliable employment figures for the renewables sector are hard to come by.

2.8 One note, when we talk of the Energy sector throughout this report, it needs to be appreciated that this is an extremely diverse sector with different elements of it at very different stages of maturity. At the one end of the scale is the renewables sector consisting mainly of relatively new start ups and most employing fewer than 20 staff. At the other end of the scale are the very large organisations or establishments (including refineries and power stations), these typically long established, operating globally and employing hundreds of staff in the East of England.

National Context

2.9 This Report is written against a background of significant government legislation and guidance.

Government's Skills Strategy

2.10 In July 2003, the Government's Skills Strategy '*21st Century Skills Realising Our Potential*' was presented to Parliament. This is a shared strategy involving the Department for Education and Skills, the Department of Trade and Industry, the Department for Work and Pensions and the Treasury.

2.11 Its main aim is '*to ensure that employers have the right skills to support the success of their businesses and individuals have the skills they need to be both employable and personally fulfilled*'.

2.12 Skills are identified as one of the five key drivers of productivity in the workplace (the other four being investment, innovation, enterprise and competitive markets). The case for adopting a sector approach to address productivity and skills challenges has been recognised for some time and provides the rationale for the role the Government sets our for Sector Skills Councils and the Skills for Business Network (see Appendices).

2.13 Sector Skills Councils are tasked with representing the voice of employers with regard to skills and productivity issues and they are identified as 'major contributors' at both regional and national levels in terms of working with partners to deliver solutions tailored to meet the needs of employers.

2.14 All Sector Skills Councils will be putting in place Sector Skills Agreements which will set out the needs of employers in the sector and describe how the SSC will work with regional and national agencies to meet those needs.

Energy White Paper and the Energy Act

2.15 The Energy White Paper was presented to Parliament by the Secretary of State for industry in February 2003 followed by the Energy Act 2004 which received Royal Assent on 22 July 2004.

2.16 The Act is intended to provide the basis for promoting 'cleaner, greener power' and competitive and reliable energy supplies for now and future generations. Its core themes are sustainable energy, dealing with the nuclear legacy and competitive energy markets.

2.17 It will implement a range of commitments made in the Energy White Paper and demonstrates the Government's serious intentions that the challenging targets of the White Paper are met including measures to help ensure that 10% of the UK's electricity comes from renewable sources by 2010. It is likely that the current workforce will need to grow substantially to meet these commitments.

2.18 The Energy White Paper places the energy sector centre stage recognising that `without reliable supplies the economy and our national infrastructure would not function.' It also emphasises skills as a key driver in boosting productivity and competitiveness and identifies the need to `*address skills development, training and an ageing workforce in the energy industries. The problems are widespread….*'

2.19 The White Paper also sets out a clear role for RDAs, local authorities and other regional and local bodies in developing a strategic approach to energy within their regions to include regional targets and an action plan showing how objectives on energy will be delivered.

3 Methodology

3.1 In total, 40 interviews were conducted with Energy companies operating in the East of England (the East of England was defined in terms of the six counties matching the East of England Development's Agency remit, namely Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk). All were conducted face-to-face, with the exception of one company that self-completed the questionnaire.

3.2 The face-to-face interviews were undertaken with either the Chief Executive or a senior member of staff with responsibility for human resource issues for the company. If the company operated outside the region as well as in the East of England, then the interview was conducted with the person best able to answer specifically for the East of England - although all companies covered by the research operated or planned to operate in the Energy sector in the East of England (a small number did not currently operate in the region but intended to do so), a number of interviews were conducted with individuals based outside the region (examples were London and Aberdeen).

3.3 The discussions were conducted using a topic guide (a copy is appended to this report) and typically lasted between an hour and an hour and a half. They were conducted by staff of the four SSCs involved in the study. IFF Research staff attended a number of the early interviews to provide guidance and feedback on the interviewing.

3.4 In addition to the face-to-face element, respondents were asked to complete a detailed datasheet asking them quantitative questions on such issues as the qualification levels of their workforce, and any areas where they were experiencing skill gaps or hard to fill vacancies. In total 35 datasheets were completed (including two from companies where no face-to-face interviews were carried out).

3.5 The sample of companies to contact for the survey was compiled by each SSC with the intention of including a broad range of companies within the primary energy production sector in the region. This included:

- new / recent entrants as well as more established companies
- a range of types of company by their position in the supply chain: operator, contractor, supplier and sub-contractor
- a range of size from micro-businesses to subsidiaries of multi-national

3.6 The original list was then discussed with EEEGR, and additional companies added based on their knowledge of the Energy sector in the area. As a note, all the interviews conducted by Energy & Utility skills were among operators in the renewables sector (with this all key 'sub-sectors' such as biomass, solar and wind).

A profile of the companies interviewed

3.7 In total 42 companies were either interviewed or returned a datasheet about their organisation. The size and profile of the companies participating in the study are briefly discussed to provide context about the survey coverage.

3.8 Ten of the companies participating in the study were operators, twenty were contractors and the remainder were involved in the supply chain. The following table indicates the main and secondary activities of these organisations. A wide spectrum was covered with something of a concentration on those in or serving the offshore oil and gas extraction sector. As a note not all companies listed a secondary activity.

Area of Energy Activity		
Base: all respondents (42)	Main area	Secondary area
Offshore oil and gas extraction	18	2
General purpose fabrication / structural engineering	4	6
Renewables – wind	4	5
General engineering	3	1
Onshore oil refineries	3	7
Renewables – biomass	3	1
Renewables – solar	2	-
Power station (nuclear)	1	2
Gas terminals	1	6
Renewables – bio-fuels	1	2
Other	1	1

3.9 The 42 companies interviewed or returning a datasheet employed almost 3,500 staff directly in the East of England, with an additional 1,700 temporary or contract staff[1]. The research covered a very wide range of size of employer, from many (a quarter) with less than 10 staff employed in the East of England (this was particularly common in the renewables sector) to very large operators including power stations, refineries and large multinationals (the two largest each employed around 650 in the East of England). As a note the percentage figures shown indicate the proportion of employers with that many permanent staff in the East of England, not the proportion of the workforce employed in that size of company.

Numbers employed in the East of England among those interviewed[2]	
Total number of permanent staff	*3,435*
Company size (permanent staff in East of England)	
10 or less	26%
11-24	9%
25-99	34%
100 +	31%
Total number of contract / temporary / agency staff	*1,716*

3.10 Sixteen of the 42 companies indicated that all or part of their HR function was managed from outside the East of England. These tended to be relatively large organisations (though also included a number of potential new entrants with a no current presence in the region), and overall just under half of all permanent employees covered by the survey worked for organisations where all or part of the HR function was managed outside the region.

[1] The figures may include some double counting if an operator and a contractor operating at the same site were covered. In this situation the operator may have reported the number of contractor staff at the establishment, and then the contractor discuss these same staff (though in this case as their permanent employees)

[2] As above.

4 Business challenges and issues affecting the sector

4.1 In this chapter we discuss the extent and range of business challenges reported by employers in order to put into context their views on the labour market issues such as recruitment and skill gaps which are explored in depth in this report.

4.2 At a general level, labour market concerns were rarely paramount in terms of the immediate and direct challenges facing their business or preventing them achieving their business goals. When discussing their current challenges a much higher priority was placed on factors such as:

- Change and uncertainty over the last couple of years caused by developments in the East of England Energy sector such as some of the larger operators moving out of the area, and selling their business to new operators. This has had particular impact of course on suppliers to these companies, and has served to constrain investment, expansion and recruitment.
- Especially for the renewables sector, the impact of government policy and the perceived need for government action to assist the sector. Examples included:
  - a move into bio-diesel products derived from virgin crops (e.g. rape) being dependant on excise being lowered (and the view that French and German producers were in receipt of more grants than UK competitors). Likewise, the fact that the government has decreased tax on green fuels was the stimulus for the same company to open a new factory (creating over a hundred jobs). Another described '*the metering tariffs for the buy back of power require some form of legislation to support the growth of small sources of renewable power and to encourage uptake.*'
  - government agencies being slow to develop coherent policy: *"DTI and DEFRA need to translate all their policy initiatives and grants available into a coherent strategy that will enable bio-energy to compete on a level playing field with solar and wind."* Perceived slow decision making were described as leading to crops not being planted.
  - The planning requirements for wind farms being seen as excessive, and leading to delays and added costs.
- The likely need for (more) mergers and acquisitions within the renewables sector
- Longer term concerns about the grid capacity of the East of England

4.3 Other common themes in terms of the thinking underlying business planning were the following:

- Oil and gas are seen as having another 15 good years in the East of England
- There continues to be great pressure to minimise costs, especially among some engineering companies and among those servicing and acting as contractors to the major oil and gas players (many of the latter for example indicated that the new operators were returning to short term, 'lean' contracting). In both cases many spoke of a competitive market place, low margins and a couple of years of relatively poor levels of business. A number had reduced staffing levels or felt this was likely.
- The move in oil and gas towards smaller independent operators is having two main effects: these new operators tend to want 1 stop shop for their contractors (e.g. design, fabrication and installation from one supplier) and they tend to be slimmer organisations who sub-contract more, and who have faster decision making and different ways of working compared with the previous operators. One of the impacts this has for suppliers is the need to be able to undertake contract work at relatively short notice. As one commented '*our biggest challenge is gearing up to do contracts which are normally from big operators who expect immediate gearing up. This requires hiring people with the right skills for the duration of the contract and then laying them off until the next contract.'* Following the uncertainty that the change in operators and the new modus operandi had created, there was a general feeling that new opportunities were opening up, and most were cautiously optimistic.
- Many organisations are hoping to diversify into renewables and feel this offers growth potential, indeed that the East of England can become a centre for the renewables sector. Some feel this is likely to require concerted effort and investment, and the issue of the need for an outer harbour at Great Yarmouth in order to attract turbine manufacturing (and additional manufacturing such as of blades that this would bring with it) was raised by a number of employers. That said, it is worth commenting that we also encountered the view that the boat had already been missed in regard to the outer harbour.
- The area has lost out to Aberdeen, and the main advantage the East of England now has is cheaper wages – cited by one as being 20% cheaper than Aberdeen - other than in and around Cambridge. Many feel businesses in Aberdeen benefit from greater support e.g. from local authorities (indeed many have direct experience of this in that they are based there as well as in the East of England). Aberdeen was described as the centre of the offshore industry and while you need to have a presence there, this is not the case for the East of England. One example, from a specialist consultancy with an admittedly small presence in the East of England illustrates this:

This company reports that it does only about 10% of its turnover in Great Yarmouth and '*we could almost do without Great Yarmouth.*' The director has a base to do business in Aberdeen, and stays in Great Yarmouth at the moment as he is a native of the area, but this could change. Great Yarmouth was described as comparing unfavourably with Aberdeen as a place to do business, for example Local Councils in Aberdeen would offer concessions on rent, and grants to support business activities. '*We are dissatisfied with Great Yarmouth business support agencies – no encouragement to stay and do business although some support offered by the Chamber of Commerce and EEEGR…Economic Development Advisers in Great Yarmouth need to have budgets in order to support companies and make a difference.'*

5 Demographics of the workforce - an ageing workforce?

5.1 A number of previous studies have pointed to the ageing workforce within parts of the Energy sector as an issue of concern, the worry being that the number of new entrants is not meeting the demand as companies wish to expand or to replace those retiring or leaving. More specifically there is a concern that skills are being lost, or in danger of being lost, to the industry due to there not being a sufficient body of new entrants to whom the skills of those retiring can be passed on.

5.2 This phenomenon is not unique to the East of England, though quoted examples of the relative age of the region's sector's workforce include:

- ECITB reported in 2003 that Engineering Construction workers in the East of England had an average age of 41, and employers reported they "couldn't get young people into the industry to cover the skill shortages that are occurring …because of increasing numbers reaching retirement age, and leaving the industry." A recommendation of that report was that more work is done with schools and colleges to promote work within the sector as a realistic career path (appendix F lists some examples of recent SSC initiatives impacting on the East of England).
- A report on the oil and gas industry in Norfolk and Waveney in 2000 indicated that two thirds of those working were aged over 36.
- In March 2000 Skills Foresight confirmed evidence of an ageing workforce in the oil and gas sector. The industry collectively recognised that the risk of a potential technician skills shortage was a strategic issue which may affect performance and reputation if not managed by some sort of centralised approach. This has led to the development of the Upstream Oil and Gas Industry Technician Training Scheme managed by Cogent and ECITB. Approximately 90 to 100 technicians are recruited to the industry each year via the scheme. Research by Cogent in its latest review of the Scheme suggested that UK wide, 39% of the technician workforce would be over 50 by 2009.

5.3 The cause of the ageing workforce has generally been explained by a number of factors typically a reluctance in the industry to take on apprentices and school leavers, coupled with low levels of interest among young people to start careers within the industry.

5.4 As a matter of interest, these same reports also point to the low incidence of female workers in the sector generally. ECITB estimated that only 5% of the Engineering Construction workforce in the East of England in 2003 was female, while the workforce in the oil and gas sector in Norfolk and Waveney – was estimated to be 14%.

5.5 We discuss the issue of the ageing workforce in this chapter, and look at the general appeal of the sector to young people in the chapter on recruitment.

The age profile of the workforce and the retirement issue

5.6 The following table provides figures for the age profile of the workforce among those completing a datasheet who were able to give an age breakdown.

Age profile of permanent staff	
Staff employed in companies able to give an age breakdown (2,406)	
16-24	5%
25-34	21%
35-44	28%
45-54	31%
55-64	14%
65 plus	1%

5.7 These figures confirm the picture of a relatively old workforce, with only 5% described as being aged under 25, and almost half (46%) aged 45 plus.

5.8 This is supported by individual examples from employers:

- An engineering company with some 250 permanent staff, where the average age is 47.
- At one refinery the respondent admitted that the age of operators and craftsmen had become top heavy in the last 5 years or so, 'with a build up in the 55 to 60 range.' The company had no formal policy for regeneration but recent recruits (including some apprentices) are posted to areas where there are a number close to retirement.
- A power station where almost three quarters of its workforce is over 40
- A company where the average age of offshore crew is 48

5.9 The figures presented in the previous table on the age profile of Energy sector workers in the East of England are very much in line with those available via other sources, in particular the latest Labour Force Survey data.

Comparison of age profile for this survey with other data sources

	This survey	Labour Force Survey (Dec 03 – Feb 04).				
	Energy sector	Place of work East Anglia (all sectors)	Cogent (SIC 11, 23, 24 & 25)	Upstream Oil and Gas (SIC 11)	Downstream Petroleum (SIC 23.1 & 23.2)	Nuclear (SIC 23.3) (caution – low base size)
16-24	5%	13%	9%	6%	8%	3%
25-34	21%	20%	23%	21%	12%	29%
35-44	28%	25%	27%	22%	38%	24%
45-54	31%	24%	27%	30%	33%	30%
55-64	14%	17%	14%	20%	9%	14%
65 plus	1%	2%	1%	2%	-	-

5.10 Similarly, data from the ECITB on the age of technicians and of erectors / riggers across Great Britain shows a relatively old profile:

- Almost half (48%) of technicians are aged 45 plus (15% are aged 55 plus)
- Three fifths (60%) of erectors / riggers are aged 45 plus (26% are aged 55 plus)

5.11 The previous table shows that the industry has many fewer younger workers aged under 25 than found in East Anglia overall. Census figures for 2001 for the East region confirm this and indicate that 14% of the region's workforce is aged under 25 compared with only 5% in the Energy sector. Actually the proportion aged 55+ appears to be the same for the Energy sector (15%) as found across the East of England workforce as a whole (15%).

5.12 The age of the workforce is an issue because of the potential loss of significant numbers of workers through retirement. In this light it is important to bear in mind that the retirement age within one of the sectors covered by the research, offshore oil and gas, is lower than average both for lifestyle reasons and also because the work is physically demanding. To assess the issue of retirement respondents were asked about the number of permanent staff expected to retire over the next 5, 10 and 15 years. Again, we show figures based on those providing figures on this measure.

Numbers expected to retire in…			
	5 years	10 years	15 years
Number of staff employed in companies answering	*2,219*	*2,219*	*2,219*
Total number expected to retire	211	619	685
Number retiring as a percentage of the number employed	**10%**	**28%**	**31%**

5.13 The figures do provide some support to the notion that a significant proportion of the workforce are expected to retire in the near future: 10% within the next 5 years and as many as a quarter (28%) within 10 years. If the Energy sector as a whole in the East of England needs the same overall staffing levels in the coming years as currently, then clearly a significant amount of recruitment will be needed, supported by significant investment in training to bring skills levels close to those lost through experienced staff retiring.

5.14 The issue is not just the numbers retiring, but also the type of workers retiring. In the following table we compare the profile of the permanent staff employed currently by occupation, with the proportion of each occupation expected to retire in 10 years time. Figures are based on those providing both sets of information on the datasheet.

Profile of those retiring in 10 years time with the profile of current employees[3]

Base (all staff in those answering profile and retirement questions -1746)	% of Current employees *(1746)*	% of occupation retiring in 10 years *(545)* *(horizontal percentage)*
	%	
Managers	8	31%
Professionals	19	28%
Associate professional and technical	16	24%
Skilled trades	26	35%
Admin	10	19%
Process, plant and machine operatives	18	11%
Elementary occupations	1	4%
Other occupations	1	43%

5.15 Retirement within 10 years as a proportion of the numbers employed in each occupational group is highest among skilled trade (35%) and managers (31%) and professionals (28%) – it is also high in 'other occupations' but this latter category accounts for a small proportion (1%) of employment. Hence the general pattern is one of retirement particularly impacting on senior and skilled workers in the industry.

[3] Professionals covers occupations whose main task requires a high level of knowledge and experience in natural sciences, engineering, life sciences and related fields (it includes scientists and engineers); associate professionals covers occupations whose main task require experience and knowledge of principles and practices to support professionals and includes occupations such as engineering technicians, contracts engineers and network and IT technicians. Skilled trades covers such occupations as welders, electrical trades and construction and building trades.

5.16 Many employers do comment on an ageing workforce and the related issue of the difficulty in attracting new entrants to the industry, especially at graduate level. An exception though is the renewables sector, among whom the issue of an ageing workforce was not raised, it having a relatively young profile and few reported difficulties attracting graduates.

5.17 In other sectors the ageing issue has resulted in part from a perceived lack of apprenticeships in recent years – this may get worse as in the past large players like BP, Shell and ICI have been relied upon to deliver apprenticeship training.

5.18 And even where apprenticeship schemes were in place it was often felt the issue was not one an individual employer could tackle, rather it was something requiring an industry-wide approach. ("*We have a small apprenticeship programme but this is no way enough to cure the ageing workforce problem that is becoming more apparent*" was an example of this sentiment).

5.19 Some employers identifying an ageing workforce were taking steps to ensure the skills of the older workers were being passed on to younger workers before these skills were lost because of retirement, for example by recruiting younger workers and assigning them to work with these older workers.

5.20 That said, it was also quite common for employers identifying an ageing workforce to express no particular concern on the issue. In some cases this was based on uncertainty for the industry or for their company, and hence these issues were relatively low down their list of priorities, and in other cases it appeared to be based in part on complacency and the fact they have always managed in the past.

6 Recruitment

6.1 Relatively severe recruitment difficulties faced by companies in the Energy sector in the East of England have been reported in a number of previous studies. Two recent examples include:

- An EMTA report in 2002 indicating that 32% of engineering companies in the East of England in 2002 reported having had hard to fill vacancies over the last 12 months, most commonly among craftpeople, operators/assemblers and professional engineers
- A 2000 report into the Oil and Gas industry in Norfolk and Waveney reported that 45% of employers had experienced vacancies that were hard to fill over the previous 12 months, particularly for qualified engineers, though across all levels from managers to manual staff. It noted:

  "Oil and Gas Extraction has traditionally sourced skills in experienced personnel recruited from other industries. These industries can no longer provide skilled people and skill shortages are affecting all engineering based industries. There is now severe competition for skilled people."

6.2 The current research confirms the broad findings of these studies, with the majority of those employers who have recruited or attempted to recruit over the last year or so indicating they have encountered difficulties filling these vacancies. Of those companies returning a datasheet and completing information on recruitment, 21 reported hard to fill vacancies over the last 12 months compared with eight recruiting but experiencing no difficulties and three who had not recruited in the last 12 months.

6.3 A number of common themes emerge from the discussions with employers in regard to recruitment, which we discuss in more detail throughout the chapter. These were:

- The difficulty of attracting local young people into the industry, or perhaps more accurately, suitable young applicants since the view is common that the quality of school leavers and young people that they see is below their expectations
- Many employers expressing an unwillingness to take on new graduates, preferring instead to take on those with a number of years experience under their belt
- Recruitment difficulties affecting specific occupations
- Many employers looking to recruit staff from outside the region and even from outside the UK
- The renewables sector generally having fewer recruitment difficulties, both because the numbers needed to be recruited tend to be relatively small and because the sector has intrinsic appeal for many graduates.

Difficulty recruiting local young people of the right calibre

6.4 The difficulty in attracting local young people, or young people of the right calibre, was put down to a number of factors. These included the fact that the same high pay of earlier years no longer exists and the industry being associated with long hours and, for offshore work, the need to make lifestyle changes. The views on pay were felt to be partly true (compared to the 'golden' years) but many felt that more work needs to be done to inform young people and influencers that high salaries could still be earned especially once a number of years experience in the industry had been gained. It is interesting that when employers in the offshore sector discussed their hours and shift patterns, the image of unsocial hours were often based on reality!

6.5 The calibre of young applicants was often described as poor, with comments being common about: poor attitude, reliability and motivation; applicants thinking primarily of money not their career; and their expectations exceeding their ability. This in itself has acted as a barrier to employers wanting to look to take on young people new to the industry.

6.6 In part this was explained by the fact that employers feel there is a poor understanding of the career opportunities available in the industry among young people and influencers. This was felt to be something that Sector Skills Councils and other bodies could work to tackle on the industry's behalf, with the hope that as a result the industry could be made more appealing to high calibre students.

Graduate recruitment

6.7 A number of employers commented on the difficulty of attracting good graduates (with the renewables sector being noticeably different with very few reported problems at this level, mainly because the sector was described as having high 'intrinsic' appeal). Examples of difficulties beyond the general comment that they were not of a high calibre included applicants having good technical skills but poor commercial understanding, communication skills or writing skills, and others not being prepared to undertake more mundane aspects required of the job. Employers often commented that to be of real value graduates needed to build up many years experience of working in the sector.

6.8 The worry in this regard is it was also noticeable how many employers indicated that they were unwilling to take on fresh new graduates, wanting instead graduates with a 4-5 years experience. This was a particular issue for those working as contractors: as one commented '*it is not possible to place inexperienced or insufficiently qualified people on contract jobs'*.

6.9 This indicates that many employers are not prepared to be the breaking ground for new graduates to learn on the job, and rely on others to carry out this role. At an industry-wide level of course this approach is not sustainable, and may be increasingly problematic as the large multinational companies who traditionally took on large numbers of new graduates may well play less of a role in the East of England (e.g. Shell's withdrawal).

Occupations where difficulties experienced

6.10 The following occupations were the key areas described as being hard to recruit:

- **Control and instrument engineers and technicians.** This was the most commonly mentioned occupation where recruitment difficulties were said to exist. There were examples of vacancies lasting more than a year and one ECITB company had five current vacancies for instrument technicians it was struggling to fill. Some commented that it was only at the degree level that they encountered difficulties for these occupations.
- **Electrical and electricity generation technicians and engineers** (e.g. high voltage engineers and electrical engineers)
- **Structural engineers** and **professional engineers generally** ('*they are attracted to the sexy major, capital projects rather than the small modification work undertaken in Great Yarmouth'*)
- **Level 3 with supervisory and leadership skills** (level 3 covers qualifications at advanced level and is equivalent to 2 A levels, City and Guilds Advanced Craft or an NVQ level 3)
- **Managers**
- **Production personnel** (an employer commented that having recently wanted to recruit 20 production personnel with mechanical skills aged 24 plus, they found the last 3 places very hard to fill. They expected to recruit a similar number in the near future and anticipated difficulties)
- **Mechanical and electrical fitters**

6.11 In some cases the recruitment difficulties were an inconvenience, to others it was limiting the amount of work they could take on or increasing the costs due to the need for overtime and long hours among their existing staff or having to pay high consultancy rates. One example of it limiting the work they could take on was one respondent in the ECITB area of operation commenting (about the UK picture not specifically the East of England):

"A general shortage of available skilled craftsmen is causing resourcing problems during times of heavy activity throughout the whole Petro-Chemical industry. We are constantly searching for competent workers to add to our labour pool to enable us to feel confident in our ability to deliver successful projects to our clients. Due to our experience with the availability of skilled labour we discuss with clients work with around 120 men as a maximum".

6.12 It is worth noting that not all employers were experiencing difficulties recruiting, and one commented '*higher specialist skills are surprisingly available locally*'. As an example of general confidence on this issue, one company in the renewables sector considering opening a factory needing 130 staff (across a range of roles) anticipated no difficulties meeting these needs.

Tackling recruitment difficulties

6.13 Where employers were experiencing persistent recruitment difficulties, the most common solution was widening the geography from which they sought staff (examples included London, the South East, and Scotland) but also potentially in the future recruiting from outside the UK. One medium sized company with around 50 staff, mainly degree qualified engineers, indicated that while committed to employing local people wherever possible, they have recently recruited from Australia, New Zealand and Europe. While not necessarily a concern in itself to employers (if this was what was required to find appropriate staff then employers seemed to accept this as a given), clearly the potential employment and wealth creating benefits that the sector can offer to local people in the East of England is not being maximised.

A note on future projects

6.14 The findings have shown that many employers in the East of England are recruiting from a wider geographic area in order to meet their needs, and more generally, employers in the East of England are competing with other regions for the recruitment of what is a relatively mobile workforce. The demand for skilled workers is clearly heavily influenced by government policy and by major future projects. As one engineering employer commented:

"The size of the workforce will need to grow substantially to meet the UK's National Energy Policy and the required new building of power stations. But there is not enough labour to go around at the moment, and if more new build were required the workforce would be overstretched."

6.15 It needs to be noted that there are a significant number of large scale projects planned nationwide for the coming years, all of which are likely to increase the demand for skilled labour and to act to increase recruitment difficulties. A list of some of these key major projects is appended (the information collated by Research and Statistics Department, ECITB).

7 Skills issues

Background

7.1 A recent study commissioned by the Learning and Skills Council (the National Employers Skills Survey 2003) found that one in five establishments in the East of England had a skills gap (a gap between the skills of their workforce compared with the skills they need to meet their business objectives) and one in nine staff were described as lacking in the skills the employer needed. These were very similar figures as found nationwide.

7.2 Other sector-specific studies have pointed to similar levels of employers reporting skills gaps among their workforce: in 2002 EMTA reported that 21% of engineering establishments in the East of England had a skills gap (this was not specifically engineering related to the energy sector) and the skills gaps particularly affected craftspeople, professional engineers, scientists and technologists, but also lower level operators and assemblers.

7.3 In the renewables sector nationally, a 2003 study by the Electricity Training Association reported that skill requirements are expected to grow, particularly for electrical, mechanical and civil engineering skills at craft and technical level; in engineering, environmental and planning skills at professional level; electrical power engineering and commercial skills at professional level. Over a quarter of employers anticipate skill shortages arising in the coming years, particularly for: industry-specific skills; engineering and technical craft skills (e.g. general engineering skills at professional and technical level, offshore heavy and marine engineering skills; electrical power engineers), general management skills and multidisciplinary skills. The report concluded:

"There is a persistent decline in the number of students accepting places on electrical engineering degree courses and in those selecting the necessary 'power' modules as part of their studies. In order to meet its future skills requirements, the power industry needs to examine the reasons for this decline, build relationships with schools and universities and take action to reverse its current image with young people and influencers."

7.4 The report also noted that skills issues were rarely the primary concern of these companies, indeed it was ranked fifth in terms of constraints on growth.

Skills issues

7.5 Most employers in the sector are suffering from skills gaps, though most feel it has relatively little impact and generally manage without the issue being an immediate concern.

7.6 Among the 32 employers completing the datasheet on this question, four in five (81%) indicated that they had some staff who they would not regard as fully proficient. Two in five (40%) stated that they had at least one occupational group where not all *or nearly all* workers were fully proficient (i.e. this group is those where a significant number of staff within an occupational group are lacking in skills). As a point of comparison the National Employer Skills Survey 2003 conducted by the LSC found that one in five (22%) establishments nationwide had a skills gap (the figure in the East of England was 21%), though it should be noted that the question wording between the two surveys was not the same. While strict comparisons cannot be made, the general conclusion is clearly that skill gaps are widespread in the Energy sector in the East of England.

7.7 The following table illustrates the proportion of establishments that employ each occupational group that say they have staff in that occupation not fully proficient (it does not show the proportion of each occupation that lack skills). Though low bases mean some caution is needed, the general point is that other than for professional occupations, skill gaps affect a wide range of occupations, and appear particularly prevalent among process, plant and operative positions.

% of establishments employing that occupation group with some staff in that occupation saying NOT fully/nearly proficient		
	Base	
Managers	27	15%
Professionals	20	5%
Associate professional and technical	21	14%
Skilled trades	20	20%
Admin	26	19%
Process, plant and machine operatives	14	43%
Elementary occupations	10	10%
Other occupations	9	11%

7.8 Examples of skills gaps / skill shortages among their existing workforces that were cited included:

- fault finding / diagnostic skills
- IT skills
- Job specific skills (e.g. one surveying company commented that surveying work was becoming more technical, in particular with more analysis and computer modelling on different softwares being needed, and many of the freelance geophysicists employed in the industry tended to be older and increasingly lacked the new skills required)
- Supervisory skills
- Management skills / leadership skills (such as in regard to contract and project management) and this means they are not always able to maximize the opportunities for expansion especially overseas.

7.9 A very common theme as a means to reduce skill gaps and / or to increase efficiency and flexibility was the number of employers taking steps to increase the degree of **multiskilling**. Examples included:

- A company in the ECITB sector saying core labour (pipe fitters and welders) have become multiskilled, and they have introduced general rigging / slinging courses for all trades that they employ
- A power station saying multiskilling across trades was 'a top priority' and they had introduced training to support this aim. As an example, the three technician roles of Operator, Maintenance and Health Physics Monitor had been rationalised into a single technician role. (As a note, this employer had instigated this more for reasons of efficiency than to meet skill gaps, being in the enviable position of having 'remarkably few skill gaps worries, limited retention problems …and little in the way of employment competition in the immediate locality')
- A refinery where craft trades are in the process of multi-skilling so that, for example, Production Operators are carrying out mechanical roles such as changing pump gaskets.

8 Training

8.1 In this chapter we cover overall views of local provision rather than discuss in detail the training that employers are undertaking. We also look at views on Apprenticeship training.

8.2 All the companies interviewed had trained some of their staff in the last 12 months. Most employers using or needing external providers felt that their training needs can be met via local providers and were generally happy with range and quality of provision. Use of external providers was most common for such areas as health and safety, emergency response and management training. For more specialist, technical and industry-specific areas some indicated that you often have to go further afield or bring in trainers from outside the region, but most appreciated that what they were looking for was very specialised and were not unduly concerned about not being able to source it locally. A few mentioned that they had encountered the specialist training being available locally but had then found it was not always timely for their needs.

8.3 There were mixed views on the provision available via local FE colleges. Some were happy with what they provided and had good experiences of working with the colleges, but as many felt they were not well marketed or high enough profile (and hence it was an effort to find out about their provision) and were unresponsive when contacted. Comments such as '*local colleges are not sufficiently proactive and business facing*' were quite common. More specifically, some complained that their machinery was out of date. One thing that was positive was that the colleges offered good value for money compared with private providers.

8.4 Overall though, there is little sign from employers that FE providers have developed provision around the needs of the Energy sector. The SSCs and other support bodies could act both to increase awareness of what is currently available (both via colleges and private providers), but also serve to inform and lobby colleges about the training needs of the sector.

8.5 While some of the specific apprenticeship programmes operated by the SSCs were well received (for example, The Upstream Oil and Gas Industry Technician Training Programme managed by Cogent and ECITB and ECITB's NASEC programme), there was a fairly low opinion of the Modern Apprenticeship programme. This was both in terms of how well it prepared completers for working in the sector and direct experiences of taking young people on placement. One example among a number included one employer saying he would no longer recruit Modern Apprentices:

"*I have used Modern Apprentices and was disappointed with the calibre. There was poor management by the college. This included changes in the course programme without my being notified, poor linkage between the college theory and the job-related practical work, poor management of apprentices and a lack of course records. Also they did not have the right equipment*"

8.6 The actual range of training being undertaken and the sense to which training was an integral part of the business varied widely. This was closely correlated to size of company with the large national / multinational companies generally undertaking training within a planned structure and with medium and long term business objectives, while many smaller employers undertook training mainly if not entirely to meet legislative requirements or reactively once specific needs were identified.

8.7 At the most positive end of the scale were mainly large players who had significant training budgets (sometimes quoted as being around 2% of turnover), individual training plans for all permanent members of staff and annual, indeed quite often quarterly, reviews for their employees. Larger players quite often had in-house training facilities and capabilities, staff trained to train others and training was often provided within the context of business systems (some for example spoke of Competence Assurance Management Systems as influencing their training activity). Examples of this type of employer included:

- One offering Individual Learning Accounts for all staff worth up to £1,500. There were also education incentive schemes to encourage staff to pursue professional qualifications such as CIPD [Chartered Institute of Personnel and Development).

- An employer who reviewed each member of staff quarterly for their performance, skill gaps and training plans. Managers had all been given training in how to conduct these reviews. They had paid particular attention over recent years to operator training, and had a dedicated in-house person undertaking this training. They had managed to reduce the time to turn a process operator into a leading process operator from five to three years.
- Another provider had individual training plans, quarterly reviews of all staff and also a learning allowance of £100 which had to be matched by the employee.
- One had 6 days paid 'mandatory' training each year for offshore staff (if staff didn't undertake this training they had to work these 6 days instead)

8.8 At the other end of the scale were those employers whose training was clearly reactive and about meeting a need once a shortfall or gap had been identified, and those who undertook training without a specific training budget or without individual training plans. One example of a particularly passive employer was one saying: '*We do not have a training budget. It has always been on an ad hoc basis. It has been driven mainly by the individuals who are coming through. However, we almost never turn down a serious justified request*'.

8.9 Some had been affected by their business performance over the last few years, with training being far from a key priority, and others found it hard to justify the expense of development and upskilling training having experienced cases of spending significant amounts only for a number of those benefiting to then leave the company.

8.10 These are clearly not issues unique to the Energy sector. The challenge though facing the SSCs and other support agencies is to overcome the issue that while many employers are aware of the problems facing the industry in terms of an ageing workforce, difficulties recruiting in a number of occupations and low numbers of people being trained as apprentices, *relatively* few employers appear willing to take on apprentices and train up young people. And in terms of training existing employees, the challenge is to convince smaller and medium sized employers of the need for training aimed at upskilling their staff (i.e. training beyond meeting the requirements of legislation or specific contractors) and the business benefits that can result. More generally, the challenge is to get training moved higher up the priority order for companies and to get training more deeply embedded within normal business planning processes for SMEs.

9 Conclusions and Recommendations

9.1 A key aim of the research study was that the SSCs and survey partners take ownership of the survey findings and develop action plans from its findings. To this end, the conclusions in this chapter are the work of LSC Norfolk, while the recommendations were written by the SSCs/ECITB.

Conclusions

1) The Sector is of critical importance to the East of England and has huge scope for further development in existing and new forms of energy.
(See Recommendations 1 and 2)

2) The Sector is diverse but there are many core skills required which apply to the different types of businesses. These focus on engineering, high level technical, construction and craft skills as well as those associated with graduate and post graduate specialisms.
(See Recommendations 3 and 5)

3) The age profile of the sector workforce displays an imbalance with a disproportionate number of people in the 35 plus age range i.e. we have an ageing workforce.
(See Recommendations 4, 6 and 7)

4) The replacement demand for the sector will increase with significant numbers of skilled workers expected to retire over the next 10-15 years.
(See Recommendations 3, 4 and 5)

5) More must be done to attract young people into the sector and in particular to engineering and construction related technical and craft training.
(See Recommendation 4)

6) Traditional sources of adult entrants with craft and technical skills who are prepared to work more antisocial hours e.g. the armed forces are likely to provide less employees for the sector in the future as these sectors will themselves employ less people and other well paid employment opportunities will be available particularly in the construction and engineering sectors.
(See Recommendations 4, 5 and 6)

7) As there is intense competition for people with craft, technical and construction skills the sector must be prepared to consider how it will attract and develop its future workforce including the retraining and `multiskilling' of new adult entrants and the existing workforce.
(See Recommendations 4, 5 and 6)

8) As the industrial mix of employers has changed with more sub-contracting and smaller companies involved, the larger companies which have traditionally invested in training the sector's workforce will not make the same level of contribution in the future. More will need to be done by the public sector and smaller companies to help redress this issue. This will include more work with colleges, private providers, apprenticeship training and the development of training solutions tailored to employer need.
(See Recommendations 6 and 7)

9) Specific attention must be paid in the short term to develop technical training and to attract high calibre entrants into this training and employment from schools and colleges.
(See Recommendation 4 and 7)

10) The development of supervisory and management skills in the sector needs to be urgently addressed as the age profile of this group demonstrates that many will retire in the next decade.
(See Recommendations 6 and 7)

11) Action must be taken to facilitate graduate entry to the sector. Businesses need to recognise the skills graduates will bring to their companies and that they will still require support and development. If this does not happen the existing recruitment problems will be exacerbated and young people will not choose appropriate higher education courses.
(See Recommendations 4 and 8)

12) The potential attraction of the Renewables sector needs to be exploited for the wider benefits of the other energy industries.
(See Recommendations 4 and 5)

13) Educationists and training providers must work more closely with employers to better understand and meet their recruitment and training needs. Equally employers need to make greater efforts to engage with the education sector and develop appropriate training and links to education programmes and courses.
(See Recommendations 2, 7 and 8)

Recommendations

1) SSCs, Government and regional partners need to give clear and consistent messages to energy companies in the region that the longer term sustainability of the industry is dependent on collective action now to address the issues raised in the Report. Dissemination of the Report and an event for the participant companies will provide an early opportunity.

2) A reference group of employers that can affect change and act as champions needs to be established to carry forward the action plan arising out of this work. This could be drawn from the forty two companies that have supported the Skills for Energy study.

3) The Energy Sector in the East of England needs to be defined and may go beyond the primary energy production definition used for this report to include for example generation and transmission. This will require:
   - Labour Market Intelligence which will enable the sector to be defined in terms of numbers of jobs, employment figures, workforce profiles, skills, contribution to GDP etc

4) The SSCs and employers supported by public sector partners in the region need to give clear messages about the breadth of opportunities offered by the Energy Sector in terms of rewarding careers in order to address the sector's age and diversity profile. This will require:
   - A targeted attraction strategy focussing on young people in schools, graduates from further and higher education and mature entrants
   - The development of career and qualification pathways and possibly new qualifications across the Energy Sector showing both vertical and horizontal routes and using new public sector opportunities such as young apprenticeships and adult apprenticeships
   - The creation and marketing of more work experience and industry placements opportunities for young people and students
   - The development of promotional materials, roadshows and events

5) The SSCs and ECITB in consultation with employers should map and review the skills and competences needed to meet the sector's future technical and managerial needs taking account of growth in the renewables sector, decommissioning in the oil and gas and nuclear sectors and the impact of the workforce profile and new technologies. This will require:
   - A definition of the sector (see Recommendation 3) with an associated map of the competences, skills and occupations across the whole sector
   - Work to be carried out specifically in the Renewables Sector to identify the roles, occupations and skills required to meet current and future developments
   - Providers to use this intelligence to inform their curriculum planning and course provision

6) SSCs supported by regional partners should promote the competence based approach to all companies in the Energy Sector focussing in particular on SMEs as a means not only of meeting the requirements of regulation and health and safety but of increasing productivity and competitiveness. This will also assist the transferability of employees in the sector and help providers to structure and deliver accredited programmes to meet employer need. This will require:

- the competence map referred to in Recommendation 5 above
- training and development needs to be mapped against the competence map and business objectives
- training plans integrated with company objectives
- training and development for Company managers and supervisors
- new approaches to promoting competence management in particular to SMEs

7) A review of the training provision currently available to companies in the Energy Sector needs to be carried out with a view to achieving coherence and focus matched to employer need and ensuring viability of provision for the suppliers

- a review and map of current provision in the region including both private and public sector providers
- identification of gaps and over provision informed by the competence map referred to above and by diagnostic work with companies. This is urgent in respect of some disciplines eg instrumentation and control
- collaboration/consortium arrangements between providers
- a review of how training is delivered to companies with a view to achieving maximum flexibility in delivery
- marketing and clear information for companies about how to access training in the region

8) The interface between the education sector (higher education, further education and schools) and employers needs further investigation in two areas:

- the three way relationship between providers, employees/students and employers in respect of apprenticeships, work experience and placements, and work-based learning
- the mismatch between the knowledge, skills, attitudes and expectations of graduates from the education sector on entry to employment and the expectations of employers

This will require:

- action informed by the recommendations of the recent STEP Report produced by Perry Mann in September 2004
- facilitated dialogue between employers and the education sector to identify more clearly the responsibility of employers and providers in respect of employability skills and the provision of work experience

Appendices

A) Sector Skills Council and the Skills for Business (SfB) Network

Sector Skills Councils (SSCs) are independent, UK wide organisations developed by groups of influential employers in industry or business sectors of economic or strategic significance. SSCs are employer-led and actively involve trade unions, professional bodies and other stakeholders in the sector. SSCs are licensed by the Secretary of State for Education and Skills, in consultation with Ministers in Scotland, Wales and Northern Ireland, to tackle the skills and productivity needs of their sector throughout the UK.

Collectively they make up the Skills for Business (SfB) Network which currently consists of 17 licensed SSCs with a further six in the process of acquiring a licence.

SSCs give responsibility to employers to provide leadership for strategic action to meet their sector's skills and business needs. In return they receive substantial public investment and greater dialogue with government departments across the UK. This will enable sector employers to have a far greater impact on policies affecting skills and productivity, and increased influence with education and training partners.

Each SSC will agree sector priorities and targets with its employers and partners to address four key goals:

- Reducing skills gaps and shortages
- Improving productivity, business and public service performance
- Increasing opportunities to boost the skills and productivity of everyone in the sector's workforce, including action on equal opportunities
- Improving learning supply, including apprenticeships, higher education and national occupational standards

They will also produce Sector Skills Agreements setting out the needs of employers to national and regional agencies and describing how they will be met.

The Skills for Business network has established a Forum in each of the English regions consisting of Sector Skills Councils active in the region. Regional partners such as the Regional Development Agencies (RDAs), Local Learning and Skills Councils and the Small Business Service also participate in the Forum thus ensuring that Sector Skills Councils can play an active role with partners in shaping regional activity focused on employer need. Such a Forum has been established in the East of England and has recently produced its Business Plan.

B) Cogent Sector Skills Council

Cogent, established in February 2004, is the Sector Skills Council for the Chemical, Nuclear, Oil and Gas, Petroleum and Polymer Industries with a workforce of approximately 800,000. Owned by employers, Cogent works with them and other partners to help businesses maintain and increase their competitiveness through the effective development of their people.

Cogent acts as a **leader** for the sector, addressing strategic pan-industry issues and influencing government policy on education and skills to meet employer needs. It also acts as a **partner** to individual businesses, developing tailored solutions to specific skills issues affecting their organisation and as an **adviser** to individual employees on career opportunities, vocational learning, lifelong learning and occupational competence.

Cogent offers:

- Strategic leadership and representation
- Labour market information and research
- Standards and Qualifications
- Tailored solutions to sector-specific skills issues
- Competence assurance systems
- Quality assurance of training providers
- Modern apprenticeship frameworks
- Lifelong learning programmes
- Career advice

Cogent has a network of dedicated Advisers working in each of the Devolved Administrations and the English regions. Their role is to ensure that the above Cogent offer is implemented taking account of national/regional contexts and priorities and working with regional partners to ensure that employer needs are understood and acted on.

Contact for the East of England: Liz Johnson, Tel: 01707 656367, Mobile: 07715 014099, email: liz.johnson@cogent-ssc.com,

C) Engineering Construction Industry Training Board (ECITB)

The ECITB was created by Act of Parliament in July 1991, Statutory Instruments 1991 and 2003 in recognition of the vital role the industry plays in the UK economy. It is the centre of excellence for advice, information and skills development for the engineering construction industry. The organisation manages training programmes, distribute grants for training and develop qualifications for people across the industry. It focuses on improving site-based craft and supervisory skills, together with office-based skills of design and project management.

ECITB is not a Sector Skills Council but as it is part of the Skills for Business Network, it has been referred to as a SSC for the purposes of this report

The ECITB are enabled to do this by being granted statutory powers to raise a training levy.

The funds raised enable the ECITB to provide:

- Leading Modern Apprenticeship and adult re-skilling programmes, delivering competent people with the full range of skills needed by the industry.
- Flagship training programmes for supervisors and team leaders, direct support for management development, with masters programmes delivered in partnership with leading universities.
- Comprehensive research and analysis of the labour market trends and a detailed forecast of the manpower requirements across the UK.
- Significant grant support to employers' own training.

A system of training quality monitoring and approval, competence assessment and award of appropriate vocational qualifications, built on national standards.

For further information on the industry and the ECITB please contact Lisa Munro on 01923 402152 or visit their website on www.ecitb.org.uk

D) SEMTA

SEMTA is the Sector Skills Council (SSC) for the Science, Engineering and Manufacturing Technologies sector within the UK and was established in April 2003. SEMTA's footprint covers the core science, engineering technology sectors across the UK economy. It has responsibility for science, technology and mathematics based occupations wherever they exist in the economy. The sector covers the main engineering manufacturing groups of aerospace, biotechnology, electrical engineering, electronics, electrical equipment, forensic science, mathematics, mechanical engineering, meteorology motor vehicle manufacture, nanotechnology, optical manufacture, pharmaceuticals, shipbuilding/ship repair/ boat building and repair.

SEMTA covers 100,000 companies employing 2.5 million people in the UK and providing up to 10% of UK GDP.

The objects of the Science, Engineering and Manufacturing Technologies Alliance are to promote and advance the education, training and skills development of persons employed or intending to be employed in the Science, Engineering and Technology industry. SEMTA is dedicated to improving the performance of the sector by:

- Increasing the engagement of employers
- Working with partners who have common cause
- Changing to meet fast moving needs
- Working in teams to deliver success
- Gradually improving our services

This is achieved through working with partners including:

- Government departments in the 4 nations
- Local, regional and national business development agencies
- Funding agencies across the UK
- Trades Unions
- Professional bodies and Trade Associations

SEMTA has a dedicated Sector Skills Advisor for each of the 9 regions of England. The role of the Sector Skills Adviser is:

- Raising the profile of SEMTA and the sector on a regional and sub-regional level
- Forging partnership links and business relationships with strategic partners in the region including RDA's, Local Learning and Skills Council's, the Small Business Service, Training Providers including GTA's, FE and HE institutions.
- Support Group Training Associations and other Training Providers in the achievement of and development of CoVE status
- Identify funding opportunities and develop projects as well as with external strategic regional partners.
- Represent SEMTA on Committees and working groups and provide support to SEMTA's regional network of learndirect centres
- Identify business opportunities, promote and influence learning provision to meet the needs of the sector: link employer/providers/agencies in a coherent way
- Brokering and managing projects in line with contract and operational plans.
- Provide information on NOS, VQs and frameworks training systems.
- Advise organisations on the standards required and delivery of qualifications and other programmes, improve the training provider network and award quality mark to good providers.

E) Energy & Utility Skills

Energy & Utility Skills is the Sector Skills Council for the electricity, gas, waste Management and water industries. Employer led the purpose of Energy & Utility Skills is to enable the provision of an appropriately skilled workforce to help these businesses to improve their performance.

The sector faces advancing technology, rapid change, global competition and rising expectations of choice. The skills of the sector and their continuing development are crucially important to employers and employees.

Energy and Utility Industries face a period of heavy capital investment:

- In electricity, supporting the 'rewiring of Britain' and the government's ambitious targets for renewable electricity including generation from windfarms

- In gas, there is the need to accelerate the replacement of metal gas mains, and to adapt the national transmission system for Britain's growing dependence on imported gas.

- In waste management we are faced with declining landfill capacity and the more costly, skills-intensive use of waste as a resource.

- In water, we have to meet more demanding environmental standards and renovate pipelines and sewers.

Across the sector Energy and Utility Skills covers the activities of in excess of 500,000 employees, including a significant number of SMEs, in all elements of the supply chain. Faced with this challenging environment, Energy and Utility skills has 5 strategic aims.

1. To establish Energy and Utility Skills as a recognised focal point for industry and government to work together on skills issues.

2. Reducing skills shortages. This is an essential but challenging task, given the age profiles in the sector after decades of restructuring, outsourcing and downsizing.

3. Improving productivity, business and public service performance is an important challenge for this sector, which delivers key public services. There is a common interest in these issues for both employers and government, who need an effective energy and utility sector to be able to deliver a number of important initiatives.

4. Increasing opportunities to boost the skills and productivity of everyone in the workforce. The energy and utility industries traditionally provide long term careers and therefore lifelong learning is essential to maintaining the skill base over the working life of the workforce.

5. Improve the supply side of learning. This is the vital sector that has seen significant reductions in the recruitment and training over the last decade. Public provision of training needs to be renewed alongside developing broader markets for some of the traditional private training providers. The emphasis on quality of training also needs to be renewed to encourage employers to use existing facilities.

For further information visit www.euskills.co.uk or contact Julie Humphreys 07834 651316 or Mike Carney 07770 234878

F) SSC Initiatives Impacting on the East of England

Cogent and ECITB

In March 2000 Skills Foresight confirmed evidence of an ageing workforce in the oil and gas sector. The industry collectively recognised that the risk of a potential technician skills shortage was a strategic issue which may affect performance and reputation if not managed by some sort of centralised approach. This has led to the development of the **Upstream Oil and Gas Industry Technician Training Scheme** managed by Cogent and ECITB. Approximately 90 to 100 technicians are recruited to the industry each year via the scheme.

Cogent and ECITB also work with Pro-Train to cover the **Engineering Careers Roadshow**. This year it is taking place in November 2004 and Cogent and ECITB staff will be visiting approximately 20 schools in the Norfolk and North Suffolk area. The event is for years 9 & 10 students and aims to promote careers in engineering. Cogent and ECITB will be talking about what young people need to do to pursue a career in the oil and gas sector.

Cogent and ECITB are working with Beach Radio to develop the **`High Energy Schools Challenge'** which involves teams from local schools in a radio quiz designed to raise awareness about the Energy Sector. This initiative is co-sponsored by EEEGR, the DTI and six local employers and supported by Pro-Train.

Early in 2004 Cogent and ECITB held an evening event for teachers and members of the Connexions Service in Norfolk to talk about the Upstream Oil and Gas Industry Technician Scheme. The event aimed to give teachers a better understanding of the oil and gas sector and raise awareness about career opportunities in the industry and the Technician Scheme in particular. This resulted in requests for Cogent and ECITB to visit individual schools to give talks and hand out information.

Cogent

Cogent manages on behalf of the oil and gas sector a Graduate Attraction Programme. This consists of a mobile exhibition which visits universities across the UK. It started in 2002 and the main aim of the project is to 'inform, inspire and attract' young people into the industry.

Cogent has a stand at the University of East Anglia annual Careers Fair in order to provide information and promote careers in the sector.

ECITB

As part of its NASEC Scheme, ECITB have scheduled in 2004 to recruit 12 instrumentation & control technicians. Six of them are from the East of England region. There is one welder and one pipefitter from the East of England who are going to SETA in Southampton for basic training after which they will be placed with local firms for site placement.

SEMTA

SEMTA is presently involved in a number of activities in the region which include the following:

- Support for the GCSE in Engineering Manufacture which is a double award
- The recent initiative to engage 14-16 year old students in vocationally related activity via Young Apprenticeships
- Advanced Apprenticeships
- The first year of an Engineering Apprenticeship can be too expensive for SMEs as it is predominantly `off the job' in a training workshop environment. This has led to a reluctance on the part of some SMEs to recruit apprentices.

  To resolve this, SEMTA in co-operation with the Learning and Skills Council National Contracting Office recruited over 300 additional apprentices in 2004 as "SEMTA Apprentices" – a status they retain for one year. During this year the apprentice acquires some basic relevant workshop skills, some key skills and an NVQ Level 2. SEMTA monitor the training progress and pay each apprentice a weekly allowance. The apprentices complete the same programme as the advanced apprentices referred to above.

  On completion of the first year and with some relevant skills and knowledge to offer, the Apprentice can make a positive contribution to the business. In return, the SME must agree to allow the apprenticeship to be completed.

  Whilst this initiative is still in the pilot phase, there has been a very positive response from the SMEs who view this as a very realistic and practical contribution in helping to resolve some of their skills issues.

G) Some of the major construction, engineering construction and related projects underway / planned likely to affect demand for skilled workers

(The information collated by Research and Statistics Department, ECITB).

EAST MIDLANDS, SOUTH EAST AND EASTERN	• Heathrow T5 – long term project with high salaries	• Upward of 4,000 construction jobs, of which a third are mechanical and electrical.
	• Columbus Tower – London Docklands, 2nd largest tower in Britain	• Planning granted no timescales as yet.
	• CVF Aircraft Carriers	• 2 CVF Aircraft Carriers partly being built at Vosper Thorncroft, Portsmouth.
	• 6 Type 45 Destroyers	• Vosper Thorncroft, have the contract to assist in the building of 6 Type 45 Destroyers going into service in 2007.
	• Ashburton Grove Stadium, Arsenal FC	• Ready for 2006/7 season at a cost of £400m. Current stadium, Highbury will be partly demolished and developed.
	• Aldermaston	• £2bn redevelopment of the site. Trident is being replaced by 2010.
	• Isle of Grain, Kent	• LNG import terminal- Skanska have a £1.98m project from April-December 2004
	• Allington, near Maidstone	• Waste to energy project will run from 2005, it is expected. £100m project including an incinerator
	• Sizewell 'A' decommissioning in 2006	• 10-15 years work on the project. Number of jobs unknown currently
	• Offshore wind turbines off North Norfolk	• Provision for 400
	• Outer harbour project for Great Yarmouth	• Been in planning stage for a number of years. Company building wind turbines will open a fabrication facility
	• Engineering Centre of Excellence, near Wymondham in Norfolk	• Funding granted of £4m. Work is due to start at the end of 2004
	• Wych Farm, south coast	• Aker Kvaerner Offshore Partners awarded contract with 20 years work on site, and capital projects estimated at £10m for 2005.
	• Southern North Sea, gas production	• Suggested 40 years of gas production remain
	• Stanstead airport second	• To be built in 2011-12

	runway • London Gateway- container port & business park	• 10,000 jobs expected to be created. 2 phases in project (which started in 2002); 1) development of a world class port and 2) development of the largest multi modal business park in the south east of England providing a potential 1 million m2 of distribution, manufacturing and hi-tech space
NORTH WEST AND WEST MIDLANDS	• Vaccines Plant - Liverpool	• CEL Int. have been commissioned to design and build new vaccine plant, on same site in Liverpool. No further details as yet.
NORTH EAST	• CVF Aircraft Carriers	• First steel cut in 2005. Carriers will partly be built at Swan Hunter, Tyneside. 1500 plus needed.
YORKSHIRE AND HUMBERSIDE	• Development of chemicals industry in N Lincs.	• Development will attract 'blue chip' chemical companies to enhance the cluster of chemical activity in the area. Potential for 8,000 jobs over next 10 years.
SCOTLAND AND OFFSHORE	• Offshore Construction	• Various offshore developments. No details available.
	• St Fergus oil and gas, nr Peterhead.	• Expansion of St Fergus oil and gas terminal. New build will require additional workers on site.
	• Nuclear Decommissioning – Dounreay	• Long-term labour will be required for this site. Will be fully decommissioned by 2047.
	• CVF Aircraft Carriers	• 2 CVF Aircraft Carriers partly being built at Babcock BES, Rosyth and BAE Systems, Govan.
	• 6 Type 45 Destroyers	• BAE Systems (Navel Ships) have the contract to assist in the building of 6 Type 45 Destroyers going into service in 2007.
	• Hydro Power Station, Glendoe	• New power station has been approved. Work being carried out from 2005 – 2009 needing 400 workers.
WALES AND THE SOUTH WEST	• The Qatargas LNG project at Milford Haven, Pembs	• Civil work to begin 09/04. Mechanical work to begin in 2005 and will last 3 years. Numbers talked about are around 4000.

	• Petroplus / British Gas LNG project	• Second LNG project will occur almost simultaneously at the Petroplus Site, nr Milford Haven. Start in 2005, with 1000 workers.
	• The proposed connecting gas pipeline across South Wales	• Transco providing a piping infrastructure needed to connect both LNG terminals to UK consumer grid. 800 people required for this alone.
	• Nuclear Decommissioning – Winfrith (stage 2 decom. in progress)	• Long-term labour will be required for this site. Will be fully decommissioned by 2020.
	• Langage powerstation, near Plymouth	• Centrica plc £400m project to start in Novemeber 2005 and be ready by 2008/9. 1000-2000 jobs will be created.
	• Aberthaw PS FGD • Baglan Bay Paper Mill	

H) Topic Guide

East of England: Skills for Energy Project

Introduction
Aims and objectives
Taping
Confidentiality in final report

Key business challenges and developments in the industry

What are the key challenges facing your business currently and what developments in your sector are impacting most on your business? What do you they anticipate they will be over the next few years? To what extent are these specific to your organisation or are they affecting the industry as a whole?

What impacts are these challenges / developments having? How are you responding to these challenges?

Prompt if necessary:

- Competitive issues
- Legislation
- Technology – changes and impact
- Consolidation and mergers
- Cost-cutting issues
- Difficulties recruiting / retaining staff
- Restructuring of way business operating
- Any Head Office issues
- Horizon scanning - future issues
- Factors determining decision to locate in East of England (particularly relevant to newcomers)

Workforce

- How the occupational profile has changed over the last few years (and why)
- How anticipate it will change over the short, medium, long term (and why) i.e. which occupations will be of increasing importance / declining importance
- Demographic profile of the workforce (eg age / gender / ethnicity) and how it changed over the last few years (and why it has changed).
- How anticipate the demographic profile will change in the short, medium, long term
- Anticipated change in size of workforce in coming years.
  Issues to explore: what are trends eg out-sourcing; problems eg mgt of contractors; quality; retirement trends
- Shift patterns
- Wage rates
- Staff turnover issues eg poaching, lifestyle, greater appeal of other sectors
- Unions operating at site
- Does Company have IiP status or ISO 9000

Recruitment

- Explore vacancy data from data sheet
- Scale of recruitment: extent and nature of recruitment difficulties (including main occupations affected), impact of these difficulties, what skills and qualifications are needed. Which skills finding difficult to recruit for and among which occupations?
- What will job opportunities be over next 5 years (scale and where opportunities lie)
- Why are people leaving
- Where are young people recruited from and at what age generally
- To what extent are young people work ready
- Does the company offer training to young people (eg apprenticeships) or does it prefer to recruit young people who are already trained. Why.

Internal skills

- Explore extent and nature of skills gaps data from data sheet (more info about particular skills lacking, qualifications and other attributes currently lacking in workforce, impact of these skill gaps and how aiming to reduce these skill gaps)
- How are skill needs changing? What skills are becoming more important and for which occupations? Which skills less important?
- What soft skills are required
- What is attitude of workforce to changing skills needs
- What is the impact on the business of skills gaps
- What steps is the company taking to address skills gaps
- Does the company carry out skills audits?
- Does the company hold proficiency records?

Training

- What factors determine Company decisions about training provision eg private, college etc
- How easy / difficult to find suitable local training providers (what impact does this have eg do they prefer to do training in-house anyway)
- What have been the main areas of training: (eg Health and safety, induction, management, technical etc)
- Does the Company talk to local providers about its training needs
- Is there a budget for training – what % of turnover
- Is the Company supported by Chamber of Commerce, Trade Associations, other business support networks
- Does it have needs which are not met by local business support networks
- How do they see role of SSC – how can it add value.
- Does company encourage workforce to acquire qualifications eg NVQs
- Does company support employees who wish to do work related qualifications – what kind of support
- Are qualifications a good proxy for an individuals skills and competence
- Does the company have training plans for each worker, training records

Anything else would like to add about the issues discussed.

I) Glossary

Cogent	The SSC for the Chemical, Nuclear, Oil and Gas, Petroleum and Polymer Industries
DfES	The Department for Education and Skills
DTI	The Department of Trade and Industry
ECITB	Engineering Construction Industry Training Board
EEEGR	East of England Energy Group
EEDA	The East of England Development Agency (covering the counties of Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk and the four unitary authorities of Luton, Peterborough, Southend–on-Sea and Thurrock)
EU Skills	The SSC for Energy and Utility skills
NASEC	National Apprenticeship Scheme for Engineering Construction (NASEC)
Pro-train	An LSC funded organisation working collaboratively with industry and education partners to promote engineering as a real career choice to young people
SEMTA	The SSC for Science, Engineering and Manufacturing Technologies
SETA	Southampton Engineering Training Association Ltd
SNS	Southern North Sea
SSCs	Sector Skills Councils

J) Bibliography

A number of reports were read to provide background information, and a number of these have been referred to throughout this report. Starting with the most recent these were:

The Energy Sector in the East of England 'Impact Study 2000' – Review and Refresh Final Report (OTM Consulting in September 2003).

Electricity Training Association Employment and Skills Survey 2003: Exploring the Skills Requirements of the UK Renewable Power Industry to 2010 (funded by the Sector Skills Development Agency and project managed by Electricity Training Association).

Priority Sectors in Norfolk: A paper examining national, regional and local intelligence on some key Norfolk Sectors in order to inform the development of LSC Norfolk's sector strategies
(Bostock Marketing Group (BMG) Limited) 2003

Sector Workforce Development Plan (ECITB 2002).

A Centre for Excellence for Renewable Energy in the East of England 2002: Summary (East of England Development Agency).

2002 Labour Market Survey of the Engineering Industry in Britain – Report for the East of England (EMTA).

Nuclear and Radiological Skills Study
Report of the Nuclear Skills Group December 2002
Author: Tony Coverdale

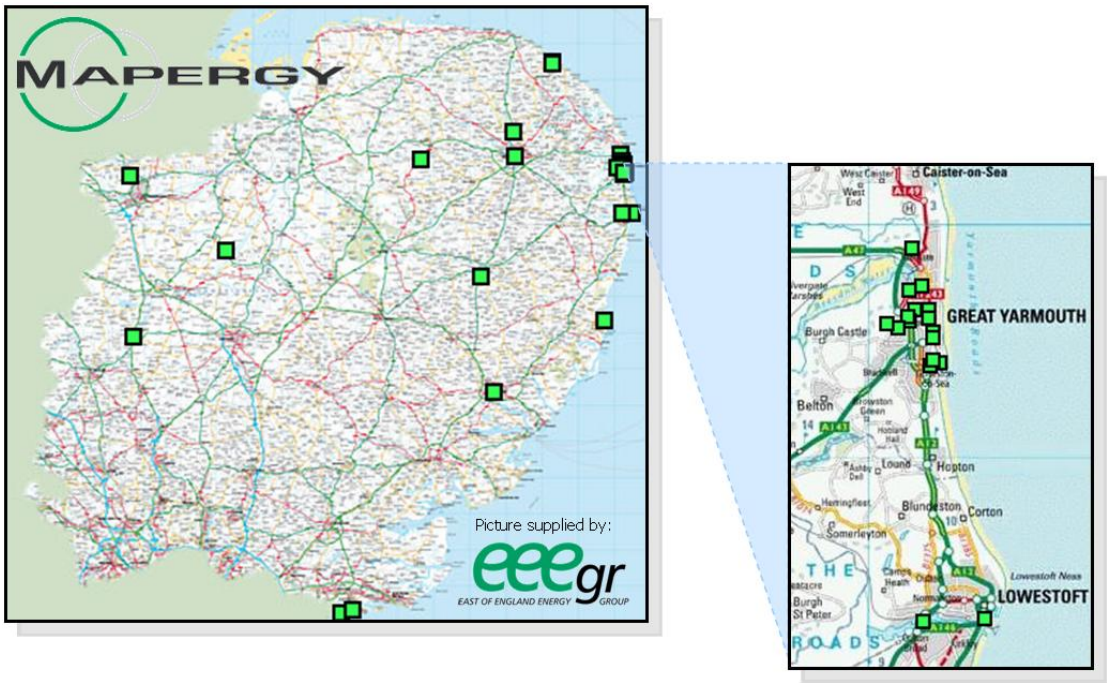
Profile of the Energy Industry within the East of England: Final Report (EEEGR and Owen Williams; 2001).

Labour Market Survey for the Oil and Gas Sector in Norfolk and Waveney (commissioned by Norfolk and Waveney TEC and conducted in 2000 by ECITB and OPITO, the National Training Organisation for Oil and Gas Extraction).

The Impact of the Offshore and Related Energy Industry on the East of England (2000 – commissioned by 9 public and private sector organisations).

K) Companies participating in the East of England Skills for Energy

Mapergy® is one of the most important innovations in the East of England's energy business. Sited on eeegr.com, it's a cluster mapping system that provides a visual reference to the location and services of energy companies, and the businesses that support them, throughout the region. Mapergy® was utilised in the identification of the organisations and business to interview as part of the study and given a visual representation as part of the tool.



[Companies participating in the East of England Skills for Energy visually represented through Mapergy®]

Companies interviewed:

Regional:

ABB Ltd
AK Precision Ltd
Aker Kvaerner Offshore Partner Ltd
AMEC Group Ltd
Asco UK Ltd
Bio-Renewables Ltd
BNFL Magnox - Sizewell A
BP Exploration Operating Company Ltd SNS (Gas) Performance Unit
BP Coryton (Refinery)
ConocoPhillips Ltd
Dabbrook Services Ltd
eProduction Solutions
E-Tech Group (formerly Peto Services Ltd)
Fibropower Limited
GE Wind Energy
Global Commodities (UK) Ltd
Grant & Livingston Ltd
The Maritech Group
Metacor - External Corrosion Management Ltd
Norfolk Offshore Wind Ltd
ODE
Perenco UK Limited
Petans
Peter Brotherhood Ltd
Petrofac Facilities Management Ltd
Pilot Drilling Control Ltd
Precision Drilling Services (UK) Ltd
Schlumberger Oilfield Services
Shell UK Exploration and Production
SLP Engineering Ltd
Solar Energy Alliance
Specialised Management Services (SMS) Ltd
The Maersk Company Ltd
Tullow Oil UK Limited
Your Energy

Non-Regional:

Alstec Limited	Leicester
KBR Production Services	Aberdeen
MB Engineering Services Limited	Motherwell
Petrochem Carless	London
SeaWIND	Plymouth
Venture Production plc	Aberdeen
Weir Pumps Limited (Weir Engineering Services)	Glasgow
Wood Group Engineering (North Sea) Ltd	Aberdeen