

## **Norfolk Skills Economy Project**

### **Energy Skills Needs in Norfolk & Suffolk**

**April 2011**

**For: Shaping Norfolk's Future**

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## Executive Summary

This report sets out to provide a fresh analysis of skills needs in the energy sector in New Anglia. It builds on work already carried out by Nautilus and Douglas Westward, filling in gaps where appropriate and challenging assumptions where necessary. Inevitably the report deals at length with the question of a skills hub for East Anglia – What form should it take? What are the benefits of different approaches? What do partners and wider stakeholders feel about different options? This is deliberately intended to inform opinion, and bring greater breadth to the debate.

### Definitions

What do we mean by an energy sector? It cuts across several other sectors including engineering; mining; utilities and logistics. However, energy on its own, does not describe a product, process or activity; it is more a group of sectors which collectively can be said to make up the energy supply and demand chain. Energy is now promoted as a sector which has a distinct set of skills characteristics. But if we scratch beneath the surface, one quickly finds the skills required for the sector are actually the traditional engineering and other skills which have always been important to a production oriented economy.

### Meetings & telephone Research

In preparation for this report meetings were held with a range of key stakeholders in the sector including FE colleges; independent providers; sector based skills agencies; local authorities and employers. 40 telephone interviews were also undertaken with engineering/energy companies across the two counties:

The intention was to contact a wide variety of companies from across the New Anglia area in order to get a balanced view, representative of the sector as a whole.

Snapshot of telephone responses carried out in February:

- 40% of companies had heard of Hethel Engineering Centre but 85% had never visited.
- 5% of companies had heard of Skills for Energy.
- 30% of companies thought a new pipe fitting in the course could be useful but when asked if their company would commit to a course there were only 2 positive responses.
- One third of companies expected to be involved in new energy contracts in the region.
- Almost 30% of companies expected to grow in the coming years.

### New Anglia

The two counties of Norfolk and Suffolk are key players in the UK energy economy, with around 11,000 businesses involved in supply chain activity and an energy cluster of some 400 businesses engaged in the marine energy supply chain in the Great Yarmouth/ Lowestoft area alone.

## Essex

Essex needs to be taken into account when looking at the energy sector profile in the region. Leaving out Essex may make good sense in terms of the new LEP area but the county is an essential player in energy and companies are unlikely to be impressed by an arbitrary county cut off point. A three counties approach to energy skills is increasingly being proposed when it comes to interventions in the skills market place.

## Skills Shortages

Evidently, there is a need to be precise about the exact type of labour shortages being experienced by companies. Most labour shortages are short lived and in the turbulence of economic cycles, a skilled shortage can easily become an over supply. So one must treat with some caution the 'call to arms' sometimes expressed by skills agencies and employers.

Forecasting supply and demand of skilled labour is difficult to do in a stable market. Anticipating the skills landscape in a volatile economy and within a new growth sector such as renewable energy is much more difficult.

However it is worth considering that 80% of the training required for an individual working in the energy sector can be classed as generic engineering, either gained before entering the workplace (at HE or FE), or as part of CPD, for those already in work (e.g. project management training). 20% of an individual's skills profile can be thought of as sub-sector specific – addressing particular gaps in knowledge or competence specific to the job required. In this context, there is little danger in creating an oversupply of skilled labour for the energy sector since the bulk of the learning (the 80% component) will fit into the generic engineering skills category and will therefore be transferable between sectors – and therefore relevant to a whole range of technical jobs in the UK labour market.

## Skills Gaps

One of the main reasons given for a new energy skills centre is that it will provide courses which are not currently available in the region. Leaving aside numbers of delegates required for the moment, there is a simple question to ask: How many of these courses could be delivered by existing training providers? The answer is most if not all of them – as long as certain equipment was made available. Indeed some providers have suggested that more than half of the courses could be delivered now if there were sufficient numbers to make it economic.

At the moment companies send their employees to training facilities out of the region (e.g. West Midlands; south coast; Humberside; Scotland). But local training providers are adamant that they could put on courses in the region if the number of delegates makes it economical. This isn't a poor excuse for not running courses – its simple business sense. No provider should be putting on courses at a loss.

Creating a new skills centre is not in itself, a solution to this problem. A new skills centre could merely dilute provision – and lead to under-usage of existing resources. If quality of provision is the main issue then this can be addressed through other means than the creation of new physical space. Revolutionising delivery so that

existing resources are optimised would be a much cheaper and more effective option to consider. In short, there seems to be a misunderstanding between the need to create training opportunities with the need for a new skills centre.

#### Is imported skilled labour necessarily bad for a region?

On one level, the importation of skilled labour into a region is a good thing. London is a typical example of a region which sucks in labour from all over the world in order to meet its needs. This is not to say that New Anglia should do nothing about it. It is vital for the region to grow its own skilled labour – and one of the main ways to achieve that is through apprenticeships.

#### Apprenticeships

The challenge to train people ‘just in time’ for industry requirements is a perpetual conundrum. It requires employers to take risks and invest in future resource needs – and the best way of achieving this is through apprenticeships – a point picked up by Nautilus Associates.

#### A New Skills Centre?

This reports puts forward the arguments for and against a new physical centre for energy skills. Whilst there are several good reasons in favour of a single site centre, the overwhelming evidence points to a hub and spoke network involving existing providers in the region.

However leaving aside the case for running apprenticeships from an industry endorsed independent centre, there may be other arguments for a new training facility. It could house new specialist equipment which may be too large for a college to accommodate - and of course the equipment would be ‘independent’ – available for any training provider to use to meet the demand of employers. This last point is particularly important because one of the drivers for a new centre is employer responsiveness. In this line of thinking, only an independent operator could deliver true industry standard training by tendering out courses to get the best provider – or by simply acting as a landlord – hiring out facilities (classrooms, equipment etc..) to the training provider market.

The Nautilus report suggests that apprenticeships would play a key part in the new proposed skills centre but immediately this presents a difficulty for further education which is charged with expanding the apprenticeship service across the two counties, and of developing new relationships with employers in the region. There is surely a serious danger of ‘over provision’ crowding out the market and driving down quality as vocational providers struggle to cope with dwindling numbers. If there is a case for more apprenticeships in the sector, surely there are adequate supply side resources to meet this need, especially considering the new UTC in Norwich, the East Consortium Engineering Centre in Great Yarmouth and Leiston High School aspirant ‘rural UTC’ for the Sizewell C labour market. If FE is ‘unresponsive’ then there will be private providers who can step into to take up the slack. The apparent ‘apprenticeship shortage’ does not, on its own warrant a new sector specific training centre.

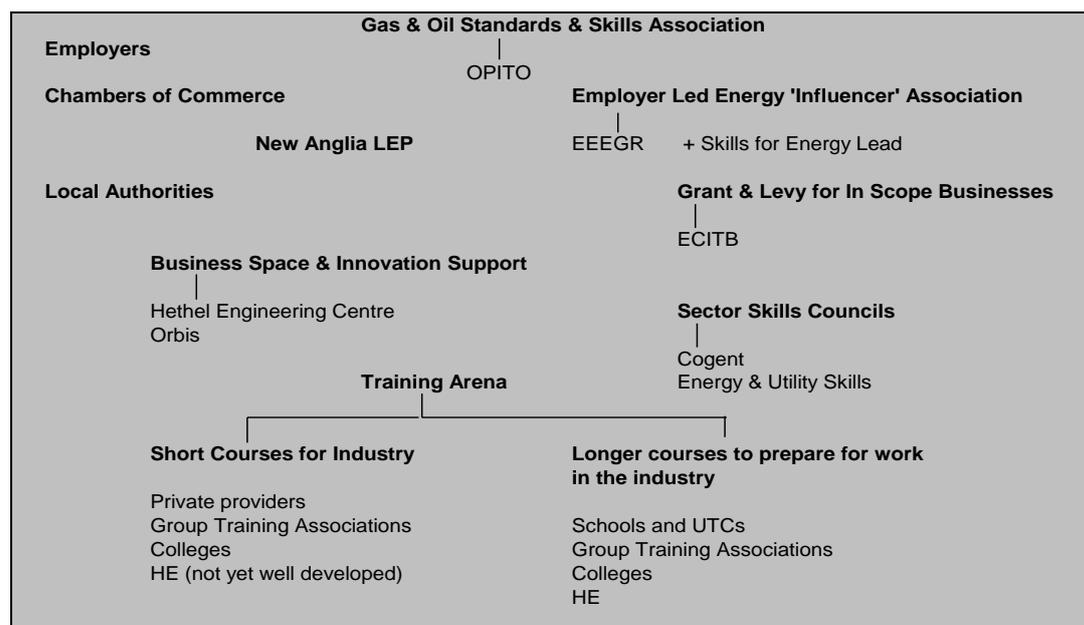
The key question is how to maximise the take up of local talent as job opportunities become available. A new physical centre may increase the chances of that happening but it is surely not a necessary condition. Of more importance, for example, would be to work with companies to identify forthcoming skills shortages and then to broker these precise skills needs out to the most appropriate training provider so that skilled labour is provided 'just in time' for the employer. Through ESF funding, this kind of precision training – could be subsidised (especially to the SME market) and could become an attractive proposition for (SME) employers. This is something being looked at by the 3 Counties ESF Energy proposal.

There is a case for the installation of some very large equipment for training operations such as bolt tightening – and this could be made available to all training providers in the area. There may even be some public sector support for such equipment to be purchased.

The Scottish Model – A virtual Network

IESTA is the Scottish energy skills centre based close to Aberdeen. IESTA presents a “training capability matrix” involving 22 different training providers including FE, HE and the private sector, across 85 separate vocational disciplines ( ranging from accounting and auditing for the sector, to oil spills management and well control). This brokerage model is not dependent upon a physical centre and indeed many of the services offered are delivered on the premises of the appropriate providers rather than the IESTA skills centre which is small and not suitable for most types of training. This is a model which would suit East Anglia very well.

If a hub and spoke model is to work it certainly needs the support and involvement of all the key players in New Anglia. This is depicted in the diagram below.



### Energy Skills Vision in East Anglia

The report sets out a vision for energy skills based on existing resources and partnership working. There is much to do to support the sector – and it may be both cost effective and of greater benefit to stakeholders and delivery partners in the two counties to look at dynamic solutions to skills in the sector rather than an “all eggs in one basket” approach.

If a new physical training and innovation centre for energy skills is not possible in this new post-recession economy, somewhere between a “do nothing” and a “do all” scenario there may be an alternative which delivers the main objectives of a “skills for energy” strategy without the costs of major infrastructure development. What might this alternative look like?

### A 10 Point Plan

1. Encourage the expansion of Lowestoft College’s commercial portfolio and development of Great Yarmouth College’s energy skills portfolio.
2. Priming the energy skills pump: Champion the development of City College’s new University Technical College to prioritise energy skills for young people, and support the coastal skills initiatives proposed by Leiston High School and East Consortium.
3. Recognition of Hethel Engineering Centre as an important catalyst for supply chain innovation for the sector.
4. Importance of involving the private sector providers – e.g. PETANS;
5. Expansion and development of the GTA model building on the work of EAGIT
6. Developing skills ‘brand’ awareness through OPITO and ECITB
7. Bringing together intermediaries (ECITB, OPITO EUSkills, Cogent ect..) to discuss ways of working together to achieve greater cooperation and synergy. As part of this, encourage Lowestoft College to gain accreditation to deliver the OPITO apprenticeship.
8. Encouraging EEEGR to champion a virtual hub model through the innovative Skills for Energy initiative.
9. Working with EWEG to deliver supply chain innovations across the industry.
10. Develop an energy apprenticeship charter with buy in from industry; small businesses; intermediaries and training providers, in order to provide the content; level of service and appropriate facilities for new generations of apprenticeships in the two counties.

In considering the way forward for skilling up local people for the energy sector in New Anglia, there is a need to differentiate between the different target audiences. These can usefully be divided into several categories: preparing school students for FE or HE engineering training; delivering pre-work engineering qualifications at FE or HE; and delivering CPD, vocational update courses; and other short courses for people already working in the sector. A fourth category is a hybrid made up of the last two and includes longer professional courses undertaken part-time by employees in the industry looking to improve their career prospects or transfer to a new sector.

These four categories all require different approaches and are unlikely to be served by a single solution. This report identifies a range of initiatives which, together could dramatically alter the skills landscape for the energy sector. The report recommends several associated initiatives to be undertaken in conjunction with the skills work. These include: raising the profile for the sector through a branding exercise possibly using a name such as “Skills for Energy” as a mark of energy training quality in the region; Encouraging greater SME involvement through innovative projects such as the EWEG wind turbine project are also an essential part of the sectoral mix; and developing further links with Hethel Engineering Centre and the two universities UEA & UCS are equally important.

By addressing skills, profile and innovation all at the same time, New Anglia could make a significant mark for energy in the region, ensuring that local resources are developed to match the industry investments being made in nuclear, wind, oil and gas.

## 1. Introduction

This report is not meant to cover the same ground as recent energy skills reports completed in the region, such as work undertaken by Nautilus on behalf of Skills for Energy and East of England Energy Group (EEEGR). Neither is it intended to provide a comprehensive sectoral analysis of the industry such as the Douglas Westwood work undertaken as part of a transnational Interreg (North Sea Region) project.

Instead, this report tries to build on the work already carried out, filling in gaps where appropriate and challenging assumptions where necessary.

Inevitably the report deals at length with the question of a skills hub for East Anglia – What form should it take? What are the benefits of different approaches? What do partners and wider stakeholders feel about different options? This is deliberately intended to inform opinion, and bring greater breadth to the debate.

## 2. Defining energy

What do we mean by an energy sector? It cuts across several other sectors including engineering; mining; utilities and logistics. However, energy on its own, does not describe a product, process or activity; it is more a group of sectors which collectively can be said to make up the energy supply and demand chain. Of course, energy is not a new sector. Ever since people organised themselves into economic units, the consumption or production of energy has been a key concern. The industrial revolution brought energy production to the fore and showed how the mass generation of power could create a step change in productivity. More recently, there has been wide concern about sustainable sources of energy and this has brought about a refocusing on low carbon production and renewable energy, along with a kind of rebranding. Energy is now promoted as a sector which has a distinct set of skills characteristics. But if we scratch beneath the surface, one quickly finds the skills required for the sector are actually the traditional engineering and other skills which have always been important to a production oriented economy.

For example, in the Department for Energy and Climate Change (DECC) consultation response report “Meeting the Low Carbon Skills Challenge” (December 2010), it concurs that: “Many of the skills needed to make the transition to a green economy will not be new. For example, we already know that Science, Technology, Engineering and Mathematics (STEM) skills will be needed at all levels, in key energy and advanced manufacturing sectors and more widely across the economy, to lower carbon emissions and make better use of resources....” (page 5).

In this report, the term ‘energy sector’ is used throughout and refers to companies directly involved in energy sub sectors such as bio-fuel; nuclear or wind power, as well as those companies in the energy sector supply chain.

### 3. Survey & Meetings

In preparation for this report meetings were held with a range of key stakeholders in the sector including:

Simon Summers – Principal Lowestoft College  
Ferlin Quantrill – Curriculum Manager for Engineering  
Ian Pease – Maritime Courses Lowestoft College – Lowestoft College  
Dick Palmer – Principal City College Norwich  
Martyn Wagner – Vice Principal West Suffolk College  
Elizabeth Bray – Head of Business Development – West Suffolk College  
Andy Hodgson – Skills Manager – Norfolk County Council  
Celia Anderson – Head of Skills for Energy EEEgr  
Liz Davis Smith – Regional Manager – Skills & Learning Development OPITO  
Doug Harrison – Regional Manager ECITB (phone calls)  
Peter Wright – Economic Development Officer Great Yarmouth Council  
Robin Smith EDO North Norfolk Council  
John Morgan – Project Manager – Learning for Everyone – North Norfolk Council  
Judith Mobbs – Suffolk County Council  
Michael Wilder – Petans  
Richard Bridgman – Chief Executive - Warren Services  
Peter Wortley – Project Director Eastern Wind Energy Group

40 telephone interviews were also undertaken with engineering/energy companies across the two counties: 3 interviews were with companies whose address was given as outside the region; the others were located across New Anglia as shown below:



## Snapshot of telephone responses carried out in February:

40% of companies had heard of Hethel Engineering Centre but 85% had never visited.

5% of companies had heard of Skills for Energy.

30% of companies thought a new pipe fitting in the course could be useful but when asked if their company would commit to a course there were only 2 positive responses.

One third of companies expected to be involved in new energy contracts in the region.

Almost 30% of companies expected to grow in the coming years.

The intention was to contact a wide variety of companies from across the New Anglia area in order to get a balanced view, representative of the sector as a whole.

### Summary of Responses

#### Awareness of Hethel Engineering Centre

- Most of the companies (60%) in the survey have never heard of HEC or know what they do and there were a number of misconceptions about the organisation from those who had heard of them.

#### Awareness of Skills for Energy

- Four companies knew the name “Skills for Energy” but admitted they were not sure what it was about.
- None of the companies interviewed had thought about a centre of excellence for engineering or energy skills, but most thought it was a good idea although had no idea how it could work.

#### Energy sector awareness

- Some engineering companies did not see themselves as connected to the energy sector even though they agreed that they did a substantial amount of work for companies who were in the energy sector.

#### Skills Gaps and Shortages

- Of the companies contacted only two said they were looking to increase their workforce and would be looking for fully qualified engineers. The CVs they had seen so far seemed to suggest that there were “some good people available”.
- Of those interviewed, 6 thought a pipe fitting course was a good idea but only 2 thought they could commit to sending staff on such a course.

- An appreciation of skills gaps and skills provision was sometimes difficult to ascertain because a number of local companies in the energy sector have all the Head Office operations elsewhere in the country (e.g. Aberdeen) and so, when it comes to skills there is a disconnect between the local staff in Norfolk & Suffolk and the ideas of the HR department in another part of the country who displayed little knowledge about local skills provision.
- Several commented that the Apprenticeships on offer have little value. There was one comment about SEMTA's qualification framework being out of date and not useful. Some have resorted to writing their own three year apprenticeship programme (e.g. the engineering apprenticeship involving Hethel, Eagit and City College – see SNF Engineering Skills Report - part of this series).
- None of the respondents thought there was a skills shortage and one company commented on the surplus numbers of people available.
- Some companies do all their training in-house and have little interest in local training provision.

#### Perceptions of FE & HE

- Business views of FE and HE are mixed – but on the whole there is a consistent lack of understanding about the role of colleges and universities in supporting the sector.

#### Optimism about the Future

- Several companies said that they see turnover being flat over the coming year, but expected the energy sector in the region to expand.
- Very few companies were directly involved in export but several were supplying businesses in the region who then go on to export the complete product.
- Although there was generally a great sense of optimism for energy engineering in the region this was coupled with concerns about their ability to get involved.
- Two companies were running their operations down as they were finding trading too hard at present.

#### **4. New Anglia – Energy Sector & Skills Issues**

The two counties of Norfolk and Suffolk are key players in the UK energy economy, with around 11,000 businesses involved in supply chain activity and an energy cluster of some 400 businesses engaged in the marine energy supply chain in the Great Yarmouth/ Lowestoft area alone. Here also are some of the world's major energy related companies including Shell, Seajacks, Aker Solutions, AMEC, Perenco, Petrofac, Halliburton and Schlumberger. To the north of Great Yarmouth is Bacton, the UK's main terminal and distribution centre for offshore gas.

Essex needs to be taken into account when looking at the energy sector profile in the region. Leaving out Essex may make good sense in terms of the new LEP area but the county is an essential player in energy and companies are unlikely to be impressed by an arbitrary county cut off point. A three counties approach to energy skills is increasingly being proposed when it comes to interventions in the skills market place.

Government targets for renewable energy production have brought a new emphasis to the east coast with significant investments being made in off shore wind power. Moreover Norwich has a substantial role to play in the energy supply chain as do businesses from the supporting engineering sector spread across the two counties – many of whom have major income streams from the energy sector.

So Norfolk, Suffolk and Essex are important counties for the energy sector. However, the capacity of local (as opposed to multinational) companies to absorb new energy contracts is limited, possibly as low as 15% of total contract value (although as high as 40% in terms of hours 'on the job' (see Douglas Westwood's Offshore Wind Supply Chain Study for the East of England – June 2005 – analysis of Scroby Sands contractual work – page 24).

Environmental monitoring; surveys; and onshore installation are particularly well represented by local companies (Douglas Westwood page 26). What does this tell us about skills needs? Should we be focusing on those areas where the region is already strong (e.g. surveys, environmental monitoring, on-shore installation) or should training providers simply look to the multinationals who lead and predominantly deliver the contracts, to decide where the focus should be? One issue to consider is that local companies are much more likely to employ local people whereas multinationals may be more keen to find flexible, footloose labour.

In terms of barriers to entry only 4% of local companies responding to Douglas Westwood's survey believed that skills or training was a barrier to winning energy contracts. This is interesting in itself given that innovation in the renewable energy market is high and therefore sharing best practice; reskilling to higher standards, and finding innovative solutions to technical problems are all essential to a growing company in this sector.

#### **Predicting Skills shortages**

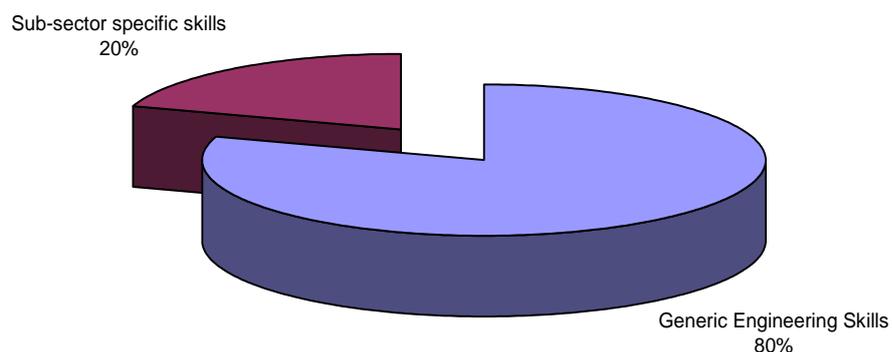
In New Anglia there are likely to be some skills shortages in relation to the energy sector over the next decade. These will grow and shrink according to the supply and

demand of skilled labour. It would be difficult to argue that there is currently a major shortage in the sector even though some employers talk about the lack of available engineering skills in the UK. It is interesting to note that in a recent Norfolk Jobcentreplus survey looking at vacancies ‘notified by employers’, and ‘sought by applicants’, there were 58 more engineers looking for work than there were vacancies. Whether or not this is an accurate reflection of the local engineering economy over time is uncertain. Although clearly there are unemployed engineers in the county looking for engineering job opportunities.

Evidently, there is a need to be precise about the exact type of labour shortages being experienced by companies. Most labour shortages are short lived and in the turbulence of economic cycles, a skilled shortage can easily become an over supply. So one must treat with some caution the ‘call to arms’ sometimes expressed by skills agencies and employers.

However it is worth considering a skills model espoused by Suffolk County Council. Judith Mobbs -, Suffolk’s Assistant Director, Skills for the Future, contends that 80% of the training required for an individual working in the energy sector can be classed as generic engineering, either gained before entering the workplace (at HE or FE), or as part of CPD, for those already in work (e.g. project management training). 20% of an individual’s skills profile can be thought of as sub-sector specific – addressing particular gaps in knowledge or competence specific to the job required.

#### Individual Skills Profile - Energy Sector



In this context, there is little danger in creating an oversupply of skilled labour for the energy sector since the bulk of the learning (the 80% component) will fit into the generic engineering skills category and will therefore be transferable between sectors – and therefore relevant to a whole range of technical jobs in the UK labour market.

Forecasting supply and demand of skilled labour is difficult to do in a stable market. Anticipating the skills landscape in a volatile economy and within a new growth sector such as renewable energy is much more difficult. Reports conclude that 1000's of skilled personnel are required but the number of unemployed engineers continues to rise in the two counties (see above). Timing the (re)training to fit in with a moveable recruitment timetable is almost impossible – and of course employers will always prefer to pick appropriately trained staff as and when they need rather than invest in future skills on a speculative basis.

Returning to the 80/20 proposition, there is surely an urgent need to audit the skills profiles of unemployed engineers in the region and identify ways in which they could be re-skilled to take up job vacancies in the sector. It would certainly be interesting to know if the mismatch between available skilled labour and engineering vacancies is about technical re-skilling (i.e. the 20% component) or whether it is about other factors (e.g. salary expectations, terms & conditions of employment; travel to work distances; or general 'attitude').

### **Understanding Skills Gaps**

The Shaping Norfolk's Future baseline report (the first in this series) made a clear distinction between skills gaps (people in work presenting a skill need) and skills shortages (companies experiencing skilled labour vacancies).

The Norfolk Skills Partnership recently trawled through more than 50 local information sources to try to establish the range of skills required by employers across key sectors of the Norfolk economy. Whilst the draft Skills Priorities Statement does not make a distinction between a skills gap and a skills shortage it does unearth potential skills shortfalls pertinent to the energy sector. For example in the advanced manufacturing sector precision engineers; technician level CAD training; and welders are all mentioned. In the low carbon sector apprenticeships are cited along with engineering & manufacturing skills at level 3 and 4; project management and marine skills. Skills shortages in the logistics sector and engineering/construction are also identified. A full list of these shortages is presented in Appendix 3. To what extent these lists are useful is debatable; employers skills needs are not at all the same as actual recruitment plans or training commitments.

Nautilus carried out some important work on skills gaps in preparation for their EPISCentre Business Case report. The report highlights 21 courses which are required by companies in the region but are not available locally. If East Anglia is to make progress in hub and spoke solutions to energy sector skills needs, it is vital to understand the economics behind these skills gaps and look at potential solutions.

The Nautilus list is replicated below:

CompEx  
Hazardous Areas "ex" appreciation course  
Explosion Protection Systems & Atex Awareness  
Management of Major Emergencies  
Bolt Tensioning  
Small Bore Tubing  
HV/LV Power System Protection  
HV/LV Switching course with electrical protection  
Switching & Systems control  
Fundamentals of the Safe Operation of Marine  
Risk Assessment Techniques  
Essentials of pressure systems  
Fundamentals of process safety IchemE  
Practice Aspects of process control  
Practical Power Distribution  
ISO 9001 Foundation Course  
Internal QMS Auditor  
QMS Lead auditor  
Communication  
Interpersonal Skills  
Industry Familiarisation Course

(EEEGR/Skills for Energy – Business Case Executive Summary 2010 – EPISCentre Page 9)

Leaving aside numbers of delegates required for the moment, there is a simple question to ask: How many of these courses could be delivered by existing training providers? The answer is most if not all of them – as long as certain equipment was made available (see below). Indeed some providers have suggested that more than half of the courses could be delivered now if there were sufficient numbers to make it economic.

### **Basic Economics**

So let us turn to the economics of these courses. At the moment companies send their employees to training facilities out of the region (e.g. West Midlands; south coast; Humberside; Scotland). But local training providers are adamant that they could put on courses in the region if the number of delegates makes it economical. This isn't a poor excuse for not running courses – its simple business sense. No provider should be putting on courses at a loss.

What though, if through training brokerage, a number of companies came together to purchase a solution together as opposed to acting unilaterally? Each of the 21 courses need to be examined in this light to determine which ones could become economical through brokered joint purchasing power.

This leaves the uneconomic courses to deal with. Some of these will require specialist equipment and that will be difficult to justify if the delegate forecasts don't stack up. A subsidy or grant to purchase the right equipment could be part of the solution but that's unlikely to be sufficient given the imperative to at least break

even. At this point it would be worth adding up the ‘true’ cost of sending a member of staff on a course outside the region. First there is the travel cost and subsistence allowance; then there is overnight accommodation to consider; and of course the additional time away from work. Finally there is the course fee itself. All these costs need to be factored into the equation to arrive at a true per delegate figure. An example is provided below:

CompEx Training Course - Gas & Vapours – Five Days -	£960
Travel & Subsistence five days	£350
Accommodation - five nights	£325
Travel time lost to company	£200
<u>Total Cost</u>	<u>£1,835</u>

In this made up example, the true cost of training is twice as much as the course fee. Could a local training provider offer a similar course at less than £1,835 per delegate? If they could then that represents a real saving to businesses even though the actual course fee may be significantly more than an out of region provider.

(It is interesting to note that Lowestoft College have already responded to industry demand for this particular course (CompEx) and will be running their first course in May 2011).

### **Raising Quality and Boosting Local Provision.**

There is clearly a concern when companies send employees out of the area to be trained because of lack of provision close by. But creating a new skills centre is not in itself, a solution to this problem. Training providers will respond to a critical mass of skills demand but will always struggle to meet the needs of one off or individual requests. A new skills centre could merely dilute provision – and lead to under-usage of existing resources. If quality of provision is the main issue then this can be addressed through other means than the creation of new physical space. Revolutionising delivery so that existing resources are optimised would be a much cheaper and more effective option to consider. FE already out-sources specialist training to skilled instructors from industry. Extending this model to cope with further demand would be a good start. If eventually this results in facilities running at full capacity, then the time to explore the need for new facilities could be justified. There seems to be a misunderstanding between the need to create training opportunities with the need for a new skills centre.

If there is some skills provision that is only available out of the region, the first question is how can existing providers be encouraged to develop courses to fill the demand gap.

In the industry views section of the Nautilus report, there seems to be considerable interest in training but it is not clear that this is something that industry wants to pay for. The desire for a pool of available trained labour needs to be separated from actual company commitments to pay for the training required and to recruit local staff in the numbers employers claim they need.

This will be an important consideration later – in deciding how to tackle perceived provision gaps in the region. Before then, it is perhaps worth exploring the role of imported skills labour to the region. In the first Engineering skills report in this series, we focused on “averting the need for large scale imported skilled labour being required” (Page 1). But is this always such a threat to the local area?

### **Is imported skilled labour necessarily bad for a region?**

On one level, the importation of skilled labour into a region is a good thing. London is a typical example of a region which sucks in labour from all over the world in order to meet its needs. This melting pot of diverse skilled labour enriches the city and enables it to compete with the best in the world. Growing indigenous skills from London’s ‘own’, is essential but could never be sufficient to fill the need, nor could it guarantee the best available skills, so imported skilled labour will always be important.

In New Anglia, there is of course much more at risk. Populations are smaller and opportunities for local people are harder to come by – so when potential new jobs are forecast, it is not surprising to hear a great deal of commentary about the need to ‘skill up’ local people to meet the demand. But the reality is more complex than this; local people may not have the desire to take skilled jobs in the sector and finding the right people for the right jobs at the right time is unlikely to be facilitated by limiting the people search to the region. Moreover, accurately forecasting the range of competencies and the number of jobs required at a particular time is notoriously difficult and local training provision always runs the risk of preparing young or unemployed people for jobs which never materialise. So caution is always needed when looking at potential skills shortages and the possible solutions to hand.

Moreover, one shouldn’t underestimate the lure of East Anglia. Many skilled people will come into the area to do a job and then follow the work to another location. But others will make Norfolk or Suffolk their home, adding to the skills pool, raising gross value added (GVA) and generally enriching the area. This is not to say that there is nothing to do. It is vital for New Anglia to grow its own skilled labour – and a major area for that has to be apprenticeships.

### **Apprenticeships**

The challenge to train people ‘just in time’ for industry requirements is a perpetual conundrum. It requires employers to take risks and invest in future resource needs – and the best way of achieving this is through apprenticeships – a point picked up by Nautilus Associates:

“The majority questioned believe the biggest area of shortage will be at craft or technician level where some form of apprenticeship with specialist modules of training is required” (Nautilus - Skills for Energy Feasibility Study Report - Executive Summary -Page 3).

## **Apprenticeships and the role of FE**

“It was the consensus that the education sector should largely concentrate on academic and generic technical skills to prepare young people for further education or skills training but with the latter in conjunction with industry.”

(Nautilus - Skills for Energy Feasibility Study Report - Executive Summary page 4).

The further education sector is meant to provide a vocational training environment. Employers are an integral part of that system, which is why apprenticeships largely take place on the employer’s premises (although both the OPITO and ECITB scheme have at least a year off site in a training environment before starting at the employers premises). The idea that FE should simply be providing generic classroom based education is a misunderstanding of the role of FE. It may be that employers simply don’t understand how they can participate in existing apprenticeship schemes. Certainly more collaboration between skills stakeholders such as ECITB, OPITO and local colleges would help give employers greater confidence in the role of FE which in turn would be encouraged towards greater employer responsiveness.

## **5. The Case for a new physical skills centre**

FE is always caught between delivering its main government remit of providing vocational education for 16 – 19 year olds, and its supplementary need to deliver employer responsive training. A new centre in this sense, would be a challenge to FE, a means of raising quality of training provision with or without college cooperation.

ECITB is pivotal to the idea of a ‘Skills for Energy’ centre. Its ‘in scope’ businesses contribute and benefit from the grant and levy system. Engineering is one of two sectors (the other is Construction) which still has an industry Training Board. The Engineering Construction Industry Training Board (ECITB) is separate from any of the sector skills councils. It has a budget of £20M all of which comes from employers and is spent on delivering skills for the industry, but it also works closely with government funding agencies to ensure businesses and providers are able to secure apprenticeship and other funding.

For ECITB the case for a new physical site focusing on engineering construction training is straightforward. It would allow ECITB a far larger say in training provision than is currently possible in East Anglia. ECITB could expand its apprenticeship programme (whereby it pays the ‘salaries’ of apprenticeships during their year off-site). This would give ECITB ‘in scope’ employers greater confidence that the apprenticeship ‘product’ was up to industry standard and that apprentices would be ‘work ready’ as soon as they start on the employer’s premises.

So this line of thinking suggests that a new centre is needed in order to expand the apprenticeship programme – and ensure that East Anglia is ‘growing its own’ skills rather than importing skilled labour from other regions.

However leaving aside the case for running apprenticeships from an industry endorsed independent centre, there may be other arguments for a new training facility. It could house new specialist equipment which may be too large for a

college to accommodate - and of course the equipment would be 'independent' – available for any training provider to use to meet the demand of employers. This last point is particularly important because one of the drivers for a new centre is employer responsiveness. In this line of thinking, only an independent operator could deliver true industry standard training by tendering out courses to get the best provider – or by simply acting as a landlord – hiring out facilities (classrooms, equipment etc..) to the training provider market.

This is certainly what has happened in other independent centres operating along the North Sea coast of Britain. CATCH on the south bank of the Humber, for example, manages to breakeven or actually make a surplus on revenue activities.

Of course a new centre with new facilities would not only cater for local industry needs but also serve to bring in training revenues from outside the region, thus reversing the current deficit in local specialist skills provision.

The extent to which businesses are influenced by the presence of training facilities is perhaps not known, but clearly a new flagship centre would have some impact on location/investment decisions.

So the case for a new engineering construction training centre is clear enough. But what is the case against such a centre being built? Is it simply about the capital cost or are there other factors which could detract from the very idea of a dedicated centre?

## **6. Some Issues against a New Centre**

The assertion that a centre for energy skills must reside in one place close to the coast is misplaced. The Power training centre in Corby is a good example of inland capacity satisfying coastal needs. Why, for example couldn't Hethel Engineering Centre (much closer to the coast than Corby), also serve coastal energy engineering needs – supported by a network of private and public vocational skills providers? Equally, shouldn't one look at the role of West Suffolk College in providing an apprenticeship programme and foundation degree in Nuclear Energy for Sizewell B? The college is based in the centre of East Anglia but is successfully delivering these training programmes to a major coastal energy business.

However much a training centre is desirable, it has to be operationally sustainable and that means companies and individuals deciding to pay for skills provision. At the same time this provision needs to avoid diluting the overall FE provider market. If not, it risks simply compounding the problem of ensuring adequate attendances at training sessions.

The Nautilus Feasibility report recommends avoiding “duplication and the risk of competing with existing providers” (page 4), and so suggests a hub and spoke model. This seems appropriate given the considerable resources already available within the FE/HE and private provider training sphere. The question then becomes what does an 'honest broker', non-invasive hub and spoke model look like? And where should the hub be based?

The suggestion of a 1.5 acre site to act as a skills centre seems at odds with the role of a 'hub', and the idea that a 'third sector' run skills centre is somehow an ideal counterweight between the public and private sector is misplaced.

The real need within the New Anglia local area is for a well run brokerage which points companies and individuals in the right direction; identifies gaps in provision and notifies the market of these deficiencies; it should act as a champion for engineering across the two counties – focusing on energy, low carbon, and clean tech industries but not forgetting traditional engineering skills and the vital role that the traditional manufacturing and engineering sector plays in supplying the new emerging industrial themes.

The one area where skills shortages are likely to be greatest is the nuclear sector (both in decommissioning and in the new Sizewell C) but Nautilus specifically cite this as a low priority for the Skills Centre since the sector “is already serviced by long established training providers...” (page 7). Indeed electricity power generation and distribution are considered to be adequately covered by Corby... (page 64) and of course West Suffolk College as identified above. The question of justifying the project on the basis of skills shortages is surely severely undermined by this premise.

On the issue of industry responsive courses there would appear, on first appearances to be much to commend a new centre: businesses want specific courses in the local area and currently have to go out of the region to get what they want. But the list of courses identified by Nautilus in the business case report, could arguably be run by local providers. Several providers have suggested that they would be willing to provide most of the courses listed, *as long as there was sufficient demand*. Now this caveat may seem to destroy their own willingness to act – but it would have to be the same criteria with a new centre – how else can a training provider make a rational decision about investing resources? (see Basic Economics above). It is worth noting the capabilities of different FE establishments. Lowestoft College, for example is one of the leading providers in the UK for the Management of Major Emergencies training and has recently responded to industry feedback by setting up its first CompEx course to run in May this year. West Suffolk College is rated extremely highly for its industry provision and works closely with Sizewell to deliver workforce development programmes.

If the new centre is not necessary for some of the industry courses suggested, is there an argument that some engineering equipment needs to be independent and available in one location? Of course a single location, multi resourced centre can be a good thing, but the energy sector as we have seen, is not limited to Great Yarmouth and Lowestoft – indeed there are many more supply chain energy related businesses outside this coastal area than in it, so a dispersed network offering a range of facilities and resources across the two counties makes a lot of sense – and at the same time makes the most of existing assets with only a minimal requirement for new equipment.

The key question is how to maximise the take up of local talent as job opportunities become available. A new physical centre may increase the chances of that happening but it is surely not a necessary condition. Of more importance, for

example, would be to work with companies to identify forthcoming skills shortages and then to broker these precise skills needs out to the most appropriate training provider so that skilled labour is provided 'just in time' for the employer. Through ESF funding, this kind of precision training – could be subsidised (especially to the SME market) and could become an attractive proposition for (SME) employers. This is something being looked at by the 3 Counties ESF Energy proposal.

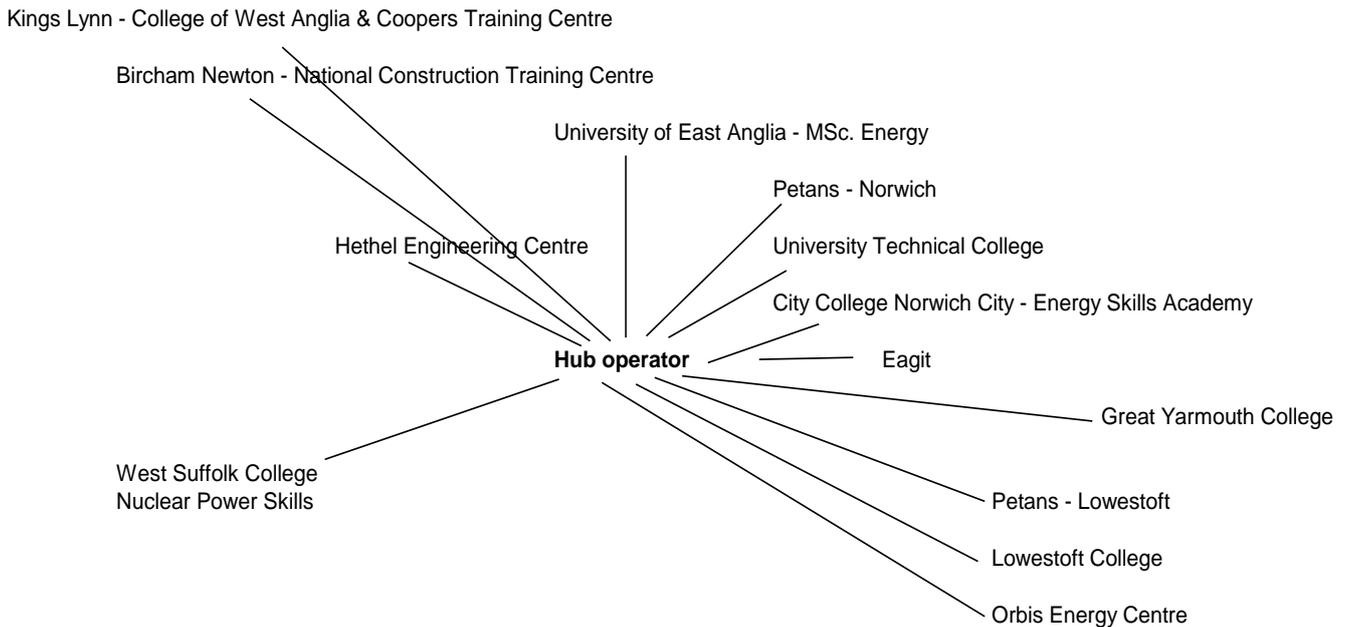
The Nautilus report suggests that apprenticeships would play a key part in the new proposed skills centre but immediately this presents a difficulty for further education which is charged with expanding the apprenticeship service across the two counties, and of developing new relationships with employers in the region. There is surely a serious danger of 'over provision' crowding out the market and driving down quality as vocational providers struggle to cope with dwindling numbers. If there is a case for more apprenticeships in the sector, surely there are adequate supply side resources to meet this need. If FE is 'unresponsive' then there will be private providers who can step into to take up the slack. The apparent 'apprenticeship shortage' does not, on its own warrant a new sector specific training centre.

Innovation is possible too, without a new centre. For example the regional ERDF programme is entirely focused on low carbon development; it may be possible to put together an ERDF bid to secure funds to develop a working wind turbine – which could act as an important training resource for the two counties. This could be a standalone resource for the sector, managed by a training provider or one of the engineering employer's in the local area (see EWEG proposal below – Section 10).

### **The Scottish Model – A virtual Network**

IESTA is the Scottish energy skills centre based close to Aberdeen. IESTA presents a "training capability matrix" involving 22 different training providers including FE, HE and the private sector, across 85 separate vocational disciplines ( ranging from accounting and auditing for the sector, to oil spills management and well control). This brokerage model is not dependent upon a physical centre and indeed many of the services offered are delivered on the premises of the appropriate providers rather than the IESTA skills centre which is small and not suitable for most types of training. This is a model which would suit East Anglia very well.

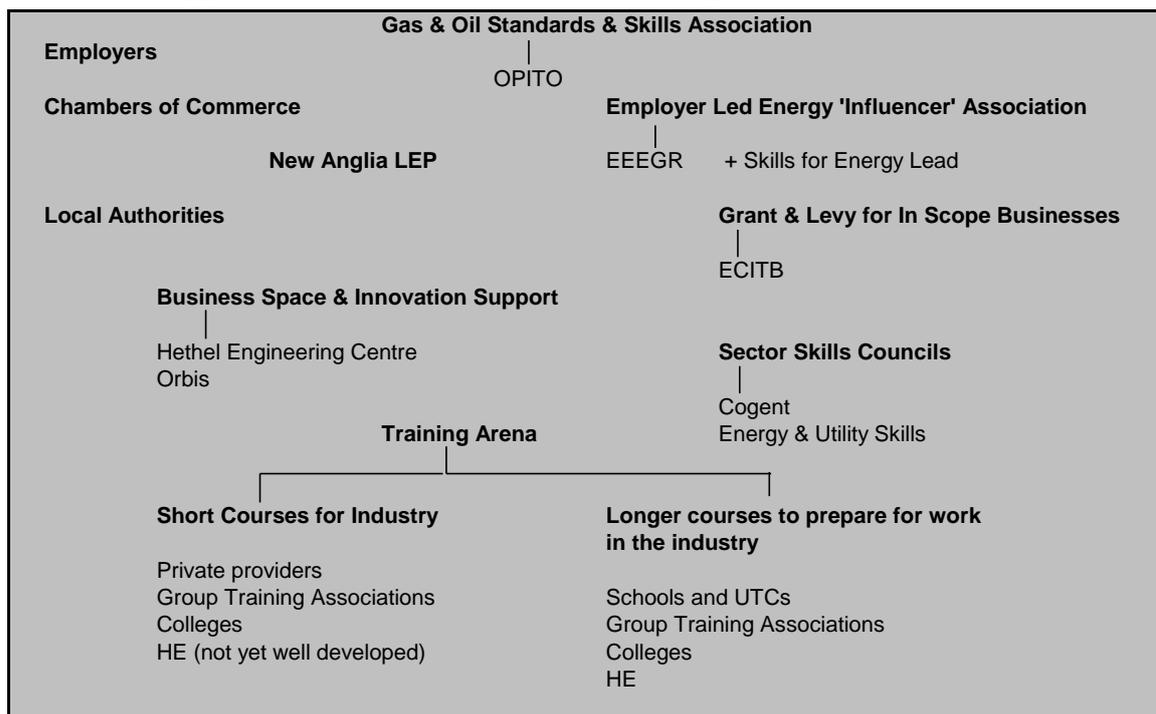
## 7. A New Anglia - Virtual Hub & Spoke model – for short courses



The hub and spoke model should be reserved for short courses and not try to be all things to all people. The industry thrives on short courses and this is the real driver for skills within the UK energy economy. Of course pre-work qualifications are important especially in terms of training the workforce of the future (e.g. apprenticeships), but one shouldn't forget that 80% of the 2020 workforce is already in work – and contracts depend on existing labour having the right skills to do the job. Moreover, pre-work qualifications don't actually require a brokerage model; there are already plenty of support structures in place to guide young people into the qualifications they need for their chosen career. In New Anglia, there are three excellent proposals to address longer term skills shortages and these are explored in more detail below (see UTC, East Coast Consortium and Lesiton High School proposals in Section 9).

A short course brokerage model depends on all relevant training providers in the area, buying into the concept. Even though it is not anticipated that the brokerage would have exclusivity on placing training – and both companies and providers will continue to do direct business in the way they have before – the brokerage does need to be seen to add value to the whole training effort and this can only begin to happen if training providers endorse the concept at the outset.

## 8. The Energy Stakeholder Arena – in East Anglia



If a hub and spoke training model is to work it is absolutely essential that all of the stakeholders represented in the diagram above are involved. This is further explored below:

### Apprenticeships

**ECITB** and **OPITO** can lead the way on apprenticeships and, by pooling their requirements, could work with a training provider to deliver the exact specification employers are looking for. Lowestoft College, for example, is an excellent position to respond to the quality requirements of both OPITO and ECITB.

### Short Course Brokerage

**Hethel Engineering Centre** and **EEEGR** already broker small business training solutions through the Beyond 2010 programme. It would surely make sense to bring this training brokerage under one roof and enhance the offer with additional business support and out-reach to schools – something that HEC does well already, and the UTC will be tasked with doing in the future. Could **EEEGR** add to this role a full short course brokerage service for all employers (not just SMEs). If not, Petans have suggested that this is a role they could undertake, ensuring that a 'Chinese wall' is created between their own provision and the brokerage.

### Raising Profile

**Local authorities** have a key role to play in supporting energy skills initiatives, and a virtual hub will need plenty of exposure through local authority channels such as economic development literature and directories. Equally the **New Anglia LEP** and the **Chambers of Commerce** have an important role

to play in making businesses aware of what is available. **Shaping Norfolk's Future** has significant experience in creating and sustaining **employer** led sector groups and this could be key part of the hub and spoke model. Encouraging **employers** in the sector to champion the work and purpose of the hub and spoke model will enhance credibility and spread the message to more businesses.

### **Innovation and support for smaller businesses**

Training solutions need to take account of the smaller businesses in the sector and those involved in the supply chain. Both **Hethel Engineering Centre** and **Orbis Energy Centre** have vital roles to play in terms of championing entrepreneurialism and innovation. These activities shouldn't be left in isolation but brought into the centre of the hub & spoke model so that young business talent and new business ventures feel a part of the transformation process.

### **Quality of Delivery**

How can a quality standard be introduced which has the support of employers? **OPITO** is well respected throughout the oil and gas industry, and **ECITB** also has employer credibility. All training providers involved in the brokerage could conceivably sign up to a local quality charter based on the (employer approved) standards of **OPITO** and **ECITB**. A complaints procedure needs to be put in place so that the brokerage has legitimacy in the eyes of **employers** – and there need to be sanctions available to ensure that quality is maintained. These procedures could be put in place for the apprenticeship programme too.

### **Sector Skills Councils**

**Cogent** and **Energy & Utility Skills** need to be aware of this new approach to delivering skills and where possible involved in the setting of standards – especially in relation to apprenticeships. The extent to which they should be involved in the short course brokerage is debatable given that the national qualifications framework will be less relevant to decision making than the need to find courses which meet the immediate need of **employers**.

Finally, as we shall see in the next section, there are several examples of proposed new skills centres for engineering and energy which will undoubtedly change the skills landscape in the region, especially for young people. City College Norwich is about to embark on a **University Technical College model** in the heart of Norwich; **East Consortium** is a partnership of East Norfolk schools committed to delivering an engineering/advanced manufacturing centre in Great Yarmouth to prepare young people (among others) for the local jobs of the present and future. And Leiston High School is spearheading a **rural UTC model** on behalf of 10 high schools in the area, with the intention of preparing young people for jobs on their doorstep; Leiston is just a few miles away from Sizewell C.

## **9. New Anglia – Examples of Existing & Proposed Skills Provision for the Energy/Engineering Sector**

### **Future Developments**

#### **City College Norwich**

##### **University Technical College - preparing young people for work in the sector First intake 2012**

The Norwich based University College will provide a “professional learning model focused upon the application of learned skills within an industry standard, employer endorsed environment.” This is not a simple re-branding of old FE provision – it should provide the New Anglia energy industry with a stream of well qualified, work ready apprentices. Working with key energy companies in the region, the UTC promises students access to “leading edge technology and manufacturing” (Statement of Intent A UTC for Norfolk - page 4).

The importance of the new University Technical College cannot be overstated. With a capacity for 600 students at any one time and additional capacity through school partnerships, this provision will have a certain impact on local recruitment into the energy sector. The UTC specifically targets two broad sectors for pre-work skills. These are: energy and the advanced manufacturing/engineering sectors.

The model for UTC is industry focused rather than relying on the traditional parameters of an educational institution. So the Centre will be based at a new industrial site; working hours will be 8.30 to 5.00 and 8 week terms will allow students to be much more project focused than is usual within FE; moreover there will be regular opportunities for full term internships with engineering/energy companies in the area.

The UTC has the support of many of the large engineering energy companies in Norfolk and also strong backing from key sector associations such as OPITO; ECITB and EEEgr. Much of the curriculum will be influenced by local industry needs and companies such as Guardline will deliver some of the training themselves.

If the standards of the UTC can meet the needs of local industry, it will set a new precedent for all FE and HE to match. It could become a standard bearer for quality in skills delivery and a new model for preparing young people for work in these sectors. Combined with the valuable apprenticeship work being undertaken at the other colleges it could provide the energy industry with the confidence to train and recruit locally rather than rely on supply from other parts of the country or from further a field.

#### **East Consortium –**

##### **Proposed Centre for Advanced Manufacturing and Engineering First intake 2012**

The centre will provide training and learning opportunities for learners within the East Norfolk Coast region. The curriculum will be on skills and knowledge required for the growing sectors of Energy and Advanced Manufacturing/Engineering.

The East Consortium is a Partnership of East Norfolk Schools and Colleges working together to realise their ambitions for Norfolk's young people. Their work is around ensuring that appropriate high quality training opportunities are available and accessible to our community. Partners within the East Consortium include; Acle High, Flegg High, Great Yarmouth High, Caister High, Lynn Grove High, Cliff Park High, Ormiston Venture Academy, Brooklands Centre, East Norfolk Sixth Form College, Great Yarmouth College, Norfolk County Council and a wide range of employers.

The aspirant centre of advanced manufacturing and engineering certainly adds another layer of provision to the energy skills equation. The range of groups it aims to support is admirable (from 14 – 16 and 16 – 19, through to 19+, NEETS and long term unemployed), but one can't help wondering how it will successfully bridge the gaps between skills needed in the labour market and those offered by the centre, when it has such a broad and diverse target group of learners to start with. It may have been better to create a more restrictive programme which prepared young school learners thoroughly for the local energy/engineering labour market, rather than offer such an expansive programme. That said, the initiative is to be commended for its broad reach and inclusive agenda.

#### **Leiston High School –**

##### **A Rural (UTC) Technical College model**

##### **First intake 2012/13**

10 high schools will benefit from this proposal which is about providing young people in the locality with the skills needed for the local industry, especially Sizewell C. The curriculum will be employer led and EDF will be a key partner in the initiative. Both Lowestoft College and Suffolk New College are supportive of the idea as is University College Suffolk.

#### **West Suffolk College –**

##### **Keys to Employer Engagement and Responding to Industry Needs**

West Suffolk College has a strong sense of purpose and direction and a determination to put the business community at the heart of what it does. This is reflected in the string of awards for outstanding provision (Ofsted); its Beacon status for excellence; Matrix accreditation; Investors in People award; and not least, its achievement in receiving the TQS award (Training Quality Standard) in all seven vocational areas.

The college provides training for 14 – 18 year olds but its main focus (almost  $\frac{3}{4}$  of provision) is people over 19 years old. This gives it a sense of maturity which is sometimes lacking in other colleges.

WSC is a shining example of employer responsiveness. As **Elizabeth Bray** - Head of Business Development explains, each Faculty within the college has an employer responsive team, and these teams liaise closely with the Business Services department. This two way relationship between the

vocational specialists and business support generalists is the key to successful employer engagement at West Suffolk College. When enquiries for training reach the college they are referred to Business Services who identify all the needs of the employer and then contact relevant vocational (employer responsive) teams. Equally, if an enquiry comes straight to a Vocational faculty, perhaps because the employer has dealt with this person before, the Business Services team will still be informed – and the final brokerage details will originate from there rather than the Vocational unit.

West Suffolk College is part of the Nuclear Skills Academy – and offers a foundation degree as well as apprenticeships at Sizewell B. It provides a whole range of energy related skills provision – right the way through the supply chain from (for example) nuclear energy production to domestic installations. The College has a short course programme built around compliance training which has grown over the years. Gas, oil and electricity regulations and updates on compliance have been a regular feature of the college programme for many years – and of course the customer base has grown over time; companies and sole traders return year after year to ensure they're got the necessary new qualifications and through word of mouth new contractors enrol. All of which adds to the database of customers who receive regular updates on forthcoming training opportunities through email alerts; e-newsletters and specific course offers. WSC has taken on specialist staff as part of its skills investment in the energy sector.

The college has been part of a Low Carbon Buildings project (CaRE) for the last two years and is about to develop a three acre site to create a Low Carbon Demonstration & Training Centre – building on its reputation for outstanding construction provision (the first college in the country to receive this accolade from Ofsted).

As head of Faculty, Gary Clarke, explains on the Excellence Gateway website: “the journey started following an unsatisfactory inspection outcome for work-based learning in April 2002. Learners were not achieving as well as they should or as well as full-time learners. From that point we set out to change the way that all learners were supported - we started building the construction team. Roles and responsibilities needed to be more clearly defined and best practice shared so that all learners benefited.... The result is a departmental structure [structure chart] split into vocational disciplines and focused on enabling effective communications and team work to support learners and helping them to achieve. As one teaching and learning support assistant said, “The primary reason for support being successful for learners is the teamwork. From initial assessment until successful completion, learners are our number one priority”.  
<http://www.excellencegateway.org.uk/page.aspx?o=310226>

The key point here is that West Suffolk College responds quickly to industry need – providing the environment, resources and facilities to deliver excellent sector based training. Vice Principal – Martyn Wagner asserts that

existing provision in New Anglia is sufficient to cope with the needs of the energy sector: “There needs to be a network of skills providers to deliver the solution for the energy sector; if that can be achieved there is every reason to be optimistic about delivering the skills the industry needs over the short and long term.”

### **Lowestoft College**

Lowestoft College is unique in New Anglia in that it has an international reputation for the quality of its marine training programmes. The commercial training is an integral part of the college – with facilities for international businesses (e.g. training pool; Nav-aids laboratory; ship bridge simulator etc..) located in the main college building and staffed by Lowestoft college specialists – all qualified mariners.

The college successfully bridges the needs of its 14 – 19 agenda with its commitment to professional training for the maritime industry – compromising neither area but integrating both into the college offer.

Lowestoft College offers a range of maritime, offshore, safety and management training services for the energy sector – all undertaken on college premises and currently generating significant ‘full-cost’ income.

Lowestoft College is internationally recognised for some of its industry provision. For example it is one of the best providers in the country for the Management of Major Emergencies course.

In response to industry feedback, Lowestoft College now offers the Complex - Gas & Vapours course – and will be running its first commercial programme in May 2011.

Below is a selection of Lowestoft College’s current offer to industry:

Advanced Fire Fighting (STCW) Automatic Radar Plotting Aids (ARPA) MCA approved - Bridge Team Management Certificate of Proficiency in Survival Craft & Rescue Boats Efficient Deck Hand (EDH) ERRV Command & Control - 5 Day OPITO approved Fire Prevention and Fire Fighting (STCW 95) IMDG Code Awareness (International Maritime Dangerous Goods) Introduction to Oil and Gas - delivered in partnership with Oilennium Ltd. Marine Transfer Training Navigation, Radar & ARPA Simulator Training (Operational) NARAS (O) to STCW 95 regulation A-II/1 Personal Safety and Social Responsibilities – to STCW 95 Standards Personal Survival Techniques (Basic Sea Survival) to STCW 95 Shipboard Safety Officer - meets the recommendations of the MNTB
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Shipboard Security Officer - 3 day MCA Approved course meets requirements of SOLAS and the ISPS  
Small Vessel Navigation and Radar  
STCW Basic Certificate Programme  
Wind Energy Safety Training (WEST)  
Ships' Bridge Simulator - includes manoeuvring and throttle controls, navigation instruments including GPS, LORAN and NAVTEX, an ARPA radar and ECDIS plotter...  
Dynamic Positioning  
Management of offshore emergencies  
Environmental & survival training.

In 2009 The college launched an Energy Skills Foundation Programme – a 12 month structured programme which is intended to get young people jobs or apprenticeships in the industry. The course includes all of the key core skills for the energy sector including electrical, process operations, engineering maintenance, welding and fabrication. The course is supported by Skills for Energy and endorsed by both ECITB and Cogent – with buy-in from major commercial operators such as Seajacks, Shell, and Amec.

### **Petans**

Petans has an excellent reputation for its safety training in the energy sector and currently offers the most OPITO accredited courses in England. Incorporated in 1984 and registered as a charity, Petans trains almost 6000 people in the industry each year. With 11 classrooms and extensive facilities across two sites (Norwich and Lowestoft) Petans provision is universally accepted as being to the highest standard in the offshore and maritime industries – which is why it is endorsed by OPITO.

Petans has always deliberately steered clear of providing full time education or getting involved in government funded programmes. As such, the Petans offer is all commercial and “value added” to the region.

Courses range from offshore survival, confined space training and first aid to firefighting, helicopter and maritime safety courses.

### **UEA**

UEA is an internationally recognised university. Although it has no core engineering provision, UEA has consistently achieved very high research ratings in other subject areas and is at the centre of scientific innovations, ranging from biology, chemistry and environmental sciences to computing, mathematics and pharmacy. The university is currently planning to launch an MSc in Energy in the next year – with plans for a B.Eng in the following years (possibly from 2012). UEA also has a track record of working with engineering companies (e.g. Lotus in relation to electrical technologies).



## **10. Conclusions & Recommendations –**

This report has attempted to separate out the skills needs of the energy sector in New Anglia, from the desire for a physical training centre. There is much to do to support the sector – and it may be both cost effective and of greater benefit to stakeholders and delivery partners in the two counties to look at dynamic solutions to skills in the sector rather than an “eggs in one basket” approach.

If a new physical training and innovation centre for energy skills is not possible in this new post-recession economy, somewhere between a “do nothing” and a “do all” scenario there may be an alternative which delivers the main objectives of a “skills for energy” strategy without the costs of major infrastructure development. What might this alternative look like?

### **A 10 Point Plan**

1. Encourage the expansion of Lowestoft College’s commercial portfolio and development of Great Yarmouth College’s energy skills portfolio.
2. Priming the energy skills pump: Champion the development of the City College’s new University Technical College to prioritise energy skills for young people, and support the coastal skills initiatives proposed by Leiston High School and East Consortium.
3. Recognition of Hethel Engineering Centre as an important catalyst for supply chain innovation for the sector.
4. Importance of involving the private sector providers – e.g. PETANS;
5. Expansion and development of the GTA model building on the work of EAGIT
6. Developing skills ‘brand’ awareness through OPITO and ECITB
7. Bringing together intermediaries (ECITB, OPITO EUSkills, Cogent ect..) to discuss ways of working together to achieve greater cooperation and synergy. As part of this, encourage Lowestoft College to gain accreditation to deliver the OPITO apprenticeship.
8. Encouraging EEEGR to champion a virtual hub model through the innovative Skills for Energy initiative.
9. Working with EWEG to deliver supply chain innovations across the industry.
10. Develop an energy apprenticeship charter with buy in from industry; small businesses; intermediaries and training providers, in order to provide the content; level of service and appropriate facilities for new generations of apprenticeships in the two counties.

The 10 points above broadly fit into four areas which offer a complete solution for energy skills in New Anglia:

- Innovation
- Hub & Spoke short course delivery
- Apprenticeships and preparation for apprenticeships
- Profile Raising

Whilst these themes could work under one roof – at a new skills centre for example, they probably achieve more through a series of ‘dispersed’ initiatives.

**Innovation** – Build a Wind turbine using local business resources.  
Led by EWEG

EWEG have applied to ERDF low carbon fund to develop a project in which local engineering companies will build a complete full size 2megawat wind turbine. The idea is part of EWEG’s supply chain capacity building series of initiatives and it will help East Anglian companies better understand the requirements of the sector, their own engineering capabilities and the gaps which need bridging. Once built, the project could become an exciting showcase for the region, providing excellent opportunities for industry training – especially from the health and safety angle. The wind turbine will generate renewable energy and provide a dynamic training experience for young people thinking of entering the sector. Colleges in Norfolk and Suffolk will be well placed to make use of this resource as a working demonstrator. An ideal location for the site could be Bircham Newton National Construction Training Centre which already has large machinery on site and has all the health and safety requirements in place.

This initiative could link into the UEA’s MSc. in Energy, providing a real project for research and study.

Match funding of around £1.5m still needs to be found before this project can proceed.

**Hub & Spoke short course delivery**  
Led by EEEGR - Skills for Energy.

Potential Location: A virtual hub requiring minimal office facilities and resources.

The term skills brokerage is often used to describe all types of training information interventions but it is rarely appropriate for pre-industry training (e.g. full time education). The most helpful form of brokerage for the energy sector would be for short courses for those who are already attached to the sector. This is what companies are looking for – and a brokerage could save employers time and money by providing information on courses options and availability.

Hethel Engineering Centre already provides a training brokerage for engineering courses for the Beyond 2010 programme. EEEGR have a similar contract which has been sub-contracted to Nautilus. Petans, who already handle thousands of training enquiries from across the region, have offered to provide a brokerage facility if no one else was interested. The role of a broker would be to maintain and update information on training availability in all areas of the engineering/energy/ construction sector. IESTA provides a similar service involving 22 different training providers including FE, HE and the private sector, across 85 separate vocational disciplines ( ranging from accounting and auditing for the sector, to oil spills management and well control). Developing a similar brokerage delivery partnership in East Anglia could provide industry with a valuable cost effective service. Nautilus have identified a range of courses which are currently not available in the region and for which, local companies send trainees out of the area to be trained. These can certainly be added into the brokerage mix and as and when they become economically viable to host in the region can be sourced through appropriate local providers.

## **Apprenticeships**

Led by OPITO and ECITB

OPITO is the Oil & Gas UK Industry's focal point for the skills and knowledge agenda. Its apprenticeship programme is robust, rigorous, highly competitive and industry endorsed. Over 95% of students obtain work in the industry on completion of their apprenticeship.

As a flagship scheme, having a college become accredited to deliver the OPITO apprenticeship would be major achievement for East Anglia. Several years ago Lowestoft College unsuccessfully attempted to gain accreditation. Much has changed in the intervening years and the college may now be in a good position to gain accreditation.

ECITB is a vital part of the apprenticeship equation not least because of their grant and levy system for 'in-scope' businesses. If Lowestoft College manages to gain approval to deliver the OPITO apprenticeship, ECITB could be more accommodating towards the college providing a dedicated apprenticeship programme for its trainees. Currently these students have to travel between Norwich (Eagit) and Lowestoft on a weekly basis in order to undertake all aspects of the course.

Bringing together Lowestoft College, OPITO and ECITB to discuss ways of solving the apprenticeship needs of the industry would be a good start.

Equally, one should continue to support the UTC variant models developing through City College Norwich; East Consortium; and Leiston High School.

## Profile

Led by EEEGR

Everyone seems to agree that the energy sector needs to make its presence known more obviously in the East of England. Moreover, there is a key message which needs to be communicated about skills – it is that the energy sector in East Anglia is a place for jobs and that there are many routes to gaining skills.

“Skills for Energy” is certainly a good banner. Could it be turned into a local brand and used in each of the above initiatives? As in “apprenticeships – Skills for Energy; The Skills for Energy Brokerage, and so on.

Indeed could all of the training providers and intermediaries buy into a “Skills for Energy” brand so that it became a byword for East Anglian training quality and innovation?

In considering the way forward for skilling up local people for the energy sector in New Anglia, there is a need to differentiate between the different target audiences. These can usefully be divided into several categories: preparing school students for FE or HE engineering training; delivering pre-work engineering qualifications at FE or HE; and delivering CPD, vocational update courses; and other short courses for people already working in the sector. A fourth category is a hybrid made up of the last two and includes longer professional courses undertaken part-time by employees in the industry looking to improve their career prospects or transfer to a new sector.

These four categories all require different approaches and are unlikely to be served by a single solution. This report identifies a range of initiatives which, together could dramatically alter the skills landscape for the energy sector. The report recommends several associated initiatives to be undertaken in conjunction with the skills work. These include raising the profile for the sector through a branding exercise possibly using a name such as “Skills for Energy” as a mark of energy training quality in the region. Encouraging greater SME involvement through innovative projects such as the EWEG wind turbine project are also an essential part of the sectoral mix and developing further links with Hethel Engineering Centre and the two universities UEA & UCS.

By addressing skills, profile and innovation all at the same time, New Anglia could make a significant mark for energy in the region, ensuring that local resources are developed to match the industry investments being made in nuclear, wind, oil and gas.

## Appendix 1 – Companies contacted in telephone survey

Lenwade	Norwich
Whitmore	North Norfolk
Hutton	St edmundsbury
Denny	Norwich
J&M Edwards	Great Yarmouth
Precision Plus	West Norfolk
Profile Technical	Norwich
BBR Engineering	St edmundsbury
Weco	Breckland
C&W engineering	west Norfolk
AOT engineering	West Norfolk
Advance Engineering	West Norfolk
SJR Precision	South Norfolk
Bressingham eng	South Norfolk
HEITZ	Breckland
Edeco	Great Yarmouth
CJ Engineering	Breckland
Aquaterra	Norwich
GD Engineering	Norwich
RBS Engineering	North Norfolk
Clarke Engineering	Norwich
Wind power renewables	North Norfolk
Magnox	Suffolk coastal
UK Engineering	Waveney
GDF Suez	London
Nuttall	Breckland
Nov Downhole	Great Yarmouth
Milltech	Norwich
Mainstream renewable	London
KC Controls	West Sussex
CLS Offshore	Great Yarmouth
Certex	Great Yarmouth
Cmac	Great Yarmouth
Atlas	Great Yarmouth
Baker Oil	Great Yarmouth
Trans Ocean	Great Yarmouth
Claxton Eng	Great Yarmouth
Amec	Great Yarmouth
Crowder	Lowestoft
Falcon	Norwich
Flame Skill	Great Yarmouth

## Appendix 2 – Provider Skills Matrix

Short Courses Sample Matrix (not complete)	Lowestoft College	City College Norwich	West Suffolk College	Petans	Eaght	UEA	Hehnel
<b>Maritime and Offshore - STCW and Other Short Courses</b>							
Abrasive Wheels Course	X						
Advanced Fire Fighting (STCW)	X						
Automatic Radar Plotting Aids (ARPA)	X						
MCA approved - Bridge Team Management	X						
Certificate of Proficiency in Survival Craft & Rescue Boats	X						
Efficient Deck Hand (EDH)	X						
ERRV Command & Control - 5 Day OPITO approved	X						
Fire Prevention and Fire Fighting (STCW 95)	X						
IMDG Code Awareness (International Maritime Dangerous Goods)	X						
Introduction to Oil and Gas - delivered in partnership with Oilennium Ltd.	X						
Marine Transfer Training	X						
Navigation, Radar & ARPA Simulator Training (Operational) NARAS (O) to STCW 95 regulation A-II/1	X						
Personal Safety and Social Responsibilities – to STCW 95 Standards	X						
Personal Survival Techniques (Basic Sea Survival) to STCW 95	X						
Shipboard Safety Officer - meets the recommendations of the MNTB	X						
Shipboard Security Officer - 3 day MCA Approved course meets requirements of SOLAS and the ISPS	X						
Small Vessel Navigation and Radar	X						
STCW Basic Certificate Programme	X						
Wind Energy Safety Training (WEST)	X						
Ships' Bridge Simulator - includes manoeuvring and throttle controls, navigation instruments including GPS, LORAN and NAVTEX, an ARPA radar and ECDIS plotter...	X						
Dynamic Positioning	X						
Management of offshore emergencies	X						
Environmental & survival training	X						
<b>Offshore survival</b>							
BOsieT Basic Offshore Safety Induction & Emergency Training				X			
fOeT Further Offshore Emergency Training				X			
eurO Basic Offshore Safety Induction & Emergency Training with Norwegian Upgrade				X			
eurO r Further Offshore Emergency Training with Norwegian Upgrade				X			
eurO u Norwegian Upgrade				X			
hueT/eBs Helicopter Underwater Escape Training & Emergency Breathing System				X			
hueT Helicopter Underwater Escape Training				X			
MisT Minimum Industry Safety Training				X			
<b>Firefighting</b>							
OerTM Offshore Emergency Response Team Member				X			
OerTM r Further Offshore Emergency Response Team Member				X			
OerTI Offshore Emergency Response Team Leader				X			
OerTI r Further Offshore Emergency Response Team Leader				X			
COerTM Combined Offshore Helideck/Emergency Response Team Member				X			
fire eXT Fire Extinguisher training				X			
<b>Helicopter</b>							
OehTM Offshore Emergency Helideck Team Member				X			
OehTM r Further Offshore Emergency Helideck Team Member				X			
Caa/hr Helideck Radio Operator				X			
hIO Helicopter Landing Officer				X			
hIO f/T Further Helicopter Landing Officer				X			
hr Helicopter Refuelling				X			
hDa Helideck Assistant				X			
Nui – hTM NUI Helideck Team Member				X			
Nui – hIO NUI Helicopter Landing Officer				X			
<b>Safety Management</b>							
OMI Offshore Safety Management & Legislation				X			
Osr Offshore Safety Representatives				X			
Osr r Offshore Safety Representatives - Refresher				X			
h2				X			
s Hydrogen Sulphide Awareness				X			
<b>Maritime</b>							
COX T Offshore Lifeboat Coxswain (Twinfall)				X			
COX T & s Offshore Lifeboat Coxswain (Twin and Singlefall)				X			
COX T r Further Offshore Lifeboat Coxswain (Twinfall)				X			
COX T & s r Further Offshore Lifeboat Coxswain (Twin and singlefall)				X			
COX s Offshore Lifeboat Coxswain (Singlefall)				X			
iTsO Initial Training Shipboard Operations				X			
frC B Fast Rescue Craft Boatman				X			
DCC Daughter Craft Coxswain				X			
<b>STCW95 Maritime</b>							
				X			

Short Courses Sample Matrix (not complete)	Lowestoft College	Northwich College	City College Norwich	West Suffolk College	Peatons	Eastl	UEA	Hethel
<b>STCW95 Maritime</b>						X		
COMM STCW95 Combined 5 day course						X		
Pssr Personal Safety and Social Responsibilities						X		
fPff Maritime Basic Training – Fire Prevention & Fire Fighting						X		
efa Elementary First Aid						X		
PsT Personal Survival Techniques						X		
Maff Maritime Advanced Fire Fighting						X		
MfaOBs Medical First Aid on Board Ship (MCA/MNTB)						X		
<b>Confined Space</b>						X		
CsTe CP1 or CP2 Confined Space Entry – CP1 or CP2						X		
CsTe CP1 & CP2 Confined Space Entry – Competent Person 1 and 2						X		
CGCs Ir Confined Space City & Guilds – 6150-01 Level 2 Award Low Risk						X		
CGCs Mr Confined Space City & Guilds – 6150-02 Level 2 Award Medium Risk						X		
CGCs hr Confined Space City & Guilds – 6150-03 Level 2 Award High Risk						X		
<b>First Aid</b>						X		
hse aid Offshore First Aid (HSE)						X		
hse aid r Offshore First Aid – Refresher (HSE)						X		
OFAW (a) Offshore First Aid at work advanced						X		
<b>Professional Courses from the CCNE Skills Academy:</b>								
APL for new entrants to gas industry	X	X						
Domestic Heating efficiency	X							
Full & Defined Scope - Electrical Heating Scheme (Part L)	X							
Domestic Periodic Inspection & Testing	X							
Unvented Hot Water Systems	X	X						
Fault Finding and Essential Electrics	X							
WRAS Water Regulations	X							
Solar Thermal Domestic Hot Water	X	X						
Domestic Heat Pump Installer (Ground Source and Air Source)	X	X						
Solar Photovoltaic Installer	X	X						
<b>BPEC - Renewables Awareness (Energy Efficiency, Solar Thermal Hot Water, Biomass, Heat Pumps, Solar PV, Wind Power and Micro-Hydro)</b>	X							
City & Guilds Level 3 Award in Understand the fundamental principles and requirements of environmental technology systems (C&G 2399-01)	X							
City & Guilds Level 3 Award in the installation of Small Scl Solar Photovoltaic Systems (C&G 2399-11)	X							
City & Guilds Level 3 Award in the Installation of Solar Hot Water Systems (C&G 2399-21)	X							
City & Guilds Level 3 Award in the Installation of Water Harvesting and Re-use Systems (C&G 2399-41)	X							
Abrasive Wheels Course	X							
IMI Award in Automotive Refrigerant Handling (EC842-2006) (QCF)	X							
Site Surveying for Installation of Solar/ Photovoltaic systems	X							
Energy Management (BTEC Level 3 unit)	X							
IOSH Managing Safety	X							
<b>Gas</b>								
CCN1 Core Domestic Gas Safety		X						
Domestic Natural Gas Appliance Training and Assessment		X						
CCN1R Core Refresher Domestic Gas		X						
Conversion from Natural Gas to Liquid Petroleum (CoNGLP1)		X						
CPA1 Combustion Performance Analysers Course		X						
<b>Oil</b>								
OFL 50 Training		X						
OFL 100 Training		X						
OFL 101 Assessments		X						
OFL 105E Assessments		X						
600a Tank Assessment		X						
<b>Others</b>								
C&G 6084 Energy Efficiency		X						
Unvented Hot Water Systems		X						
Award in Nuclear Industry Awareness		X						
Triple Entry Bar Standard (Nuclear)		X						
Project Management		X						
Foundation Degree in Engineering for Nuclear		X						
Welding - Level 1 C&G 3268				X				
Welding Skills (Day) - Level 3 C&G 2800				X				
Welding Skills (Eve) - Level 2 Award				X				

## Appendix 3 - Preparing for Industry – Longer Courses

Prepared by Andy Hodgson – Norfolk County Council

	Entry	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
	eg. Foundation Diploma	eg. GCSE D-G, NVQ 1	e.g GCSE A*-C, BTEC 1st, NVQ 2	e.g A/AS level, BTEC National Diploma, NVQ 3	e.g. NVQ 4, Cert HE,	e.g. NVQ 5, Foundation degree, HND/C, Dip HE/FE	e.g. Bachelor degree, L6 Professional diploma	e.g. Masters Degree, PGCE, L7 Advanced Professional Diploma	e.g. Doctorate, L8 Advanced Professional Diploma
Abrasive Wheel Regulations									
AM2 Awareness Training									
Assembling and Testing Fluid Power Systems									
Automotive Refrigerant Handling - Level 3 Award				27					
Bench Fitting/Skills									
Bond Testing									
Civil Engineering						7			
Combustion Product Analysis (CPA1)									
CAD	13		13						
Confined Spaces									
Core Domestic Natural Gas Safety									
COSHH - Control of Substances Hazardous to Health Regulations 2002									
Domestic Appliances (heating/cooking)									
Eddy Current Inspection/Analysis									
Electrical / Electronic Engineering (inc Mechatronics)				20		7,9			
Electrical Isolation Course									
Electrical Maintenance			13						
Electro-Pneumatics									
Electro-technical Installation Apprenticeship Programme			9	9					
Electrotechnical Technology				13,20					
Engineering				9		7			
Engineering Apprenticeship Programme			9	9					
Engineering Maintenance and Installation NVQ 2			9						
Etch Inspection									
Fire and Wall Heaters									
Flow Fault Diagnosis									
Fork Lift Training			13						
Fundamental Inspection, Testing & Initial Verification	2	13							
Gas Appliances / safety									
Health & Safety Passport									
HIAB									
Hydraulics/Fluid Power systems									
Industrial Automation - Programmable Logic Controllers									
IOSH Managing Safely									
Level and Fault Diagnosis									
Liquid Penetrant Inspection									



	Entry	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
	eg. Foundation Diploma	eg. GCSE D-G, NVQ 1	eg GCSE A*-C, BTEC 1st, NVQ 2	e.g A/AS level, BTEC National Diploma, NVQ 3	e.g. NVQ 4, Cert HE,	e.g. NVQ 5, Foundation degree, HND/C, Dip HE/FE	e.g. Bachelor degree, L6 Professional diploma	e.g. Masters Degree, PGCE, L7 Advanced Professional Diploma	e.g. Doctorate, L8 Advanced Professional Diploma
Abrasive Wheel Regulations									
AM2 Awareness Training									
Assembling and Testing Fluid Power Systems									
Automotive Refrigerant Handling - Level 3 Award				27					
Bench Fitting/Skills									
Bond Testing									
Civil Engineering						7			
Combustion Product Analysis (CPA1)									
CAD	13		13						
Confined Spaces									
Core Domestic Natural Gas Safety									
COSHH - Control of Substances Hazardous to Health Regulations 2002									
Domestic Appliances (heating/cooking)									
Eddy Current Inspection/Analysis									
Electrical / Electronic Engineering (inc Mechatronics)				20		7,9			
Electrical Isolation Course									
Electrical Maintenance			13						
Electro-Pneumatics									
Electro-technical Installation Apprenticeship Programme			9	9					
Electrotechnical Technology				13,20					
Engineering				9		7			
Engineering Apprenticeship Programme			9	9					
Engineering Maintenance and Installation NVQ 2			9						
Etch Inspection									
Fire and Wall Heaters									
Flow Fault Diagnosis									
Fork Lift Training			13						
Fundamental Inspection, Testing & Initial Verification	2	13							
Gas Appliances / safety									
Health & Safety Passport									
HIAB									
Hydraulics/Fluid Power systems									
Industrial Automation - Programmable Logic Controllers									
IOSH Managing Safely									
Level and Fault Diagnosis									
Liquid Penetrant Inspection									

	Entry	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
	eg. Foundation Diploma	eg. GCSE D-G, NVQ 1	e.g GCSE A*-C, BTEC 1st, NVQ 2	e.g A/AS level, BTEC National Diploma, NVQ 3	e.g. NVQ 4, Cert HE,	e.g. NVQ 5, Foundation degree, HND/C, Dip HE/FE	e.g. Bachelor degree, L6 Professional diploma	e.g. Masters Degree, PGCE, L7 Advanced Professional Diploma	e.g. Doctorate, L8 Advanced Professional Diploma
Magnetic Particle Inspection									
Maintenance Engineering									
Maintenance Apprenticeship					13				
Management of Electrical Equipment Maintenance (PAT)					13				
Manual Handling									
Mechanical Engineering (inc Manufacturing/production)			9	9,20		7			
Milling Skills									
Motor Vehicle Maintenance /Body & paintn Opps Apprenticeship			9						
Motor Vehicle Maintenance & Repair	27	27							
Motors & Control Circuit Principles									
NDT Refresher Workshop									
Oil boiler training for OFTEC 101,105,600									
Oxy-acetylene Cutting									
Performing Engineering Operations		9	9,20						
Performing Manufacturing Operations			9						
Pneumatics									
Polymer Processing and Related Operations			9						
Power Press									
Practical Risk Assessment									
Preparing & proving CNC machine tool programs using CNC Lathes & Milling machines									
Pressure and Fault Diagnosis									
Radiation Safety/protection/inspection									
Safety Harness Training									
Sheet Metal Work									
Temperature Sensors									
Turbidity Measurement									
Turning Skills									
Ultrasonic Inspection									
Visual Inspection									
Water Courses									
Welding (inc testing)		20	20						
Working at Heights									

		Entry	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
					e.g A/AS level, BTEC Naional Diploma, NVQ 3	e.g. NVQ 4, Cert HE,	e.g. NVQ 5, Foundation degree, HND/C, Dip HE/FE	e.g. Bachelor degree, L6 Professional diploma	e.g. Masters Degree, PGCE, L7 Advanced Professional Diploma	e.g. Doctorate, L8 Advanced Professional Diploma
		eg. Foundation Diploma	eg. GCSE D-G, NVQ 1	e.g GCSE A*-C, BTEC 1st, NVQ 2						
	CNC Machining Advanced Apprenticeship			13	13					
	Design and Technology - product design				4,12,18,21,22,26,28,29,30,31,33					
	Electrical / Electronic Engineering				7,20		9			
	Electrical Engineering Apprenticeship			13	13					
	Electrical Installation			9						
	Electronics				11,15,21					
	Electrotechnical			7						
	Electrotechnical Installation Apprenticeship			9	9					
	Engineering		9,14,33	7,9,14,18,34	7,8,9,12,14,20,21,34					
	Engineering Apprenticeship			9,35	9,35					
	Engineering Maintenance Apprenticeship				13					
	Engineering Student Apprenticeship			6						
	Industrial Applications Apprenticeship			35						
	Land-Based Engineering			17	17					
	Manufacturing and Product Design Higher Diploma			7						
	Manufacturing Apprenticeship			35						
	Mechanical Engineering Apprenticeship			13	13					
	Mechanical Engineering			20	7,20					
	Motor vehicle Service & Repair/Maintenance	9,20	7,9,20,23,34	7,9,20	7					
	Motor vehicle Apprenticeship			9,23,24	23,24,34					
	Motor vehicle Apprenticeship - heavy Motor vehicles			23	23					
	Motor Vehicle Student Apprenticeship			6,32						
	Motorsport Engineering			9	9			9		
	Operations and Maintenance Engineering				7					
	Performing Engineering Operations		20	20						
	Performing Manufacturing Operations Apprenticeship			24						
	Print and Printed Packaging Apprenticeship			5,35	5,35					
	Property Maintenance Operations Apprenticeship			9						
	Sustainable Engineering Foundation Degree						17			
	Vehicle Body and Paint Operations (Body Repair) Apprenticeship			9,23,24	23,24					
	Vehicle Body and Paint Operations (Body Repair)		7	7,9						
	Welding		20	20	20					
	Welding/Fabrication Apprenticeship			13	13					

### **Provider Codes**

- |  |  |
|--|--|
| 1 AIT                                    | 21 Hellesdon-Taverham Sixth Form         |
| 2 Allied Health & Safety                 | 22 King Edward VII School                |
| 3 Anglia Skills Academy Ltd              | 23 Norfolk Training Services King's Lynn |
| 4 Attleborough High School               | 24 Norfolk Training Services Norwich     |
| 5 British Printing Industries Federation | 25 Norwich Gas Centre Ltd                |
| 6 City Academy Norwich                   | 26 Notre Dame High School                |
| 7 City College Norwich                   | 27 Open Road West Norfolk                |
| 8 City Of Norwich School                 | 28 Ormiston Victory Academy              |
| 9 College of West Anglia                 | 29 Reepham College                       |
| 10 Combined Heating Services Ltd         | 30 Smithdon High School                  |
| 11 Dereham Sixth Form College            | 31 Springwood High School                |
| 12 Downham Market College                | 32 The Kett Sixth Form College           |
| 13 Eagit                                 | 33 Thetford Academy                      |
| 14 East Consortium                       | 34 West Suffolk College                  |
| 15 East Norfolk Sixth Form College       | 35 WS Training Ltd                       |
| 16 Eastern Training Services             |  |
| 17 Easton College                        |  |
| 18 Fakenham High School and College      |  |
| 19 Fiona Horne Training                  |  |
| 20 Great Yarmouth College                |  |

## Appendix 4 - Norfolk Skills Partnership Research showing Skills Shortages relevant to Energy Sector

### Advanced manufacturing

All those completing the Growth Are column identified this area as a growth sector for them (6/12).

#### Skills required:

(number in brackets indicates where identified by more than one respondent)

Electrical engineers

Engineering and design - Graduate level (2) Technician level CAD (2)

Fitters (mechanical & electrical)

Managers/Team leaders (5)

Material testing and certification technicians

Mechanical/aerodynamic/automotive or aeronautic Engineers Graduate level

Operators – metal forming/cutting/milling (2)

Precision engineers (3)

Programmers

Self employment and entrepreneurial skills

Technicians – multiskilling, composites

Vehicle dynamics

Welders

#### Local opportunities:

Energy sector (Great Yarmouth)

Fakenham & North Walsham (North Norfolk)

Motor sport Lotus/Hethel (South Norfolk)

Rackheath development (Broadland)

Manufacturing base (West Norfolk )

### Logistics

Identified mainly by Great Yarmouth with the development of East Port

#### Skills required:

##### Logistics & Wholesale

Freight-forwarding / logistic managers

Freight vehicle drivers

Warehouse operatives

Vehicle servicing engineers

##### General Cargo

Freight-forwarding / logistic managers

Freight vehicle drivers

Port service vehicle drivers

Vehicle servicing engineers

##### Bulk Cargoes

Equipment operators

Freight vehicle drivers

Port services vehicle drivers

Vehicle servicing engineers

Wide range of skills involved in the supply chain

#### Local opportunities:

Outer harbour and Offshore supply chain

### Engineering/ construction

4/12 saw this as a growth area

Skills required:

(number in brackets indicates where identified by more than one respondent)

Engineering L3

Fitters

Maintenance L2 construction skills

Management

Materials testing

Mechanical, electrical and multiskilling for construction industry

Structural engineering

Welding and fabrication (2)

Local opportunities:

Breckland – A11

Broadland – Rackheath

Great Yarmouth – Energy related

North Norfolk - Energy related

South Norfolk – Hethel

**Low Carbon**

6/12 identified this as a growth area

Skills required:

(number in brackets indicates where identified by more than one respondent)

Apprenticeships to support Eco & Sustainable skills)

Electrical and mechanical engineers

Engineering & Manufacturing L4 and L3 skills

Fitters (2)

Installation and maintenance (2)

Instrumentation engineers and technicians

Marine skills - Crews for transfer vessels (2)

Materials testing technicians

Project management (4)

Retrofitting – upskilling and/or reskilling (2)

Steel erectors

Structural engineers

Turbine technicians

Welders (2)

Local opportunities:

A11 corridor development (Breckland)

Energy sector (Great Yarmouth and North Norfolk)

Hethel (S Norfolk)

Onshore & offshore supply chains (Kings Lynn, Great Yarmouth and North Norfolk)

Rackheath development (Broadland)

Retrofitting (Norwich)

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