



**Executive Summary**  
of the  
**Business Case**  
to support development of the  
**East of England**  
**EPISCentre**  
(Energy Production Innovation Skills Centre)  
***The Hub of Energy Skills Excellence***



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## EXECUTIVE SUMMARY

Skills for Energy commissioned Nautilus Associates to develop the proposed East of England Energy Skills Centre Business Case after a competitive tender process. Nautilus had previously completed the Skills Centre Feasibility Study, the recommendations of which were:

- An Energy Skills Centre (ESC) should be established in the East of England (EoE),
- It must be industry led in partnership with academia, training providers and public bodies,
- The ESC should coordinate and interface services of existing providers, only delivering to add value,
- A ‘hub and spoke’ delivery model is preferred,
- The ESC hub should be physically located in a building, with workshops, classrooms, etc,
- ESC must establish its ‘base line’ skills training on the requirements of the engineering & construction industry, with emphasis on the offshore sectors,
- Oil & gas and offshore wind are highest priorities,
- Formal relationships are needed with energy industry accrediting bodies,
- ESC should partner with ECITB and develop relationships with relevant National Skills Academies,
- Preferred hub location is in the triangle of Gt Yarmouth/Norwich/Lowestoft.

These industry recommendations informed the Business Case.

Additionally, focused engagement has been undertaken with stakeholders, industry/employers, private training providers, education, national & regional organisations with a skills remit, standards & accreditation bodies and relevant government agencies to ensure their input and feedback was incorporated appropriately.

### 1.1 MARKET NEED

The EoE is in a unique position, having at least six significant energy industry sectors;

- i. **Offshore gas production** - this sector has aging assets and a mature workforce both of which will impact skills requirement,
- ii. Existing and new **nuclear power generation**,
- iii. Traditional **power generation**,
- iv. The world’s largest and fastest growing **offshore wind energy** sector,
- v. **Decommissioning** of offshore structures, which will ramp up in the next decade,
- vi. The emerging **carbon capture & storage (CCS)** sector.

The availability of a skilled workforce is crucial to each of these energy sectors and therefore it is critical to the region to maintain its current position as an energy hub to compete in the future.

There is currently a skills shortage and without action this situation will do nothing but deteriorate. In a recently published skills survey report<sup>1</sup> the ECITB estimated that by 2020 the UK Energy Industry will need some 40,000 more skilled personnel. The table below (*produced using figures from the ECITB report*) shows the 2020 requirements by energy sector.

| Sector           | % Share at 2008 | Manpower at 2008 | Number Recruitment since 2008 | Required Manpower Forecast | Projected % Share at Forecast | Number to Recruit |
|------------------|-----------------|------------------|-------------------------------|----------------------------|-------------------------------|-------------------|
| Power Generation | 14%             | 10,686           | 5,086                         | 10,820                     | 12%                           | 5,734             |
| Offshore O&G     | 29%             | 21,372           | 10,171                        | 24,845                     | 27%                           | 14,674            |
| Nuclear          | 7%              | 5,530            | 2,632                         | 16,589                     | 18%                           | 13,958            |
| Renewables       | 1%              | 747              | 356                           | 2,924                      | 3%                            | 2,568             |

Table of forecast energy industry skilled personnel requirements by 2010: Figures provided by ECITB News 2010: Issue 02

From these figures, and feedback from industry partners engaged through consultation, it can be shown that the EoE will face increased competition for skilled staff.

The industry support for a regional energy skills provision, recorded during the initial feasibility study, has been confirmed with several key players expressing their “passion” for the concept and emphasising the urgency they believe is necessary in achieving this.

It is evident that the ESC must be responsive to the skills needs of the EoEs multiple energy sectors and provide the interface with education & academia, training providers and public bodies to co-ordinate effort & activity to add value.

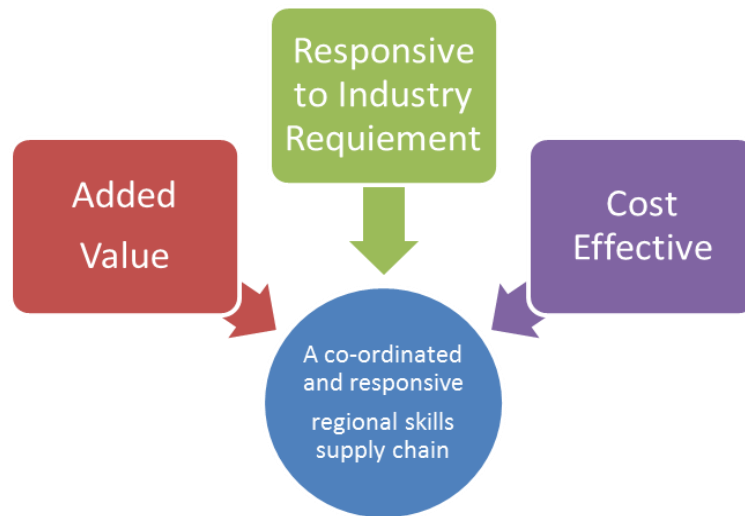
### 1.2 THE ESC DELIVERY MODEL

The short term viability and long term sustainability of the ESC will ultimately depend on adding value to existing provision for employers, training providers and education. It will not survive or be successful if it is just an aggregation or substitution.

The value proposition of the ESC is that it will create a co-ordinated, responsive and effective skills supply chain to serve the multiple energy sectors in the region, such that employers and individuals benefit from provision that will be better, quicker and more cost effective.

**Better;**..... by adding value to existing provision in terms of; additional capacity, realistic working and simulated environments, specialised equipment, better information for training providers to inform their planning and investment decisions, providing education with accurate intelligence and influencing the relevance of the curriculum to enhance and grow the local talent pool.

<sup>1</sup> ECITB News 2010: Issue 02. Forecasting Future Growth



**Quicker;**..... by being more responsive, closer to business need, with the ability to “commission” work e.g.; in response to new operating procedures or legislation as needed, without the lead times that can sometimes constrain education’s speed of response.

**More cost effective;**....by giving local employers training currently not available in the region and so reducing costs by removing travel, accommodation and reducing downtime,

....by avoiding duplication and ensuring the build or buy investment decision taken by both private training providers and organisations using public money are made on robust information, and so remove unnecessary cost,

....by contributing robust regional information which identifies the likely “pull through” from businesses in the region based on current operations and identified future opportunities, allowing high level national and sector data and forecasts to be interpreted from a local perspective.

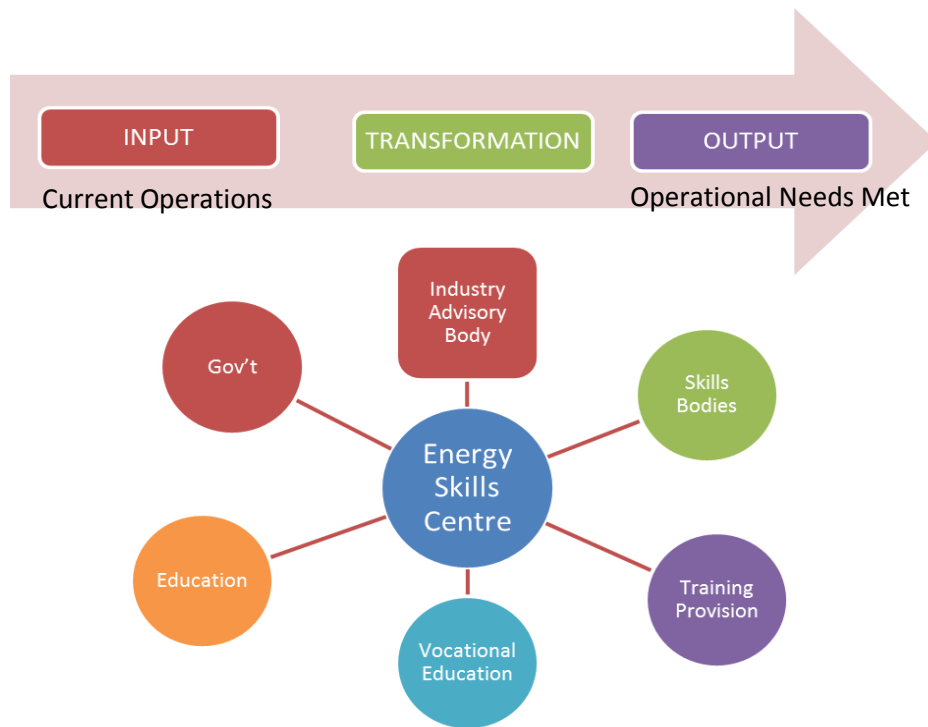
**1.3 THE ENERGY SKILLS CENTRE HUB & SPOKE MODUS OPERANDI**

ESCs unique selling point will lie in its employer involvement and support hub linked to a co-ordinated and capable spoke/network of providers/suppliers.

ESC will be the focal point for energy skills training within the EoE by facilitating links to the existing providers.

ESC will be operated by an independent, probably third sector not for profit company, to maintain a responsive approach to industry needs.

## A Network Hub



### 1.4 ADDING VALUE TO CURRENT CAPABILITY

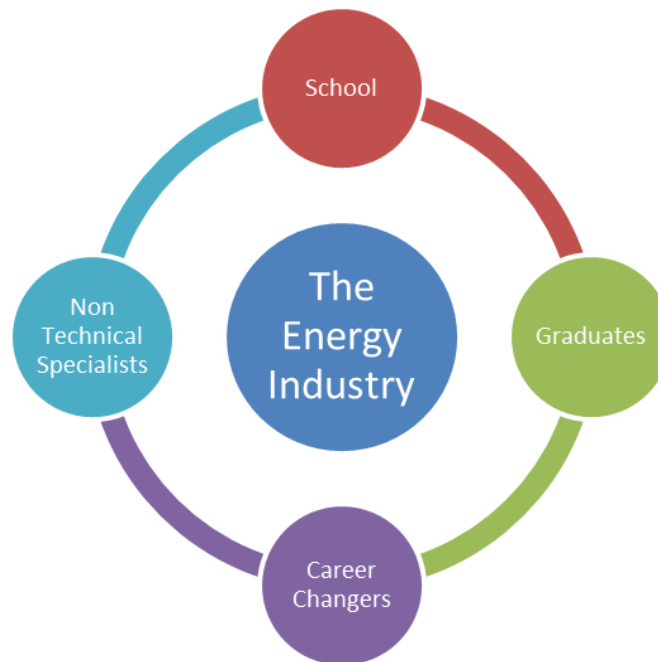
The ESC will add value to the regions current skills training capability by;

- Being the EoE industry led interface engaging with its tertiary education, higher education and skills training providers to improve communication and cooperation,
- Providing skills training not available in the EoE. The ESC will add value by saving the on-costs currently incurred by local companies (i.e.; travel, accommodation and lost time costs) of sending people out of the region to be trained,
- Providing training and/or training facilities for which there is under-capacity in the region,
- Expanding the “adult apprenticeship route”,
- Championing cross sector skills training standardisation,
- Meeting the projected demand for energy sector apprenticeships.

### 1.5 PROMOTING ENERGY INDUSTRY AWARENESS

A key role for the ESC is seen as “promoting awareness of the energy industry”, which will dispel myths and help individuals make training and/or career choices. I.e.;

- For schools, making sure that young people understand the variety of routes into the industry,



- For new graduates and postgraduates such that they get an insight into the operations their functional disciplines support,
- For those leaving the armed forces and considering joining the industry, to give them the best chance of being successful.

### 1.6 MORE THAN A SIMPLE SKILLS CENTRE?

A very significant opportunity exists for the East of England to capitalise on many factors converging at this time. The major ones being;

- EoE is a **mature offshore natural gas** producing province,
- EoE is a **mature nuclear energy** producing province,
- EoE is now an expanding **offshore wind power** producing province,
- Within the next decade EoE will be an **offshore carbon capture & storage** province,
- In the longer term future EoE will be a key market for **decommissioning** of offshore structures,
- On 3rd November 2010 the government announced the £1.4Billion Regional Growth Fund which the EoE is well positioned to compete for,
- The European Commission recently announced “Energy 2020” which included support for the development of smart grids, carbon capture & storage projects, electricity storage and the next generation of nuclear power generation. The EoE is well placed to access this funding stream.

With the above factors in mind and cognisant that the energy producing industry sectors are all currently bouyant and that shortage of skilled personnel is an "across the board" issue, the environment is clearly conducive to development of an EoE Energy Skills Centre, as confirmed by the ESC Feasibility Study. Combining the UK Governments stated aims to support **skills development** and **innovation**, could enable the EoE to take a “**greater than originally envisaged step**” and propose a “**national, skills training centre of excellence - catering to all energy sectors**” and acting as a hub “**to coordinate existing and new providers in the new era**” i.e.;

## EPISCentre

(Energy Production Innovation Skills Centre)

### *The Hub of Energy Skills Training Excellence*

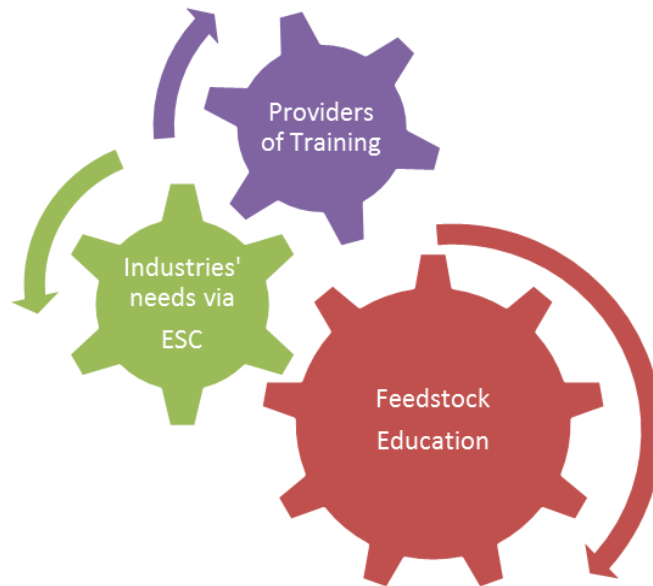
EPISCentre would be everything envisaged previously, but more – e.g.; it could also;

- Lead innovations in training, such as;
  - Development of skills training with new technologies like; virtual reality, simulators, holograms etc,
  - Integrated courses where classroom and workshop teaching is coupled with web based “on-work-location” sessions using real time web-cam link-ups,
- Pioneer the introduction of energy industry training to young people while still in full time education, e.g.; facilitating skills training at EPISCentre being part of the young peoples curriculum in their final year at school,
- Deliver niche courses i.e.; a range of training activities needed by energy companies in the EoE region but which are not available, either locally or at all,
- Coordinate provision of training for a multiplicity of regional/national spokes i.e.; a central coordinator function with knowledge of all the skills training provision in the region and the facility to maximise take-up and if necessary arrange with other providers or make facilities in the EPISCentre available for times when additional provision is needed to cope with demand,
- Deliver supply chain improvement. EPISCentre will facilitate exchange of market intelligence across energy industry sectors to promote “cross-fertilisation” - generating added value to all by reducing duplication and promoting “best practice,”
- Host energy apprenticeships in partnership with industry and skills groups such as ECITB.

The **EPISCentre** would operate as the **EoEs energy skills training hub**; facilitating links to the existing enterprise hubs, colleges and training providers and driving developments in provision required by the various sectors of the energy industry.

The proposed hub and spoke approach has been recommended to avoid duplication and provide impetus to build on the strengths of existing EoE skills provision.

This approach will create the conditions where the EPISCentre (hub) can accommodate both public sector and private industry sponsored training and provision.



As the EPISCentre will be an independent, not for profit entity, a range of public sector organisations and energy industry companies can be investors, users and sponsors. In addition to the principal stakeholders, other skills training providers and accreditation organisations can become partners.

EPISCentre will be a skills training centre of excellence. This will need state of the art teaching and simulation aids; advanced IT; practical workshop facilities; and some real equipment for training related to gas installations and offshore wind turbines - and industry has already indicated willingness to contribute by donating equipment.

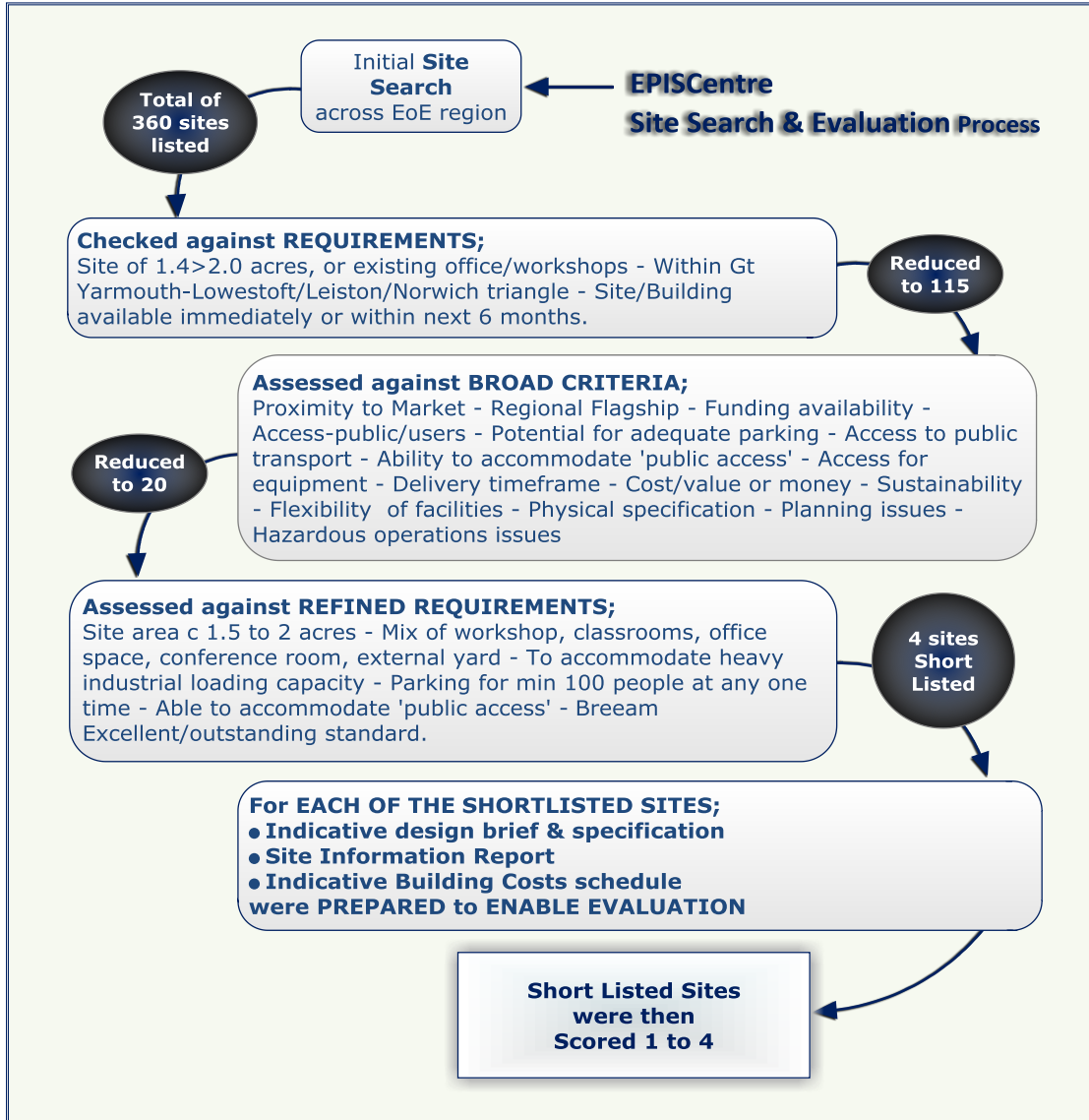
A number of specific “niche” category training activities currently not available in the EoE have been identified which local companies send their people out of the region to attend. It is recommended that these form the first range of courses marketed for delivery at EPISCentre. The table following lists these and provides indicative course duration and estimated numbers of delegates.

The Business Case includes illustrative examples of running costs and revenues for these niche courses.



The process and activities undertaken to arrive at the short list of sites is shown in the following flow diagram.

Site Search & Evaluation Process – Decision Criteria



### 1.8 THE SHORTLISTED SITES

From the site search and evaluation process four sites were short-listed for detailed appraisal.

The short-listed site locations are;

- **BEACON PARK, Great Yarmouth**
- **GAS WORKS ROAD, Lowestoft**
- **RIVERSIDE ROAD, Lowestoft (sites)**
- **SOUTH DENES ROAD, Great Yarmouth**

To assist SfE to undertake “like for like” appraisal of the shortlist, all data was collated into the **Site Information Report** format, which includes for each site;

**Proforma**

To provide a consideration of the details and characteristics of the site and note possible constraints and development considerations.

**Draft Schematic Proposals**

Draft schematic proposals with indicative building design and site layouts.

**Indicative Building Costs**

Based on the schematic building design and site layouts.

**Indicative Development Costs**

To reflect any site specific costs and particular possible site constraints/conditions and notional associated costs.

**Indicative Development Appraisals/Developer Proposals**

To compare differing offers and products across differing sites it was sought to provide a high level direct capital build comparison between the sites and a very indicative consideration of the cost of leasehold options.

**1.9 TECHNICAL AND SPECIALIST ADVISERS CONSULTED**

In order to ensure best possible data, the specialist advisers listed below were consulted during the evaluation process.

| Specialist Firm   | Area of Advice   |
|---|--|
| Harrisons Group   | <i>Contamination/remediation and ground conditions issues affecting the Riverside and Gas Works Road sites</i>   |
| AECOM   | <i>Potential for flood risk and its implication in relation to Riverside and Gas Works Road sites</i>  |
| Atkins Limited  | <i>Indicative transport advice for all four shortlisted sites</i>  |
| Waveney District Council<br>Gt Yarmouth Borough Council | <i>Any relevant planning requirements/issues and any S106 /planning obligations or restrictions which may apply to any of the sites affecting it as a potential location for the EPISCentre - with any relevant timeframe and cost implication</i> |
| Barter Hill Partnership                                 | <i>Various structural engineering issues</i>   |
| Fielden and Mawson                                      | <i>Architectural Services</i>  |
| Paul Robinson Partnership                               | <i>Development schematics of South Denes</i>   |
| MPM Properties  | <i>Site plans and proposals for Beacon Park</i>  |
| David Langdon   | <i>Quantity Surveys and Analysis</i>   |

*List of specialist advisers consulted*

**1.10 BRIEF INFORMATION ON THE SHORT-LISTED SITES**

**BEACON PARK SITE**

**Location:** Beacon Park, Gorleston, Great Yarmouth.

The plot is located on the established Beacon Park, situated on southern side of Gt Yarmouth.

The total area is 25 (10.12 Ha) acres for mixed office, industrial and leisure developments.

The plot proposed by the site owner/developer for the EPISCentre comprises 2.7 acres (1.09 Ha) adjacent to the existing office/industrial development on the sites southern boundary of current phase of development.

A number of neighbouring plots are currently being proposed to accommodate similar office/industrial facilities in the region of 30,000 sq ft. by the developer in response to enquiries.



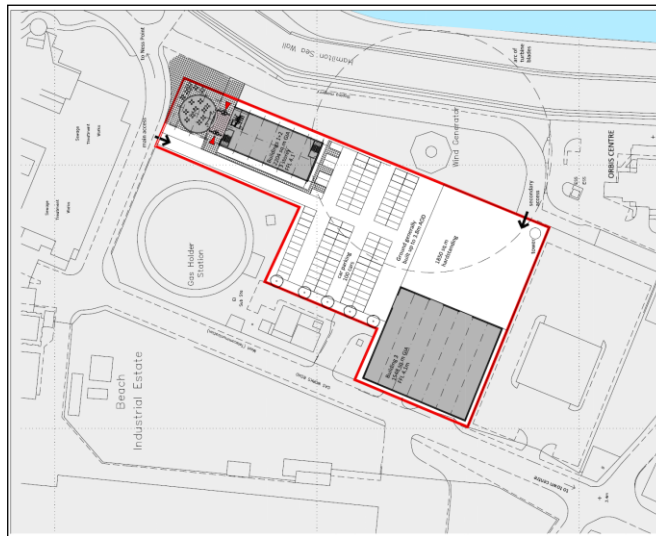
**GAS WORKS ROAD SITE**

**Location:** Gas Works Road, Beach Industrial Estate Lowestoft.

The site is located within the Beach Industrial Estate west of Ness Point. It is adjacent to OrbisEnergy and abuts a gas holder ring and the Gulliver wind turbine.

It is firmly within the area planned for development of the offshore wind energy sector in Lowestoft.

*Gas Works Road Site Plan*



*Schematic – Overview of EPISCentre on the Gas Works Road site*



**RIVERSIDE SITE**

**Location:** Riverside Business Park, Riverside Road/Waveney Drive, Lowestoft.

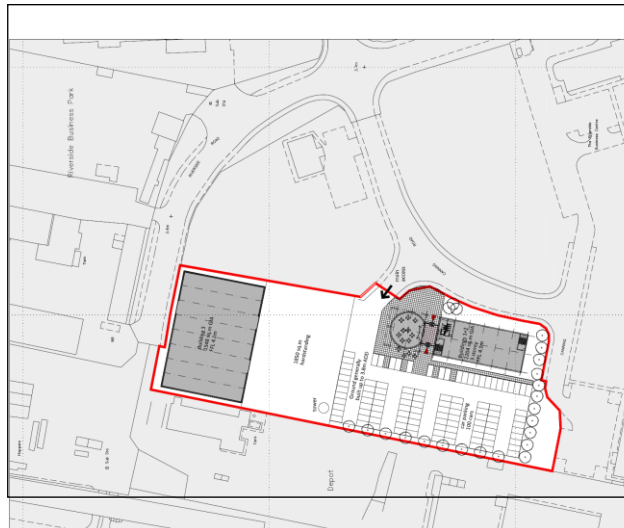
There are several potential plots for the EPISCentre located in the Riverside Business Park area on the southern bank of Lake Lothing.

The total Riverside site is in the region of 11.5 acres (4.65 Ha). Part of the site area may provide direct quayside frontage.

An indicative scheme on a notional plot has been used as the basis for the provisional costings and development appraisal at this time.

There are numerous alternative plots available for lease or sale on the broader Riverside site area offering development alternatives in the same location.

*Riverside Site Plan*



*Schematic: EPISCentre at Riverside*



**SOUTH DENES SITE**

**Location:** South Denes Road, South Denes, Gt Yarmouth.

The land is located in the established South Denes industrial zone, between South Beach Parade and South Denes Road. The land is adjacent to the Gt Yarmouth Power Station and close to Gt Yarmouth Harbour.

The total development site on which any plot for the EPISCentre would be located extends to 5.85 acres (2.367 Ha). The site is within 300 metres of the outer harbour.

The current first phase of adjacent development is an office building for SeaJacks (approx 1.5 acres including new access roads and all associated infrastructure). The work is scheduled to start on site January 2011 with completion August 2011.

The plot proposed by the site owner/developer for the Energy Skills Facility comprises 2 acres along the Western Boundary of the site.

*South Denes Road site*



*Schematic: EPISCentre campus at South Denes Road*



### 1.11 EQUIPMENT FIT

A key component for the success of EPISCentre will be to have an extensive inventory of specialist industry equipment and re-configurable virtual reality work spaces. The envisaged activities of EPISCentre will require its workshop areas to be of high specification and this equipment to be state of the art and change with industry demand.

In addition to the normal standard of Category A workshop fit-out, the training areas need to include at least the following;

- Moveable blast walls (for high pressure equipment & testing etc)
- High capacity electrical power system – minimum of 150Kva
- High pressure air – to 10,000 psi
- Ultra-clean workshop facilities

The prime fit-out will be with a number of “virtual reality studios” to simulate various work place scenarios such as;

- Inside a wind turbine generator nacelle
- An offshore natural gas production control room
- A CCS site control room

The studios would be designed to be easily re-configurable to accommodate changing technology.

The following list of industry equipment was also suggested by industry as start-up inventory;

- Blow out preventer (christmas tree),
- Complex equipment,
- Natural gas generator set,
- High capacity hydraulic pump,
- Ht/Hv switch,
- Small bore tubing systems,
- Bolt tensioning facilities,
- Various high pressure and pressurised systems,
- Subsea manifold equipment,
- Skid mounted pumping unit,
- Wind turbine related equipment, i.e.;
  - Control system
  - Nacelle
  - Gear box

### 1.12 FINANCIAL FORECAST

A number of business models have been extensively researched during the Phase 2 scoping stage. These have included analysis of the higher education provider models as well as the private sector profit orientated companies and not for profit organisations. This research has suggested that the EPISCentre model will be best serviced as a not-for-profit entity. This approach will enable funding to be sourced from the public sector and provide for any surplus to be reinvested in skills development.

An existing not for profit entity can be used or a new company formed, as appropriate. Subject to the financial strength of the company it is probable it will require a form of private sector or local authority guarantee to meet the covenant requirements of a long term lease. Where grant aid is used, the project will also require private sector investment to act as a catalyst or match for the public sector funding. Thus it has been assumed that the capital expenditure for the project will be funded using a combination of public sector funds as well as private company investment and this will all be treated as non repayable grant aid. Two scenarios have been reviewed for the capital build and operation of the centre, the preferred scenario being as follows;

The purchase of a piece of land and building a new energy skills centre. The building costs have been assumed as £150.00 per sq. ft for the office building and £110.00 per sq. ft for the industrial building. It assumes the capital is provided on a full grant aid basis and the centre is retained freehold. The total capital expenditure price for this option will be £11,069,000 (including 2% for contingencies) as detailed in the table below.

|                                     |   | Year 1       |              |              |               |               |
|-------------------------------------|---|--------------|--------------|--------------|---------------|---------------|
| Forecast Capital Expenditure        |   | Q1<br>£'000  | Q2<br>£'000  | Q3<br>£'000  | Q4<br>£'000   | Total £'000   |
| Land Acquisition (incl. stamp duty) | 1 | 309          |              |              |               | 309           |
| Building and Construction           | 2 | 946          | 946          | 946          | 946           | 3,783         |
| Professional fees                   | 3 | 142          | 142          | 142          | 142           | 567           |
| Sub Total Building Costs            |   | 1,087        | 1,087        | 1,087        | 1,087         | 4,350         |
| Furniture and Fittings              | 4 |              |              | 334          | 334           | 668           |
| Capital Equipment                   | 5 |              |              | 2,625        | 2,625         | 5,250         |
| Computer Equipment                  | 6 |              |              |              | 300           | 300           |
| Contingencies                       | 7 |              |              |              | 193           | 193           |
| <b>Total Capital Expenditure</b>    |   | <b>1,396</b> | <b>1,087</b> | <b>4,046</b> | <b>4,539</b>  | <b>11,069</b> |
| <b>Cumulative Capital Spend</b>     |   | <b>1,396</b> | <b>2,484</b> | <b>6,530</b> | <b>11,069</b> |               |

During years 3 to 5 the EPISCentre will return a surplus on turnover of 23%, 23% and 26% respectively.

|                   | Year 1<br>£'000 | Year 2<br>£'000 | Year 3<br>£'000 | Year 4<br>£'000 | Year 5<br>£'000 |
|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Turnover          | 144             | 2,017           | 2,633           | 2,654           | 2,656           |
| Expenditure       | 144             | 2,017           | 2,023           | 2,041           | 1,962           |
| Surplus/(Deficit) | 0               | 0               | 610             | 614             | 693             |

### 1.13 IMPLEMENTATION PLAN

Following Business Case approval, next steps in establishing the EPISCentre will be;

#### Source Funding

- Research, map out and assess funding opportunities and options,
- Prepare information to support submissions for investors,
- Submit funding proposals for RGF and ERDF Jan 2011,
- Research and identify any additional information and/or further feasibility work needed to support funding, to comply with green book appraisal standard requirements.

#### Select Site

- Refine technical specification for any hub facility,
- Further targeted desktop investigations into known areas of uncertainty/potential site constraints effecting each site as identified through this work,
- Refined site proposals, development cost estimates and options appraisals for site selection,
- Development appraisal/analysis to enable notional like for like comparisons of all sites, including indicative possible leasehold which the market may be willing to provide on those sites which are not currently tied to developers i.e.; Riverside Road and Gas Works Road,
- Draft Outline Brief and ITT for possible developers (if relevant).

#### Prepare for Development

- Draw up project plan and provisional construction project programming. Note variables for each site – suggesting a critical path to the development of any facility.

#### Operational Models

- Develop the appropriate operational model and management structure, identifying case studies and considering options. Refine hub and spoke concept and relationships (including with any R&D facilities and those in other regions or nationally).

#### Refine Training Offer

- Liaise with industry stakeholders and refine revenue estimates.
- Interface with training providers and accreditation bodies e.g.; ECITB.

Further information from: Ms Celia Anderson, Executive Director, Skills for Energy, EEEGr  
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