

# Fife Leading Low Carbon Innovation



**Fife means business**

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**Biomass**

**Innovation**

# Fife Leading Low Carbon Innovation

Fife has a strong and growing profile of low carbon sector businesses, a range of site development locations, world-class training and research facilities, and a local authority committed to supporting innovation in carbon reduction.

## A living heritage of engineering and energy expertise

Fife's history in energy began with its coalfields and grew through decades of service to the North Sea Oil and Gas industry. Today, our clusters of engineering and energy service businesses look to the future as Fife cements its position as a leading UK hub for the development of dynamic low carbon industries, from marine and offshore renewables, to low carbon heat, transport and energy storage technologies.

## Committed to a low carbon future

Fife Council currently invests over £3 million annually in energy reduction and its energy programme includes installing biomass boilers, solar thermal heating systems, small wind turbines in schools and through the upgrading of street lighting.

## Low carbon firsts

Fife Council operates the UK's first and Europe's largest Dry Anaerobic Digester. This £15.5 million facility processes 43,000 tonnes of domestic organic waste annually to produce biogas for on-site electricity and heat generation and high quality compost for horticulture.

This project builds upon our Landfill Gas to Energy and District Heating System. Operational since 2006, it generates green electricity and heats 230 flats, 5 public buildings and a Tesco store.

Fife Council also operates two locally built, hydrogen and diesel dual-fuelled Refuse Collection Vehicles – a world first project – as a key partner in the Levenmouth Community Energy project which has a total fleet of 17 hydrogen vehicles.

H<sub>2</sub> Offshore Wind



Hydrogen vehicles



Dry Anaerobic Digester



Landfill Gas Fuelled District Heating System

## The Best Place to do Business


Added to its quality people, low operating costs and excellent connectivity, Fife Council's energetic support for low carbon business and innovation means our region is fast becoming the best place to do green business.

- Fife is located within the Edinburgh City region which has more FTSE 100 company headquarters than any other UK city region outside London
- Glasgow, Dundee and Aberdeen are within easy reach
- globally competitive talent pool
- fibre-optic data connections
- ready access to the UK's trunk road and rail networks
- scheduled freight sailings to Europe and deep-water ports
- choice of nearby international airports

Queensferry Crossing – the UK's tallest bridge: enhancing Fife road links.

### The people you need

- 366,910 population, 2.2 million within an hour's drive (1 million of working age)
- highest percentage of people educated to further education level or above in UK
- 10 universities within an hour's drive
- excellent opportunities for graduate recruitment, staff training and research
- engineering and technical qualifications and training via Fife College
- specialist renewable energy skills training at Fife College–Rosyth Campus

A large offshore wind turbine with three white blades and a yellow base, situated in a body of water. The sky is blue with some light clouds.

ORE Catapult Levenmouth Demonstration Turbine – the largest open access offshore turbine in the world dedicated to research and training.

### **Support for business**

Fife Council is investing £7 million in jobs and apprenticeships from 2013-17 and Regional Selective Assistance grants are available to companies creating jobs in some areas of Fife - the only part of the Edinburgh City region to benefit from this level of support.

### **Nurturing the low carbon economy**

Fife Council was instrumental in ensuring the region became home to the 7MW Levenmouth Demonstration Turbine, owned and operated by ORE Catapult – the world's largest open access offshore wind turbine dedicated to research and training.

Fife Council also supports the Hydrogen Office and Fife Renewables Innovation Centre, the wider Energy Park Fife project and the Levenmouth Business Park and is helping develop a second low carbon investment area at Westfield.

### **Local authority leadership**

Fife Council plays an active role in Scotland's low carbon agenda and works across a range of partnerships from academia and industry to community groups:

- Founders of Green Business Fife
- Coordinator for East Coast Renewables
- Chair of the Scottish Hydrogen & Fuel Cells Association
- Strong partnership with Bright Green Hydrogen
- Close relationship with ORE Catapult to develop innovative future projects

The Council was also winner of a prestigious Scottish Green Energy Award for its work to promote the renewables sector.

## Energy Park Fife

The Levenmouth area, once home to Scotland's largest coal export dock at Methil, now hosts an array of low carbon businesses, technology innovators and a low carbon investment park.

### Levenmouth Community Energy Project

This ground-breaking partnership between technology leaders Bright Green Hydrogen, Fife Council and Toshiba is showing how renewable energy from wind and solar can be stored as hydrogen for use in electricity generation or as fuel for a fleet of 17 vehicles including the world's first hydrogen/diesel bin lorries.

As renewable generation capacity from wind and solar PV increases at the Business Park, more buildings in the community are being powered for longer via the local smart grid, with backup power generated on demand from hydrogen reserves at The Hydrogen Office. Hydrogen is also transported to and dispensed from the Council's nearby vehicle depot.

### Fife Renewables Innovation Centre (FRIC)

Powered by Bright Green's Hydrogen Office, the Centre combines high-tech business facilities and innovation space, making it an ideal home for businesses to develop and grow in the low carbon sector.



The image shows an aerial view of the Energy Park Fife site. A teal line highlights the 'Test & Demonstration Zone' on the left, which contains the ORE Catapult Levenmouth Demonstration Turbine. A black outline highlights the 'Engineering Zone' on the right, which is a 55 ha site containing the BiFab facility. A white box with the BiFab logo is also visible within the Engineering Zone.

## Test & Demonstration Zone

ORE Catapult Levenmouth Demonstration Turbine

### ORE Catapult Levenmouth Demonstration Turbine

The 7MW ORE Catapult Levenmouth Demonstration Turbine is the world's most advanced, open access, offshore wind turbine dedicated to research. Accessible from shore, it provides unique opportunities for skills and training programme development.

### BiFab

BiFab are engineering award winners in substructure fabrication for the offshore renewables industry, supplying subsea jackets to offshore wind farms around Europe and manufacturing structures for many leading wave and tidal devices around the world.

55 ha engineering site

## Engineering Zone



Supply Chain Zone

METHIL

2-B Energy

2-B Energy proposes to site two 6MW prototype wind turbines 1.5km offshore from Energy Park Fife. A two-bladed 'true offshore design', the demonstrator turbines have a fully integrated lattice tower and foundation structure.

Levenmouth Business Park

A kilometre from Energy Park Fife, Fife Council has created a low carbon investment park. Ideally suited to energy supply chain companies that would benefit from close proximity to facilities at the Energy Park (but don't require quayside access).



Ferguson Transport & Shipping

Dock Zone

Methil Docks

Innovation Zone



THE HYDROGEN OFFICE

Methil Docks Business Park



FIFE RENEWABLES INNOVATION CENTRE

## Glenrothes District Heat Scheme & Queensway Technology and Business Park

RWE's Combined Heat and Power plant at Markinch can generate up to 65MW of green electricity and up to 120 tonnes of steam per hour.

The local availability of renewable electricity and heat has attracted major investment for a Green Data Centre to the adjacent Queensway Technology and Business Park and has been the catalysis for the development of the Glenrothes District Heat Scheme.



### Green power and heat from waste wood

90% of the wood used to power the Markinch CHP is waste wood diverted from landfill, with the remainder coming from sustainable forest plantations in Scotland.

Annually, the plant is reducing Scotland's carbon output by 150,000 tonnes.

### District heating potential

Markinch CHP was originally designed to supply both heat and power to the adjacent Tullis Russell paper plant, which has now closed. The station therefore has spare heat capacity. Fife Council and project partners RWE are developing a final business case for the construction of a district heating scheme, which will supply low carbon heat to customers in the Glenrothes town centre.





### Queensway Technology and Business Park Green Data Centre

Queensway Park Data Centres Ltd are developing one of the world's most efficient green data storage facilities, with power drawn directly from Markinch CHP. In addition to state of the art data halls, this carbon neutral facility will also feature Grade A office accommodation with security centre, client space, test and build rooms and a facilities management suite.

## Westfield Green Business Park

This 60 hectare former open cast coal site aims to combine industrial ecology with community led regeneration, putting the environment and communities at the heart of sustainable economic growth.

Maximising the relationship between energy production and energy use is key to industrial development at this strategically important site.

The creation of an energy generation centre, based on the recovery of renewables will act as an anchor development. Other uses at the site will include utilising waste heat for food production and a range of low carbon and clean technologies, including energy storage, solar generation, green hydrogen production and industrial symbiosis.

As part of the wider master-planning of the Westfield site developed by owners Hargreaves, this historically impacted industrial site will be re developed for the benefit of the local community and the wider economy.

The Westfield Masterplan outlines opportunities to grow its existing profile as part of Scotland's green economy and to create ecologically enriched areas for leisure and recreation.



All developments at Westfield benefit from its proximity to arterial road networks, with the potential for a new railhead on site.



The site also has outline planning consents and is allocated for mixed use development within local and strategic planning policy.



## Gateway Rosyth

Rosyth is home to a range of high-profile marine engineering and technology businesses and has excellent connectivity via road and its extensive non-tidal, deep water berths. Working in partnership with landowners Babcock International Group, Forth Ports and Scarborough Muir Group to achieve new investment into Rosyth.

### Babcock Rosyth

Operators of the former HM Naval Dockyard Rosyth, Babcock Rosyth, are currently assembling the two aircraft carriers for the Royal Navy – HMS Queen Elizabeth and HMS Prince of Wales.

The company has also won a contract to deliver the engineering, procurement and construction of the 2500 tonne offshore sub-station platform topside and jacket for the Rampion Offshore Wind Farm, located within the English Channel.

With 1600 employees, the dockyard includes 4 dry docks and 2000m of tidal and non-tidal berths, commercial port operations and 56,000 square metres of flexible fabrication spaces.

### Port of Rosyth

Operated by Forth Ports, the Port of Rosyth is Scotland's only roll-on, roll-off freight terminal offering scheduled DFDS freight sailings to the European mainland (Zeebrugge).

### Oceaneering Umbilical Solutions

Market leaders Oceaneering, supply subsea cables directly over the quayside at Rosyth to clients in the oil and gas sector and is pursuing opportunities in renewable energies, offshore renewable energy and oil and gas industries.

### Proposed Rosyth International Container Terminal

This facility will offer a new logistics hub for the region, benefitting from its position at the heart of Scotland's transport network, Rosyth's deep water berths and the new Queensferry Crossing over the Forth.



Rosyth



Rosyth-Zeebrugge Freight Ferry



Babcock



Oceanering – Rosyth

## University of St Andrews Eden Campus

Creating a place for business, industry, government and investors where innovation, academia and entrepreneurship come powerfully together.

The Campus is home to award winners: the newly constructed sustainable biomass energy centre and district heating system, Eden Mill Distillery and shortly, University staff. The aim is to create an inclusive working environment in which everyone can flourish and become award winners in their chosen fields.

The next phase of development will rejuvenate 5,500m<sup>2</sup> of space for entrepreneurs, space for innovation to produce and store low carbon energy, space to develop circular economy initiatives where the by-products from one business can benefit another and space for advanced materials manufacturing and academic led commercialisation. Above all, there will be space to collaborate and grow. Award winning people and businesses, who together, will have a demonstrable impact on the environment, the economy and employment and training prospects for communities.

Eden Campus is in its infancy but it is already contributing to Fife's low carbon economy and aims to be carbon neutral for energy usage by 2024.



University of  
St Andrews

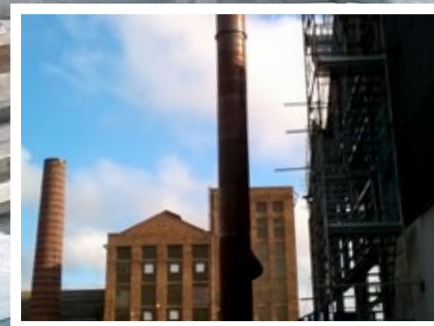




Energy Centre – 3D impression



Thermal stores & heat exchanger



30m Corten Flue

With active and award-winning support from Fife Council for low carbon initiatives to add to the region's many competitive advantages, Fife is the natural choice for green business enterprises.

- Low carbon investment areas
- Locally available renewable heat and electricity
- Major international suppliers to the offshore renewable energy industry
- World-class training and research facilities
- Cutting-edge demonstration projects

For more information on how we can help your organisation get started here or tap into our growing low carbon economy, contact:

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Invest Fife is an initiative supported by Fife Council and works in partnership with Scottish Development International and Scottish Enterprise.

**#fifemeansbusiness**