

Scottish Renewables Economics Impact Report

07

Published by Scottish Renewables



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This is the first annual *Scottish Renewables' Economics Impact Report*, published by Scottish Renewables. It will prove to be a vital jobs index for the renewables industry in Scotland and also a clear indicator of the positive impact that the members of Scottish Renewables have had on the Scottish economy.

Scottish Renewables' members employed 2,596 people last year.

As well as helping tackle climate change and help secure affordable supplies of energy, the 2,596 people that work for Scottish Renewables' members in Scotland in the electricity, heat and transport sectors indicates the potential of this reinvigorated industry. The £550 million annual turnover generated by Scottish Renewables members in Scotland serves to underline that potential.

The results of this research are from Scottish Renewables members only, and clearly they represent a section of the entire industry. Logically then, the industry is bigger than the numbers we report.

It is also worth noting that the Scottish renewables industry has only recently been reinvigorated by the need to tackle climate change and produce energy when indigenous stocks of fossil fuels are in decline. Whilst hydro power has been well established in Scotland for decades and wind power is getting a firm foothold, biomass and biofuels, microgeneration, and the wave power and tidal stream sectors are now only demonstrating their potential.

If the Scottish renewables industry continues to receive strong political support from Scottish and UK parties this report shows we are on the verge of building an important industry in Scotland. It would be a great loss to Scotland if we failed to grasp this opportunity.

There are times when reports present only statistics, interesting as they are, but the stories behind them are often ignored.

Therefore we have researched and published case studies, examples of success in the Scottish economy that underline the real and positive impact of industries like renewables. This report tells the impressive stories of just eight of the countless good stories that could be told. These are companies, like all who are members of Scottish Renewables, who work hard to develop a Scottish built renewables sector, drive through positive change in tackling climate change, help keep the lights on, keep us warm and help get us from A to B, and, of course, create thousands of skilled jobs.

It is important to underline that the jobs associated with the renewable energy industry tend to be skilled and benefit from above average salaries. There have been some suggestions in other reports of the number of indirect jobs that are created from the renewables industry but these are often only associated with the renewables electricity sector. With the recent growth of heat and biofuels sectors it also time to start measuring these too.

The *Scottish Renewables' Economic Impact Report* presents results of research conducted by Scottish Renewables of its membership in the late summer of 2006. A commentary of those results follows with a brief description of the methodology employed. A more detailed description of the methodology will appear as an Annex and published, with this report, on the Scottish Renewables website www.scottishrenewables.com

Case Study 1

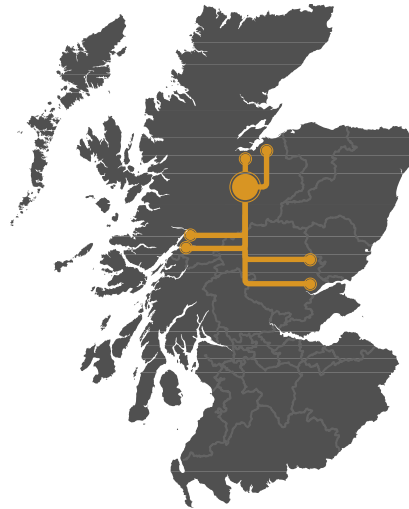
Glendoe Hydro Power Station / Highland

04

Company: Scottish and Southern Energy

Value: £140m

Scottish suppliers: Highland Quality Construction, Inverness (roads, earthmoving); DM Michie, Onich (civil engineering); Loch Ness Electrical, Inverness (electrical installation for cabins); Corrie Construction, Fort William (civils); Weldex, Inverness (cranes); JB Corrie, Blairgowrie (fencing); Bell Ingram, Perth (forestry); Scotia Kabins, Nairn (cabins)



The Glendoe Scottish supply chain

The sheer scale of the first major commercial hydro station to be built in the UK for more than 50 years is perhaps best demonstrated by the fact it has its own workers' village on site.

Up to 250 people are being housed in the purpose-built village – complete with recreation centre and bar - and many of the workers will live there for the duration of the three year project which is the biggest civil engineering job currently underway in Scotland.

The specialist nature of work to construct a large-scale hydro station means main contractor Hochtief, headquartered in Germany, is drawing on skills from across the world.

But Scottish and Southern Energy is encouraging Hochtief to source as many services and staff as possible from the local area for work at the 100MW Glendoe as they work towards completion in 2008.

Such is the level of opportunities available that 'Meet the Buyer' events have been staged by Highlands & Islands Enterprise in conjunction with Hochtief.

"We've also advertised widely in the area for trades and services we need here on site," said David Kerly, Hochtief's commercial manager for the project.



Eliza Jane tunneling at Glendoe

"We are trying to ensure the local community benefits as much as possible from this project and so far we've had a tremendous response from businesses and sole traders in the area."

Planning for the project began in 2001 and construction started in April 2006 when road building and tunnelling got underway.

The summer saw the arrival on site of a 200 metre long tunnelling machine – nicknamed Eliza Jane by local schoolchildren – which will tunnel through around 8km of rock in the hillside over the next two years.

Water from a 15 square kilometre area will drain naturally into a reservoir formed by a dam on the River Tarff and a system of underground pipes and tunnels will also collect water from surrounding hills. One of the main reasons Glendoe was chosen for the location was its high average annual rainfall – around 1500mm compared to under 700mm in Edinburgh.

The station, housed in an underground cavern 38 metres long, 18 metres wide and 32 metres high, will be served by a labyrinth of over 16 metres of tunnels.

Case Study 2

Windsave / Glasgow

05

Project/contract: Supply of domestic wind turbines to 320 B&Q stores

Value: up to £18m a year

Scottish suppliers: Livingston Precision Engineering and Deans Engineering, Flexible Surface Technology – all Livingston



The Windsave Scottish supply chain

A dedicated production line has just opened at a Livingston factory following a deal to supply Europe's biggest DIY retailer with domestic wind turbines.

For Windsave, the contract to supply 320 B&Q stores with its wall mounted turbine could be transformational.

Although the turbines only went on sale in the chain in October, production has already been stepped up at the Flexible Manufacturing Group in Livingston where mechanical and assembly work is carried out on the product by its three subsidiary companies.

"We've been working on the product for the past four years since concept stage but the B&Q deal has led us to take the decision to set up a dedicated production line," said Managing Director Jim Jamieson of the family owned group which employs 350 people.

The number of employees working on the Windsave product will rise from 12 in September up to as many as 50 by the end of the 2006.

"It is potentially a very significant amount of work for our group."

The deal with B&Q opens up a huge potential market for Windsave with hopes it could see sales double over the next year.

According to Windsave founder David Gordon, securing a deal with the chain which has a 15% share of the UK DIY market, was a landmark one for the company.

"We have been working with B&Q for more than two years and given their size it is fantastic to get our product into its stores."

Although a significant part of the production work is being carried out in Scotland, most of the electronics component parts of the turbine are being sourced in the Far East.

"You can't put a product like this onto the market purely with UK manufacturing because the costs are too prohibitive," explained Gordon.

But he said the potential spin-offs for the Scottish economy were still significant.

"If we create 100 extra jobs up here then that equates to £2-3m and I would estimate our overall contribution to the Scottish economy will be around £5m a year."



Welding the Windsave turbine

Results Commentary

Earlier this year Scottish Renewables published a report that set out a vision for renewable energy in Scotland that would do much to help tackle climate change, secure the supply of homegrown energy and create an industry at the heart of Scotland's economy.

Based on existing research and Government targets, Delivering the New Generation of Energy: Route Map to Scotland's Renewable Future¹ outlined the progress of renewables in Scotland in 2006 and the likely route to cutting carbon emissions by 60% by 2050, whilst ensuring reliable and affordable sources of energy.

In the late summer of 2006, at the time of research for the *Scottish Renewables' Economic Impact Report*, Scottish Renewables had 151 commercial members and a survey was sent to each asking how many people their business employed in renewables in Scotland. We asked for current full time employees or the equivalent on the payroll at that time. It does not include sub-contractors or indirect jobs gained.

By the end of October, Scottish Renewables had received responses from 140 of its members, a remarkable 93% response rate employing 2,322 people in Scotland. Adjusting these numbers to include non-responders, based on Scottish Renewables membership classification, the total rises to 2,596.

As each 'snapshot' is taken by Scottish Renewables from year to year it will be possible to track the growth of the industry and create a jobs index that shows the relative health of the Scottish renewables industry.

There have been other attempts to measure employment in the renewable electricity sector in Scotland but we believe that the *Scottish Renewables' Economic Impact Report* is the first attempt at measuring the heat, transport and electricity sectors. Of course, these numbers only represent Scottish Renewables members but it should be possible to calculate what proportion of the entire industry Scottish Renewables members represents and we would seek to explore options with others to establish that in the future.

It is also worthwhile noting two reports published by the Department of Trade & Industry² and Scottish Enterprise³. The former calculated that in 2003 around 1,300 people were employed in the renewable electricity sector. The latter calculated that in 2004 the Scottish renewable electricity sector employed 1,517 although this figure does not include the number of people employed by utilities in renewables.

The results of our survey suggest that there has been growth in the industry and particularly in renewable electricity. It is interesting to note that Scottish Renewables members account for 80% of the megawatts of wind being operated or developed in Scotland, and 95% in hydro.

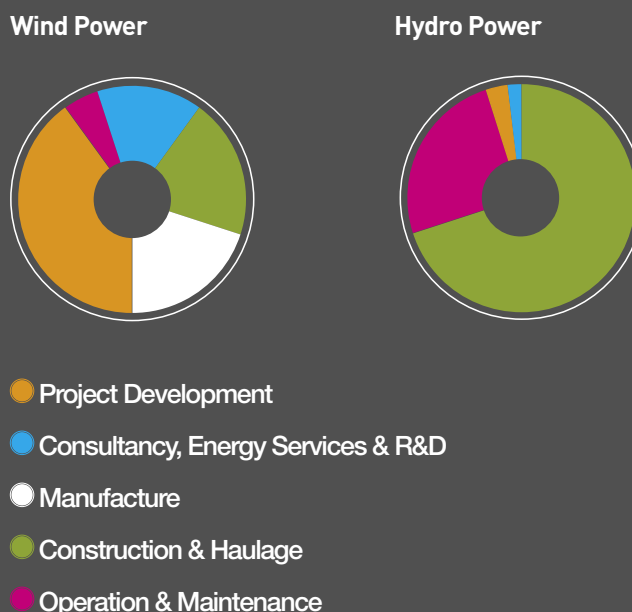
Table 1 (page 8) shows a matrix of the numbers of people employed in relation to each technology and against specific roles within the industry.

Table 1 clearly shows that almost all of the 2,322 people counted are involved in the renewable electricity sector. The results of this research sets down a marker below which other studies can not go.

It clearly shows that of the Scottish Renewables membership, the wind sector employs most people with 1,078 jobs⁴. The hydro sector employs 620 people.

Comparing the wind and hydro sectors clearly shows that most of the jobs in renewables can be found in the planning and building of projects, whether it is in civil engineering or manufacturing. Indeed, the matrix in Table 1 clearly shows that the majority, 61% of the jobs of Scottish Renewables members, are involved in up to the point of 'switching a project on'. The other 39% are involved in operation and maintenance of existing renewable energy projects.

Figure 1
Who does what? Breakdown of hydro & wind sectors.



¹ www.scottishrenewables.com/reports.asp#Briefings

² Renewable Supply Chain Gap Analysis (DTI), 2004

³ Economic Assessment of the Energy Sector (Scottish Enterprise), 2005

⁴ These numbers are based on actual responses, and have not been adjusted for non-responders.

For an up to date summary of renewable energy projects go to www.scottishrenewables.com/reports.asp#Briefings.

Case Study 3

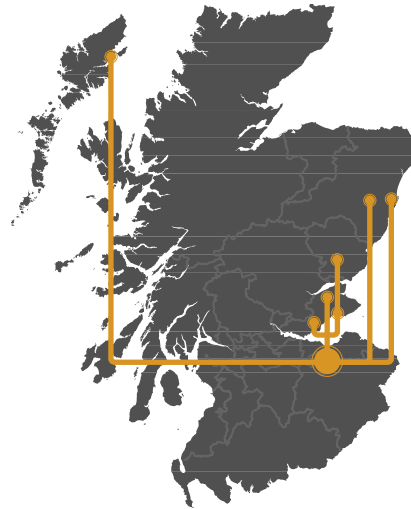
Ocean Power Delivery / Edinburgh

07

Project/contract: Aguçadoura wave farm project, Portugal

Value: £5.4m

Scottish suppliers include: Ross Deeptech, Stonehaven (steel structures); Camcal, Lewis (tube fabrication); Briggs Marine, Burntisland (operations); Hydrobond Engineering, Aberdeen; Hytec Hydraulic Engineering, Kirkcaldy; Forth Ports, Edinburgh; Viking Moorings, Aberdeen; Hughes Offshore, Aberdeen; Gray Fabrication, Cupar; McCartney Underwater Technology, Aberdeen; Forth Estuary Engineering, Edinburgh; Delta Marine, Lerwick



The OPD Scottish supply chain

When the 3,330-tonne transport ship Sea Power raised anchor off the Western Isles and set sail for Portugal earlier this year it represented a triumph of Scottish innovation and industry.

The Pelamis Wave Energy Converter that the ship was taking to the Port of Peniche on Portugal's Atlantic coast - one of three being supplied by Ocean Power Delivery - had harnessed world-leading technology and traditional marine and engineering skills.

More than two thirds of the work for the contract was carried out in Scotland and according to OPD's managing director Richard Yemm it was a clear

demonstration of the potential benefits to Scotland of establishing a domestic marine industry.

"The capability to manufacture the machines was already here in Scotland and that contract - covering just three machines destined for Portugal - has injected more than £6m into the Scottish economy.

"It represents a really strong manufacturing success story for Scotland and we intend to ensure this continues, but the threat to a Scottish marine supply chain is that a big industry kicks off elsewhere before it happens here."

Yemm believes stimulating a domestic marine industry is vital to maximise that supply chain potential but stressed that Scotland faces significant competition.

He believes work being done on initiatives such as the Scottish Executive's Marine Supply Obligation has a crucial role to play in helping establish the industry on which a supply chain can flourish.

"The Scottish Executive has really woken up to the opportunity presented by marine energy. Their investment in the European Marine Energy Centre was pivotal and timely for a number of R&D programmes within major players and their current proposal for a highly attractive feeder-market for the technology is precisely what the industry needs to secure and extend Scotland's current lead in the field, and to ensure that the industrial base is firmly rooted here.

"Our early experience shows that marine energy delivers 30-40 direct manufacturing jobs per megawatt of capacity manufactured per year."

Discussions are currently underway with consortium Enersis about the next stage of the project which will see it expand to a total of 24MW, providing sufficient electricity to meet the needs of over 15,000 homes and create the world's first commercial wave farm.



Pelamis at Lewis

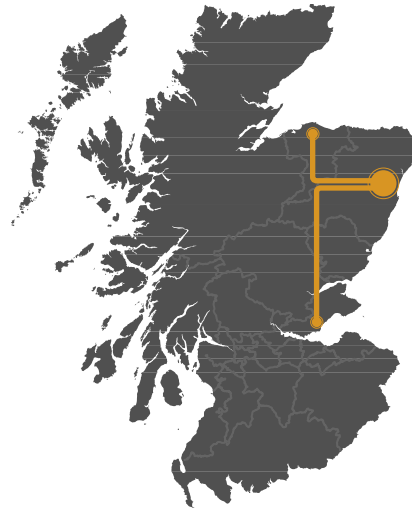
Table 1 Scottish Renewables: Members' Employment Matrix

Jobs & Sector	Project Development to Final Consent	Consultancy, Energy Services & R&D	Manufacture: Engineering, Fabrication, Assembly	Construction & Haulage	Operation & Maintenance	Total
Bioenergy (Large scale electricity & chp)	8.5	12.55	0	0.5	12	33.55
Biofuels	0.3	2.2	0	0	0	2.5
Energy from Waste / Landfill Gas / Sewage Gas	2	7.4	0	1	74	84.4
Hydro	14.5	5.4	0	426	174	619.9
Infrastructure	102.5	12.1	0	20	0	134.6
Microgeneration	32	22.9	88.5	2.5	5	150.9
Wave & Tidal Stream	30.5	40.25	120	0	0	190.75
Wind	448	180.8	192	191.5	66	1078.3
Other	2	23	2	0	0	27
Total	631.8	294.05	402.5	641	319	2321.9

Case Study 4

Balmoral Group / Aberdeen

09



The Balmoral Scottish supply chain

Project/contract: Supply of nacelle cabins/other components

Value: 10% of turnover

Scottish suppliers include: Magma Fabrications, Glenrothes; Grampian Fasteners, Aberdeen; Highland Galvanizers, Elgin

Across Europe, wind farms are relying on Balmoral's appliance of science.

The Aberdeen firm specialises in working with advanced composite materials and its investment in research and development has made it one of only a handful of companies able to design and manufacture the large scale components needed for wind farms.

Since first supplying the Vestas turbine factory in Campbeltown the company has also shipped to sister plants in Spain, Italy and Denmark.

Producing parts such as nacelle covers to protect turbine mechanics has developed into a significant market for Balmoral in recent years but it is the potential of wave power that is currently creating most excitement around its Aberdeen factory.

The company is partnering a major international firm on a pioneering wave power-generation system and has been involved in production of a third-scale platform for a pilot project.

"We've been working on that for the past 18 months and have invested significantly in research and development - it is potentially very exciting for us and opens up a whole new world for our skills," said Jim Hamilton, director of Balmoral's Advanced Composites arm.

The go-ahead for a full scale version would involve the manufacture of platforms measuring 36m by 18m, all made out of composite materials.

"The sheer sizes involved means we would have to look at assembly elsewhere and that is something we are now investigating options for locally."

Around 30 of the group's 300-plus workforce is currently involved with products for the renewables sector but commercial manufacture for the wave sector would see that rise significantly.

The composite materials Balmoral specialises in are ideally suited to renewables applications. Composites - materials made by reinforcing fibres in a polymer matrix - can be moulded

into complex shapes and produce very durable parts with high resistance to corrosion.

Balmoral, a privately-owned business, has been supplying the marine, engineering and building sectors for more than 25 years.

"They were looking for companies who could do large scale resin transfer moulding of composites and I don't think there was any other company in Scotland capable of that," said Jim.

The company has since supplied Vestas operations across Europe with nacelle covers and nosings for wind turbines and also produces housings for transformers, telemetry and switchgear.

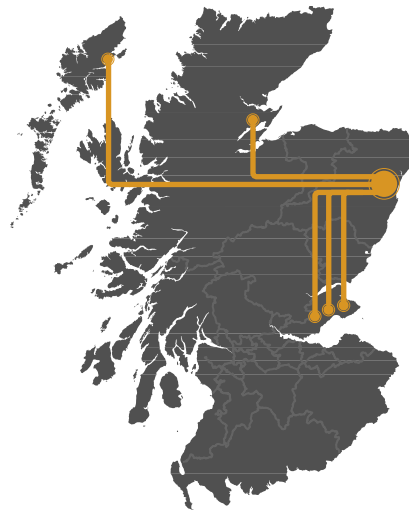


A Balmoral nacelle cover

Case Study 5

Talisman Energy &
Scottish and Southern Energy / Aberdeen

10



The Beatrice
Scottish supply
chain

Project/contract: Beatrice offshore wind farm demonstrator

Value: £35m

Scottish suppliers: Burntisland Fabrications Limited, Methil; CamCal, Amish; Isleburn, McKay and Macleod, Evanton; Gray Fabrications, Cupar; Narvida, Glenrothes (all fabrication)

The Scottish oil and gas expertise which has reaped a rich harvest from the North Sea is now helping break new ground in renewable energy.

The Beatrice demonstrator project, a joint venture between Scottish and Southern Energy and Talisman Energy (UK), will see the world's deepest offshore wind turbines installed to assess their technical and economic feasibility.

Experience gained from the project, which will power the Beatrice platform, will place Scotland at the forefront of a renewables technology with huge growth potential and possibly lead to large-scale wind farms in Scottish waters.

The turbines will be sited in the Moray Firth 15 miles off the North East coast in water depths of around 45 metres - a step change from existing offshore wind developments which are typically in water depths of less than 20 metres.

"During the next few years the results of this project will influence the development of wind turbine technology around the world and the existing infrastructure at Beatrice offers a unique opportunity to test the feasibility of deepwater wind farms," said Dr Jim Buckee, President and Chief Executive Officer of Talisman.



Installation of the Beatrice wind turbine

"Many of the skills used in the offshore oil and gas industry are transferable to the renewable energy sector, thereby potentially creating new investment and employment opportunities in the North Sea."

Although the £35m project in the Moray Firth has already brought significant amounts of work to Scottish companies, the experience gained from being involved could be worth much more in the long term.

"It is a very innovative project and during our work things were tested out which were not required for the installation of the demonstrator but which would be needed for potential

mass production in the future," said John Robertson, managing director of oil and gas specialist Burntisland Fabrication which produced the two support structures along with boatlandings.

"It has enabled us to prove that the technology and engineering solutions are there to allow offshore mass production to go forward and that is very exciting to us."

The importance of the project, which will create an estimated 230 direct and indirect jobs, has attracted financial backing from the Scottish Executive, the DTI and the European Commission.

The relatively small numbers of people employed by Scottish Renewables members involved in the bioenergy, energy from waste, microgeneration, marine power and biofuels is either a reflection of non-Scottish Renewables membership or the relative infancy of the sector.

What is interesting to note is the number of people involved in the marine power sector. Whilst 184 jobs appears small, the amount of work that they will eventually generate with the future deployment of wave energy converters and tidal stream generators, suggests this small band of people are a strong indicator of the potential to come.

A similar message comes from the microgeneration sector. Whilst 151 jobs appears low, 36% are involved in the development and thinking behind new technologies that are about to enter the market place. The companies employing these individuals are potentially significant value generators for Scotland waiting for strong market signals to grow their businesses.

One clear message from our survey, and talking to our members, is that many businesses are multi disciplinary and can work across all renewables sectors. This makes sense when you consider many of the environmental issues associated with large civil engineering projects are the same, or indeed that civil engineering has transferable skills, or if you consider that taking power from a generator involves the same wires.

It would be fair to conclude therefore that skills developed and honed in the wind sector in the last ten years could be transferred to the wave or biomass sectors in the future. Indeed, anecdotal evidence suggests that consultancies and other specialist organisations adapt quickly to the changing renewable energy markets. It demonstrates an ability to diversify in business and an enthusiasm for renewables that helps ensure that the best projects⁵ and technologies are developed in Scotland.

What our case studies show is that companies that have developed expertise in one industry, especially the oil and gas sector, are looking to diversify into renewables. It is commendable long term thinking and, for our examples, demonstrably lucrative.

Future Research

The high return rate from the Scottish Renewables membership in response to the jobs survey is remarkable. With 93% of members providing information to Scottish Renewables to enable the production of this report it is clear that the positive relationship Scottish Renewables has with its membership could provide an opportunity for further research.

The Scottish Executives' Forum for Renewable Energy Development in Scotland, through its Skills Sub-Group in August 2005, sought to create a framework to maximise the jobs potential of renewable energy in Scotland.

This initiative also complements the Scottish Executive's Green Jobs Strategy launched in June 2005. Its commitments were updated in September this year and it is clear that a major part of this initiative is about establishing a baseline of statistical information. We hope that this report will be considered alongside others that are published.

Scottish Renewables is uniquely positioned to help identify and measure a significant part of the green energy industry through interaction with its members, without whom this report would not have been possible.

For example, one growing area of concern is ensuring that the industry is able to source a vibrant and appropriate skilled workforce to take the industry forward. Whilst this may not currently be a major constraint⁶ Scottish Renewables, in conjunction with other stakeholders, could help provide an 'early warning' system to spot any potential future skills gaps.

We are keen to work with other key stakeholders in developing these systems by working with the Scottish Renewables membership to provide useful information for the Scottish Executive and its agencies to use for the benefit of all.

⁵ A recent Scottish Executive report into the quality of Environmental Impact Assessment in planning applications showed the renewables industry to be exemplary: The Use of Environmental Impact Assessment in the Planning System and Electricity Act Applications (Scottish Executive) 2006

⁶ Forum for Renewable Energy Development in Scotland, Developing Skill for Scotland's Renewable Energy Workforce (Scottish Executive, 2005)

Case Study 6

E.ON UK Renewables / Dumfries & Galloway



The Steven's Croft supply chain in Scotland

Project/contract: Steven's Croft Biomass Plant, Lockerbie

Value: £90m

Scottish suppliers: Scottish Power (connection); McAlpine, Glasgow (civil engineering); Hardie Engineering, Dumfries (switchroom). Forestry products suppliers will include James Jones, Dumfries; Howie Forest Products, Dalbeattie

The construction of the UK's largest biomass plant is already bringing millions of pounds to the local economy but the real benefits will be seen when it starts operating next year.

Around 220,000 tonnes of fuel a year – including specially grown crops – will power the plant and most of it will be sourced from within an hour's drive of the site.

E.ON UK Renewables, developers of the Steven's Croft project, is aiming for 20% of its fuel needs to come from short rotation willow coppice.

For the farming community in the region, which has suffered in recent years because of changes to farm subsidies, that will provide an opportunity to benefit from a stable income stream for many years ahead.

Around 4,000 hectares of the willow crop will be required to maintain a regular supply and the need to minimise transport costs and the plant's carbon footprint means most of it will be sourced from within a 50 mile radius of the plant.

Specialist consultants Renewable Fuels has been contracted by E.ON to

supply the harvested willow coppice and they are negotiating long-term deals with farmers with around 800 hectares already signed up.

Growers benefit from grants of £1,000 per hectare offered through the Scottish Forestry Grant Scheme, managed by Forestry Commission Scotland, to establish the crop on their land.

Waste wood and forestry residue will also be an important fuel source when the plant opens and most of the sawmills across the region will be providing supplies.

Local haulage companies will be relied on to provide regular deliveries to the site.

Work started at Steven's Croft at the beginning of 2006 led by main contractors Siemens, who are handling civils and electrical, and Kvaerner, responsible for mechanical handling, with a number of Scottish subcontractors involved.

The project is currently ahead of schedule thanks to good weather in the early stages and the commissioning process is due to start in June 2007 ahead of a planned opening in November.

Once complete the 44MW site will be the largest dedicated biomass power station in the UK and will support around 340 jobs in the area.



An artist's impression of the Steven's Croft plant

Case Study 7

AES Solar Systems / Forres

13



The AES Solar Scottish supply chain

Project/contract: Supply of solar water heating systems to Scottish Parliament building

Value: £57,000

Scottish suppliers: McDonald Engineers, Glenrothes (cylinders); Alcoa, Aberdeen (aluminium); Wolseley, Aberdeen & Inverness (insulation, pipework)

After more than 10 years running his own solar power company George Goudsmit is well placed to see how the technology has moved from novelty to mainstream.

"We have just begun to make a profit for the first time in our history as serious interest in solar continues to grow," said Goudsmit, managing director of AES Solar Systems in Forres which specialises in water heating systems for both domestic and commercial buildings.

"We've done everything from a house with just one person up to a 110-system project in Wales for a housing scheme – anywhere that needs water heating," said George who took over the company which had been part of the Findhorn Foundation 12 years ago.

George, originally from Amsterdam, became involved in AES after a downshifting move to northern Scotland.

"I had been running a telecoms company in London with 11 offices around the world but just got fed up with it and wanted an easier life but it hasn't quite worked out like that!"

Winning a contract to supply a system for the new Scottish Parliament building has probably been AES's most high profile Scottish installation to date.



Solar panels heating Holyrood

The 64 square metres of panels installed on the roof provide approximately 24,000 kWh a year to heat water for toilets and restaurants in the building.

AES has seen a growing proportion of its business come from Scotland in recent years and has also built a strong reputation south of the border.

"Scottish manufacturing still has a reputation for quality and the fact we are based here is a factor for our customers in England and Wales," explained George.

AES employs five people at its factory in Forres where the panels are assembled and two-thirds of its supply chain is Scottish.

"It is an area of relatively high unemployment so we have a very loyal workforce."

Around 70% of the components for the panels are sourced from Scotland.

Although demand for solar installations is growing rapidly, a shortage of experienced installers does pose short term constraints.

"The plumbing trade as a whole is short of people and installation costs are a big factor in the solar sector but we are currently in negotiations with a company to partner us on that which will be a significant development for AES."

The Scottish Renewables' Economic Impact Report, underlines the current importance of the renewable energy sector to the Scottish economy but also demonstrates that growth in the past ten years has laid the foundation for continued strong growth in the future in the heat, transport and electricity sectors. That there is great potential is not in doubt.

This first report will form the basis of Scottish Renewables intention to identify, quantify and unite the entire Scottish renewables industry. In doing so, the industry will be able to articulate a strong and influential voice underlying the core message that without long term, stable political support the full potential of the Scottish renewables industry will not be realised.

It is not difficult to imagine what this may look like.

Consider these two facts:

Firstly, the Danes have embraced wind power since the 1980s and consequently lead the world in wind turbine manufacture, employing more than 20,000 people in the industry. Secondly, Scotland has an immense renewable energy resource and with the ownership of intellectual capital in the wave and tidal stream sectors and the early deployment of commercial marine power projects around Scotland's coastline, there is a fantastic opportunity in Scotland to do with wave power and tidal stream what the Danes have done with wind power.

There are of course other manufacturing opportunities, as highlighted in this report, and any focus on marine power should not detract from developing the potential in other sectors.

This Economic Impact Report shows clearly there is a long way to go if this is to happen. There is a role for Government here to promote strong and stable support for all renewables. Success with one technology - like onshore wind in Scotland - should not be seen as a problem but rather as a good example of how to deploy good renewable energy projects. The key to creating and securing jobs is for all stakeholders to work together to deliver those jobs whilst ensuring good renewable energy projects continue to be developed.

It is our intention to publish this report on an annual basis and Scottish Renewables hopes that the statistics it produces will be seen as key benchmark for the health of the renewables sector in Scotland.

But, what is the size of the entire renewable energy industry? Scottish Renewables is keen to explore this further because by measuring it, as someone once said, you can manage it.

We envisage this report being the first of many in the years to come and as we go forward we anticipate developing a methodology, in conjunction with partners, to help understand the industry; its concerns and confidence in the future; its impact on the Scottish economy; and, its potential.

Case Study 8

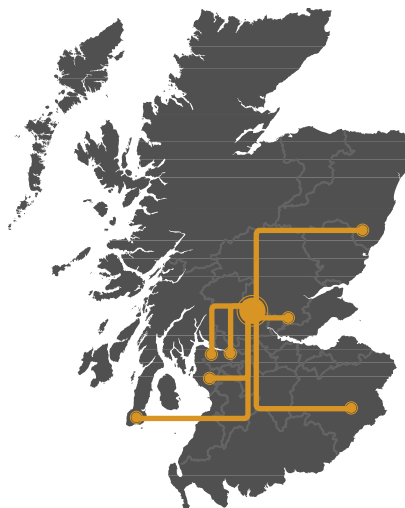
Airtricity / Stirlingshire

15

Project/contract: Braes of Doune wind farm

Value: £75m

Scottish suppliers: Vestas, Campbeltown (turbines); Alfred McAlpine, Glasgow (civils); Scottish and Southern Energy (grid connection); AJ Clark, Kilmarnock (foundations); RJT, Jedburgh (roads, peat movement); Sorley, Dunfermline (turbine electricals), Mott MacDonald, Glasgow (technical advice); Natural Research, Banchory (Red Kite Monitoring); Land Use Consultants, Glasgow (EIA, on site ecologist), Scott Wilson, Glasgow (planning assistance/on site geotechnical engineer), Sgurr Energy, Glasgow (technical advice)



The Braes of Doune Scottish supply chain

Since its first Scottish wind farm won planning approval three years ago, Dublin-based Airtricity has embarked on a major investment programme over the water.

Staff in a dedicated base in Greenock now oversee eight existing or planned projects including Braes of Doune in Stirlingshire.

Construction activity at the site began in July 2005 on the 72MW wind farm and by February 2007 it's 36 turbines had been commissioned and in service.

The bulk of work on the project was awarded to Vestas in Campbeltown who are manufacturing the V80 turbines and Alfred McAlpine who are handling civil work on the site. Both companies also worked on Airtricity's first Scottish wind farm at Ardrossan.

And many of their subcontractors for the Braes of Doune project are Scottish-based.

As well as large contracts for the construction of the site, a wind farm project also depends on a host of local suppliers.

"We've used local contractors for work including fencing, site security, cleaning, catering, stone wall work

and welfare facilities for workers," explained Project Manager Brian McFarlane.

The wind farm is expected to be fully operational by the end of the year and agreement has already been reached with Centrica to purchase the entire energy output from the wind farm.

When operational, the wind farm will mitigate the release of around 173,000 tonnes of carbon dioxide per year.

Airtricity has two other Scottish projects which have planning permission – a 16-turbine site at Dalswinton near Dumfries and the 17-turbine Minsca project near Lockerbie.



Braes of Doune under construction

About Scottish Renewables

Scottish Renewables is Scotland's leading green energy body with a membership of over 200 organisations involved in making renewables a reality for Scotland.

Scottish Renewables supports the development and provision of a sustainable energy future for Scotland. Sustainable energy comes from sources that are safe, clean and renewable, and which should also be secure, diverse and competitive. Scottish Renewables therefore promotes the effective use of Scotland's abundant biomass, geothermal, hydro, solar, tidal, wave, and wind resources to generate social, economic and environmental benefits for all.

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Disclaimer

Whilst every effort has been made to ensure the accuracy of this report, Scottish Renewables is not liable for any errors or omissions.

Scottish Renewables Forum
Central Chambers
93 Hope Street
Glasgow G2 6LD

T: 0141 222 7920
F: 0141 222 7929

E: info@scottishrenewables.com
www.scottishrenewables.com