

# ENERGY

THE GLOBAL ENERGY GROUP MAGAZINE

issue one

**RISING TO EXTREME CHALLENGES**  
Hammerfest LNG Plant

**BORGHOLM DOLPHIN**  
Shaping up for new role

**CROMARTY FIRTH**  
Open for business



**“from oilfield to renewables,  
executing quality and reducing risks”**



#### Exploration Drilling & Marine Support Facilities

The Global Energy Group specialises in the ongoing integrity of mobile drilling rigs & marine vessels, including inspection, repair, maintenance and major CAPEX upgrades.



#### Oil & Gas Production

The Global Energy Group partners with EPC contractors and operators in the execution of major & minor topside CAPEX as well as new build subsea equipment. The Group also support duty holders with OPEX pipework/ structural maintenance of fixed production platforms.



#### Petrochemical & Process

The Global Energy Group supports CAPEX upgrades to the petrochemical, process & gas storage/conversion sectors through onsite construction as well as offsite fabrication of equipment & modular units.



#### Power Generation & Utilities

Combining mechanical, electrical and civil engineering skills, the Global Energy Group supports new build CAPEX as well as maintenance and upgrade of hydro schemes, water infrastructure and power generation facilities. This includes site construction and offsite fabrication of equipment for the nuclear power industry.



#### New Age Renewable Energy

The Global Energy Group has emerged as a leader in the construction of new age renewable energy. This includes the fabrication of offshore wind, wave and tidal technologies.

**GEGROUP.COM**

## CONTENTS

### EXPLORATION DRILLING & MARINE

**4** BORGHOLM DOLPHIN Project

**6** KEY MANHATTAN Project

**8** APACHE II Project

### OIL & GAS PRODUCTION

**10** OPEN FOR BUSINESS

**16** DELIVERING FOR BRAE ALPHA

### PETROCHEMICAL & PROCESS

**18** RISING TO EXTREME CHALLENGES

### POWER GENERATION & UTILITIES

**26** GLOBAL PRIDE IN HYDRO SCHEME SUCCESS

**28** ALCAN Project

### NEW AGE RENEWABLE ENERGY

**32** ON THE CREST OF THE MARINE POWER WAVE

#### Global Energy Group Headquarters

In-Spec House,  
Wellheads Drive,  
Dyce, Aberdeen,  
Scotland,  
AB21 7GQ  
Tel: +44 (0) 1224 356500  
Fax: +44 (0) 1224 356655

Email: [info@gegroup.com](mailto:info@gegroup.com)  
Web: [www.gegroup.com](http://www.gegroup.com)

Editor: Alistair Gordon  
Editorial Content: Stan Arnaud  
Photography: Derek Gordon  
Design: Andrew O'Connor & Alistair Gordon

This magazine is published in-house by the Global Energy Group.  
Reproduction of this publication in whole or in part is strictly  
prohibited without prior written consent of the publisher.  
Issue one © Global Energy Group

## Chairman's Foreword

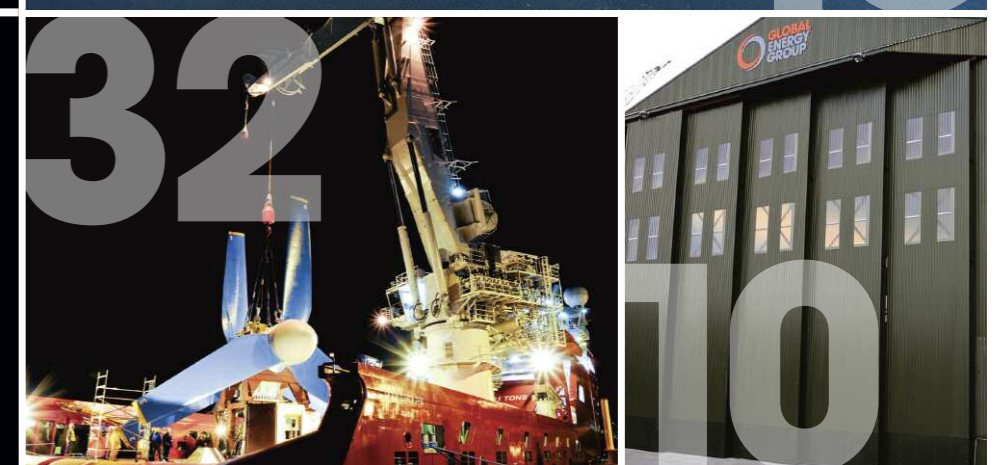
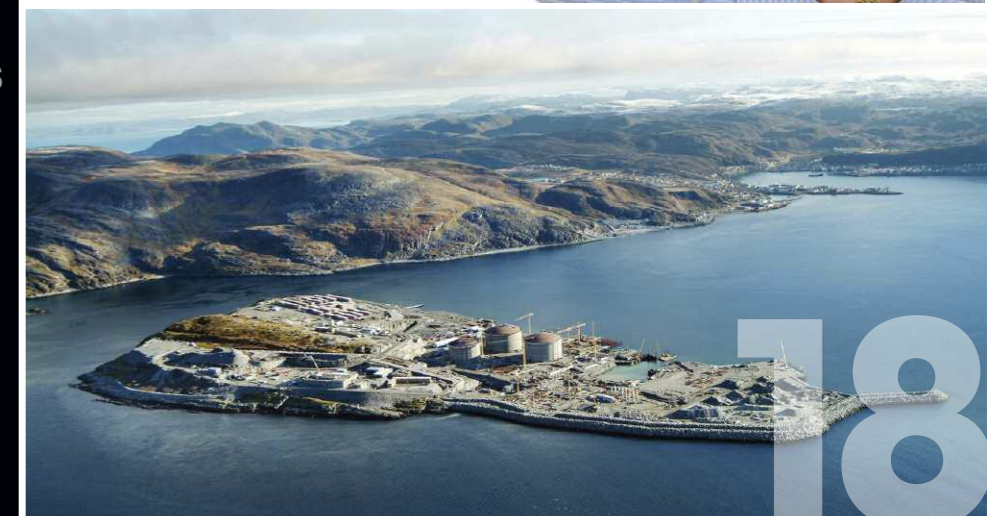
Welcome to ENERGY, the Global Energy Group's new magazine. The idea of the magazine is to inform customers and other readers about the quality and value that we bring to projects as an execution partner to the international energy industry.

Reflecting the five key markets in which we work throughout the UK and around the world, the mix of project reports, features and news stories in ENERGY illustrates the range of activities in which we are involved.

I hope you find it an informative and useful read.

**Roy MacGregor**

Chairman of the Global Energy Group



# Borgholm Dolphin

## shaping up for new role

The Global Energy Group is currently carrying out its latest major rig inspection, repair and maintenance project at Invergordon.

Valued at £4.5 million and including several Global business units, the work on the Borgholm Dolphin involves a workforce of around 100.

The accommodation rig, owned by Dolphin Drilling Ltd, was towed into Invergordon in June, the latest in a long line of offshore vessels to come to the port for inspection, repair and maintenance.

The Group's scope included refurbishing the rigs galley, replacing flooring and upgrading accommodation cabins.

Beyond the main workscope we also carried out a number of repairs and upgrades on the vessel.

Built in 1975, the semi-submersible rig can provide accommodation for 314 personnel, housed in double berth cabins.

She had been a familiar sight anchored in the Cromarty Firth off Invergordon for a number of months, before being towed in to the dock.

Dolphin Drilling announced this summer that they had entered into a contract with BP Exploration Operating Company Ltd to provide the Borgholm Dolphin. The nine month contract, supporting operations in the Andrew field in the UK sector of the North Sea, will start in the first quarter of 2011.



# Key Manhattan

rapid  
response

Reel once again demonstrated their ability to respond rapidly to meet customers' requirements when they were contracted for a project in the Adriatic.

The Reel office in Invergordon were requested at short notice to mobilise a team of 20 multi-disciplined rope access technicians to take over work on Transocean's jack-up rig, the Key Manhattan, in Croatia.

Within the first week the Reel team was increased to over 50 technicians with the scope being to bring the legs and derrick up to standard for Italian waters. This required a full blast of all steel areas bringing the surface to SA2.5 grade and the application of an offshore three coat paint system in red and white to fit with Italian aviation laws. All these works were carried out at heights of up to 400ft in various weather conditions.

The project, worth over £2.5 million, lasted for 3 months and was a great success adding to Reel's great safety record for working at heights.



Images: REEL Group





# Apache II project

Images: Global Energy Group

Technip's new vessel, the Apache II, has replaced the Apache, which played a major role in delivering the pipelay infrastructure of the North Sea over the past 30 years.

The new vessel took shape at yards in Spain and Finland, before coming to the Cromarty Firth for snagging work, carried out by Global Energy Group companies.

Within the first two weeks there were approximately 200 people working on the project prior to it going to sea for trials where the crew laid and hauled up lengths of pipe. She then returned to Invergordon, where around 40 Isleburn personnel carried out further work, with some of them sailing with the vessel on test runs.

At the height of the work approximately 1,000 man hours per week were being logged – giving an indication of the scale of the project.

Technip has since announced that they have won a contract, worth approximately 70 million euros, by Total E&P UK Limited, as operator of the Islay Gas Field, to deliver a full engineering, procurement, construction and installation (EPCI) project in the UK North Sea.

The contract will involve the world's first subsea implementation of Technip's reelable, electrically trace heated pipe-in-pipe (ETH-PIP) technology. ETH-PIP aims to enhance production operability of subsea pipelines that are liable to become blocked by the formation of

hydrates or wax. Successful application of this technology will reduce capital and operating costs for fields with challenging flow assurance conditions.

The full workscope covers installation of a 6-kilometer ETH-PIP, control umbilical, subsea structures and seabed preparation, including detailed design, engineering and project management.

Offshore installation is scheduled for mid-2011 and will be carried out by vessels from the Technip fleet, including the Apache II and diving support vessels Skandi Arctic, on which Global has also carried out work, and the Skandi Achiever.



reelgroup.com  
reducing risks



**REEL APPS**

americas europe africa asia



Skandi Arctic, Invergordon

# Open for business

Fabrication facilities in the Scottish Highlands have a proud place in the history of North Sea oil and gas, having built many of the structures that made production possible during the pioneering years. Now a new generation of facility is ready to build the massive topsides and other equipment needed to meet the challenges the industry faces in the 21st Century.

*Alba, Andrew, Arbroath, Douglas, Elgin Franklin, Eider, North Everest, Forties Charlie, Forties Delta, South-east Forties, Fulmar A, Hutton, Ivanhoe-Rob Roy, Lennox, Lomond, Magnus, Ninian North, Ninian South.*

The role call of platforms that emerged from the shores of the Cromarty Firth, in the Scottish Highlands, between the early 1970s and late 1990s reads like a who's who of the North Sea oil and gas industry.

Large scale fabrication on the shores of the Cromarty Firth began when Highland Fabricators (later named BARMAC) won the contract to build a 7,000 tonne platform for BP's historic West Sole gas field in the southern North Sea at Nigg Yard.

As discoveries of oil in the waters further north mounted, BP returned to the yard with an order for one of four platforms planned for the Forties Field.

Nicknamed "Highland One" the 19,800 tonne Forties Charlie, completed in 1974, was the first of the massive steel lattice platform jackets built for the North Sea. Modern historians have likened the years of platform fabrication to a second

industrial revolution in Scotland, pointing out that such feats of frontier engineering had not been seen in the country since the building of the iconic Forth Rail Bridge.

Over the years a further four platforms were built for BP at Nigg and other operators, including Shell, Chevron, Amerada, Amoco, followed suit by placing orders there. At the height of production the workforce at the yard was around 5,000-strong. Around 40 per cent of the topsides currently in use in the North Sea were built at Nigg and the Highlands' other fabrication yards.

The influence of the oil and gas industry's activities in the Cromarty Firth area over the past 40 years has been deep and lasting. The heydays of platform production are now part of the Cromarty Firth's history. But businesses and a workforce with a wealth of experience gained from them, and the ability to adapt skills and knowledge to the changing needs of its market, have ensured the area has remained at the forefront of service delivery to the industry.



Neil MacArthur, COO Isleburn, with the new Invergordon facility.

## ...Open for business

In the words of oil industry historian, Dr Bill Mackie: "Even around the fabrication sites, now deserted save one, there is only gratitude to these standard bearers of a second industrial revolution. The transfusion of new blood and ideas has permeated education, academic research and the arts, while an imported spirit of enterprise has spawned home-grown firms, now learning to reach out beyond the North Sea to deploy their hard-won talents throughout the world's emergent oilfields, in a rebirth of Scotland's proud tradition of investing overseas."

Engineering and fabrication company Isleburn is a shining example of the spirit of enterprise and endeavour Dr Mackie describes.

Part of the Global Energy Group's family of companies, the business has facilities around the Cromarty Firth, including the lease of large fabrication shops at the Nigg Yard, as well as in Aberdeen and Dunfermline.

Under the stewardship of chief operating officer Neil MacArthur, Isleburn

has developed into one of Scotland's largest manufacturers of bespoke products to a range of energy sector markets, with annual revenues in excess of £70 million and employing a workforce of more than 1,000. The company has been highly successful in supplying subsea and topside equipment to operators in the North Sea and around the world.

A seasoned industry professional, Neil was involved in many of the landmark platform projects at Nigg, before that phase came to a close in 1999.

He is confident that Isleburn's latest major investment – 81m (L) x 31.5m (W) state-of-the-art fabrication assembly shop at Invergordon Service Base capable of producing topsides of up to 5,000 tonnes – will see the Cromarty Firth remain synonymous with large scale offshore projects for many years to come.

Neil said: "Since Isleburn became part of the Global Energy Group we have steadily developed from a business with a turnover of around £8 million a year and a relatively small workforce to the position

we are now in at the forefront of Scottish fabrication and engineering operations for the customers in the energy industry.

"In addition to our existing facilities this superb new facility at Invergordon is a highly important development for us that will enable us to guarantee the scale, capacity and capability customers require for fabrication and assembly of projects such as large-scale topsides.

"The facility is positioned on the quayside, giving direct access to the deep water needed to ship such structures out from the port and our workforce combines the skills and experience required to deliver the highest quality work. We also benefit from the shared strengths of being part of a major international company like the Global Energy Group.

"Our message to the industry is that with what we have to offer through this new facility the Cromarty Firth is very much open for business for large-scale fabrication."



Shell Shearwater ready for load out in 2009.



### Invergordon Facility Specification

Fabrication/Assembly Shop:  
26,000 sq.ft  
Dimensions:  
30m (width) x 80m (length)  
Quayside:  
Minimum draft: 9m – 14.5m  
Craneage:  
4 x 20t  
Access:  
Full crane height 22m x 30m width

2010 Cromarty Firth  
load out of hydrocyclone  
and sand separator  
skids, for delivery to  
Singapore. Duplex  
pressure vessels and  
pipework.



# CORE VALUES

## • 360° Trust

Demonstrating care, honesty, fairness with all stakeholders

## • Innovation, Quality and Service

Always delivering to the highest standard and going beyond stakeholder expectations

## • People Pioneers

Supporting, developing and inspiring our people to succeed both personally and professionally

## • TEAM Global - Global Teams

Working together for success without compromising the unique strength of each business unit

 **GLOBAL  
ENERGY  
GROUP**  
GEGROUP.COM

...working together for success

# Delivering for Brae Alpha project

Two integrated skids to house a new power generation system on Marathon's Brae Alpha platform in the North Sea were successfully completed and loaded out by the Global Energy Group.

In one of their biggest projects in the UK this year, Marathon are replacing two of the four jet engines that drive the power generators on the platform. The Rolls Royce Olympus Engines, the same model as those used on Concorde, are being replaced by two 30 megawatt generators, supplied by General Electric.

The £2.1million contract to build the skids and fit the associated pipework was awarded to O.I.L., which earlier this year joined the Global Energy Group's Isleburn fabrication and engineering brand. Involving approximately 32,000 manhours of work, the project was carried out at their premises at Aberdeen Harbour.

Weighing 250 tonnes, the 28 metre-long skids were recently loaded out to be

transported by barge to the platform 168 miles north-east of Aberdeen. Propelled motorised trailers rather than cranes were used for the delicate load-out operation. The skids will replace identical ones currently on the platform.

Terry Willox, Isleburn's Aberdeen-based Proposals Director, was pleased with the successful completion of the project.

"We were successful in winning this contract on price, experience and, importantly, on our location. This was a project where the client required good quayside fabrication and engineering facilities in Aberdeen and we were able to provide exactly that."

"This project progressed well from when we started work on it last November to the successful load-out and, from the highly positive feedback we have received, we know the client has been very pleased with our work throughout."



# Rising to extreme challenges

New technology and extraordinary feats of engineering have enabled energy extracted from deep below inhospitable waters within the Arctic Circle to supply power to America and Europe.

A leader in international welding contracting, the Global Energy Group has enhanced its reputation as part of this pioneering project in one of the world's most inaccessible regions.

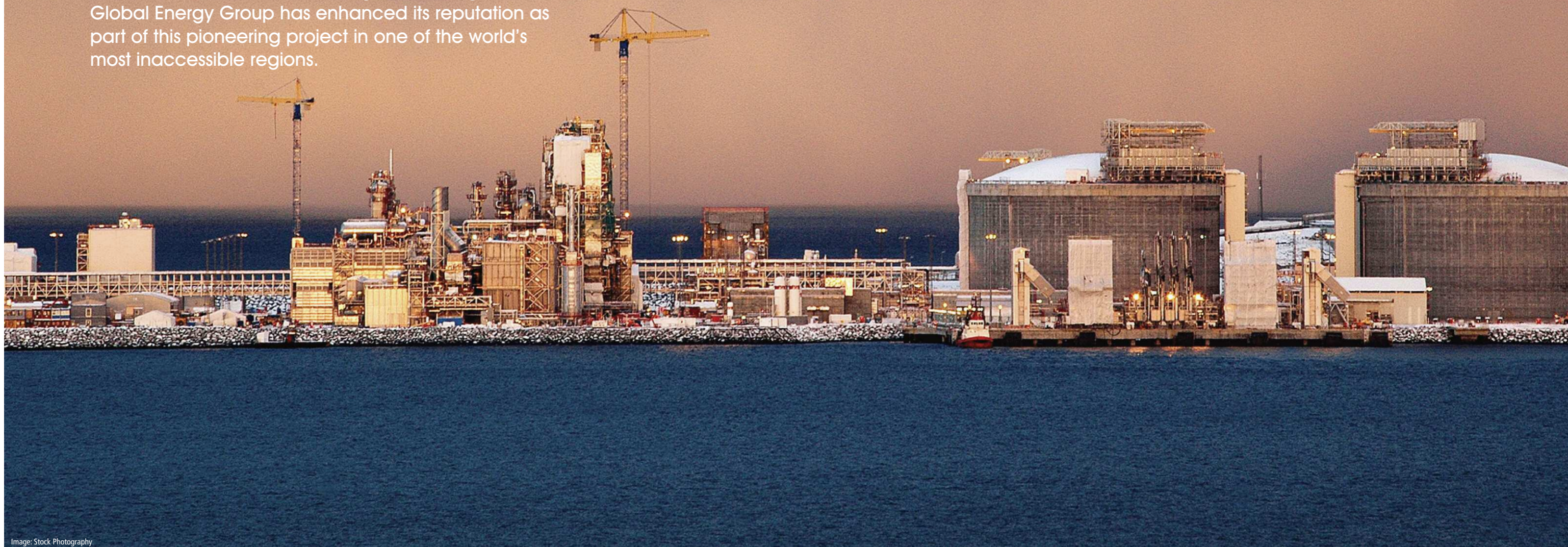


Image: Stock Photography



Image: Stock Photography

Hammerfest's coat of arms – a silver polar bear on a red background – is a sign of the Norwegian city's position as a stepping off point on the margins of the habitable world.

Located 70 degrees north – around the same latitude as the most northern parts of Siberia, Point Barrow in Alaska, the Arctic Islands of Canada and the centre of Greenland – the community claims to be the world's most northerly city.

In summer, when the sun shines continuously for two months, reindeer wander the streets, having found their way through the 4ft high fence built round the city to keep them out. During the harsh, snowy winters Hammerfest is shrouded in continuous darkness for two months – an issue the community overcame by installing Norway's first electric street lighting in 1891. The polar bear on the municipal crest was chosen to symbolise the fishing of the polar seas to the north.

A hub for early Arctic exploration and commerce in the early 21st century,

Hammerfest is a centre of pioneering innovation that has succeeded in overcoming the immense natural challenges of one of the world's most inaccessible regions.

Just across the bay from the city, on Melkøya Island, one of the world's most advanced plants has been built to process natural gas extracted from the Snøhvit (Snow White) field, the first offshore development in the Barents Sea. Liquefied natural gas (LNG) produced by the plant, which came on stream in August 2007, is being delivered to customers in the East Coast of America and Southern Europe.

Discovered in the early 1980s, around 140km north-west of Hammerfest, the Snøhvit field has been developed by Norway's largest oil and gas company Statoil and five partners.

The development marked an important breakthrough for energy production in the challenging Arctic regions where a significant amount of the world's

remaining oil and gas reserves are located. New technology has been a vital element of securing sustainable production in a region where workers, vessels and the environment are more vulnerable.

A total of 20 wells are due to produce gas from the Snøhvit field and its associated Askeladd and Albatross fields. The three fields have estimated reserves of 300 billion cubic metres of LNG and 20 million cubic metres of condensate. With six already drilled, a total of nine wells are planned on Snøhvit, eight for production and one for injecting carbon dioxide back below ground.

With no surface installations or floating units, all the Snøhvit field's subsea production facilities stand on the sea bed at depths of 250-345m, sheltered from the elements above and controlled remotely from onshore. The seabed equipment has been designed to allow fishing trawlers to operate in the area with out risk of their nets being entangled.

Natural gas liquids and condensate are piped 143km from Snøhvit to the Melkøya processing plant. Specially developed technology, involving injecting antifreeze at the wellheads and heating the pipeline electronically, is used to prevent the high pressure and low temperatures freezing unprocessed output from the wells.

Work to build the plant, the first of its kind in Europe, began on the previously uninhabited Melkøya Island in 2002. The development was the biggest construction project Norway had seen. Ben Macintyre, a correspondent for The Times, described it as "one of the largest and coldest building sites in the world" when he visited the facility in 2006.

Two 125,000m<sup>3</sup> LNG tanks were constructed, along with a 75,000m<sup>3</sup> condensate tank and a 45,000m<sup>3</sup> LPG tank and associated pipework.

Offering the specialist welding capability needed for the high grade

steel, Duplex and Super Duplex used in much of the pipework and with considerable experience of working in Norway, Global Project Services (GPS) was contracted to work on the development of the plant between 2006 and 2008.

Gavin MacDonald, director of GPS, which from its base in Invergordon in the Scottish Highlands supplies teams of qualified, highly skilled and experienced workers to projects worldwide, explained the company's role at Hammerfest.

He said: "As a specialist welding, mechanical and piping contractor, our primary focus was on the high pressure process pipework.

"We were involved in the piping installation, commissioning and testing and the onus was on us to get the pipework welded as safely and efficiently as possible.

"Our ability as a specialist contractor to deliver a high-end service safely, cost-

effectively, with minimal weld repair rates, using manual techniques, was critical to the success of this project."

Gavin said one of the key elements to GPS's successful delivery of the contract was that the teams that travelled to Hammerfest had been with the company for years and had considerable experience of working on similar projects.

"These are skilled, qualified teams as we believe in investing in our people to ensure they have the high levels of skills our clients need," he added.

The first cargo from Snøhvit for the European market was delivered by the Arctic Princess in October 2007, with the first consignment for the US arriving in Maryland aboard the Arctic Discoverer. Around 70 cargos of LNG a year are expected to be shipped out from the plant.



# Green energy from the glens

Hydro electric generation has been helping power Scotland since long before the current drive to develop renewable energy sources began. With a history stretching back 120 years in the north, hydro also has an important future as part of that 21st century drive, through new schemes and existing facilities.



First developed in the late 19th century, hydro electricity is produced using the power of running water to turn the turbines of generators in power stations. With mountains, lochs and high rainfall the Scottish Highlands have an abundance of the elements required for the process.

In 1890 a group of Benedictine monks were responsible for the area's first public supply of hydro electricity which provided power for their abbey at Fort Augustus and to 800 inhabitants of the local community at the west end of Loch Ness. Forty years later the first large scale scheme came into operation at Rannoch and Tummel Bridge in Perthshire.

In 1943 the Hydro Electric Development (Scotland) Act was passed, resulting in the establishment of the North of Scotland Hydro Electric Board to manage hydro generation in the north. At that time it was estimated that just one farm in six and one croft in a hundred in the Highlands and Islands had electricity.

Initial attempts to get approval for projects met strong opposition and it was not until 1950 that the board's first scheme, at Sloy, near Loch Lomond, was commissioned.

The following years saw a massive construction programme involving excavation of more than 300 km of tunnels and building of a similar length of aquaducts and pipelines. A 32,000 km distribution network of pylons and poles was created, with 110 km of underwater cables laid to carry power to the islands.

At its peak the workforce numbered 12,000, comprising British workmen, German and Italian former prisoners of war and Poles and Czechs who lived in large camps by the projects.

By 1965, 54 main power stations and 78 dams had been built, with a total generating capacity of more than 1,000 MW, bringing power to people's homes throughout the Highlands and Islands. A recent major refurbishment programme has ensured the schemes will continue generating electricity for many years to come.

Following the massive efforts of the 1950s and early 1960s, it was to be 50 years before another large scale conventional hydro electric station was built in the Highlands. In 2009 the Queen officially opened the £150million, 100MW Glendoe plant built by SSE at Glendoe.

SSE also has plans to develop two large-scale pumped storage schemes in the Great Glen area of the central Highlands. With a combined generation capacity of 900 MW they would be able to provide more than 1,000 gigawatt hours of electricity annually to help meet peak demands. They would be the first to be developed in the UK for more than 35 years to use the pumped storage technique, where, during low power demand periods water is pumped from a loch to an upper reservoir, then released to generate power during high demand periods.

Recent years have seen widescale recognition of the potential for small scale hydro schemes to contribute to Scotland's renewable energy targets and benefit communities.

Earlier this year a report to the Scottish Government identified 7,000 potential small hydro schemes, mostly with capacity of less than 5MW, but with a combined potential of 1,204 MW, sufficient to supply one million homes. A major proportion of the identified schemes are in the Highlands and Islands.



## POWER GENERATION & UTILITIES

### Hydro Energy

The Global Energy Group offers a complete service to the hydro industry across the UK, having held a number of long and successful partnerships with key clients.

Servicing both new build projects and refurbishment of existing assets, our multi-skilled workforce carry out maintenance and improvement works across the country.

These works include dam, tunnel and aquaduct maintenance, intake refurbishment, substation construction and extension, along with a programme of environmental improvements to transformer compounds.

### Nuclear Power

The Global Energy Group is well equipped to support the forthcoming UK nuclear new build programme, including the provision of fabrication and site services for the installation, maintenance and decommissioning of equipment.

Our experience to date includes controlled offsite fabrication of skid modules and pressure vessels.

### Water Infrastructure

The Global Energy Group offers a broad range of expertise in the water sector, having undertaken numerous contracts for Scottish Water as well as local and regional authorities.

Our knowledge in the utility sector covers a wide variety of areas including public water treatment, wastewater treatment, water distribution networks and process water.

# Global pride in hydro scheme success

When electricity was generated for the first time by a new hydro scheme near Ullapool on the west coast of the Scottish Highlands, it was a proud day for Global Construction.

The company played a key role as principal contractors on the project, carrying out the multi-million pound civil engineering, mechanical, electrical and commissioning work for power company RWE npower Renewables.

Construction work on the Inverlael Hydro Scheme began in March 2008 and was

completed in May 2009. The 2.5 megawatt (MW) run-of-river development was built within an existing forestry plantation by Loch Broom in Wester Ross.

The hydro scheme utilises the waters of the Allt Mor and River Lael. An intake in each river abstracts water and passes it through two pipes which combine before entering the powerhouse. The abstracted water is then fed through twin turbines to generate up to 2.5MW of electricity

before being returned to the watercourse.

The scheme was designed to produce

enough electricity to supply the average annual needs of about 1500 homes.

During the construction phase various safeguards were employed to protect the environment and to allow the free passage of walkers and other recreational users in the area. With construction complete the scheme generated its first electricity on Wednesday 6 May 2009. The reliability run started on 14 May, when one of a group of visiting third year geography students from Ullapool High School was invited to throw the switch.



RWE npower Renewables were nominated for the success of the Inverlael Hydroelectric Scheme.

The award recognises how the renewable industry, projects and/or initiatives can help to assist in achieving wider environmental goals in tackling climate change throughout Scotland.

Commenting after the successful completion, Project Manager Mary Drury of RWE npower Renewables said: "This has definitely been a team effort, resulting in a great scheme which will reliably generate renewable electricity for many years to come."

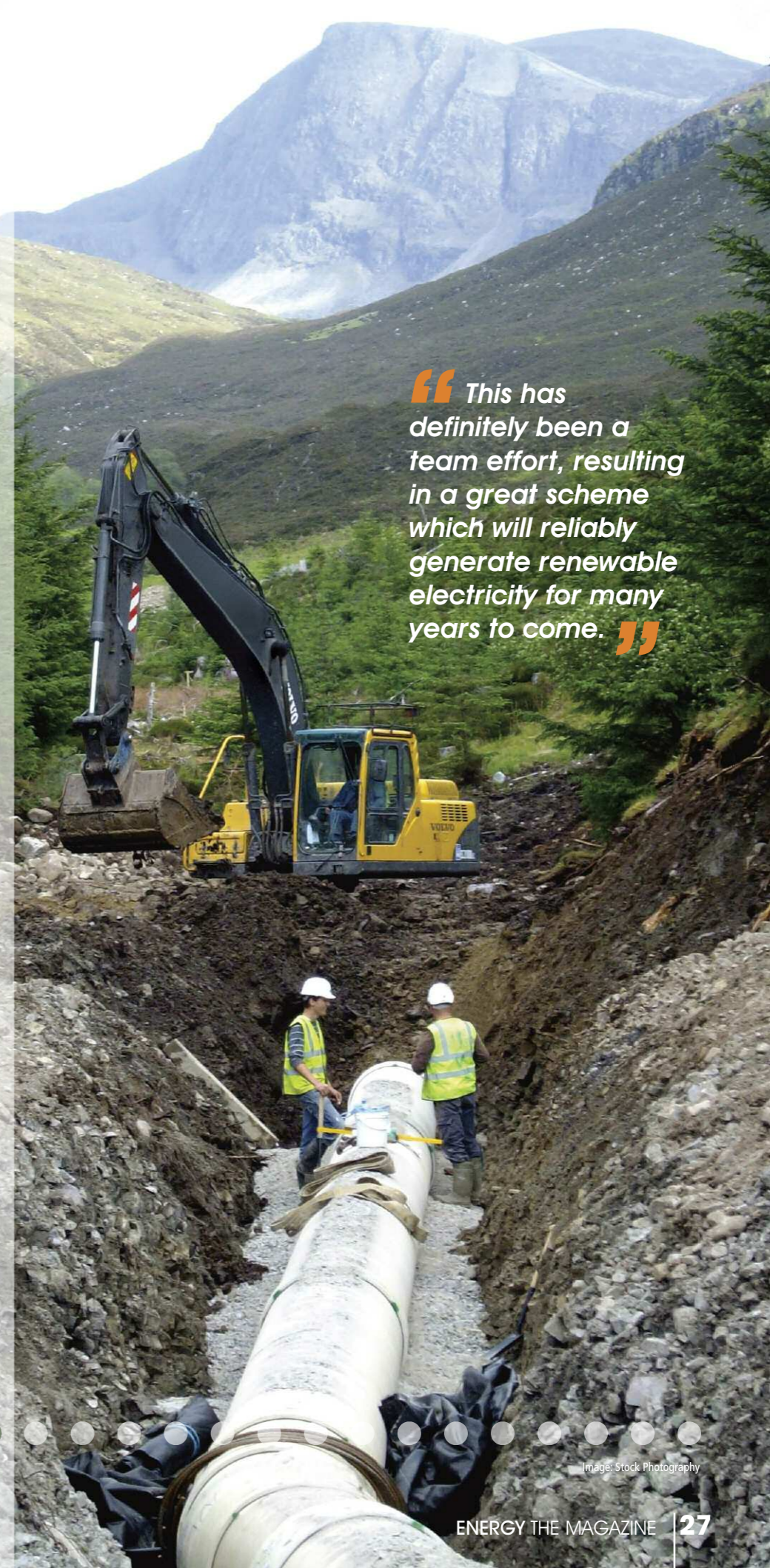
The scheme was officially opened in August 2009 by Scottish Environment Minister Roseanna Cunningham. The Minister said: "By becoming a smarter energy consumer and a greener energy producer, Scotland can help make a difference in the fight to mitigate the impact of climate change. "This new scheme at Inverlael illustrates how the Scottish Government and the private sector can work with communities to change our energy habits to deliver environmental, social and economic benefits for all."

## Key facts at a glance

### Inverlael Hydro Scheme

- 2.5MW run of river hydro scheme
- capable of generating 7GW/hr in a year of average rainfall
- 2 intake weirs abstract water from rivers Lael and Allt Mor
- water conveyed to turbine through 3.2km of 800mm and 1100mm diameter buried GRP pipe
- 2 Francis turbines utilise a head of 120m and flow of 2.9 cubic metres of water per second at maximum generation
- power exported from 415V generators to local 33kv grid

**“ This has definitely been a team effort, resulting in a great scheme which will reliably generate renewable electricity for many years to come. ”**



# Lochaber Powerhouse

Global Construction teamed up with Ross-Shire Engineering to deliver a major refurbishment of the powerhouse at an aluminium smelter in the Scottish Highlands.

Originally built between 1924 and 1944, in the shadow of Ben Nevis, Britain's highest mountain, the Lochaber Aluminium Smelter, in Fort William, was a major feat of engineering.

Operated by Rio Tinto Alcan, the smelter was built to generate approximately 65 megawatts (MW) of capacity, 95% of which is used to reduce imported aluminium dioxide to aluminium metal, with excess power being sold to the National Grid. Discharged water exits through the half mile tailrace into the River Lochy.

The powerhouse was built with 12 DC turbines, originally rated circa 6 MW. The £2.5million refurbishment project focused on breaking out 10 of the DC power sets and replacing them with five 18 MW AC sets, providing modern operating

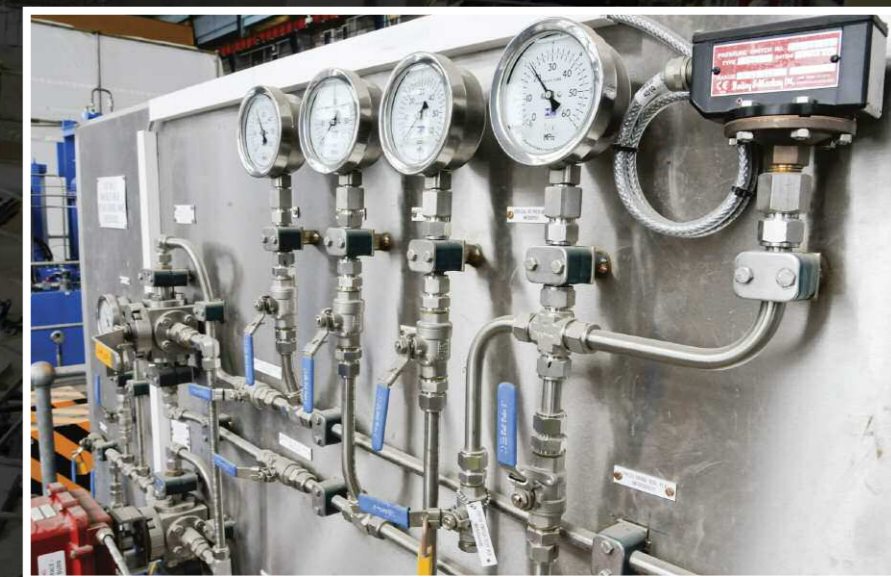
efficiencies and increasing generating capacity by 50%.

Designed with a phased roll-out, the refurbishment programme involved removing and replacing two power sets at a time, while still maintaining the smelter's operational power requirements.

Global Construction and Ross-Shire Engineering's wealth of experience in hydro electric work was invaluable in a project where all phases were time-critical.

A major part of the project involves breaking out around 800m<sup>3</sup> of existing concrete and replacing them with new structures requiring 1,000m<sup>3</sup> of reinforced concrete.

Among many challenges overcome was the replacement of a number of MIV stop log gate installations. To do this divers entered the tailrace in a specially-designed dive cage, which offered them protection from the turbulent waters while locating, securing and sealing the new gates.





# On the crest of the marine power wave



Atlantis Resources Corporation ("Atlantis"), one of the world's leading developers of electricity-generating tidal current turbines, unveiled the largest and most powerful tidal power turbine ever built, the AK1000™ at Invergordon this summer.

Isleburn played a key role in the fabrication and assembly of the AK1000™, which has now been installed at the European Marine Energy Centre ("EMEC"), in Orkney, for testing.

Dignitaries, utilities and technology partners from around the world attended the unveiling of the flagship turbine at Invergordon, taking the only opportunity to view the turbine before it was loaded out for transportation to Orkney.

Despatching 1MW of predictable power at a water velocity of 2.65m/s, the AK1000™ is capable of generating enough electricity for over 1000 homes. It is designed for harsh weather and rough, open ocean environments such as those found off the Scottish coast. The turbine incorporates cutting edge technology from suppliers across the globe, has an 18 meter rotor diameter, weighs 130 tonnes and stands at a height of 22.5

meters. The giant turbine is expected to be environmentally benign due to a low rotation speed whilst in operation and will deliver predictable, sustainable power to the local Orkney grid.

CEO of Atlantis, Timothy Cornelius, said: "The unveiling and installation of the AK1000™ is an important milestone, not only for Atlantis, but for the marine power industry in the United Kingdom.

"It represents the culmination of 10 years of hard work, dedication and belief from all our partners, staff, directors and shareholders. The AK1000™ is capable of unlocking the economic potential of the marine energy industry in Scotland and will greatly boost Scotland's renewable generation capacity in the years to come."

The gravity base structure and system assembly of the AK1000™ was completed by Isleburn, which is part of the Global Energy Group. The nacelle was fabricated by Soil Marine Dynamics in Newcastle in England

Mr Cornelius added: "The AK1000™ development program has injected over £5M to date into UK Plc's renewable energy sector and has provided employment across a broad range of sectors including design, engineering, fabrication and project management.

"We are at the start of a new industrial boom, akin to the development of the North Sea oil & gas fields. If we receive the same support from all levels of government that the oil & gas industry received to make the North Sea the success that it is, then the future is very bright for marine power."

***"We are at the start of a new industrial boom, akin to the development of the North Sea oil & gas fields"***

At the Orkney testing centre, it took seven days to install the gravity base structure on its subsea base, with over 1,000 tonnes of ballast blocks and finally the turbine nacelle, complete with its twin set of 18 meter diameter rotors.

The project once again underlined Isleburn's position as leader in the field of fabrication for the next generation of renewable energy with the completion of a prototype wave power device.

Earlier this year the company completed work on the PowerBuoy, built for Ocean Power Technologies.

Fabricated in four sections at Isleburn's Nigg facility, the device was also transported from Invergordon to EMEC for testing.

Previous successful renewable projects that have enhanced Isleburn's strong credentials in a rapidly developing market include fabrication of the Oyster wave energy device for Aquamarine Power and a tidal prototype for OpenHydro.

Isleburn also assembled, erected and loaded out two of the world's largest wind turbines for the Beatrice offshore wind demonstrator project.



***"As new technology to generate power from wind, wave and tidal continues to emerge, Global Energy Group are in pole position to serve this rapidly developing industry, with an extensive transferable skill base of world-class oil and gas experience stretching back 40 years."***

Isleburn's Chief Operating Officer, Neil MacArthur, said: "As these projects show, we have built a very strong portfolio of work for companies that are developing the next generation of renewable energy devices. This compliments our long-established track record of fabrication and engineering for the oil and gas industry.

"Like our customers in those more established sectors, companies that are developing these new renewable devices recognise the value we bring to their projects through the combination of our experience, expertise and excellent facilities. We are proud to be working with them at the forefront of development of this very important sector."



# GLOBAL RECEIVES INTERNATIONAL TRADE AWARD

The Global Energy Group's remarkable success in international markets has been recognised at an awards ceremony in London. The group topped a new league table of Britain's privately-owned companies with the fastest growing overseas sales earlier this year.

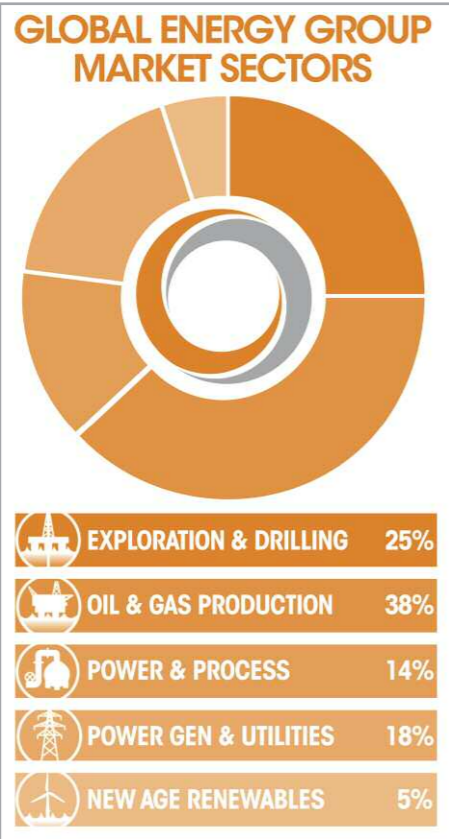
Global's achievement was rewarded this week at the Sunday Times HSBC International Track 100 awards dinner. At the event Global chairman Roy MacGregor was presented with a special trophy by Noel Quinn, HSBC's group general manager and head of commercial banking UK.

Global achieved top ranking in the league with overseas sales growth of 416% from £1million in 2007 to £27.8million in 2009. A quarter of the company's annual turnover comes from international sales.

Mr MacGregor said: "This award recognises the efforts of our people throughout the Global team to take our services into international markets in recent years. They have done an excellent job and continue to do so as we develop our business both in the UK and overseas.

"It also recognises the confidence of our customers who have taken us around the world, allowing us to develop a sustainable model for internationalisation and reduce the risks as we develop."

Mr MacGregor was joined by his sons Iain and Donald, who are both Global Energy Group directors, at the ceremony, which was held at the Jumeirah Carlton Tower Hotel.



# First Minister praises REEL

Scotland's First Minister, Alex Salmond, has welcomed Reel's plans to launch an offshore inspection and maintenance operation in India. Speaking on a visit to Delhi, Mr Salmond said: "Scotland has a long-established, strong reputation as a global hub for oil and gas and I am delighted that Reel are taking their skills and expertise to the emerging Indian energy market by establishing operations in Mumbai. "The company's decision to create new offices reflects the enormous opportunities for Scottish businesses in India's growing economy, particularly in the fields of energy."



# MAJOR CONTRACT FOR SCS

Global Energy (SCS) has been awarded a master agreement contract by BP Exploration Operating Co Ltd for provision of third party inspection services.

The contract period is three years plus two one year options. The scope of work includes inspections of wellhead equipment, down-hole equipment, pressure vessels, rotating machinery, valves, line-pipe, OCTG, fabrications, electrical and instrumentation equipment, bulk supplied materials, lifting and safety equipment, all world-wide.

*“The Group is wholly Scottish-owned and is headquartered in Inverness with other major presences in Scotland; it is one of the largest private businesses in the Highlands and Islands and is the largest private employer in the region.”*

SQM independent economic impact report

# ENSCO FRAME AGREEMENT

Inspection and maintenance specialist Reel has been awarded a five-year inspection frame agreement with Ensco.

Ensco is a global provider of offshore drilling services to the petroleum industry, with a fleet of eight ultra-deepwater semisubmersible rigs (including four under construction) and 40 premium jackup rigs, strategically located in the most prolific oil and gas markets around the world.

Reel's agreement with the company involves their Euro/Asia drilling units.

Ensco said the contract was awarded on merit, with Reel's continued focus on quality, safety and performance key factors in their decision.

Part of the Global Energy Group, REEL was formed in Aberdeen in 1995 to provide comprehensive inspection and testing services, including non-destructive testing, to the oil and gas industry.

The business has built an exemplary reputation as an international service company, with global operations from key international business locations in the Americas, Europe, Africa and Asia.



# ANDREW FIELD CONTRACTS

Leading fabrication and engineering company Isleburn secured North Sea contracts totaling nearly £5million with BP for two projects which are being assembled in its new facility at Invergordon.

Isleburn, part of the Global Energy Group, is fabricating a 120 metre long caisson for the Andrew Field platform as well as a 245 tonne manifold and 65 tonne subsea isolation valve structure for the Devenick field.

Work on the projects will involve an estimated total of more than 40,000 man hours and a workforce of 100 at Isleburn's facilities around the Cromarty Firth, with the structures being assembled at the new facility at Invergordon Service Base for load-out next March.

Isleburn's Chief Operating Officer Neil MacArthur was delighted to secure the major contracts.

He said: "Investing several million pounds in building our new assembly facility at Invergordon was a big decision for us earlier this year, particularly at a time of downturn in the oil and gas sector".

*“In 2009/10, the Group directly employed over 2,500 people across Scotland - 1,760 in the Highlands and Islands and 770 in the rest of the country. When 'indirect' employment is added, the total employment supported in Scotland rose to 3,800. If the Group's target of £400 million turnover is achieved, it is estimated that it could support more than 10,000 jobs across Scotland by 2013/14.”*

SQM independent economic impact report

**GLOBAL ENERGY GROUP**

At a glance

- 1st** ranking in the Sunday Times league for the highest overseas sales growth
- 5** number of years ago the Global Energy Group was founded
- 25%** current turnover from international sales
- 250M** turnover for the current financial year
- 416%** overseas sales growth, from £1m in 2007 to £27.8m in 2009
- 4000** approximate number of Global Energy Group trades, supervisory and management personnel employed worldwide