Foreword

As Chairman of the Energy Technology Partnership (ETP), and on behalf of my fellow ETP Directors, I am delighted to write this foreword to the 2013/14 Annual Report.

The ETP has continued to build on our ethos of strong collaboration both between its 12 member universities and with our external stakeholders. Our driving principle has always been to recognise that our success must be based on excellence in research, post-graduate education and delivering tangible benefits at local, national and international level. Each of our member universities brings its own unique strengths but together we can achieve much more.

Each year since our inception in 2008 ETP has built on its previous successes and the period since our 2012/2013 report was published has been no exception. Our Energy Industry Doctorate Programme continues to attract high quality applications and over 85 PhD studentships are now underway or have been recently approved. With our remaining funding we are closing in on our original target of 100 energy PhD projects. I am particularly pleased that our initial target of 33% funding from industrial and other non-academic organisations is being exceeded at 36% (42% including in-kind contributions) demonstrating the extent to which these are demand-led projects with potential for real impact.

The ETP Knowledge Exchange Network is on track to meet or exceed its targets for support to Scottish SME’s, which are the lifeblood of innovation in our economy. We have also helped to bridge the gap between supply and demand in energy skills, through our support for Continuous Professional Development (CPD) courses and providing opportunities for both undergraduate and graduate students to improve their work-readiness.

Although ETP has a strong Scottish focus we have world class people, world class resources and world class facilities, and we are therefore active in seeking opportunities for engagement at international level where these are aligned to our strategic objectives. A good example of this is our participation in the European North Sea Energy Alliance (ENSEA) project where we are working together with Scottish Enterprise and Scottish Renewables with regional partners from Norway, Germany and the Netherlands on energy system integration studies.

You can read more about these and other programmes in this Annual Report. We are indebted to the support of our funders and other key stakeholders and I would like to take this opportunity to thank them for the role they play in facilitating ETP to deliver significant technological and economic impact. I would also like to thank our Advisory Group, now chaired by David Sigsworth (Chair of SEPA) which continues to provide invaluable feedback and guidance.

Professor Sir Jim McDonald
“The Energy Technology Partnership (ETP) is now internationally recognised as the key point for accessing Scotland’s broad based power and energy research collaboration which is the largest in Europe.

I feel privileged to be taking over as Chair of the ETP Advisory Group and will be doing all I can to build on its existing areas of excellence.”

David Sigsworth, Chairman of Scottish Environment Protection Agency and Chair of the ETP Advisory Group

# Research Excellence

The Energy Technology Partnership is a part of the Scottish Funding Council (SFC) Research Pooling initiative that has invested over £350m in the Scottish research base in the past 5 years, with a specific focus on engineering and basic sciences underpinning the work of the ETP. The pooling investments have advanced and improved the Scottish research scene to reach a position consistent with leading international research performance levels.

ETP has unparalleled energy capability and core research strengths across a broad range of energy technologies but with a current focus on the following:

- Grid, Power Systems & Networks
- Carbon Capture and Storage
- Oil & Gas
- Energy Conversion and Storage
- Energy Utilisation in Buildings
- Wind Energy
- Marine Energy
- Solar Energy
- Bio-Energy

Coupled with research pooling, this provides an integrated energy technologies community that is providing strong leadership in the UK/EU/global energy arenas.

The cohesion displayed by the Energy Technology Partnership is exemplary and provides a strong basis for collaboration with a wide variety of business, public sector and other partners. This has enabled ETP to build on its foundation of research excellence and increase its impact in the areas of Knowledge Exchange and Skills.
The Energy Technology Partnership has built on the industrial and academic links established through its Knowledge Exchange Network which is a £3M project which started in 2011 and is funded by the European Regional Development Fund, Scottish Government, Scottish Enterprise and the Scottish Funding Council. With over 230 companies supported the ETP has quickly become the partner of choice for Scottish companies in the energy sector who are looking to engage with academics and the broad network of testing facilities available in Scotland. In working closely with Scottish SMEs we have been able to identify and manage over 50 consultancy projects that our industry partners would normally have been unable to do, or at least find difficult to conduct effectively due to project risk, the unavailability of in-house expertise or the lack of funds.

In enabling effective collaboration between academia and industry the ETP has helped many businesses with research, development and testing from feasibility studies to commercial deployment. Often these are projects that have been significantly de-risked by ETP activities thereby encouraging research and innovation. In addition, our network of world leading academics and researchers has helped companies improve their business processes helping to find productivity gains and efficiencies contributing to an improved and more sustainable business.

Our record for delivering meaningful support has enabled the Energy Technology Partnership to become the largest of its kind in Europe and has set the benchmark for collaboration best practice.

Business Advice and Support

Through accessing its broad network of academic expertise ETP has been able to offer a wider range of services than in previous years. With a total of seven product services available we have the scope to find a solution that is tailored to the individual requirements of the industry partner making sure that the collaborations are as useful as possible. Furthermore, our knowledge and experience of the funding landscape means we will be able to offer end to end guidance for companies requiring support during the difficult growth stages.

Successful Partnerships

In working with over 150 companies in Scotland and delivering over 50 projects to industry ETP is playing a key role in the transfer of knowledge between academia and industry helping to build the overall capability of the low carbon and renewable energy sector.

Contact Us

Our Business Development Managers are available to discuss with you areas of possible collaboration and can help identify the many different ways in which ETP can add value to your business. They will be able to give you an overview of other successful collaborations with similar companies in the low carbon and renewable energy industry sectors. Our team will be able to share with you the emergent best practice between academia and industry and help you in identifying the best possible support available. The Knowledge Exchange Network has a particular focus on Scottish SMEs.
Knowledge Exchange Network Case Studies

Albatern is developing wave energy devices to produce electricity for customers who are working off-grid in fish farms and similar sites. ETP has helped the company with two projects.

In the first, expert advice was provided to carry out structural analysis for novel fibre reinforced plastic components used in their devices.

In the second, ETP supported access to the ground breaking new Flowave Test Tank facility at University of Edinburgh. This was important to understand mooring loadings and the behaviour of Albatern’s WaveNET coupled array device in waves from different directions, where the new tank was able to provide answers which are difficult to get through other means.

Smarter Grid Solutions Ltd, the Glasgow-based smart grid technology company, was working with the University of Strathclyde on a Knowledge Transfer Partnership (KTP) when it engaged with the Energy Technology Partnership.

The KTP was focused on the delivery of a range of real-time deterministic smart grid devices and applications that would allow utility companies to improve the utilisation of their grid infrastructure. The knowledge partner in the project, Strathclyde’s Department of Electronic and Electrical Engineering, was also the original home of Smarter Grid Solutions (SGS) before it spun out of the university in 2008.

SGS were keen to learn more about international competitors, the technologies they were developing and the intellectual property they owned. They requested support from ETP who funded a University of Strathclyde Research Associate within the Department of Electronic and Electrical Engineering to undertake the market research work. Within 2 months the research associate had delivered a report for the company that improved its insight into the competitive landscape of active network management technologies.

Graham Ault, SGS Development Director and Co-Founder stated:

“The ETP project was useful in providing us with an additional resource capable of undertaking a technical competitor analysis that gave us greater visibility and insight into potential competitors and their technologies. Engagement with ETP helped SGS further develop its strong links with a key partner university in Scotland.”

Funding

Our Business Development Managers do not charge for their time and we can even provide funding to support Scottish SMEs. We can also help companies identify Scottish, UK and European funding such as through Scottish Enterprise and the Technology Strategy Board.
Testing and Demonstration Facilities

Scottish Energy Laboratory (SEL) is a network of, and single point of entry to, Scotland’s leading research, test and demonstration centres. There are over 50 facilities (60% in ETP and 40% in other organisations) with a combined investment value of over £250m.

Wherever you are currently developing your technology we can help you, with backing from Scottish Enterprise, find the right testing facility and technical support including wind tunnels, wave tanks and high voltage network test sites. We can also arrange comprehensive energy technology development and commercialisation support and access to an extensive and world class supply chain.

The SEL directory can be downloaded at www.scottishenergylaboratory.com and provides the following details:

- A full list of all facilities and details of their speciality
- the facility specification / features
- type of projects / support and services provided
- previous energy sector experience
- typical projects supported (e.g. R&D)
- examples of projects

Case Study

Nova Innovation First Tidal User of FloWave

In May 2014 Nova Innovation became the first tidal energy company to make use of the FloWave wave and tidal test facility at the University of Edinburgh through support provided by the Energy Technology Partnership.

FloWave is capable of repeatedly simulating sea conditions at scale to test marine renewable energy devices. Nova Innovation are currently developing what could potentially be the world’s first tidal array in the Shetlands and were able to put the new facility through its paces whilst testing scale models of their tidal energy converter.

Simon Forrest from Nova Innovation said ‘We understand that to remain at the forefront of the tidal energy sector Nova Innovation has to keep investing in R&D. Access to FloWave which was part funded by the ETP has enabled us to accelerate the development of our tidal technology.’

ETP has helped Nova to build strong links with the university sector in Scotland. The company recognises the value that access to academic expertise can provide through programmes such as the ETP Consultancy Fund and the Knowledge Transfer Partnership scheme.
Over 50 facilities (60% in ETP and 40% in companies) with a combined investment value of over £250m

Scottish Energy Laboratory (SEL)
Energy Industry Doctoral programme is addressing the strategic demands of industry and government for 'industry-ready', post-doctoral researchers to enhance energy industry innovation and knowledge exchange effectiveness. A defining characteristic of the programme is strong industry engagement where companies are co-investors, support project specification and engage with the research directly.

The programme has been running since 2010 and over 85 high quality PhD studentships are now underway or have been approved. Eleven new projects were approved in 2013 and funding available in 2014 means we are closing in on our original target of 100 studentships in total.

Eligible projects can focus on energy technologies across a range of areas including wind, marine, solar, bio-energy, power & grids, energy conversion and storage, energy utilization in buildings, carbon capture and storage, oil & gas and cross-cutting energy economics, policy & law.

For details on how to become involved in this programme please visit our website

www.etp-scotland.ac.uk

We are delighted to have been able to work with the ETP and IDEAS at the Robert Gordon University on this PhD studentship. We would like to say thank you to both ETP and IDEAS for their sponsorship and high degree of professionalism. This studentship has enabled the Pure Energy Centre to greatly expand its modelling capabilities where we are now able to analyse the performance of renewable and hybrid hydrogen energy systems within minutes and not weeks, hence providing our company with a competitive advantage. We would definitely advise other companies to enter into an ETP programme.”

Elizabeth Johnson, Business Development Manager, Pure Energy Centre
ETP is continuing to collaborate with the Energy Skills Partnership (ESP) and other key stakeholders who are members of the Energy Skills Action Group in helping to match energy skills provision with demand.

With financial support from the Scottish Government, Scottish Funding Council and Skills Development Scotland we have offered discounts of 50% at many energy related Continuous Professional Development (CPD) courses run by ETP member universities. These courses are typically 2-3 days in duration and aimed at those with a technical, engineering or scientific background who wish to acquire an overview of a particular energy market, or who are interested in transitioning to, or upskilling within, a particular energy sector. The discount has led to a substantial increase in demand for course places.

We have also sponsored undergraduates and postgraduates in undertaking activities which increase their readiness for work in the energy sector such as developing practical mechanical and electrical skills and attendance at industry focused conferences and workshops.

Over 850 energy skills places have been supported through these initiatives.

“The funding discount helped me enroll in this course, without it I would not have been able to afford to attend” SME

“We would have been very difficult to justify the costs. It will now help me contribute to Renewable Energy Industry” Self employed

“It’s a great help putting me forward in prospective job opportunities” PhD student

“I wouldn’t have been able to attend without the discount” SME
Scotland is one of four regional partners in the European North Sea Energy Alliance (ENSEA), along with regions in Germany, The Netherlands, and Norway. A partnership of ETP, Scottish Enterprise and Scottish Renewables is representing Scotland’s academic, public and industry interests in ENSEA.

Nearly €3million funding for developing this collaborative network has been provided from the European Commission through the Seventh Framework Programme for Research and Technological Development (FP7). The main goals of this initiative are to promote cooperation between public, private and academic sectors and to facilitate the development of knowledge and innovation for greater integration of sustainable and renewable energy into the energy system.

Working together to create a secure, sustainable energy future.

The European North Sea Energy Alliance aims to increase the competitiveness of research-driven energy clusters through better coordination and exploitation of research to support innovation in Energy Systems Integration.

Coverage of Energy Systems Integration for increasing the energy mix and the proportion of renewable and low carbon energy sources.
Contact Us

For further information about working with us, please contact one of our team listed below:

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