

Quarterly publication of ITF - The Industry Technology Facilitator

ITF members report successful return on investment

With ITF, the Industry Technology Facilitator members reporting a 20 fold increase in investment, 2008 has seen ITF truly cement its position as a global champion for the development of new technology.



Neil Poxon,
Managing Director of ITF

In the last 18 months, 14 new technologies have been implemented as a result of ITF joint industry projects (JIPs) and in line with its international growth strategy the not for profit organisation signed 11 new members, bolstering global membership to 21.

Adding to this success, 2008 will see ITF treble the number of joint industry projects (JIPs) launched in comparison to recent years, securing almost £10 million direct investment for technology development from its members.

Established in 1999 ITF identifies the exploration and production (E&P) technology needs of its members and helps foster the development and implementation of new technologies into the oilfield through JIPs with up to 100% funding available for successful, innovative technology proposals.

"ITF members tell us that the leverage on ITF projects can be up to 20:1, meaning that for every £1 they invest, they generate £20m value due to the collaborative nature of the projects, number of participants that share the risk and research tax credits," said Neil Poxon, Managing Director of ITF.

"Our continued growth and success is down to our determination to take a lead role in technology development to meet the needs of our members and in turn the current demands of the global industry.

Continuing, Neil added:

"In 2007 we launched six themes and in 2008 we will launch a total of eight themes and have secured funding for the launch of 24 projects – this is a 50% increase on the number of new technology projects launched in 2007 alone."

With global operating and service chain members benefiting from the concerted drive to expand the existing technology skills and business base in the face of increasing international expansion and competition, ITF is in a unique position.

"The unparalleled requirement for new technology in the North Sea provided the stimulus for the development of not only a strong UK technology initiative, but the development of a global strategy that not only met the needs of the operators but that of the major service companies too, affirms Poxon.

"We have successfully delivered this and in fact exceeded our objectives. In addition to our continued growth, we have also taken steps to ensure technology is reinstated as a topic on the PILOT taskforce agenda."

To date ITF has been responsible for successfully delivering over 120 collaborative and revolutionary oilfield technology projects to the market, securing direct ITF membership funding of almost £35 million.

ITF members



'MagLev' pump to boost gas recovery rates

A new project is underway that aims to develop a downhole pump based on the principles of magnetic levitation. The work is being undertaken by the Norwegian company Ziebel who recently secured operating company support for their innovative proposal technology with the help of ITF.

The pump is targeted at gas well de-liquification. As gas reservoirs are produced and the pressure declines, the gas velocity decreases. At a critical point the gas velocity will no longer be able to lift all entrained liquids to surface. Therefore the liquids will accumulate in the wellbore. If this accumulation is allowed to develop then the liquid will eventually form a 'plug' which interferes with production, resulting in lost gas production and ultimately reduced recovery. The "MagLev" pump therefore has the potential to deliver increased gas recovery from a field by pumping out the liquids which would otherwise 'plug' the well and stop production of the valuable gas.

In the past, the principles of magnetic levitation have been used in a wide range of applications, including thruster motors on ships and high speed train development, where magnetic forces have been used to suspend, guide and propel the trains. This downhole pump technology uses permanent magnet technology to drive linear actuators/pistons. Project Director, Iain Maclean explains: "For

those that are familiar with existing down hole artificial lift technology you could think of 'MagLev' as an advanced piston pump being driven by a down hole motor using latest permanent magnet machine technology. Field trials for gas well dewatering are planned for 2009 and we are also working on several additional applications and have filed patents for subsea well retrofit solutions with down hole safety valve requirements."

The permanent magnet technology offers some key advantages including high power efficiency and high volumetric efficiency which can enable smaller size pumps to be placed deeper into the wellbores and also have the ability for the pump to be economically retrievable i.e. recover to surface without pulling the production tubing.

Iain continued "Perhaps when compared to a typical North Sea oil producer, the increased recovery from each gas well is relatively small. However when you also consider the huge numbers of gas wells then the total increased recovery is very significant."

ITF's technology manager David Liddle said: "This is a good example of proven technology being adapted and developed for oil and gas industry use. The proposal was submitted in response to a call for proposals on the theme of production efficiency, which, along with increased recovery and

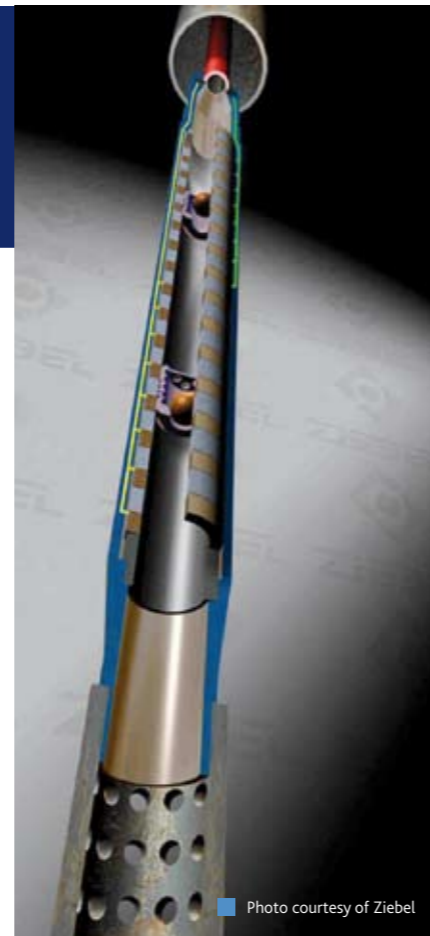


Photo courtesy of Ziebel

maximisation of available resources, remains one of the underlying drivers for all the work ITF does. The 'MagLev' project clearly has the potential to fulfil all of these objectives".

ITF sponsor US developers to deliver technologies that could maximise tight gas recovery

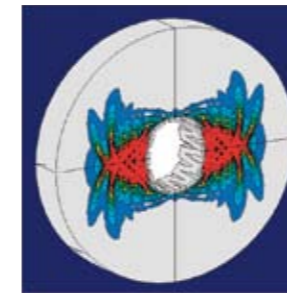


Photo courtesy of Rockfield Software Limited

ITF is launching five separate Joint Industry Projects (JIPs), two of which are with US based researchers, in a bid to improve existing knowledge of Tight Gas reserves and maximise gas recovery.

Tight Gas was highlighted as a technology theme by ITF and its members, with the drive to address issues surrounding Tight Gas Reserves coming primarily from two basins, the North American gas basins and Southern North Sea/West European gas basins – both of which have significant volumes of Tight Gas.

ITF received 20 highly focussed proposals from globally respected research institutes and companies,

30% of which came from US based organisations.

Speaking about the theme and the response Duncan Anderson, Subsurface Technology Manager for ITF said:

"Attractive gas prices in North America and unprecedented interest in world markets promise to bring unconventional gas into the forefront of our energy future and ITF is focussing on addressing the technology challenges faced in the recovery of Tight Gas."

"Estimates vary, but some studies suggest that gas reserves in the United States may exceed 15,000 Tcf (Trillion cubic feet), with annual production between 2 and 3 Tcf. This is considerable when compared to the UK where studies suggest the North Sea has around 5 Tcf with an upside of almost 15 Tcf.

"Irrespective of the actual figures though, the prize locally and globally is major and accessing some of these reserves is the focus of this work programme.

"Often found onshore, the size, location, and quality of

Tight Gas reservoirs varies considerably yet only a small percentage is economically viable with existing technology.

"It is for this reason that Tight Gas has become such an important focus for ITF and indeed our members. The level of quality proposals we have received has led us to launch five separate JIPs, 40% of which are with US based researchers.

"We have worked closely with our local members in the US and the UK to understand the technical challenges these regions are facing and the importance of accessing reserves and operating more efficiently and effectively."

ITF is looking to build on existing knowledge about Tight Gas reserves and find technological solutions that will give the industry a better understanding of:

- The reservoir itself e.g. where gas is held and locating sweet spots
- The fracturing process, to release the gas and maximise recovery

ITF CURRENT TECHNOLOGY FOCUS



- Subsea Processing and Boosting
- Ultra Deep Water
- Advanced Drilling Technologies
- Asset Integrity
- Decommissioning
- Cleaner Production
- Arctic Challenges
- Unconventional & Difficult Resources
- Reservoir Compartmentalisation
- HPHT Reservoirs from a Subsurface Perspective
- Cross Fertilisation

Setting out to overcome technology barriers facing decommissioning industry



Photo courtesy of BP

With more than 400 installations set to be decommissioned in the North Sea in the next two decades, decommissioning is fast becoming a hot topic for North Sea operators and ITF has set the wheels in motion to address the technology challenges facing the sector. Decommissioning will undoubtedly be a major operational and environmental challenge for operators in the North Sea and other geographic locations over the coming 20 years.

The removal of facilities is very much a complex and costly test of engineering expertise. In addition to the multitude of challenges decommissioning presents to the industry on a technological, economic, environmental and health and safety front, the estimated costs are significant.

A steady stream of decommissioning projects are now coming to market with the prime technical challenge to deliver "clean seas" safely, whilst containing costs. This ranges from rigless approaches to well plugging and abandonment, to how to successfully obtain hydrocarbon free and clean facilities as quickly and efficiently as possible.

The business model of new investors in mature assets now requires definable decommissioning costs to help conclude asset transfer deals and long-term contained / reduced costs.

Some 470 installations, 10,000 kilometres of pipelines, 15 onshore terminals and around 5,000 wells are part of the infrastructure that will eventually need to be decommissioned. Total projected costs for decommissioning the UKCS are estimated at £15-20 billion over the next two decades, reflecting the wide ranging uncertainties in technology, project costs and timing.

Whilst around 40 small platforms and floating subsea structures in the Southern North Sea have already been removed to date, it is only now we are beginning to see a few major

platforms being decommissioned with Frigg (in UK & Norway) North West Hutton and Miller underway, following on from Maureen. More small to medium installations are continuing to plan for decommissioning in 2008, including Indefatigable and Kittiwake.

Tackling how to overcome many of the associated issues with decommissioning will require collaboration between operators, the contracting community and Government.

In a bid to address the technology barriers facing the decommissioning industry, ITF identified decommissioning as a key area in its technology themes for 2008, aiming to foster the development and implementation of new decommissioning technologies into the oil field through Joint Industry Projects (JIPs) with up to 100% funding for successful, innovative projects.

In June this year, ITF worked collaboratively with Oil and Gas UK to host a series of seminars and workshops in Aberdeen to address the current decommissioning climate. In conjunction with Oil and Gas UK's decommissioning seminar – 'Engaging the Supply Chain' – ITF hosted an intensive facilitated workshop which brought together almost 70 attendees from 50 different companies, including ITF members, operators, service companies, SMEs, research institutions and academia.

The events were designed to promote the development of the technologies and capabilities needed to support the abandonment and removal of infrastructure at the end of its productive life and extensively discuss the challenges facing the industry.

Attended by many industry experts, the event aimed to learn from other regions and sectors and was designed to act as a means for further developing the North Sea decommissioning market place in terms of contracting methods and new technology. ITF's theme day enabled its member companies, technology developers and the wider oil and gas community to collaboratively identify, understand and define the key technology challenges faced by the industry in the decommissioning process.

The outcomes of this led ITF to issue a call for technology proposals to the global development community seeking innovative solutions to address technology needs in the following areas:

- Mapping Hazardous Materials
- Well Plug and Abandonment
- Hydrocarbon Free
- Facilities and Pipeline Cleaning
- Removal
- Legacy and Monitoring

OHM launches the WISE Consortium

The Offshore Hydrocarbon Mapping (OHM) Group recently launched a three year joint industry project to investigate 'Well Integration with Seismic and Electromagnetics' (WISE).

Made up of Offshore Hydrocarbon Mapping plc (OHM) and Rock Solid Images, the OHM Group established the project, sponsored by a consortium of oil companies and the OHM Group to develop new and innovative methods of jointly integrating and interpreting seismic, CSEM and well log data – the ultimate objective being to provide maps of reservoir properties, such as hydrocarbon saturation across a field.

The project was originally established in response to ITF's exploration theme launched in 2007.

In addition to investment from the OHM Group, the WISE project has received sponsorship from five global operators (four of which are ITF members) who join the research consortium along with the government Department of Business, Enterprise and Regulatory Reform (BERR).

The project was designed to establish the optimum algorithm for remapping CSEM results into the higher resolution seismic data, developing joint inversion for seismic and CSEM data and analysis of the risk reduction impact of the integrated interpretation of data.

Ultimately, the outcomes of the project will help to further reduce risk in exploration and uncertainty in reservoir production – enabling oil producers to increase value through maximising production and increasing recoverable reserves.

This ground breaking research will further assist the industry to exploit the combined strengths of each of these valuable datasets, allowing application to both existing and newly acquired data.

Commenting on the launch of the WISE consortium, Duncan Anderson, Technology Manager for ITF said:

"ITF acts as a catalyst for companies like OHM to take their innovative technology ideas to the next level. We



issued a call for exploration proposals last year and OHM's WISE project was identified as an innovative concept proposal that could really add value to the industry. We are delighted to have been able to support the OHM Group to establish this as a major joint industry project."

Adding to this, Dave Pratt, Executive Chairman of OHM said:

"The aim of this project is to help the industry exploit the combined strengths of CSEM, surface seismic and well data, the results of which could transform current practices of how geophysical data is processed and interpreted. We are very pleased to have received significant industry commitment to the project."

Global Technology Summit

A collaborative approach set to unlock global resources



■ Delegates who attended the Global Technology Summit

PLAYING A LEADING ROLE IN THE GENERATION OF NEW OIL & GAS SECTOR TECHNOLOGIES WORLDWIDE, ITF BROUGHT TOGETHER A NUMBER OF THE WORLD'S LEADING TECHNOLOGY ORGANISATIONS TO PARTICIPATE IN A GLOBAL TECHNOLOGY SUMMIT IN ABERDEEN.

For the first time ever, representatives from counterpart technology organisations in North America, Norway and Canada came together to explore collaborative opportunities to bring forward the next generation of oil and gas technologies and leverage global resources.

The summit was attended by 20 senior figures from the USA's Deepstar and RPSEA programmes, Norway's DEMO 2000 and OG21, Petroleum Research Atlantic Canada (PRAC), which represent the funding bodies for onshore and offshore, plus the Canadian, Norwegian, and UK Governments, Brazil's PROCAP programme also expressed an interest in future discussions but could not make the summit.

Speaking about the critical importance of the

summit, ITF's managing director Neil Poxon said: "There are huge benefits to be gained by pulling these bodies together. The key objective is to provide more added value to all of our members, many of which are common across the different organisations. Understanding the models and being aware of what each programme is doing and current areas of focus is also significant to support due diligence and avoid any repetition.

"Our members keep asking us whether we are working with these other programmes and how do we know there's no duplication. We've always communicated with them, but this is the first time we have all come together formally. The three days discussions focused on issues such as, common denominators,

gearing up the process and how we can move forward collaboratively.

Poxon added: "What is emerging is the sheer scope of ITF's remit. Everywhere we go, especially at overseas conferences, the scope and breadth of what we're covering and the quality of the projects is now quite incredible. We are emerging as a global organisation with no restrictions."

The first of what hopes to be many global technology summit's was designed as a vehicle to allow the world's leading technology facilitators to examine and understand how transfer and dissemination of combined knowledge will increase the value of technology development and deployment – all of which is set to unlock the future hydrocarbon potential.

Cross Fertilisation theme...

ITF is set to host a Theme Day on the Cross Fertilisation of technology, November 20, 2008 at Aberdeen Exhibition and Conference Centre.

Having previously launched a number of joint industry projects, whereby potential solutions to technology needs have come from a range of diverse industries, including the pharmaceutical and the music sector, ITF and its members recognise the value of industry cross fertilisation.

The theme day is designed to give developers the opportunity to engage with the oil and gas community and share collaborative expertise in a bid to establish and understand where potential crossover may exist.

By engaging with developers out with the oil and gas industry, ITF hopes to identify game changing technology that provides innovative solutions to meet industry demands.

With key note speakers from the defence, astronomy and bio-medical industries already confirmed, the event provides an opportunity to interact with industry end users and the technology development community both locally and globally. Participants will be able to work collaboratively to define technology needs and sample the ITF process for technology development.

The audience for this theme day includes representatives from the defence, military, power generation, medical, pharmaceutical, electronics and aerospace sectors. The output of the day will allow ITF to issue a global Call for Proposals which can lead up to 100% funding for successful applicants.

For further information on this theme day please visit www.oil-itf.com

ITF seeks post graduate industry projects

ITF is currently seeking industrial related projects for Masters Courses for the current academic year for their Energy Talent Development Project. These projects can be in any area related to the Upstream Oil and Gas Industry not necessarily specific to targeted courses. Topics can range from Marine and Environmental Science, IT and AI, Engineering and Physical Sciences to Economics and Project Management.

If you have a small project that would be suitable for a masters student or if you would like to offer a placement to a student please contact ITF and we will assist.

To find out more contact Adele L'Etang, Technology Analyst, ITF.

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NEW ONLINE FEATURES

The ITF website has been redeveloped to become a desktop technology information resource.

The download section of the website includes a host of resources detailing ongoing and completed ITF projects, how technology developers can submit their proposals and forthcoming events and theme days.

Visit us now at www.oil-itf.com to register for ITF news updates.



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