NEL starts build of £16 million Subsea Centre of Excellence

NEL, the flow measurement R&D specialist, has commenced the build of its £16 million Centre of Excellence (CoE) for subsea development. The new high pressure multiphase flow test facility will have the largest test range in the world, positioning Scotland as a world leader in multiphase flow measurement.

The CoE will allow a greater understanding of the impact of higher operating pressures on measurement equipment in extreme subsea environments. The testing range of the new facility includes single-phase, multiphase and dry gas, at operating pressures up to 150 bar - doubling current existing capabilities to replicate subsea production conditions. Its range and combination of operating pressures, temperatures, flowrates and metrology will be unique worldwide.

The new building will span 1,600 m², and contain a £1.45 million, full production scale separator, with an operating weight of 270 tonnes.

The CoE will facilitate company-led industrial projects and product development, SME support, hands-on industry training, and academic research and will future proof the delivery of innovative technical services to the oil & gas production market for the next 25 years.

Brian Millington, NEL’s Managing Director, said: “The investment in the CoE marks a significantly positive step for the global oil & gas sector. This new world-leading facility will support the industry to address the crucial goal of maximising economic recovery and reducing fiscal uncertainty. Once complete, NEL will be operating the only facility to offer the full range of flow rates and high pressure capabilities.

“Starting the building work for the CoE brings to life our mission to help industry optimise all aspects of production through accurate measurement, while supporting Scotland’s international standing within the global oil and gas sector,” concluded Millington.

Scottish Enterprise has supported the development of the Centre with £4.9 million of research and development funding. Managing Director of Strategy and Sectors at Scottish Enterprise, Linda Hanna, said: “This is a fantastic milestone in the Centre’s development. It will enable Scotland to maximise its competitiveness in multiphase flow measurement, and support the sector to take further advantage of opportunities in the £50 billion global subsea market, identified in Scottish Enterprise’s Subsea Engineering Action Plan. NEL is an ambitious and forward-thinking organisation and we are delighted to be working closely with them to support their plans for future growth.”

NEL’s parent company, TÜV SÜD AG is investing £11.1 million, alongside the grant from Scottish Enterprise.

For more information, contact Brian Millington, brian.millington@tuv-sud.co.uk

Interest high in JIPs and other industry-focused research

Interest is currently high in Joint Industry Projects (JIPs), with seven different research projects of this type under consideration. This work is part of NEL’s industry-focused research programmes, which are attracting international funding and attention.

“In 2017, we have seen a significant growth in research activity of this type,” says Operations Director, Mark Roscoe. “We have also seen increased industry-focused research investment, alongside a noticeable increase in development testing of commercial meter technology in our facilities.”

JIP research issues currently under discussion include erosion, wet gas sampling and density issues. Other research topics focus on compact provers, the development of subsea water quality measurement devices, online monitoring for regulatory reporting purpose and the testing of water cut measurement devices.

All of the JIP areas are focused on the needs of industry and have been developed from in-depth discussions with manufacturers, operators and other professionals.

“We are getting a lot of interest in collaboration on these projects,” says Andrew Fisher, NEL’s Head of Sales & Marketing.

Highlighting the importance of its work, NEL’s industry-focused research has recently received significant funding from the government’s Industrial Strategy Challenge Fund (ISCF). The first research project focuses on in-situ flow measurement, the second on the measurement of hydrogen gas when it is used as a vehicle fuel. Both pieces of research will deliver significant benefits to many business sectors.

For more information, contact Andrew Fisher, andrew.fisher@tuv-sud.co.uk
The future of multiphase measurement

The importance of efficient and cost-effective data management and delivery was highlighted by NEL at the BHR Group’s 18th International Conference on Multiphase Technology, which was held recently in Cannes, France.

“My main message was that, for the oil and gas industry, we need to deliver the right data to the right person at the right time in an efficient and cost effective way,” says Senior Consultant, Dr Bruno Pinguet, who gave a presentation at the conference. “I emphasised the fact that the industry is using an increasing number of digital tools to optimise the economics of its business and highlighted the role that NEL is playing in this process, thanks to its expertise in the areas such as remote monitoring, multiphase metering and visualisation techniques.”

Bruno’s talk looked at the evolution of the market for multiphase flow metering, showed how the technology can have an impact on production and outlined future industry demands. He also noted that the oil industry is going through a revolution with the current growth in the exploitation of shale oil and shale gas fields.

“Smarter sensors and metering devices with self-diagnostic capabilities will be key for the future of the industry,” Bruno explains. “As part of this, a new generation of multiphase flow meters will be instrumental to meeting the complex challenges that companies face.”

Feedback on the talk was very positive. “The conference was hosted for highly technical people with extensive industrial experience,” he says. “Despite this experience, numerous people wanted to talk to me about the trends I outlined and said how much they appreciated NEL’s role in delivering an unbiased picture of the future for the multiphase flow meter market.”

For more information, contact Bruno Pinguet, bruno.pinguet@tuv-sud.co.uk

Multiphase harmonisation project now underway

A major research study that will enhance flow metrology across Europe is underway. The project, which is being co-ordinated by NEL, is part of this year’s European Metrology Programme for Innovation and Research (EMPIR).

“The ground-breaking project is designed to achieve measurement harmonisation between multiphase flow metrology testing facilities,” explains R&D Co-ordinator, Dr David Crawford. “Called MultiFlowMet II, it involves collaboration with 17 partners, including Onesubea Processing, DNV GL, Schlumberger and other multiphase test labs, meter vendors and research partners covering the UK, Norway, the Netherlands, Germany, Italy, the Czech Republic, Russia and Singapore”

The project, which builds on the work done on a preceding EMRP project, has been set up to address the acknowledged lack of standardised facilities (and procedures) for testing multiphase flow meters. It started in June and will run for three years.

“This lack of standardised facilities has led to variances in test results between laboratories,” says David. “The project will help boost confidence in the measurement system, and in the meters that are tested. This project is vital to the future development of oil and gas production as it will drive improvements and enhance confidence in multiphase flow measurement, which is a fundamental enabling metrology technology in subsea oil and gas production.”

To achieve harmonisation, the research team will roll out an extended intercomparison testing programme. This will involve the design and provision of a mobile suite of instrumentation that can be moved around different laboratories in order to enable comparison measurements to be taken.

The project is also designed to gain an understanding of the factors that influence multiphase flow measurements, such as the geometrical features of each laboratory and the structure of the flow that develops in each set of flow conditions.

For more information, contact Dr David Crawford, david.crawford@tuv-sud.co.uk

Career Profile

Shaun Johnson,
Project Engineer

What roles have you played at NEL?
I joined NEL in September 2016. In my short time at the company I have worked as a project engineer, primarily focused on multiphase flow. I have worked on a range of areas, mostly in testing, calibration and research.

What are your main area(s) of expertise?
My academic background is in mechanical, subsea and pipeline engineering, however at NEL my work has predominantly been focused on multiphase flows.

What are your current key projects and who are your key clients?
The on-going projects that I am involved in at the moment include the EMPIR MultiFlowMet 2 project and the Industrial Strategy Challenge Fund project. MultiFlowMet 2 will provide a comparison of flow facilities across Europe, in order to provide consistent reference metering across the board. The Industrial Strategy Challenge Fund will assist in the development of in-situ calibration and verification of meter technology.

What most excites/interests you about working at NEL?
Working at NEL allows me a fantastic opportunity to get involved in a wide variety of projects - both industry and research focused.

What future trends do you see developing/will you be looking at in your area of work?
With the recent downturn in oil and gas prices, industry is now looking towards more cost-effective metering solutions, whether this is in the cost of the meter itself or in its maintenance costs.

NEL, the flow measurement specialist, plays a key role in ensuring accurate flow measurement across a range of industries.

Please contact us to find out more about any of these news items:
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