WNE TRIBUNE

WORLD NUCLEAR EXHIBITION PARIS 2016

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Ladies first...

Four women from SFEN have won a special award for their work on developing the Nuclear4climate Declaration. The women (above from left) Valerie Faudon, Sophie Prevot, Isabelle Jouette, and Kirsty Gogan were honoured by Women in Nuclear (WiN), a global organisation promoting the work of women in the industry. Dr Se-Moon Park, president of WiN Global, said: "The team deserves this distinguished award as an acknowledgement of their work for the global nuclear industry and for helping to bring about a sustainable solution to the difficulties facing the world's climate."

Valerie Faudon said: "This was a grass-roots initiative and we're proud to have represented this minority in nuclear. It is important for women to speak out in this industry and we hope it helps encourage future female students." At noon, WiN Global presents its prestigious annual award to an exceptional female nuclear specialist.

Left: Many thanks to Dr Se-Moon Park, president of WiN Global and Dominique Mouillot, VP WiN, who presented the awards yesterday

A FUTURE FULL OF EASTERN PROMISE

REPORT | STEVE NICHOLS

India is finally set to increase its nuclear power production at a time when its growing energy needs are not being met by fossil fuel.

With a population of around 1.3 billion – about the same as China – it has generally lagged behind its Asian neighbour in terms of nuclear generation. Whereas China currently produces about 28.8 GW of electricity via nuclear, India has generated a mere 5.8 GW. But that is all set to change.

Flying the flag for India: S Singha Roy at the show yesterday

S Singha Roy, technical director, light water reactors, for the Nuclear Power Corporation of India Ltd (NPCIL), said: "Our nuclear generating capability goes right back to 1969 and we have a lot of expertise in the country. Not only do we have 700 and 1,000 MW reactor projects in progress, and have identified six potential sites for them, but we are also in talks with EDF and Rosatom on other projects too.

"Our main objective is to increase our generating capacity with nuclear and renewables, but also reduce our carbon footprint so that we can meet our climate obligations."

The US and India recently agreed a deal to move ahead with the construction of six nuclear reactors in India, the first such move since the countries signed a landmark civil nuclear deal in 2008.

The announcement followed earlier talks between US President Barack Obama and India's Prime Minister, Narendra Modi. Both leaders said last year that they had begun to resolve the issues that had previously prevented US companies from investing in nuclear-power plants in India.

They were referring to Indian legislation from 2010 that left nuclear equipment suppliers vulnerable to lawsuits from power plant operators and the public in the event of an accident. This was often cited as the single greatest obstacle to India's plan to expand its nuclear operations.

Under the new atomic-power agreement, NPCIL and Westinghouse Electric will begin engineering and site-design work for the reactors, though the final contract won't be completed until June 2017.

A Reuters report said the six power plants running on Westinghouse AP-1000 reactors are due to be built in the southern state of Andhra Pradesh, after the original site proposed for the multi-billion-dollar project, in Prime Minister Modi's home state of Gujarat, faced local opposition.

India plans to increase its contribution of nuclear power to overall electricity generation capacity from 2.8 per cent of the total to nine per cent within 25 years. By 2020, India's installed nuclear power generation capacity will increase to around 20 GW.

Because of the size of India and the remoteness of much of its population, next-generation small modular reactors (SMRs) of 300 MWe or less may also have a part to play. An SMR, installed in a remote Indian village, could require little expertise to operate.

"We have looked closely at SMRs," Roy said. "They probably have a part to play in the future, but for now we have to focus on our existing technology and timeline."

No one can doubt India's need for more power. And nuclear looks set to deliver.

NuScale sets pace with SMR project

› NuScale Power (Stand M70) is poised to submit the first Small Modular Reactor (SMR) design certification to the US Nuclear Regulatory Commission (NRC). NuScale chief commercial officer Mike McGough said at WNE the application is expected to be submitted within six months.

NuScale has more than 600 people putting finishing touches to an application which, when submitted, will start the NRC review process to enable project construction as early as 2019.

This will put NuScale in a position to deliver its first project for the Utah Associated Municipal Power Systems (UAMPS). The project, the Carbon Free Power Project, is scheduled to enter commercial operation in 2024.

NuScale's plant design incorporates 50 MWe power modules in groups of up to 12, generating up to 600 MWe.

The NuScale Power Module's design makes it immune to the effects of a Fukushima-like loss of off-site power (LOOP). When faced with such an event, the NuScale plant shuts itself down and self-cools, indefinitely, with no operator action, no additional water or electrical power.

These revolutionary features, including the ability to load-follow with renewable energy-generating sources, give NuScale a clear line of sight to its first 12 projects in the US and the world.

See related story p2 ›

WNE TRIBUNE

Want to share a story with us? Find us at the Press Centre or e-mail our editorial team at: chuck.grieve@gmail.com

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inbrief

When true understanding can cut costs

› KEP Nuclear (Stand 2B-J05), part of the KEP Technologies Group, is at WNE to promote its work in designing, developing and marketing innovative products to characterise nuclear materials and waste. Its portfolio includes radiological studies, modelling and calculations, measurement station design, automated measurement lines design, and nuclear equipment design.

"Engineering, operation, dismantling and decommissioning are very challenging for the worldwide nuclear industry," said a KEP spokesperson. "Because of the different countries' strategies, technologies and safety rules, the different processes and the different lifecycles, every situation is unique and has to be studied."

Through its Setaram range of appliances, KEP has built up strong links with players in the nuclear sector, especially the French Alternative Energies and Atomic Energy Commission (CEA).

Hot off the press

› Innovative Physics (Stand 2B-B49) is using WNE as the launchpad for its latest hotspot locator. The Isle of Wight-based company was displaying the newest product in its gamma imaging range, Hot Spot Locator-Lite (HSL-Lite). HSL-Lite deploys IPL's dynamic imaging mask (DIM) design, an advancement on the coded aperture technology which the current HSL500 gamma camera uses.

Left: CEA's Eric Abbonneau showcases the company's model of its proposed advanced sodium technological reactor for industrial demonstration (ASTRID)

Day Three panel discussions focus on waste, innovation and climate change

IT'S GOOD TO TALK

ANDRA

Day 3 of WNE 2016 will see three major panel discussions take place. The first is on Radioactive waste management, running from 9:15-10:45. The panel will be hosted by Pierre-Marie Abadie, chief executive of ANDRA, the French national radioactive waste management agency.

The international experts on the panel will look at contemporary issues, such as how new nuclear countries, or countries without complete institutional frameworks or disposal solutions, are dealing with the challenges. This panel will also be an opportunity for countries to present their approaches, take stock of lessons learned and gain know-how from other radioactive waste management organisations.

COMMISSARIAT À L'ENERGIE ATOMIQUE

The second panel, between 11:00-12:30, will look at Innovations for 21st century nuclear energy. Hosted by Daniel Verwaerde, chief executive, Commissariat à l'Energie Atomique (CEA), the panel will consider how the development of the nuclear energy industry has been characterised by innovation.

Recently, several countries have launched national and international efforts to develop innovative nuclear technologies.

One example of such innovation can be seen on CEA's own stand. It has a model of its proposed advanced sodium technological reactor for industrial demonstration (ASTRID) 600 MW sodium-cooled fast breeder reactor project.

The proposal is for the reactor to be built on the Marcoule nuclear site in France. A final decision on construction will be made in 2019.

The main goals of ASTRID are the multi-recycling of plutonium, to help preserve natural uranium resources, minor actinide transmutation, aimed at reducing nuclear waste, and enhanced safety.

Today's innovation forum will bring together well-known international nuclear experts, senior officials, lawyers and academics from various countries to exchange views on issues related to technology, knowledge, financing, legal and regulatory environments.

CHINA NATIONAL NUCLEAR CORPORATION

The final panel discussion is entitled 'Nuclear power development: a necessity to combat climate change, an opportunity for international cooperation'. Being held from 2:00-3:30pm, the event will be hosted by Cao Shudong, vice-president of China National Nuclear Corporation (CNNC).

In China, coal currently accounts for 65 per cent of the primary energy source in the country, while it is lower than 35 per cent in developed countries. In its 2005 Renewable Energy Act, China made a commitment to increase its proportion of non-fossil fuel energy to 15 per cent of the total energy consumption by 2020, and up to 20 per cent by 2030.

China and the US signed the Paris Agreement on 22 April after the historic pact on climate change was adopted last December during the 21st session of the Conference of the Parties (COP21) in France.

The two countries have subsequently reaffirmed their commitment to jointly tackling climate change as the world's two major carbon emitters when US secretary of state John Kerry, US treasury secretary Jacob J. Lew, Chinese state councillor Yang Jiechi and Chinese vice-premier Wang Yang chaired the high-level US-China Joint Session on Climate Change on 6 June. ●

New group backs innovative SMR solution

Leading US developers and potential customers of small modular reactors (SMRs) have formed a consortium to advance the commercialisation of the innovative reactor designs.

SMR Start was set up earlier this year to help accelerate the commercialisation of SMRs by creating an industry-driven entity to give potential reactor owners/operators a unified voice.

"SMR Start brings together the best minds and leading advocates of this technology to capitalise on its potential applications at home and abroad," said Daniel Lipman, Nuclear Energy Institute (NEI) vice-president of suppliers and international programmes.

It is estimated that more than 100 new nuclear plants will be needed across the US by 2050 if the country is going to maintain the benefits of a diverse electricity portfolio.

Nuclear power plants already supply around one-fifth of America's electricity. Now the Energy Information Administration (EIA) is forecasting an 18 per cent growth in electricity demand by 2040.

"SMRs can be the best option in some markets and countries not suited to large reactors while providing the same reliable, carbon-free electricity," said Lipman.

Initial SMR Start members include BWX Technologies, Duke Energy, Energy Northwest, Holtec, NuScale, PSEG Nuclear, Southern Co, Scana and Tennessee Valley Authority.

The NEI will work closely with SMR Start on policies and priorities relating to small reactor technology.

SMR Start will focus on light-water reactor-based SMR designs and through its work demonstrate the commitment of small reactor customers to the market.

EDITORIAL | GÉRARD KOTTMANN

WNE success underlines the vitality of our industry

Nuclear energy can be an emotive topic. We in the industry are well aware of this, as we are of our responsibility to serve the communities where we operate with clean, safe, sustainable power.

We face a historic challenge: low-carbon energy sources currently account for 33 per cent of the global electricity mix, with nuclear power accounting for 11 per cent.

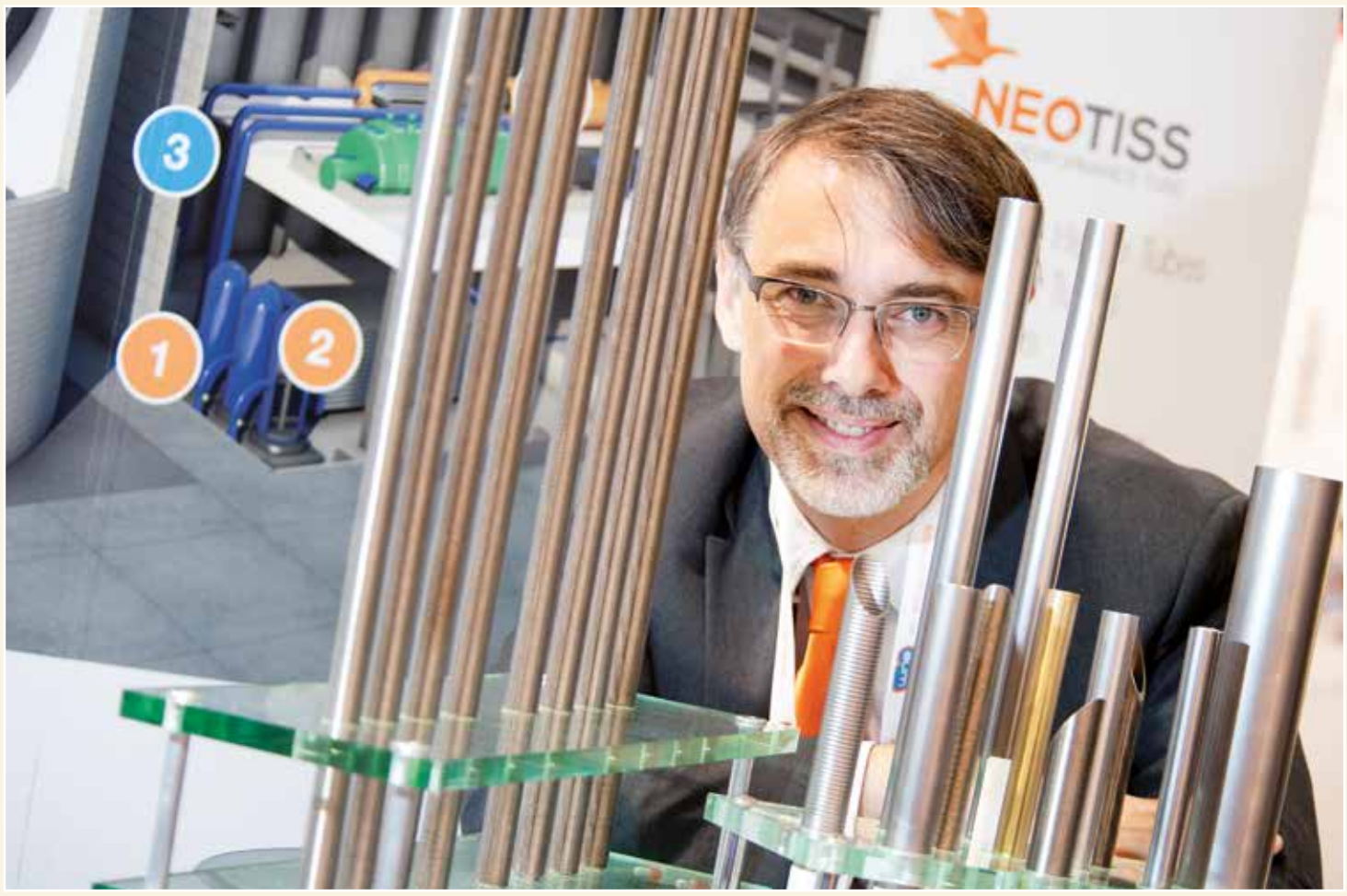
But the target to be achieved by 2050 is 80 per cent of power from low-carbon sources. Clearly we have not just an opportunity but a responsibility to do our part in reaching this target.

Can we accomplish this? I think so. When I speak to colleagues on the floor of this year's exhibition and listen to our expert speakers, I am confident our industry has the knowledge and will to play its part.

I'm happy to say this year's WNE has been another success from our point of view, with exhibitor and visitor numbers up by 40 per cent on our first event in 2014, and I hope it has been a success for you too. Our industry has an important role to play in sustaining a balanced global energy mix. We have the opportunity to make a real difference.

I wish you success in your business, and look forward to seeing you all again in 2018.

— Gérard Kottmann
President, AIFEN and WNE



Pipe dreams: NEOTISS's president Albert Bruneau celebrating a contract with Italy's STF

REPORT | STEVE KNIGHT

New Italian job for NEOTISS

NEOTISS (Stand 2B-F74/G73) yesterday at the show announced a contract with Italy's STF for the supply of welded tubes for the Flamanville 1 nuclear power plant in France. The tubes are for the plant's high-pressure feed water heater.

NEOTISS, which is headquartered in Boulogne-Billancourt, just outside Paris, is a world leader in thin welded tubes and serves all industry markets from power generation and desalination to process, automotive or aerospace.

The new contract strengthens the cooperation between the two companies, especially in the French nuclear power plants revamping programme.

Under the deal, the welded tubes will be produced at the French company's plant in Burgundy, while the high-pressure heater will be manufactured in Magenta, Italy by STF. It is scheduled to be installed at Flamanville in 2018.

This year NEOTISS celebrates 40 years of operation, mainly in the nuclear industry.

Since 1976 it has delivered more than 20,000km of moisture separator reheater (MSR) tubes and over 75,000km of titanium condenser tubes for nuclear plants worldwide. The company also has industrial facilities in the USA, China, India and South Korea.

quick**facts**

75,000km

Since 1976 NEOTISS has delivered over 75,000km of titanium condenser tubes for nuclear plants worldwide

in**brief**

Swedes promote their expertise

› Sweden-based Fagerström AB (Stand: 2B-P68) is at WNE aiming to consolidate its position in Scandinavia and be recognised internationally as a reliable, high-quality supplier of decontamination products.

Besides traditional services like design and calculation, the engineering company can also tailor decontamination product concepts for the nuclear industry.

Examples include electro polishing plants, mechanical abrasive equipment, shot blasters, ultrasonic decontamination, control rod drive decontamination, high-pressure decontamination, complete decontamination centres and wet blasting technology.

The company says its products' features are well-proven and of the highest quality regarding function, reliability, safety design and ergonomics.

in**brief**

Digital tech specialists extend partnership

› Dassault Systèmes (Stand 2B-F55) and Assystem (2B-H52/J51) have extended their partnership in the nuclear engineering sector. This collaboration aims to improve the management and industrial performance of complex engineering projects by using the companies' digital technologies.

Assystem's energy and infrastructure division will deploy Dassault Systèmes' 3DExperience platform to build a new information system for engineering within nuclear facilities, to support engineering data, configuration, procurement and programme management, plus resourcing capabilities.

Dassault Systèmes says it will leverage this collaboration to develop future industry solutions based on the 3DExperience platform, which can digitally transform processes and methodologies, improve efficiency and enhance the owner and operator experience.

The 3DExperience platform connects all stakeholders and ensures data traceability and compliance throughout the engineering phase. Thomas Grand, Dassault Systèmes' vice-president, Energy, Process and Utilities Industry, said: "As the demand for energy increases, so does pressure to optimise the use of global resources, and this can only be achieved through greater scientific and engineering innovation."

Stéphane Aubarbier, Assystem's Energy and Infrastructure division CEO, added: "Thanks to 50 years of experience, we have acquired a first-hand understanding of the operational challenges and needs of operators."

New office for VINCI

› VINCI Technology Centre UK (Stand 2B-E45) has opened a new office at Westlakes Science and Technology Park on the west coast of Cumbria. VINCI offers safety critical inspections. Westlakes is populated with firms working in the nuclear, energy, science and technologies industries.

EPM: blazing a trail for safety

› EPM (Stand 2B-M54) is one of the leading providers of fire protection, risk analysis, risk management and engineering solutions to nuclear utility clients throughout the world.

The US-based company has provided fire protection services to more than 80 per cent of the nuclear power plants in the US and 100 per cent in Canada. It also serves plants in the Ukraine, Russia, Armenia, Japan and Korea.

"We have delivered high-quality, cost-effective solutions to assist our clients in addressing complex regulatory compliance issues and to reduce the risk at their nuclear power plants for more than 35 years," said a company spokesperson.

"We provide a full spectrum of services in support of utility fire protection programmes and we offer state-of-the-art software tools for performing automated fire safe shutdown analysis, fire modelling, and cable and raceway management in addition to software to support other programmes (such as cable ageing management and environmental qualification analysis)."

CMI and Innoveox work on expanding their waste lines

REPORT | STEVE NICHOLS

CMI Services (Stand 2B-34) and Innoveox have signed a partnership deal at the show to help them jointly respond to new tenders in France, Belgium and further afield.

Their partnership was actually formed some weeks ago and has already led to the companies' first commercial success with a major player in the nuclear energy field.

Thanks to their complementary nature, Innoveox and CMI Services are able to offer a comprehensive service to nuclear operators, both for nuclear facilities that are in service and for their decommissioning and dismantling.

CMI has operations in more than 17 countries and its partnership with Innoveox, with its Syneox (Stand 2B-S39) subsidiary specialising in industrial robotics, automated inerting processes via ceramics, and liquid waste treatment, should lead to a more rapid deployment of technologies in new markets and geographies.

Franck Pasqualini, director general of CMI Services, said: "By bringing together the accumulated experience of CMI in providing services to the nuclear sector, and the technological solutions developed by Innoveox, we are able to supply turnkey solutions to nuclear operators.

"We are able to immediately offer innovative solutions to the market within the complex and demanding domain of waste management and dismantling."

Robo-deal: Innoveox's Jean-Christophe Lépine and CMI's Jean Gourp

Jean-Christophe Lépine, chairman and managing director of Innoveox, added: "This is an important step in bringing a more industrial and commercial dimension in the nuclear domain to our group."

In the photograph is Syneox's SX-1 robot. This is a new concept for a tool that can be used in nuclear power plants to complete remote 3D scanning and radiation measurements.

These operations have traditionally been performed by technicians who, for health reasons, have to limit their exposure to radiation and can, therefore, measure only changes in radiation levels sporadically.

Pig out at Spanset!

Spanset (Stand B18) is enticing visitors to its stand by offering a glass of wine and slices of Spanish Pata Negra ham. The European company specialises in latching systems and is the creator of the round sling.

Left: Spanset's Norbert Di Martino, commercial director

Heads up and hands free

People working in nuclear power plants can protect their ears but communicate easily with a wireless and hands-free headset from Ceotronics (Stand C42).

"Our CT-WireCom Digital system permits continuous two-way conversation for two people or up to 20 participants with superior speech transmission quality at levels of ambient noise approaching 110 dB," said Valerie Lemee (pictured below), area sales manager, France. All headsets are equipped with CT-DNR (digital noise reduction), which allows all noise interference to be digitally suppressed.

in**brief**

Giant helium gas find in Africa

› A large field of helium gas – an important substance in nuclear medicine – has been discovered in Tanzania, just as world supplies were said to be running out.

Helium is used extensively in science, including radiation monitors, medical physics, spacecraft and telescopes. When super-cooled it also allows the Large Hadron Collider (LHC) at CERN in Geneva to function.

Geologists at Durham and Oxford universities have described the find as a "game-changer". They say the find in just one part of the Rift Valley is enough to fill more than a million medical MRI scanners.

Helium is formed by the slow and steady radioactive decay of terrestrial rock. However, global supplies are running low, with warnings that supplies cannot be guaranteed in the long term. The amount of helium is estimated at more than 54 billion cubic feet, which could potentially meet global demand for several years.

quick**facts**

DIAMOND GIZAS...

Infrared thermographic non-destructive testing (NDT) techniques that are used to check for leaks at nuclear power plants, are also being deployed to help survey Egypt's pyramids.

IMAGE: WIKIMEDIA COMMONS

PICTURE PERFECT

All you need is glove: Safety first with Destaco's David Pearce

Give us a hand

Destaco (Stand K70) provides automation and containment solutions to the radio-pharma and nuclear industries.

On display at its stand is one of its leading telemanipulator units popular in the nuclear sector.

David Pearce, region sales leader, UK & Ireland, said: "Telemanipulators are used to remotely perform tasks in a high radiation or hazardous environment arises, which is obviously often within nuclear.

"Typical tasks range from operating laboratory instruments to the maintenance of large process equipment, all operations requiring dextrous manipulations.

"These tasks are unstructured and require real-time human intervention."

The US company offers one and three-piece units and will be launching its latest telemanipulator later this year. "The new unit allows users to change the head unit and fingers, allowing for flexibility," said Pearce.

Manipulator designed for working in tight spaces

REPORT | MARCELLE NETHERSOLE

Getinge La Calhene (Stand C40) is using the show to demonstrate its master-slave remote manipulator articulated design, the MA 11.

"This feather-light manipulator is for small and medium-sized cells," said Boris Leonard, president and chief executive. "It combines flexibility with a considerable average load. Depending on requirements, the shape of the MA 11 manipulator means it can adapt to working in hot cells and in glove boxes. It is very dextrous, robust and easy to use."

The French company is also introducing its lightweight on-board camera system for visual assistance in hot cells, which was manufactured under the licence from the CEA.

"In hot cells used for research, development and production, operators generally work in pairs, with two remote manipulators in from of a shielded window," said Leonard. "A major work issue is poor vision of the items inside the cell. Operators may also need to work with very small elements inside cells crammed with equipment and limited visibility.

"This camera allows for clear visibility with close-up viewing of the work area, with limited stress, which in turn allows operators to improve their working conditions."

Up for grabs: Getinge La Calhene's Boris Leonard with the feather-light articulated remote manipulator

in**brief**

Why Fischer is so well connected

› Fischer Connectors (Stand 2B-L24) has been designing, manufacturing and distributing high-performance connectors and cable assembly solutions for more than 60 years. At WNE, it is showcasing new products including the Fischer Core Series stainless steel connector, the FO1 single fibre-optic connector, the MiniMax 06 ultra-miniature high-density connector, and the Fischer Rugged Flash Drive, now available in USB 3.0.

Fischer Connectors' electrical and optical nuclear product range includes sealed and hermetic connectivity solutions for vacuum applications or radioactivity measurement, among numerous standard and custom solutions. Visitors to the stand can also see a holographic presentation of the company's four product lines, plus an aquarium and a glovebox showing the sealing and hermetic performance of the Fischer Core and UltiMate Series.

Meet the experts

› Hydraulics specialist Sogema Services (Stand 2B-R40/S43) returns to WNE looking to invest in the nuclear market, establishing new partnerships, particularly with other companies in northern France. Sogema combines expertise in hydraulics, mechanics, automation and supervision to design, build, install and optimise industrial solutions and systems. Based near Lille, the company also has facilities at Dunkirk, and in Noyon, Picardie. A fourth office has just been opened in Valenciennes, Hainaut. The company has 80 employees and 35 years' experience.

Engineering expertise

› Present at the show is ATS Ingénierie (Stand 2B-J33), an industrial engineering firm specialising in mechanical design, process automation, piping and plant design. It employs 170 people and boasts 25 years' experience in the industry. Historically located in the heart of Burgundy, the group now has five sites in France, one in Tunisia and one in China to support its customers in Asia with a local and reliable engineering solution.

Turnkey solutions

› AEMCO (Stand: 2B-N36) offers turnkey solutions in maintenance, safety, studies, manufacturing and modification work. The company, a subsidiary of the REEL Group, also supplies industrial equipment. Based on three different sites, the company boasts nearly 200 employees including technicians, engineers specialising in design, maintenance engineering, and general maintenance of processing units.

Three is the magic number: awards honour budding talent

REPORT | MARCELLE NETHERSOLE

Three award ceremonies taking place at WNE today recognise the budding talent of newcomers to the nuclear energy sector. All three are aimed at encouraging the rising stars within an industry that is passionate about education.

The awards are:

- Fem'Energia – 12:30pm, conference centre
- Spark! contest – 11:45am, Training Planet
- Innovatome contest – noon, Training Planet

Fem'Energia builds on the Women in Nuclear (WiN) programme and awards which highlight the work and involvement of professional women in the nuclear industry.

It was set up by EDF, WiN France and WiN Europe in 2009 as a special award to recognise the 'exceptional contribution' made by female students and professional women to nuclear activities in France and Europe.

This award is designed to promote the participation of women in the nuclear sector, to ncrease the visibility of women in scientific, technical and technological nuclear-related occupations, and to highlight exemplary careers in nuclear industries.

Spark! Is a new contest and award organised by members of the Franco-British energy industry and community as a means of giving participants a useful stepping-stone toward employment in the energy sector.

Norman Harrison, immediate past-president, Nuclear Institute, said: "The Spark! contest is an excellent initiative for companies in the nuclear industry and the best and brightest new talent to come together and explore the possibilities."

The contest is open to students and former students (up to the age of 28) from French and British universities and institutes of higher learning who are invited to write a one page paper on a topic set by the organisers. For its inaugural year, Spark challenged entrants to address the topic 'The nuclear fuel cycle in 2040: the challenges and solutions to achieve sustainable nuclear generation in Europe'.

The writers of the best papers were invited to today's prize-giving.

The Innovatome contest, organised by the French Nuclear Society Young Generation Network, brings students from all sectors together for three workshops on 'big society' challenges: digital technology, ecological transition and health/safety/comfort.

The contest encourages participants to develop skills, create a network and explore the industry. Teams of students, start-ups and the SME community have been working on an innovation and have pitched their ideas to a high-level panel whose decision on contest winners will be announced today.

Poland has potential to be Europe's next big player

With government backing and a host of companies with vast expertise throughout the nuclear industry, Poland stands on the cusp domestically of breaking into the sector

REPORT | STEVE KNIGHT

Poland is gearing up to potentially become one of the big players in the European nuclear industry over the next few years.

Although, at present, the country does not have a domestic nuclear power generation capability, it has been investigating the various options for a number of years and has a clear nuclear programme in place.

It also has a growing number of companies with considerable expertise in various aspects of the nuclear industry and the clear backing of the country's government.

"Work is being carried out in order to find the best model to ensure the stability of the project and the best possible outcome for our investment," said Andrzej Sidlo, chief expert in the Nuclear Energy Department. "Irrespective of the financial model, the Polish government, from the very beginning, has attached great importance to our national industry being involved in the nuclear programme."

Polish industry has the expertise, products and services to offer capabilities in both the domestic market and abroad. "Currently we are the biggest energy and infrastructure construction site in Europe for different projects, such as coal, gas, renewable ultra-modern units, petrochemical and chemical installation," said Sidlo. "Polish industry can play an important part of various tasks.

"Despite the fact that we do not yet have our own nuclear energy, our companies play a growing role in the worldwide nuclear sector – either directly on construction sites, or manufacturing various components for foreign power plants or other nuclear facilities. Polish companies have recently been active in providing nuclear components to Japan, Russia, the Ukraine and Latin America."

quick**facts**

59 Polish companies with clear nuclear experience in the last 10 years

220 with sufficient capabilities

7 companies at WNE'16

Show the range: Andrzej Sidlo, chief expert in the Nuclear Energy Department

Realising the potential in the market, the Polish government has, since 2012, been putting together a comprehensive study of the country's nuclear industrial capability.

"Polish companies could certainly be used for planning, design, excavation, civil works, heat, ventilate and control (HVAC) systems, non-nuclear steam supply system (NSSS) and, indeed, a few NSSS activities like welding, non-destructive testing (NDT) examination and instrumentation," said Sidlo.

"The role of all Polish industry stakeholders will be to flow from a non nuclear to a nuclear tier."

Many Polish companies have been identified as working on nuclear sites in Finland, France, Sweden, Germany, the UK, Slovakia, Hungary, and Slovenia. In Finland, for example, when 4,500 people were working in the industry at its peak in 2011, 23 per cent of them were Poles.

The government study identified 59 Polish companies with clear nuclear experience in the last 10 years – working at nuclear power plants, nuclear laboratories, the European Organisation for Nuclear Research (CERN), the international nuclear fusion research and engineering megaproject (ITER), the Polish research nuclear reactor Maria, and others.

Another 25 Polish companies were in advanced preparation for nuclear cooperation projects; there were 21 Polish subsidiaries of foreign companies producing for the nuclear market; and around 220 Polish companies with sufficient capabilities and competencies to operate within the nuclear industry.

At WNE2016, the country unveiled its first ever catalogue of Polish companies identified for potential nuclear cooperation purposes.

MAGNIFICENT SEVEN

Seven companies – Narodowe Centrum Badań Jądrowych (National Centre for Nuclear Researches), Instytut Spawalnictwa (Welding Institute), Olmex, Rockfin, Stocznia Gdańsk, GSG Towers and Fabryka Urządzeń Dźwigowych – have travelled to Paris and make up the Polish pavilion at the show.

"From the beginning of the nuclear project in Poland, the government has supported the industry by organising various events, projects and programmes aimed at creating a better understanding and handling of the nuclear market," said Sidlo.

"We really hope that people will come to our pavilion to have a fruitful discussion with our Polish companies."

in**brief**

Open for offers on British business

› Looking to increase work opportunities in the nuclear industry is British company SC Innovation (Stand 2B E51).

The design and engineering business is attending WNE for the first time seeking collaborative opportunities with international nuclear suppliers to bid for work on Hinkley Point C (HPC) and other work in the UK energy sector.

SC Innovation is fit for nuclear (F4N)-accredited by the Nuclear Advance Manufacturing Research Centre and is also the first engineering business based in south-west England to open an office in the Somerset Energy Innovation Centre, which was established to create collaborative opportunities for prospective HPC contractors to engage with local and regional companies.

HPC power station is a major development project led by EDF Energy. It will be Europe's largest construction project and the UK's first new nuclear power station for more than 20 years.

"SC Innovation can offer a flexible range of opportunities to potential partners," said Joe Wilcox, head of SC Innovation.

Penetrating technology

› Experts from Paris-based MDS (Stand 2B-F20) are highlighting the new StructureScan XT by GSSI, the latest addition to the industry standard all-in-one ground penetrating radar (GPR) system. Ideal for locating rebar, conduits, post-tension cables and voids, the StructureScan XT is also used for real-time determination of concrete slab thickness.

What's in a name?

› HOUDEC Instrument (Stand 2B-L82), a specialist in fluid level controls, has used WNE as the vehicle to announce its new name – HOUDEC Innovation. The objective of the new identity, chosen by the managing team, is to demonstrate the French company's development of innovating products in order to strengthen its market position.

quickfacts
ATTENDANCE IS UP!

49% **As of yesterday 1pm, our visitor numbers were 49 per cent up on our last event in2014. Next show will be June 26-28, 2018 – See you back at Le Bourget!**

Chinese out in force to display top technology

China is putting on a fine display at its pavilion where more than 10 of its companies are showing why it is one of the world's leaders in nuclear technology.

The country currently produces 11.2 per cent of its electricity via nuclear, hydro and non-fossil fuel methods and plans to increase this substantially.

The China General Nuclear Power Corporation (CGN) stand dominates the country's pavilion and it is easy to see why. With total group assets of RMB 430.7 bn (€59 bn), CGN consists of its core enterprise and more than 40 subsidiaries.

Chinese President Xi Jinping said: "Nuclear power has become an important topic in bilateral political relationships and economic exchanges with potential importing countries. It is also a reflection of our national comprehensive strength."

China's current projects include the HPR1000 active and passive advanced pressurised water reactor. This Generation III, greater than 1,100 MWe design, includes integrated safety features from lessons learned from the Fukishima accident.

HPR1000 demonstration projects are currently under way in China, at Fuqing and Fangchenggang, as well as in Karachi, Pakistan.

Entente cordiale

The Nuclear Industry Association (NIA) and the French Nuclear Society (SFEN) signed a memorandum of understanding (MoU) at WNE yesterday committing to work together to further the nuclear sector in both the UK and France.

The agreement, signed by NIA chief executive Tom Greatrex (left) and Christophe Béhar, president of SFEN, recognises the importance of nuclear energy for sustainable development and the need for continued cooperation between UK and French industries as new nuclear generation is developed in Europe.

Greatrex said: "While the referendum last week signalled that the UK will begin the process of leaving the European Union, it certainly does not mean the end of cooperation between the UK and EU member states.

"The nuclear industry is global, working across many countries to support low carbon, reliable power generation. Both the UK and France have been at the forefront of the European nuclear industry and this remains the case today."

Béhar added: "This MoU fosters the long cooperation between France and the UK, enabling both countries to deliver a safe and low carbon nuclear energy and to reduce CO_2 emissions while providing economic and industrial development."

UK college tackles critical nuclear skills shortage

REPORT | MARCELLE NETHERSOLE

When it comes to student training, nuclear is facing a crisis. Students tend to overlook jobs within the sector and instead study subjects other than the maths, science and technology the industry needs.

However, Britain's new National College for Nuclear (NCfN) is looking to highlight the industry to A-Level students, or equivalent, before they choose their degrees as it announces its launch at the show today with the promise of top training and job placement within the industry.

"NCfN is an integral part of the UK government's strategy to deliver higher level vocational and technical skills training for the nuclear industry worldwide," said Matt Tudor, director.

"This flagship facility will be established in two existing UK nuclear locations, Cumbria and Somerset.

In Cumbria, it is a joint venture between Sellafield, the University of Cumbria and Lakes College; in Somerset, the partners are EDF Energy, the University of Bristol and Bridgwater College.

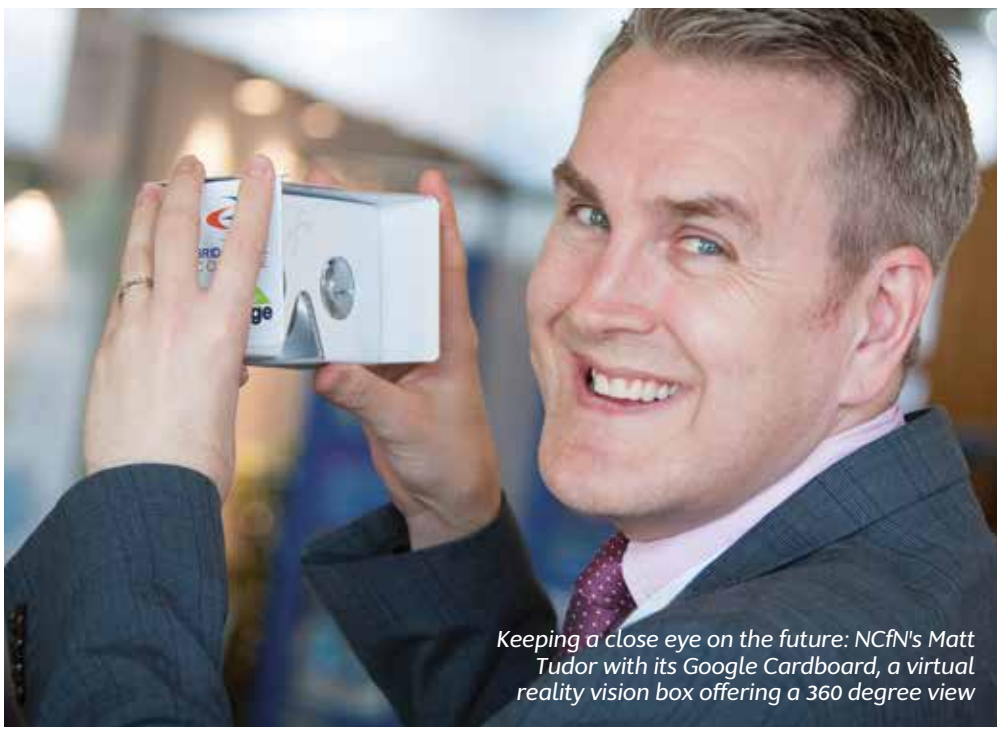
Using unique, state-of-the-art technology and practices, NCfN is looking to revolutionise the delivery of training for new build, operation and decommissioning.

"Scaled and simulated industrial structures and environments will take learners on a voyage of discovery via facilitated, group-based projects and tasks that exactly replicate the work setting," said Tudor. "They will emerge as highly-skilled technicians and work-ready professionals fully conditioned in the behaviours, expectations and culture of the nuclear sector.

"NCfN will be at the leading edge of curriculum development, providing an agile and flexible response to identified skills gaps and shortages. Learners will have access to a suite of contemporary, flexible and blended short and modular courses that combine to form full-and part-time degree programmes and degree apprenticeships.

"NCfN is a superb and innovative facility that will provide employers within the nuclear industry worldwide with the elite, professional workforce it needs."

Tudor also highlighted the need for more women within the industry and said there was a huge gap. "We currently have 100 students in the training programmes and only 10 per cent are female," said Tudor. "By 2025 we hope to have 4,000 students, of which we certainly want to see a healthy balance between male and female."



Keeping a close eye on the future: NCfN's Matt Tudor with its Google Cardboard, a virtual reality vision box offering a 360 degree view

inbrief

Nuclear engine could help us boldly go to Mars

› Russia has aspirations to test a nuclear-powered rocket that could cut the lengthy journey time from Earth to Mars to just 45 days. With current chemical rocket technology a mission is more likely to take around 18 months.

The details are sketchy, but the process could use a nuclear reaction to generate heat that would be used to burn hydrogen or another chemical, turning it into ionis ed gas or plasma.

The plasma would then be expelled out of the back of the engine and, by Newton's third law of motion, the spacecraft would be accelerated in the opposite direction.

NASA has considered similar engines for its Mars missions. The biggest obstacles are the cost (the Russian project's budget has been estimated at 20 billion rubles (US$274 million) and the risk of a nuclear reactor falling to Earth in the event of a launch failure. Rosatom expects to have a prototype engine ready for testing in 2018 and could carry astronauts to the Red Planet in 2033.

AtomOuest joins Neopolia network

› AtomOuest (Stand 2B-R34), which was created to build a pool of industrial skills in the west of France for the nuclear industry, is joining the Neopolia network.

Neopolia runs five business clusters (aerospace, rail, renewable marine energies, marine, and oil and gas) to generate additional turnover for its members by working collaboratively.

AtomOuest brings together industry expertise in Pays de la Loire, France, for the provision of services, components and sub-assemblies to the civil nuclear sector. The organisation's president, Franck Vignall, and secretary, Jean-Louis Neret, are now members of Neopolia's steering committee.

Go with the flow

› The FlexiDrive remote valve operator is the main exhibit from UK company Smith Flow Control (Stand 2B-D47) at WNE.
The company says FlexiDrive can easily be adapted to suit any handwheel or lever-operated valve in nuclear power plants, making them continuously accessible and safe to operate wherever they are located.

Measuring success

› Korean company SFT (Stand 2B-K56) is demonstrating its expertise with radiation measurement devices at WNE. The company, which was established in 2002, already supplies devices and systems to the nuclear industries in both South Korea and Japan.

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