UK Nuclear: Powering the future
The UK’s nuclear expertise is a result of more than 50 years safe delivery of nuclear energy.

From start-up to decommissioning, the UK offers skills and expertise crucial to the safe development and installation of nuclear energy infrastructure. In fact there are more than 80,000 people in the UK employed across the nuclear supply chain, with a national and international focus. Full-cycle products are designed with a view to adaptability to the environment, and an expert understanding of safety systems and the regulatory environment. It’s this single-minded focus on safety and quality that makes us the partner of choice in nuclear energy developments across the world.
As a low carbon energy source, it is seen by many countries as vital to tackling global warming as well as offering security of supply. The UK is at the forefront of this renaissance and, 50 years after building the world’s first commercially operated nuclear power plant, is still one of the market leaders in this growing energy sector.

“A new era for nuclear power development is underway and with it comes the prospect of a big expansion in nuclear plants and markets. The UK is ideally placed to assist and advise nations looking to responsibly develop new civil nuclear power programmes,” says Keith Parker of the Nuclear Industry Association. “The UK was a pioneer in nuclear generation technology and remains a leading world player. Its nuclear equipment and service companies have a long track record of design and construction, operations and monitoring and, more recently, experience of life extension and decommissioning.”

It has been estimated that by 2030 worldwide nuclear energy capacity will have increased by over 10 percent from 369 GW to 416 GW. While this is mainly in the OECD, other countries such as China, India and Russia also have ambitious plans for increasing their nuclear energy output. Parker believes that UK companies will be in demand to support the development of this energy source around the world.

“UK firms are experienced at dealing with demanding national and international regulation, while also satisfying highly competitive commercial requirements. These strengths have helped create a world class nuclear supply chain that can contribute across the whole of the nuclear life cycle.”

Keith Parker, Nuclear Industry Association
With no reactor design vendor of its own, the UK is ideally placed to offer independent advice and assistance on all aspects of system selection. In addition, advances in programme and project management, construction techniques, and innovative financing arrangements have substantially improved the delivery of major UK projects in recent years. This valuable experience can bring major benefits to overseas nuclear programmes.

Some of our largest companies also have the capability to work with partners to offer packages of plant, for example within engineering and construction. Such a process is already underway in the UK new build programme with major British companies acting as flagship partners with EDF, Areva and Westinghouse. This is also happening on a smaller scale with UK companies acting as partners on a range of overseas projects.

New nuclear construction

This is leading to major investment in the UK supply chain which will contribute to all three of the key areas required to support a new build programme: programme management and technical support; engineering and construction; and the provision of plant and equipment.

Programme management and technical support
Programme management and technical support covers a range of activities from inception through to commissioning and handover.

Before construction of a new nuclear plant can begin a number of preparatory and enabling activities are required. Depending on whether an existing nuclear programme is already in place, these could include activities such as the formulation of an energy policy framework to the creation of a suitable regulatory and licensing regime. Following this, a series of detailed studies are required to establish the practicality and acceptability of the new build proposal. The UK has the experience and expertise to deliver all of these front end activities including:

- Advising on legislative and regulatory frameworks.
- Interpreting IAEA requirements and guidance.

AMEC
AMEC has been involved in the design, construction, licensing and operation of every civil nuclear power plant in the UK and is establishing the Architect Engineer with EDF to construct a fleet of new EPRs. It is also using its knowledge to support other utilities and regulators worldwide, such as assistance to the South African National Nuclear Regulator in the review and assessment of safety justification for the new pebble bed modular reactor plant.

ROLLS-ROYCE
Rolls-Royce can deliver high value-added products and services across the nuclear cycle using extensive experience built on safety, reliability and world-class engineering. It has a broad range of nuclear capabilities and extensive supply chain experience, and is currently a world leader in safety-critical digital instrumentation and controls systems, with installations on over 183 reactors worldwide.
• Undertaking economic and technical studies into the feasibility of new plant
• Advising on site selection and infrastructure design.
• Planning and environmental consultancy.

UK companies have a strong track record in programme management with contracts across Europe and the USA. They are also experienced in delivering the key professional services needed to underpin a programme, including the provision of top quality legal advice, education, training and skills assistance and financial consultancy (see pages 1b-2).

Other services offered include:

Insurance cover
Insurance is necessary to safeguard the asset values and nuclear liability requirements of contractors and their clients. British companies would be able to assist in providing nuclear insurance from the UK or help local insurance operations arrange appropriate cover.

Safety and licensing advice
UK companies are highly experienced in running the safety elements of large scale projects. They can work with prospective licensees to establish processes and procedures to demonstrate licence condition compliance as well as providing verification on commissioning and handover.

Information communications and technology (ICT) systems
The use of information technology is fundamental to the design, building, operation, safety and decommissioning of modern power plants. The UK has many specialist companies who have an excellent track record in providing ICT services. These range from initial computer aided design to fuel cycle management and ‘back office’ systems such as human resources and billing.

Fuel cycle services
The UK has a strong record in fuel cycle services as well as offering a complete nuclear fuel cycle capability for all light water and gas cooled reactor types. This includes the manufacture of power reactor fuel, including MOX (mixed oxide) fuel, and the transport of fresh and spent fuel. In addition, we have considerable experience of recycling recovered uranium and plutonium into fresh fuel, including MOX.

Operating from the UK, Germany and the Netherlands URENCO supplies fuel to 18 countries. Its centrifuge enrichment technology is the leading technology for uranium enrichment available today, representing a quarter of the global market. UK companies are also leaders in fuel design; performance and licensing advice; spent fuel management options; waste packaging and disposal; and decommissioning advice.

Civil engineering and construction
Civil engineering construction activities form a major part of a nuclear power plant programme ranging from construction management and design through to the creation of supporting infrastructure. By developing and employing worldwide best practise, the UK construction industry has successfully delivered an extensive programme of major projects both on and offshore.

UK companies have the experience, expertise and management capability to deliver all the elements of construction of a new station (nuclear and turbine islands, balance of plant and supporting infrastructure). Particular strengths include:

• Design support – many of our companies have worldwide experience as consultant designers and project managers.
• Architectural design – our expertise has been exported around the world.
• Cooling water works/marine works – the UK has substantial marine works resources. This includes the design, construction and specialist plant to construct major marine facilities. Our consultants are considered to be world leaders in this field with much of their work being undertaken overseas.
• Civil construction site management.

Plant and equipment
A new nuclear power plant requires a wide range of plant and equipment ranging from specialised equipment such as stainless steel pump casings for the reactor to conventional items like tankage and pipework.

UK companies have major nuclear engineering, manufacturing and site installation capability, and could provide much of the plant and equipment required for a new site. Moreover with no reactor design vendor of its own, the UK is ideally placed to offer independent advice and assistance on all aspects of system selection.

With Government support, a Nuclear Advanced Manufacturing Research Centre (NAMRC) is being established to combine manufacturing skills with cutting edge knowledge from our universities. The universities of Sheffield and Manchester are leading the project, with Rolls-Royce leading the industry side of the operation. This will enable around 30 of our larger companies to work together on a range of initiatives including winning civil nuclear accreditations, training and development and management processes. In addition, it will look at how improvements could be made to the manufacture of nuclear components and assemblies.

URENCO
URENCO is a major supplier of fuel services to the Asian market. The company has provided enrichment services to the Tokyo Electric Power Company (TEPCO), Japan's largest electricity generator, for almost 16 years.

PARSONS BRINKERHOFF
Parsons Brinkerhoff was commissioned by South African company KWMR (Pty) Ltd to undertake a study on the potential world electricity market. This demonstrated the competitiveness of the Pebble Bed Modular Reactor under different price scenarios, showing that the design could be a credible alternative to a large nuclear plant in many countries where the grid system is not very well developed.

WESTINGHOUSE
Westinghouse runs the Springfields nuclear fuel manufacturing plant in North West England on behalf of the NDA. Springfields has produced almost all the fuel for the UK’s nuclear fleet over more than half a century. The site has also produced power and granules for overseas customers around the world, including Europe and the Far East.

SHEFFIELD FORGEMASTERS
Sheffield Forgemasters is a world leader in the provision of high quality heavy forged and cast steel products. It has been commissioned by Curtiss-Wright Flow Control Company on behalf of Westinghouse Electric Company to produce 18 pump casings for the new Chinese AP1000 plants at Sanmen and Haiyang. The first of these was exported to China in August 2009.

Halcrow
Halcrow has been involved in designing nuclear facilities for almost half a century. It provides planning, design and management services worldwide, with particular expertise in extreme hazard protection and the design of power station intake and outfall structures.

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Image: Centrifuge

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Image: Pump Casing

Halcrow has been involved in designing nuclear facilities for almost half a century. It provides planning, design and management services worldwide, with particular expertise in extreme hazard protection and the design of power station intake and outfall structures.
Again many UK companies are market leaders in their field. Relevant areas include:

- Main coolant pumps.
- Common cooling water/essential services cooling water screening equipment.
- High quality forgings.
- Precision mechanical components and assemblies including valves.
- Plant instrumentation and control for the reactor, generating plant and ancillary equipment.
- Specialised equipment and services including: primary loop and high integrity pipework; core component handling equipment; primary circuit auxiliary systems; craneage and fuel handling machines; specialist radiation retaining doors; and radiation detection and monitoring products such as radiation hardened camera systems.
- Accumulators, tanks and heat removal systems.
- Fuel transfer tubes and key interlock systems.
- Validation of advanced NDT, inspection and materials.
- Nuclear plant operational waste measurement instrumentation.
- Radioactive waste management systems including: encapsulation plant; radwaste stores; and encapsulation plant and equipment manufacture and installation.
- HVAC systems design, safety assessment and implementation management, and manufacture of components.

Many of our industrial companies are gearing up for expansion of the nuclear industry within the UK. However, there is already a significant amount of new nuclear construction underway as part of the UK’s waste management and decommissioning programme which is being undertaken to class 1 nuclear standards. This reinforces, for both workforce and management, that nuclear quality and safety is crucial for successful nuclear new build. UK companies are looking for global opportunities to share this experience.
Maintaining and improving existing nuclear plant

Nuclear power plant systems are extremely complex and once constructed need to be carefully maintained and updated if performance is to be maximised.

The UK supply chain has supported Britain’s civil nuclear fleet since its inception in the 1950s, building up huge experience in underpinning the safe and reliable operation of nuclear plant across the fuel cycle, and in developing the necessary technical solutions to maintain and extend their lives.

As a result a highly skilled engineering resource has been created, well versed in the stringent codes required for nuclear projects. This is already being deployed to provide major benefits to existing nuclear programmes overseas, for example managing the successful restart of reactors in Canada. Other projects have covered technical improvements, major retrofitting/refurbishment of main plant and networks, new operations practices, sophisticated monitoring and complex decision analysis.

The UK industry is in a strong position to offer support across all the following key areas:
- Safety/emergency preparedness/licensing consultancy.
- Fault analysis.
- Power uprating and maintenance/on site assistance.
- Outage management.
- Life extension consultancy and implementation.
- Commercialisation/privatisation advice.
- Research and development. The UK has a long history of R&D programmes to support the nuclear industry, with around 1000 staff employed in the sector.
- Fuel services.
- Information communication and technology (ICT) systems.
- Software products and support services for example in the areas of reactor physics, criticality, shielding, dosimetry, heat transfer, stress analysis, fluid flow.
World class experience & capability

**PARSONS BRINKERHOFF QUALITY SERVICES**
Parsons Brinkerhoff Quality Services was appointed to check quality at the main contractor’s facility for the Bruce A restart programme. This included manufacturing and statutory inspections during the forming, assembly, welding and testing of 24 replacement steam generators.

**WEIR POWER & INDUSTRIAL**
Weir Power & Industrial’s expertise spans the design and manufacture of critical isolation and safety valves on the nuclear island, through to general isolation and control applications for balance of plant. Building on its extensive global installed base and its specialist maintenance support, Weir is currently supplying to various third generation projects in Europe, China, North America and elsewhere.

**CENTRONIC LTD**
Centronic detectors are at the heart of the control and instrumentation of a variety of reactor technologies and systems installed worldwide. The company works directly with equipment manufacturers in many countries and has supplied products for projects as diverse as the IAMS (Integrated Automated Monitoring System) for the Chernobyl shelter project and new build reactor projects in countries such as China, Romania and Korea.

**LLOYD’S REGISTER GROUP**
Lloyd’s Register provides independent assurance and safety assessment services. It has played a significant role in ensuring client, regulatory and public confidence in major nuclear projects worldwide including the revitalisation of TEPCO’s Kashiwazaki-Kariwa plant following the July 2007 earthquake. The Probabilistic Safety Assessment (PSA) Risk Spectrum software by its subsidiary Scandpower is used by 50% of the world’s nuclear power plants.

**SERCO**
Serco’s ANSWERS® Software Service was created as a specialist technical service and has for over 30 years provided high quality software and consultancy services in the areas of reactor physics, radiation shielding, dosimetry, nuclear criticality, and nuclear data. It’s MCBEND radiation and dosimetry software has been successfully applied both in the UK and overseas.

**AMEC**
AMEC was contracted in 2005 to project manage the restart of Units 1 and 2 of the Bruce nuclear power station in Canada. When complete the refuelled units will provide Ontario with an additional 6000MWe of base load capacity through to 2036. UK companies such as AMEC have experience of all reactor technologies being employed worldwide and can bring independent best practice experience to enhance existing operations.

**SERCO**
Serco has 25 years experience in delivering inspection qualification services to validate an organisation’s non-destructive testing (NDT) and inspection capability. Its Inspection Validation Centre recently assisted the Koeberg nuclear station to demonstrate the efficacy of its NDT practices to the South African regulator and it has supported several other countries in developing and refining their NDT procedures.

**DOOSAN BABCOCK**
Doosan Babcock have been pioneers in developing and demonstrating non-destructive examination (NDE) techniques. Since winning the contract in 1995 to test welds in the primary coolant piping of EDF’s nuclear fleet the company has worked with leading utilities in many countries including Sweden, Switzerland, Argentina, Russia and the Ukraine.

**NNL**
The UK’s National Nuclear Laboratory (NNL) has designed a programming tool (Orion) to assist in understanding the time flow of radioactive materials in complex reactor scenarios. Orion has been commercially applied, for example in modelling advanced fuel cycle scenarios for the US Department of Energy.
Decommissioning and waste management is one of the most sensitive aspects of the nuclear cycle. It needs to be handled safely and efficiently – to world class standards – if a nuclear programme is to retain public and political support and be economically competitive.

**Waste management, decommissioning and disposal**

Decommissioning and waste management is one of the most sensitive aspects of the nuclear cycle. It needs to be handled safely and efficiently – to world class standards – if a nuclear programme is to retain public and political support and be economically competitive.

**AMEC**
AMEC has successfully led a consortium of European companies assisting the Ignalina Nuclear Power Plant to manage the decommissioning of the world's largest power rated reactor. The project demonstrates how UK companies can work and bring together effective international partnerships to provide optimum solutions to the most challenging nuclear projects.

**UKAEA**
UKAEA was awarded the contract to deal with the equipment contained within Ignalina Unit 1's turbine hall. The scope of the work includes the production of a decontamination and dismantling strategy, basic and detailed design, environmental impact assessment and safety reports, and a general data set report.

**NUVIA**
NUVIA Limited has been the Department of Energy and Climate Change's project management consultant on the G8 Global Partnership Initiative project concerned with the safe and secure management of fuel at Andreeva Bay in North West Russia.

Image: Andreeva Bay
The UK is a world leader in decommissioning civil nuclear power reactors and associated facilities. By virtue of being one of the earliest countries to develop civil nuclear power, Britain has acquired a wealth of experience in this area. Decommissioning and clean up of seven first generation UK Magnox power stations is well underway, as well as a range of other facilities, including research, fuel facilities and prototype plants. The Nuclear Decommissioning Authority, which was established to supervise this work, will be spending in excess of £8bn over the next three years on this work. In addition, baseline decommissioning plans have been drawn up for all current operational plant.

As a result, the industry has an established decommissioning supply chain with substantial expertise and experience; capable of dealing with all aspects of the safe and efficient clean up of nuclear facilities. Using these skills and resources many UK companies have already secured significant overseas contracts including Russia, Western and Eastern Europe and the USA.

UK companies can contribute to all the following areas:

- Engineering consultancy.
- Plant decommissioning, decontamination and dismantling.
- Radiation mapping and nuclear waste characterisation and measurement services.
- Probabilistic risk assessment techniques.
- Containment and radiological protection products.
- Transportation/storage and disposal of radioactive waste and spent fuel.
- Safety management services, including complete safety case preparation.
- Environmental restoration.
- Environmental assessment and management of radioactive waste facilities.
- Research and development.
- Fuel services.
- Information communication and technology (ICT) systems.

Innovative technology

UK companies have developed a range of cutting edge technologies that can assist decommissioning and waste management. These include such advances as: innovative acoustic signature modelling of high level waste processing assets to help eliminate costly inservice failure; reduced pressure electron beam welding for fabrication and sealing of high level waste containers; and radiation mapping devices for identifying hazards in contaminated areas such as glove boxes.

**BNS NUCLEAR SERVICES**

BNS Nuclear Services’ Modular Vault Dry Store (MVDS) was selected to provide intermediate spent fuel storage for the Paks nuclear power station in Hungary. Current capacity of 12,000 VIPER fuel elements will be doubled in stages to allow storage of 30 years (around). The MVDS is suitable for all types of spent fuel.

**VT GROUP**

UK based VT Group is part of a consortium that won the contract for the Project Management Unit set up to oversee over three years projects associated with the decommissioning of the Kozloduy nuclear power station in Bulgaria. The company is also involved in project managing the decommissioning of the Ignalina and Bugey nuclear power plants.

**CORUS PROCESS ENGINEERING**

Corus Process Engineering have been involved in the nuclear industry for over 50 years supplying nuclear waste transport flasks, handling equipment and off-site simulation, training and testing facilities.

**TESELLA**

Tessella have used their experience in modelling, data analysis and asset condition management to develop a system of innovative acoustic signature modelling. This technology is now being used at Sellafield’s Waste Vitrification Plant to address the integrity of plant processing components and equipment to help eliminate costly inservice failure. This technology is also being used to address the integrity of radioactive waste packages for long term storage.

**NNL**

The UK National Nuclear Laboratory has developed a remote, non-electrical, radiation measuring device, known as RadBall, which can locate, quantify and characterise radiation hazards and sources within contaminated areas. The use of this technology could ensure that the safest and most cost-effective decontamination strategies are deployed.

**TWI**

Working in support of the Yucca Mountain programme TWI have developed an alternative strategy for waste package fabrication and closure welding using electron beam welding. Potential benefits include faster welding (by a factor of 30), a more repeatable welding procedure, better metallurgical properties in the weld region in terms of corrosion and residual stress, and significant cost savings.
Over the past few years much work has been undertaken in the UK on establishing the framework for new nuclear build, and in developing the arrangements for decommissioning. In the case of new build, this work has involved devising a streamlined process for consents, a strategic siting assessment process, and a generic design assessment regime. The UK has also established a workable framework for decommissioning, including the creation of the Nuclear Decommissioning Authority and arrangements for funded decommissioning programmes.

Using this experience, UK based lawyers have been able to make a significant contribution to overseas nuclear programmes, transferring the 'technology' of the new structures and advising in the context of other legislative systems. They have also been able to advise on the legislative and other requirements necessary to facilitate the new build of nuclear power plant, including licensing, safety and supply chain issues.

Some of the specific areas on which UK legal companies can provide world class advice include:

- The identification and acquisition of new build sites.
- Domestic and international regulatory issues.
- The contractual and regulatory architecture for projects of all kinds.
- Subsequent implementation through contracts for construction, operation and maintenance, fuel supply and transportation, power offtake; and the range of contracts for participation in the energy market, project development and financing.
- Development of joint ventures including dispute avoidance and resolution.
- Decommissioning issues, including funded decommissioning plans.
- Planning management and disposal issues.

Legal services

Given the sensitive and highly regulated nature of the nuclear process, top quality legal advice is vital in all stages, from initial feasibility studies through to development of decommissioning programmes. The UK legal profession is well placed to advise on all of these.

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BURGES SALMON LLP
Burges Salmon has advised on the development of new build and decommissioning programmes both in Europe and the Middle East. This advice addressed the key branches of nuclear law, including safety, security, safeguards (‘3S’), and nuclear liability, as well as other legislative, regulatory, infrastructure and commercial aspects.

CMS CAMERON MCKENNA LLP
CMS Cameron McKenna’s extensive nuclear work has included most recently advising RWE npower on its joint venture with CEZ on new nuclear build in the UK, including on all aspects of new nuclear build issues and the purchase of new nuclear build sites from the Nuclear Decommissioning Authority.

HERBERT SMITH LLP
Herbert Smith was retained by the Romanian nuclear public utility SNH to advise on structuring the development of two new nuclear reactors at Cernavoda through a public private partnership. The project structure was influenced by corporate, finance, competition, energy, nuclear, tax and procurement laws, both in Romania and in the EU.

CLYDE & CO LLP
Clyde & Co LLP advised a French consortium in relation to a disputed contract for the supply and construction of facilities on the Chernobyl nuclear reactor site. Clyde & Co assisted with the successful resolution of disputes and with the drafting and negotiation of terms.

SPEECHLY BIRCHAM LLP
Speechly Bircham LLP has advised major US multi-nationals in relation to nuclear decommissioning projects. They have developed a detailed understanding of the legal and technical issues involved, and the fine-tuning of the often complex risks including the management of hazardous and nuclear waste, remediation of contaminated water and soil, and site clean up and restoration.

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Education and training

The UK’s capability in this area has been developed over many years and is second to none. Through collaboration with industry, and funding through our Research Councils, universities and higher education institutes, we have developed a comprehensive suite of education and training programmes to support the nuclear power industry.

Nuclear education and training is now available at Apprenticeship, Foundation, Undergraduate, Masters and PhD level (see www.nuclearliaison.com and www.nuclear.nsacademy.co.uk). We have a number of long established nuclear MSc programmes, and several universities are developing undergraduate nuclear programmes.

We also have a modular postgraduate-level training programme in Nuclear Science and Technology.

This postgraduate ‘one-stop shop’ is run by the Nuclear Technology Education Consortium (NTEC) which is made up of a group of UK universities and Higher Education institutions. The breadth and format of the training is designed to meet the UK’s projected nuclear skill requirements in new build and reactor technology, decommissioning and clean-up, geological disposal, fusion and nuclear medicine.

The NTEC programme is very flexible. For example, students can study for an MSc full time over one year or part time over three years; obtain a diploma or certificate or study for a module as part of their continuing professional development. Modules are also available as distance learning packages for UK and international students. For more advanced study PhD and Nuclear Engineering Doctorate programmes are also available.

A key prerequisite for any nuclear programme is world class education and training. Without this no nuclear programme can be undertaken safely, economically and efficiently.
Similar progress has been made in skills. UK nuclear employers have developed a unique collaborative approach – the National Skills Academy for Nuclear – to ensure the maintenance and development of a skilled, safe and competent workforce. This is already making a major contribution to delivering the UK’s current and future nuclear programmes and could provide overseas companies with similar benefits.

A key achievement has been the development of a ‘Nuclear Skills Passport’ which drives up the standards of the workforce and facilitates the transfer of skills between nuclear sites. This approach provides a complete framework for skills development and training and could be used elsewhere for existing nuclear programmes as well as new build projects around the world.

The Skills Academy has developed a UK wide High Quality Provider Network which delivers programmes at all levels from vocational and technical training to post graduate study. All these programmes are available to international candidates. Additionally Train the Trainer programmes are available, enabling a country to develop its own in country expertise to support the development of their own quality delivery network.

The Skills Academy has developed a number of industry specific programmes including National Vocational Qualifications in Decommissioning and Radiation Protection and the Award for Nuclear Industry Awareness: an essential programme for all entrants to the sector to develop their knowledge and understanding of working in a nuclear environment. This is available via e-learning as well as classroom based. A Certificate of Nuclear Professionalism is also being developed, this is an innovative Post Graduate Certificate with a focus on behavioural, commercial and project management skills tailored to meet the needs of an employer or individual. A variety of teaching methods are available, including distance learning.

“A key achievement has been the development of a ‘Nuclear Skills Passport’ which drives up the standards of the workforce and facilitates the transfer of skills between nuclear sites.”
The expected growth in nuclear new build and decommissioning services in the coming years will require the investment of considerable capital both in the plant itself as well the supply chain.

Governments across the world are looking to the private sector to provide finance and UK companies are ideally placed to offer the necessary advice to facilitate this investment.

Financial advisors can benefit all the key nuclear sector stakeholders: government, plant operators, and nuclear services providers. They can provide financial advice relating to such areas as: public policy design; plant development and financing; plant selection and operation; and decommissioning and storage. Key services include:

- Advising on project structuring and finance raising.
- Ensuring appropriate contracting for construction and operation of the plant.
- Designing and managing funds for nuclear decommissioning and disposal.

Currently the UK’s financial advisors are supporting clients with the following:

**Market assessment and understanding**
New nuclear developments will need to be competitive and this requires market assessment and advice, developing terms for power purchase agreements, and assessing the economics of financial support and environmental/sustainability mechanisms developed by government.

**Business structuring and finance raising**
New nuclear development will require the development of appropriate structures for project finance, joint ventures and to fund the working capital requirements both for investment in new generation and the supply chain.

**Supply chain selection**
In addition to selection based on technical capability, a nuclear new build developer will also be keen to ensure that a potential contractor has the financial robustness and longevity to deal with the scale and long term duration associated with nuclear new build. Financial advisors have developed innovative means of supply chain screening for the nuclear sector.

**Transactions advice**
Major developments in a sector often involve reorganisation and transactions in the supply chain. Some players are keen to expand and will be supported by financial advisors for target selection and deal execution skills.

**Project delivery**
New build projects are long and complicated. Financial advisors can ensure that the appropriate financial and project controls – critical to the development of appropriate governance – are in place throughout the project life cycle.
Our range of expert services is tailored to the needs of individual businesses to maximise their international success. We provide companies with knowledge, advice and practical support. UK Trade & Investment also helps overseas companies bring high quality investment to the UK’s dynamic best place from which to succeed in global business. We provide support and advice to investors at all stages of their business decision-making.

UK Trade & Investment is the Government organisation that helps UK based companies succeed in an increasingly global economy.

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UK Trade & Investment offers expertise and contacts through a network of international specialists throughout the UK, and in British Embassies and other diplomatic posts around the world. We can assist at all stages of the business planning cycle, from inception to completion. For an overview of what UK Trade & Investment does to foster companies’ growth, please visit www.ukti.gov.uk.

Why UK Energy?

The UK has always been a pioneer in the energy sector. The eighteenth and nineteenth centuries saw the birth of the industrial revolution powered by water and coal. In the twentieth century we developed new technologies to access the oil and gas reserves of the harsh environment of the North Sea. The twenty first century sees the UK as a world leader in wave and tidal power systems and other low carbon technologies as well as nuclear power generation.

Today the UK energy sector has an enviable reputation around the world founded on five key principles:

**INNOVATION**
One of our most important abilities is to look at challenges and problems afresh and take a different perspective. We are known for being pioneers.

**QUALITY**
We are respected and trusted throughout the world for our quality of work and the reliability this brings. We also have a reputation for working hard to deliver to specification. We are seen as a safe pair of hands.

**ADAPTABILITY**
We are not rigid in our thinking and are considered flexible and open to ideas. The solutions we offer are diverse. Solutions right across the energy mix, solutions that are truly cross-border.

**SUSTAINABILITY**
We have a keen eye to the future and are looking for sustainable energy solutions not just for the UK but also worldwide. Whether it is the more sensible use of existing energy sources or the development of new technologies, our focus is on long-term sustainable change, not short-term gain.

**KNOWLEDGE**
Perhaps our most valuable and unique resource is our workforce who underpins our excellence in energy. Their exceptional skills and abilities are founded on a firm foundation of first class education and training. The breadth of our energy expertise means that we are trusted worldwide.

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www.ukenergyexcellence.com
Nuclear Industry Association (NIA)

The Nuclear Industry Association (NIA) is the trade association and representative voice of Britain’s civil nuclear industry. It represents more than 185 companies including the operators and vendors of nuclear power stations, those engaged in decommissioning, waste management, nuclear liabilities management and all aspects of the nuclear fuel cycle, nuclear equipment suppliers, engineering and construction firms, nuclear research organisations, and legal, financial and consultancy companies. The Nuclear Industry Association supports a balanced low-carbon energy future for the UK including renewables, clean coal and gas - with nuclear at its low-carbon centre.

www.niauk.org
A range of UK Government support is available from a portfolio of initiatives called Solutions for Business. The “solutions” are available to qualifying businesses, and cover everything from investment and grants through to specialist advice, collaborations and partnerships.

UK Trade & Investment is the government organisation that helps UK-based companies succeed in the global economy.

We also help overseas companies bring their high-quality investment to the UK’s dynamic economy – acknowledged as Europe’s best place from which to succeed in global business.

UK Trade & Investment offers expertise and contacts through its extensive network of specialists in the UK, and in British embassies and other diplomatic offices around the world. We provide companies with the tools they require to be competitive on the world stage.

For further information please visit www.uktradeinvest.gov.uk or telephone +44 (0)20 7215 8000.

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