

Innovate UK

NDA
Nuclear
Decommissioning
Authority

A hand is shown reaching out from the right side of the frame towards a complex, metallic robotic gripper. The gripper is positioned in the center-right of the image, with its fingers slightly open. The background is dark, and the overall scene suggests a human-robot interaction or collaboration.

Innovation Zone

How to work with us

NOVEMBER 2017



Welcome to the Innovation Zone!

NDA and Innovate UK warmly welcome you to the Innovation Zone at the 2017 NDA Supply Chain Event. Our exhibitors will be showcasing some of the sector's most innovative decommissioning technologies – please come along and explore!

Innovate UK are kindly sponsoring the Innovation Zone this year. Derek Allen, Innovation Lead, said, 'We are delighted to be working with the NDA as they continue to seek innovative solutions to solve their challenges. The Innovation Zone provides a great platform for making connections and seeing innovation in action! We look forward to supporting great, innovative companies as they help to deliver safer, faster and cheaper nuclear decommissioning'.

The Innovation Zone features a dedicated **Networking Space**, which you are welcome to use throughout the day. Melanie Brownridge, Head of Technology at the NDA said, 'The Innovation Zone brings together people who have ideas with those people that need them. Do take the opportunity to speak with our exhibitors today, make connections and seek opportunities to work together in future'.



Working with us

This brochure provides information about **key frameworks and competitions** that we use across the estate for essential research and development work. We hope this information will make it easier for our suppliers to network and see where they could get involved in delivering innovative decommissioning solutions.



Technology transfer

It's important that we take time to look outside of the nuclear sector as we develop solutions to decommissioning challenges. We can always **learn from others** and sometimes other sectors may already have developed the solutions we need. This year, we have invited three exhibitors to the Innovation Zone from the Space and Oil & Gas sectors, and we encourage you to engage with them and share ideas.

We look forward to meeting you and hope you have a fantastic day!



Innovate UK

Innovate UK is the UK's innovation agency. We support businesses in realising the potential of new technologies, developing ideas and making them a commercial success. To do this, we:

- determine which science and technology developments will drive future economic growth
- meet UK innovators with great ideas in the fields we're focused on
- fund the strongest opportunities
- connect innovators with the right partners they need to succeed
- help our innovators launch, build and grow successful businesses

Throughout the year we run a series of funding competitions across a range of key sectors. Nuclear decommissioning is one of our priority areas and can be funded under a number of our sector competitions including: Advanced Manufacturing and Materials, Infrastructure Systems, Energy Catalyst and our Open competition.

We work closely with the NDA and have co-funded a number of competitions over the last 5 years, with total joint investment of over £25m supporting more than 40 decommissioning related projects. We look forward to working together again on future opportunities to make decommissioning safer, faster and cheaper.

You can find out more about what we do by visiting our website:

www.innovateuk.gov.uk

To find out about upcoming funding opportunities visit:

<https://apply-for-innovation-funding.service.gov.uk/competition/search>

NDA

The Nuclear Decommissioning Authority (NDA) is responsible for ensuring that the UK's nuclear legacy sites are decommissioned and cleaned up safely, securely, cost-effectively and in ways that protect people and the environment.

We must ensure the right amount of Research & Development (R&D) is carried out to deliver the full decommissioning programme. R&D allows us to understand technical challenges, encourage the development of innovative solutions and enable the use of new technologies.

We also promote the estate-wide sharing of good practice and innovative ideas to maximise the benefits of R&D and avoid duplication of effort. We work with the wider nuclear sector and beyond, both in the UK and internationally. This enables us to secure best value for money and learn from experiences elsewhere.

At the NDA we fund R&D through two main routes:

- Directly through projects commissioned by the NDA, to support strategic R&D and innovation that focuses on estate-wide issues.
- Via our Site Licence Companies (SLCs) and subsidiaries on site-specific projects.

You can find out more about what we do by visiting our website:

www.nda.gov.uk



Meet the team at our stand in the Innovation Zone!

NDA's Direct Research Portfolio

The NDA's Direct Research Portfolio (DRP) focuses on estate-wide R&D needs, risks and opportunities to **inform and develop strategy, deliver innovation and maintain and develop key technical skills**. The DRP has three lots and the typical spend across all lots is approximately £5m per year. The current contracts are in place for a two year term (commencing 01/05/16), with optional contract extensions for two further one year terms. Details of the current DRP framework agreements are provided below. Find out how to get involved by speaking to our team in the Innovation Zone.

Lead Contractor	Consortium Members	Scope
Lot A - University Interactions <i>(These contractors manage our interactions with a variety of universities)</i>		
National Nuclear Laboratory	Frazer-Nash Consulting	To ensure the right level of academic technical capability is available
Lot B - Integrated Waste Management and Site Decommissioning and Remediation		
Wood Group (previously Amec Foster Wheeler Ltd)	Andra, Brenk Systemplanung and Jülich Research Centre, Cogentus Consulting, DAS Ltd, Imperial College London, Longenecker & Associates, MMI Engineering, NuVision, OC Robotics, Fortum, University of Birmingham, University of Bristol, University of Cambridge, University of Manchester	Integrated Waste Management Higher Activity Wastes (HAW)
Arcadis Consulting (UK) Ltd	AdvanSci, Applied Photonics (APL), Areva RMC, Aurora, ESI, MDecon, Pöyry, ProNu-Dec, Tradebe Inutec, TWI, University of Liverpool, Dalton Nuclear Institute, University of Surrey	<ul style="list-style-type: none"> • Development and analysis of options for HAW management • Development of innovative technologies
Arup	Costain, Pöyry, Studsvik, James Fisher Nuclear Ltd, SN3, AdvanSci, MCM, Bilfinger GVA, Pinsent Masons, CL:AIRE, r3 Environmental Technology, Dalton Nuclear Institute	<ul style="list-style-type: none"> • Sponsoring R&D that enables the NDA to respond strategically to government policy and oversee SLCs' HAW work
Eden NE Ltd	Cavendish Nuclear, DBE TECHNOLOGY GmbH, Golder Associates Limited, Tradebe Inutec, Project Time and Cost International Limited	Lower Level Wastes, non-radioactive and hazardous waste
Galson Sciences Ltd	National Nuclear Laboratory, Frazer-Nash Consulting, AdvanSci, Amphos 21, Cogentus Consulting, Integrated Decision Management, Jacobs, Kurion, Rodgers Leask, VTT, University of Bristol, Lancaster University, University of Leeds, University of Manchester, University of Sheffield	<ul style="list-style-type: none"> • Sponsoring R&D that enables the NDA to respond strategically to government policy and oversee SLCs' work on these wastes
NSG Environmental Ltd	AECOM, ARC, Oxford Technologies, NPL, ESG, Quintessa, React Engineering, KDC, Tradebe Inutec, Synergy Health, Nuclear AMRC, Loughborough University, University of Manchester, University of Surrey	Site Decommissioning and Remediation <ul style="list-style-type: none"> • Technical underpinning for the NDA's strategy on decommissioning, land quality and site end states
Lot C - Spent Fuel and Nuclear Materials		
Wood Group (previously Amec Foster Wheeler Ltd)	Andra, Brenk Systemplanung and Jülich Research Centre, DAS Ltd, Fortum, MMI Engineering, NPL, NRG, OC Robotics, Studsvik, University of Birmingham, University of Manchester, University of Bristol, University of Cambridge, Loughborough University, Imperial College	<ul style="list-style-type: none"> • Sponsoring R&D that enables the NDA to set and monitor SLC delivery of our Strategy on Magnox spent fuel, oxide spent fuel, exotic fuels and uranics
Areva NC	NSG Consultancy, MDecon, Quintessa, University of Liverpool, University of Sheffield	<ul style="list-style-type: none"> • Ensuring skills in spent fuel management and plutonium handling are maintained over the longer term
National Nuclear Laboratory	Frazer-Nash Consulting, Galson Sciences Ltd, ALD France, Aquila Nuclear Engineering, DBD, DAS, IDM, Jacobs, Kurion, Rodgers-Leask, University of Bristol, Lancaster University, University of Leeds, University of Manchester, University of Sheffield, Imperial College	<ul style="list-style-type: none"> • To support NDA development of options for managing the UK's uranics inventory and stockpile of separated plutonium • Sponsoring R&D that enables the NDA to respond to government policy and oversee SLC activities on management of uranics and plutonium

Sellafield

Sellafield, in Cumbria, is the NDA's largest and most complex nuclear site. The site tackles a diverse range of technical challenges and many 'never-done-before' projects requiring significant innovation and novel engineering solutions.

Sellafield currently commissions R&D projects through the main routes below. Please come and speak to the Sellafield team in the Innovation Zone if you'd like to find out more.

Alternatively you can find lots of information about how to work with Sellafield here:

<https://www.gov.uk/guidance/how-to-do-business-with-sellafield-ltd>



Contracting options for R&D and Innovation at Sellafield

Contract Mechanism	Scope	Current suppliers	Spend per annum	Notes
Enabling Innovation Framework	Supports Sellafield Ltd in maintaining and strengthening its ability to act as an intelligent client. Not intended for delivery of projects, but to enable innovation	Wood Group (previously Amec Foster Wheeler Ltd), Atkins, Capita, Cavendish Nuclear Ltd, EPI Consulting, North West Projects, Nichols Group, NSG Environmental, Quintessa, React Engineering, Tenet Consulting, Nuclear Technologies and Westlakes Engineering Ltd	£4m	4 year framework due for renewal in 2019
Technical Services Agreement	Research and development, plant support, technical demonstrations, technical services and technical skills maintenance	National Nuclear Laboratory (NNL)	£30m	Long term framework agreement
University Centres of Expertise	Low Technology Readiness Level (TRL) research which may lead to significant innovation	NNL leads the programme. Centre for Innovative Nuclear Decommissioning (CINDe), University of Leeds / University of Bristol / London South Bank University / University of Manchester), many of which are co-funded by the Research Councils	£0.5m (£0.1m per University)	Currently being reviewed and renewed
Metrology and Technical Investigations	Skills and expertise to apply the most accurate and up-to-date measurement standards, science and technology available	National Physical Laboratory	£0.1m	4 year framework due to be renewed in 2019
Project Specific Demands	Specific Research and Development support for Sellafield's Technical Department covered mainly by direct awards	A range of UK and European suppliers covering equipment trials, additional research projects (often co-funded with other public bodies / contractors)	£5m	<i>The Sellafield 2016/17 Technology Development and Delivery Summary</i> contains useful information for suppliers and is available online
Game Changers - programme	Innovation that can make a substantial impact on the cost of decommissioning	NNL manage the programme, with suppliers from UK plus academia	N/A	Rolling programme of work

Wider estate

Many of our other Site Licence Companies (SLCs) and subsidiaries commission R&D projects too. One of the principal mechanisms for commissioning R&D is via the Specialist Nuclear Services Framework. Details for this framework are provided below.

Contract Mechanism	Participating Entities	Relevant Lots	Lead Contractor	Consortium Members	Notes
Specialist Nuclear Services Framework	Lead Participating Entity: Magnox Limited Relevant Participating Entities: <ul style="list-style-type: none"> • NDA • Magnox • DSRL • LLWR • RWM • INS 	Lot 1. Lab R&D	NNL (Orchid Consortium)	Gardiner & Theobald, Galson Sciences, Nuvia, Parsons Brinkerhoff, NNL, Frazer-Nash, Amphos 21, VTT, University of Sheffield, University of Manchester, Loughborough University, University of Leeds, University of Birmingham	4 year contract which expires in March 2019. ITT to be issued circa March 2018
			Wood Group (previously Amec Foster Wheeler)	Studsvik (Cyclife), NRG, CEA, University of Cambridge, Croft Associates, University of Manchester, University of Birmingham, Bedrock Geosciences, University of Leeds, Imperial College, MCM, Savage Earth, Paul Schroder Institute, Intellisci, BGS, University of Nottingham, NAGRA, Loughborough University, Arup, Frauhofther Institute	
			NSG (Nucleus Consortium)	Abbott Risk Consulting, Nuclear Technologies, NSG, Quintessa, Eden Nuclear, Enviras, ESG, Golder Associates, MMI, RSSI, Synergy Health	
		Lot 2. Desk-based R&D	Quintessa (Nucleus Consortium)	Quintessa, NSG, Abbott Risk Consulting, Nuclear Technologies, MMI Engineering, Eden Nuclear, Golder Associates, Tessella, Nukem, Lloyds Register, Oxand	
			Wood Group (previously Amec Foster Wheeler)	Studsvik (Cyclife), NRG, CEA, University of Cambridge, Croft Associates, University of Manchester, University of Birmingham, Bedrock Geosciences, University of Leeds, Imperial College, MCM, Savage Earth, Paul Schroder Institute, Intellisci, BGS, University of Nottingham, NAGRA, Loughborough University, Arup, Frauhofther Institute	
			Galson Sciences (Orchid Consortium)	Gardiner & Theobald, Galson Sciences, Nuvia, Parsons Brinkerhoff, NNL, Frazer-Nash, Amphos 21, VTT, University of Sheffield, University of Manchester, Loughborough University, University of Leeds, University of Birmingham	

You can find lots more information about how to work with our SLCs and subsidiaries here:

- Magnox Ltd. <https://magnoxsites.com/suppliers>
- Dounreay Site Restoration Ltd. (DSRL) <https://dounreay.com/supply-chain/>
- LLW Repository Ltd. (LLWR) <http://llwrsite.com/suppliers/>
- Radioactive Waste Management Ltd (RWM) <http://www.nda.gov.uk/rwm>
- International Nuclear Services (INS) Ltd <https://www.innuserv.com/our-business/suppliers/>

Working with other sectors

It's important that we take time to look outside of the nuclear sector as we develop solutions to decommissioning challenges. This year, we have invited three exhibitors to the Innovation Zone from the Space and Oil & Gas sectors, and we encourage you to engage with them and share ideas.

UK Space Agency

The UK Space Agency is an Executive Agency of the Department for Business, Energy and Industrial Strategy. We are responsible for the UK's civil space policy, enabling growth, regulation and programme delivery.

The Agency leads and funds the Space for Smarter Government Programme (SSGP), which aims to increase the uptake of space services and data within the UK public sector. We are currently planning a new demonstrator programme focussed around nuclear site challenges. If you would like get involved or find out more, please come along to the Innovation Zone where you can meet the team and hear about some of our previous demonstrator projects. For more details on the programme go to:

www.spaceforsmartergovernment.uk

The Agency also supports a H2020-funded project to develop a robotics roadmap for future orbital and planetary missions. The R&D is undertaken by a suite of projects collectively known as the Strategic Research Cluster (SRC). The €8m 2018 SRC Call opens in November 2017. We are keen to talk with robotics businesses and researchers to identify any opportunities for cross-sector collaboration or new exploitation routes. For more information, please visit www.h2020-peraspera.eu

or email

Daniel.jones@ukspaceagency.bis.gsi.gov.uk.

Satellite Applications Catapult

The Satellite Applications Catapult is an independent innovation and technology company, created to foster growth across the economy through the exploitation of space. We help organisations make use of and benefit from satellite technologies, and bring together multi-disciplinary teams to generate ideas and solutions in an open innovation environment.

We support the UK Space Agency's Space for Smarter Government Programme (SSGP), which aims to increase public sector uptake of space services and data to deliver more effective policy and operational delivery. We are currently exploring how space and satellite technologies and applications could be used within energy infrastructure delivery within the civil nuclear sector.

Find out more about specialist technical and business support services to help you exploit satellite data and technology at

sa.catapult.org.uk

The Oil & Gas Technology Centre

The Oil & Gas Technology Centre is a not-for-profit, research and knowledge company. We aim to become the go-to technology centre for the oil and gas industry in the UK and globally. The Centre inspires, accelerates and funds technology innovation from early stage concept through to deployment.

Our Solution Centres look for innovative ideas to help commercialise. We work with industry to identify, co-fund and manage technology projects that drive down the cost of decommissioning. We issue a diverse range of 'Calls for Ideas' through our Open Innovation Programme, with each call offering c.£1m to relevant projects.

Our technology accelerator – TechX – launches in December. Our goal is to support more than 100 new technology developers bring solutions to market over the next decade. We'll offer up to £100k per start-up, with no equity or pay back required.

Find out more: www.theogtc.com

Innovation Zone Exhibitor List

i1	Lokring Northern	i22	Createc
i2	TWI Ltd	i23	UK Space Agency
i3	ImiTec Ltd	i24	Satellite Applications Catapult
i4	Bristol Robotics Laboratory	i25	Furness Engineering & Technology Ltd
i5	Veolia Nuclear Solutions	i26	Clicks and Links Ltd
i6	Pajarito Scientific Corporation	i27	Sonomatic Ltd
i7	EneffTech UAV Services	i28	Klauke UK Ltd
i8	NDA / Innovate UK	i29	NSG Environmental Ltd
i9	Limpet Technology	i30	Steve Vick International
i10	Oreka Solutions	i31	LabLogic Systems Ltd
i11	i3D Robotics Ltd	i32	Atkins
i12	Sellafield Ltd	i33	PaR Systems Ltd
i13	Forth Group	i34	Nuvia Ltd
i14	Viridian Consultants	i35	Imenco UK Ltd
i15	BHR Group	i36	Applied Photonics Ltd
i16	Realm Communications	i37	Onet Technologies
i17	Innovative Physics	i38	Inspectahire Inst. Co. Ltd
i18	Cogentus	i39	National Nuclear Laboratory
i19	Barrnon Ltd	i40	University of Sheffield
i20	Hilti (Gt. Britain) Ltd	i41	Mirion Technologies
i21	DroneOps Ltd	i42	The Oil & Gas Technology Centre



Want to find out more?

Please contact research@nda.gov.uk or support@innovateuk.gov.uk