

Press release: Appointment of Dr Patrick Vallance as government Chief Scientific Adviser

The Cabinet Secretary is pleased to announce the appointment of Dr Patrick Vallance as the new government Chief Scientific Adviser. Dr Vallance, who is currently President of Research and Development, at GlaxoSmithKline, and the former Head of Medicine at University College London, was chosen following an open competition. He will take up the post in Spring 2018. Professor Chris Whitty, Chief Scientific Adviser for the Department of Health, is carrying out the role on an acting basis.

The Cabinet Secretary, Sir Jeremy Heywood said:

This is an excellent appointment for the Civil Service, in an important area of government business. Patrick Vallance has already advised the government on several occasions in his capacity as a Member of the UK Ministerial Industry Strategy Group, so he is well placed to offer the best scientific advice available to the Prime Minister and other members of the Cabinet. I am also looking forward to the contribution Patrick will make in leading the science community across government, building on the great work of Sir Mark Walport, his predecessor.

I would also like to take this opportunity to thank Sir Mark for the invaluable contribution he has made to policy development and strengthening Whitehall's already world-class science capability.

Commenting on his new role, Dr Patrick Vallance said:

It is a great honour to join the Civil Service as the Government Chief Scientific Adviser. Science, engineering and technology have a vital role to play at the heart of policy making and are critical to economic growth and prosperity in the UK as well as to addressing many of the greatest challenges of our time, such as environmental change and keeping our citizens healthy and secure.

I look forward to working with colleagues to ensure the government has the best possible advice, from the best experts, based on the strongest evidence, to inform the widest range of policy decisions.

Science Minister, Jo Johnson said:

Science and innovation plays a pivotal role in our Industrial

Strategy and we've invested an additional £4.7 billion to 2020/21 to ensure we continue to build on our worldwide reputation as a science powerhouse. Dr Patrick Vallance's extensive knowledge and experience from the private sector and academia will play a central role in supporting this commitment and promoting our global leadership status.

[Press release: Public asked to comment on Medway Estuary flood defence strategy](#)

Members of the public are being invited to share their views on the Environment Agency's strategy to protect areas of the north Kent coast over the next century.

The [online public consultation](#) opens today, 6 November 2017, allowing people to view the Environment Agency's plans on how best to best protect people, properties, wildlife habitats and agricultural land from flooding and coastal erosion in the Swale and Medway Estuary Area.

The Medway Estuary and Swale Strategy outlines the best technical solution for flood defence while considering the impact and benefits to local communities and the environment, as well as the cost to the taxpayer. It covers the Medway towns of Stoke, Sittingbourne, Conyer and Faversham, in addition to the Isle of Sheppey and the Medway Estuary.

Rising sea levels could result in the loss of nationally and internationally designated wildlife habitats in the area, which might be 'squeezed' against existing defences. The strategy therefore considers whether existing defences could be moved inland and the coastline returned to a more natural state, or whether habitat could be created elsewhere.

Mark Douch, Area Flood and Coastal Risk Manager, said:

The project team has developed leading options for each section of the strategy area, based on economic, technical, and environmental appraisals.

We are keen to hear comments and feedback from the public on the proposed flood and coastal management options. We want to make sure we have captured all information before finalising the strategy.

The consultation runs until 5 February 2018.

Members of the local communities and key stakeholders are invited to review the proposed options for the management of coastal flood and erosion risk at public exhibitions being held at:

- Eastchurch Village Hall, Isle of Sheppey, 3pm to 7pm, 30 November 2017.
- Riverside Country Park, Gillingham, 3pm to 7pm, 6 December 2017.
- Halling Community Centre, 3:30pm to 7:30pm, 12 December 2017.

[News story: Chief Secretary heralds breakthrough in Northern Line extension](#)

A groundbreaking new development in South West London moved a step closer today (8 November), as tunnelling work on the Northern Line extension was completed, paving the way for faster journey times and supporting tens of thousands of new homes.

This project, which was backed by £750 million of loan guarantees from HM Treasury, has created two new tunnels running from Battersea to Kennington via Nine Elms. Two new tube stations – Nine Elms and Battersea Power Station – will also be added to the Northern Line, helping cut commutes to central London to as little as 15 minutes.

The Chief Secretary to the Treasury, Liz Truss said:

It's very exciting to see this new phase of the Northern Line delivered.

Great infrastructure, including the tube, is vital to a thriving London. That is why we backed this important project which is supporting thousands of jobs and new homes in our capital.□

And that is why we are backing projects across the country that will help drive enterprise and growth.

The newly extended service is vital to regenerate a historic part of London, and will create an estimated 25,000 new jobs, resulting in more than 20,000 new homes being built in the area.

As the first London tube line extension for more than 20 years, the project received government support in 2012, in the form of a UK Guarantee. This project was one of the first to benefit from the UK Guarantee Scheme which supports private investment in UK infrastructure projects, and enabled the Mayor of London to borrow up to £1 billion needed to get it off the ground.

Further information

The UK Guarantees Scheme was launched in July 2012 and can issue up to £40 billion of guarantees. To date, it has issued nine guarantees totalling £1.8 billion of Treasury-backed infrastructure bonds and loans, supporting over £4 billion worth of investment.

For the Northern Line extension, the loan from the Public Works Loan Board is being used to pay for the up-front costs of construction, while the borrowing costs are being serviced by a tariff on development paid by developers to the London Boroughs of Wandsworth and Lambeth under the Section 106 (s106) and Community Infrastructure.

[News story: Innovation loans to demonstrate infrastructure systems: apply now](#)

Small or medium-sized enterprises (SMEs) working on late-stage infrastructure systems projects can apply for a share of £10 million in a pilot loans competition – the first opportunity to access Innovate UK's new alternative financial support scheme.

This loans competition aims to help businesses overcome barriers to scaling up innovation in infrastructure systems. It will do this by enabling them to demonstrate their ideas work as expected in real-world applications with users, and take their solutions to market.

It was announced today at [Innovate 2017](#).

Smarter, better infrastructure

The growing, ageing population, increased urbanisation and urgent need to reduce carbon emissions calls for new and novel infrastructure solutions. But developing, testing and commercialising new ideas in this sector can be risky.

You could get an innovation loan of up to £1 million for a first of a kind deployment of infrastructure technologies.

Demonstrator projects must be in one of Innovate UK's priority areas. These are:

- smart infrastructure, adding intelligence to improve physical infrastructure or the design process
- urban living, addressing the challenges people face in urban areas in

order to improve user experience and lower costs. This could be:

- 'hard' systems, such as energy, transport, waste, water and communication
- 'soft' systems, such as security, law and justice (for example, public order and safety), health, wellbeing, social care and education
- 'environmental' systems such as green spaces and waterways
- energy supply and systems, specifically improving the value proposition, affordability, emissions and security of energy
- connected transport, looking at solutions that move people and goods more efficiently and sustainably, and make transport more secure, user-centric and accessible

Introducing innovation loans

This is the first time Innovate UK has run a loans competition.

Innovations need different types of funding support depending on how close they are to market. Getting the right funding at the right time can scale up businesses' productivity and growth.

We believe that a patient, flexible loan scheme will be useful for innovations that are near to market, where there is less risk involved.

A pilot loan scheme worth up to £50 million will be offered over the next 2 years. Loans will be made through Innovate UK Loans Ltd, a wholly owned subsidiary of Innovate UK.

About the infrastructure systems loan competition

- the loans competition is open, and the deadline for registration is 10 January 2018
- you could get between £100,000 to £1 million to cover up to 100% of eligible project costs
- this opportunity is for UK-based SMEs
- applications can only be made by single SMEs
- loans are for late-stage experimental development only
- they are available for up to 10 years
- there is a briefing event for applicants on 16 November 2017

[Press release: Funding for £84 million for artificial intelligence and](#)

robotics research and smart energy innovation announced

- Four new research hubs will develop robotic technology to improve safety in off-shore wind and nuclear energy
- £68 million from the Industrial Strategy Challenge Fund for artificial intelligence and robotics research announced
- Government also commits to £16 million worth of funding for smart energy systems innovation

More than £68 million of investment from the Industrial Strategy Challenge Fund for robotics and artificial intelligence projects aimed at improving safety in extreme environments has been announced by the government.

This investment will develop robots and artificial intelligence able to take on jobs in the freezing depths of the North Sea, dealing with extreme environments in the process of nuclear energy production, the hostile vacuum of space, and heat of deep mining.

In her keynote speech to the Innovate UK Conference in Birmingham today (8th November), Climate Change and Industry Minister Claire Perry set out how British experts and innovators are leading the world in this new sector, receiving support from the Industrial Strategy Challenge Fund.

The government is working with business and academia in order to encourage investment in robotics and artificial intelligence – a priority area of the Industrial Strategy.

Almost £45 million will be used to set up four new research hubs based at the University of Manchester, University of Birmingham, University of Surrey and Heriot-Watt University in Edinburgh.

The centres of excellence, managed by the Engineering and Physical Sciences Research Council (EPSRC), will be responsible for developing robotic technology to enable safer working environments in space and deep mining and the hazardous and harsh environments of nuclear energy and off-shore wind.

As well as receiving government investment, the four hubs will be supported by £52 million of industry support from commercial and international partners, and UK Space Agency is co-funding the University of Surrey hub.

Minister for Climate Change and Industry Claire Perry said:

Britain leads the world in innovation and technology and through the Industrial Strategy Challenge Fund, we are making £68 million available to projects in robotics and artificial intelligence with applications in clean renewable energy generation to ensure the UK is the place new technology is nurtured.

Next week, I will be at the COP23 conference in Germany, and it will be abundantly clear there that, if we want to truly make a difference to our climate as well as take advantage of the economic opportunities of our transition to a low carbon economy, it will come down to continued innovation.

The investment announced by the Climate Change and Industry Minister today also includes:

- £4.3 million for the Natural Environment Research Council (NERC) to fund five research projects at the National Oceanography Centre (NOC), and the Universities of Exeter and Southampton, to develop sensors capable of working in the ocean's extreme conditions
- £16.5 million for a collaborative research and development competition, run by Innovate UK, with winners set to include more than 70 businesses, 13 universities and 10 research organisations
- funding of £3 million for 17 studies which focus on demonstrating how artificial intelligence can operate in extreme environments, following a separate competition run by Innovate UK

Professor Philip Nelson, Chief Executive of the Engineering and Physical Sciences Research Council, said:

These new Robotics Hubs will draw on the country's research talent to nurture new developments in the field of robotics and provide the foundations on which innovative technologies can be built.

The resulting outcomes from this research will allow us to explore environments that are too dangerous for humans to enter without risking injury or ill-health. The Industrial Strategy Challenge Fund is helping us achieve a joined up approach to research, discovery and innovation.

Ruth McKernan, Chief Executive of Innovate UK, said:

These pioneering projects driven by the very best minds in UK research and industry exemplify the huge potential of what can be achieved through the Industrial Strategy Challenge Fund and the long-term benefits for the UK economy.

These are just the first competitions in robotics and AI, there will be further opportunities for businesses in the coming months.

Professor Duncan Wingham, Chief Executive of the Natural Environment Research Council, said:

These sensors will help us to better understand our oceans, helping

us to manage them sustainably for the future. The projects will develop ambitious new technologies that work in hazardous and extreme environments, maintaining the UK's world-class status in marine robotics.

Other industries, such as the water, aquaculture and industrial waste, are also likely to benefit from these technologies.

Today's announcements follow the publication of the industry-led Made Smarter review, which predicted Britain's manufacturing sector could unlock more than £450 billion over the next decade and create thousands of jobs if it successfully embraced digitisation, robotics and artificial intelligence.

Alongside the Department for Digital, Culture, Media and Sport, BEIS has also been working with Professor Dame Wendy Hall and Dr. Jerome Pesenti to establish how the UK can grow and support its burgeoning artificial intelligence sector.

In April, the government announced £1 billion of investment through the Industrial Strategy Challenge Fund for cutting-edge technologies to create jobs and raise living standards. Other areas receiving government support include cutting edge healthcare and medicine, battery storage and satellite and space technology.

Ahead of attending climate change talks at COP23 in Germany next week, the Minister also announced £16 million for research into two new smart energy innovation competitions, which build on Government's ambition to fund over £2.5 billion in clean technology innovation, as set out in last month's Clean Growth Strategy.

These will focus on creating technologies which will reduce demand on the electricity grid at peak periods and to increase demand at times when low-carbon generation is at its peak, saving money and cutting emissions.

These new competitions will also be used to explore ways that smart energy systems can help to reduce energy use by schools, and small hospitality businesses.

This comes following the government publishing its Smart Systems and Flexibility Plan in July this year, which set out a range of measures to reduce the regulatory burdens of making our energy system more smart.

The minister also announced the winners of the first phases of two energy innovation competitions looking into the feasibility of energy storage and non-domestic demand side response, with £400,000 awarded to nine companies across the UK.

Notes to editors:

Summaries of the EPSRC hubs:

National Centre for Nuclear Robotics Led by: Professor Rustam Stolkin,

University of Birmingham
ISCF funding: £11.3 million

Project partners: Universities of Bristol, Edinburgh, Essex, Lincoln, West of England, Lancaster University, Queen Mary University of London.

The National Centre for Nuclear Robotics will aim to develop advanced robotics and AI technologies for nuclear industry applications. These are required to help deal with nuclear waste, and alleviate the need to send humans into hazardous environments. These advances are also needed to maintain and monitor the UK's existing nuclear power stations, and facilitate the safe building and operation of new-build nuclear power-plants.

The Robotics and Artificial Intelligence for Nuclear (RAIN) Led by: Professor Barry Lennox, University of Manchester
ISCF funding: £11.9 million

Project partners: Universities of Oxford, Liverpool, Sheffield, Nottingham, Lancaster, Bristol and the UKAEA's RACE centre.

The Robotics and Artificial Intelligence for Nuclear (RAIN) Hub involves robotics and nuclear engineering experts across the UK and international partners from the US, Italy and Japan. It will undertake world-leading research and develop innovative technologies to address the challenges facing the nuclear industry, from decommissioning and waste management to fusion, plant life extension and new build.

Offshore Robotics for Certification of Assets (ORCA) Led by: Professor David Lane, Heriot-Watt University ISCF funding: £14.3 million

Project partners: Universities of Edinburgh, Oxford and Liverpool, Imperial College London

The ORCA Hub will develop robotics and AI technologies for use in extreme and unpredictable environments. The Hub will create robot-assisted asset inspection and maintenance technologies that are capable of making autonomous and semi-autonomous decisions and interventions across aerial, topside and marine domains.

Future AI and Robotics for Space (FAIR-SPACE) Led by: Professor Yang Gao, University of Surrey ISCF funding: £6.7 million

Project partners: Imperial College London, Universities of Edinburgh, Liverpool, Salford and Warwick

The aim of FAIR-SPACE is to go beyond the-state-of-the-art in robotic sensing and perception, mobility and manipulation, on-board and on-ground autonomous capabilities, and human-robot interaction, to enable space robots to perform more complex tasks on long-duration missions with minimal dependence on ground crew. FAIR-SPACE is co-funded by the UK Space Agency.

Additional information:

- The new Industrial Strategy Challenge Fund (ISCF) was announced in November 2016 by the Prime Minister as part of the Government's wider industrial strategy.
- The funding from the ISCF will be spent across 6 key areas over the next 4 years, driving progress and innovation that will create opportunities for businesses and sectors across the UK.
- The government has worked with businesses and academics to identify core industrial challenges, where research and innovation can help unlock markets and industries of the future in which the UK can become world-leading.
- The Clean Growth Strategy was published last month and has innovation at its heart.
- The government will invest £1 billion supporting the take-up of ultra-low emission vehicles, including helping consumers to overcome the upfront cost of an electric car and developing one of the best electric vehicle charging networks in the world.
- The UK's low carbon economy has the potential to grow in the region of 11 per cent per year up to 2030, meaning that in just 13 years it could support as many as two million more jobs and export up to £170 billion in low carbon goods and services each year.
- The winners of the first phase of the Energy Feasibility Study Competition were:

Highview Enterprises Ltd., London for liquid air energy storage;

SSE Renewables Developments UK Ltd in Perth, focused on power-to-gas;

ITM Power Trading Ltd in Sheffield, focused on power-to-gas; and

Cumulus Energy Storage Ltd in Rotherham, focused on Copper/Zinc super-storage batteries

- The winners of first phase of the Non-Domestic Demand Side Response competition are:

DuckDuck Ltd., London, focused on cloud based energy management;

Totem Sustainable Solutions in Wells, focused on intelligent energy saving platforms;

Flexricity Ltd., Edinburgh focused on demand-response portfolios;

Kiwi Power, London focused on demand response aggregation; and

Innovatium LLP, Windsor focused on an innovative liquid air production and storage system.