Press release: Government to support development of next-generation nuclear technology

- UK to become world-leader in developing next-generation advanced reactor programme
- boost to nuclear fusion research at Culham in Oxfordshire
- launch of next phase of Nuclear Innovation Programme, to include ambitious plans for safety, security and advanced fuels

The government announced today significant support to help exploit the potential for the UK to become a world-leader in developing the next generation of nuclear technologies.

A core objective of the government's Industrial Strategy is to ensure the UK is developing the technologies of the future and preparing to seize the opportunities they bring and build on its strengths.

The government is announcing today that funding is being made available over the next 3 years to help support research and development into innovative advanced and small modular reactors as well as assess their feasibility and accelerate the development of promising designs.

The government will also be supporting early access to regulators to build the capability and capacity needed to assess and licence small reactor designs and will establish an expert finance group to advise how small reactor projects could raise private investment in the UK.

In addition, the government plans to shortly launch the second phase of its Nuclear Innovation Programme, including up to £8 million for work on modern safety and security methodologies and studies in advanced fuels.

These announcements demonstrate the government's commitment to the nuclear innovations of the future, which build on the UK's considerable strength in the sector and its continued partnership working with the sector, including ongoing advanced discussions toward a nuclear sector deal.

Business Secretary Greg Clark said:

> New industry figures show that the UK's civil nuclear sector contributed £6.4 billion to the UK economy last year. Today's announcements recognise the importance of industry driving innovation, supported by government, so the sector continues to compete at the very highest level, not just in the UK but globally.
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> Helping to put the UK at the forefront of future technologies which have the potential to create value and jobs across the whole UK are

> core objectives of our Industrial Strategy.

A further £86 million was announced today for fusion research to set up a national fusion technology platform at the Culham Centre for Fusion Energy in Oxfordshire.

The new investment will reinforce the UK's world-leading fusion research and development capability, and allow UK firms to compete for up to a further £1 billion of international contracts for fusion technologies, including for the International Thermonuclear Experimental Reactor (ITER).

Science Minister Jo Johnson said:

> Our new Industrial Strategy clearly detailed our ambition to build on the UK's existing scientific strengths and ensure UK expertise remains at the forefront of pioneering research that has global impact.
>
> This new funding for nuclear fusion research will establish a unique set of research and innovation capabilities that will safeguard the exceptional work already taking place in Culham by scientists and engineers from across the world, and emphasises the UK's commitment to international collaboration.

ITER, the successor project to the EU's Joint European Torus (JET) reactor in Culham, is currently under construction in France and will continue efforts to develop a clean, safe and virtually limitless energy source.

Speaking at today's Nuclear Industry Association's annual conference, Energy Minister Richard Harrington also set out the next steps to allow large new nuclear projects to apply for planning consent after 2025.

He also signalled that the government would bring forward consultations in the New Year on the UK's long-term nuclear waste management strategy, also known as a geological disposal facility. This will enable the development of a multi-billion-pound infrastructure project, creating thousands of jobs and opportunities for UK companies in the supply chain.

Energy Minister Richard Harrington said:

> As we set out in our Industrial Strategy, the nuclear sector has a key role to play in increasing productivity and driving clean growth across the country. Nuclear is a vital part of our energy mix, providing low carbon power now and into the future so today's package of new measures will help to boost innovation and provide greater clarity on our future plans.
>
> Today's announcements follow the recent launch of the Industrial Strategy white paper which set out the government's vision for an

> economy that can drive growth across the country, boost national productivity and provide UK business with certainty.

The government support comes as the Nuclear Industry Council published proposals today as part of its ongoing work to drive down the cost of nuclear energy for consumers while maintaining the UK's world-leading expertise in the field.

Industry, with government backing, will focus on bringing on line future technologies, target cost reductions in new build and decommissioning activities, and in creating a highly-skilled and diverse workforce.

Notes to editors

Advanced modular reactors

The government is providing up to £56 million research and development (R&D) funding for new technologies through a 2-stage Advanced Modular Reactor (AMR) R&D project over 3 years. Stage 1 comprises up to £4 million for feasibility studies and up to £7 million to further develop the capability of nuclear regulators who support and assess advanced nuclear technologies. Subject to Stage 1 demonstrating clear value for money through a formal re-approval process with the Treasury, up to £40 million will be available for AMR R&D projects and up to a further £5 million for regulators.

Fusion

The government has awarded the UK Atomic Energy Authority (UKAEA) £86 million to establish a centre to support innovation and expertise in nuclear fusion technologies. This move reinforces the UK's world-leading fusion R&D capability and creates a fusion innovation centre of global significance.

The funding will establish a National Fusion Technology Platform (NaFTeP) at UKAEA's Culham Centre for Fusion Energy in Oxfordshire.

NaFTeP will bring together organisations from across the supply chain to provide a unique, world-leading set of nuclear research and innovation facilities in tritium and fusion technology. NaFTeP will support UK industry in targeting major scientific and engineering contracts in nuclear fusion and safeguard the future of the Culham site and the world-class scientists and engineers that work there.

Nuclear Industry Council

The Industrial Strategy green paper cited nuclear as suitable for a potential Sector Deal.

Since then Lord John Hutton, in his capacity as Chair of the Nuclear Industry Council, has led the sector in the development of a range of proposals across key areas including new build, waste and decommissioning, R&D and skills.

The industry has today published its proposals, including ideas that target significant cost reductions in new build and decommissioning.

New Nuclear National Policy Statement (NPS)

Government is considering the planning framework for nuclear power generation over 1 gigawatt for the long term. The current National Policy Statement (NPS) for nuclear will remain in place for as long as it is required. Government is consulting on the arrangements for the siting of nuclear power stations for the period beyond 2025.

This consultation sets out the process and the updated high level criteria used to assess potentially suitable sites. There will be a further consultation on a new NPS during late 2018, which will build on the outcome.

Government's intention is to carry forward existing sites into the new NPS, subject to them meeting the updated siting criteria and environmental assessments.

Government continues to give those sites, and projects, strong support.

This consultation and the subsequent NPS being developed under this process will not apply to SMRs. The government will consider planning issues related to smaller reactors of less than 1GW separately.

Geological Disposal Facility (GDF)

The government intends to launch 2 public consultations in the New Year on working with communities in an intended consent-based siting process; and on a National Policy Statement (NPS) for GDF infrastructure.

Nuclear Innovation Programme

The second phase of the Nuclear Innovation Programme consists of:

- £3.7 million of funding for work on reactor design and safety engineering. This work will aim to:
  - develop better tools for developing and evaluating safety and security cases
  - improve the evaluation of nuclear safety and security performance
  - increase understanding of how nuclear safety, nuclear security and safeguards requirements can be delivered throughout the design process
- £4.3 million of funding for work on advanced nuclear fuels. This work will aim to:
  - develop world leading laboratories able to develop accident tolerant fuels and to
  - develop improved computer modelling and simulation of how advanced nuclear fuels behave in operation
  - support the deployment of advanced nuclear reactors, such as generation IV technologies

As part of the first phase of the Nuclear Innovation Programme launched last year the government has also awarded £5 million of contracts for work on nuclear advanced materials and manufacturing. This funding is for Stage 2 of a small business research initiative and includes work on:

- developing a single manufacturing platform environment
- intelligent fixtures for optimised and radical manufacture
- material / manufacturing technology evaluation for advanced reactors
- nano-structured steels to extend operational performance for nuclear reactors
- improved understanding and modelling of thin section weldments

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Consultation outcome: National Policy Statement for new nuclear above 1GW post 2025: siting criteria and process

Updated: Government response published.

National Policy Statements (NPS) establish the case for Nationally Significant Infrastructure Projects, as defined in the Planning Act 2008. The current nuclear power NPS lists 8 sites as potentially suitable for the deployment of new nuclear power stations by the end of 2025.

We are considering the planning framework for nuclear power generation for the long term by starting work towards a new NPS for nuclear power generation for deployment after 2025. The first step towards this new NPS is to consult on the process and criteria for designating potentially suitable sites for the deployment of new nuclear power stations between 2026 to 2035 and with over 1GW of single reactor electricity generating capacity. There will be a further consultation on the draft NPS, which will build on the outcome of this consultation.

As part of the designation of the NPS, an Assessment of Sustainability (AoS) will also be undertaken. The scoping report on the AoS sets out how it will be undertaken, the level and type of information it will cover, and how it will be integrated into the development of the proposed new NPS for nuclear. In accordance with Regulation 12(5) of the Environmental Assessment of Plans and Programmes Regulations 2004, only specific statutory consultees are being consulted on the AoS Scoping Report. However, we have made the scoping report publicly available on this page, for information purposes only.

We are keen for views on the proposed process and criteria from industry, local authorities, regulators and non-departmental public bodies, NGOs and local residents.

Assessment of Sustainability

Only specific statutory consultees are being consulted on the AoS Scoping Report. This consultation is open for the statutory 5 week period and closes on 11 January 2018.

Research and analysis: Small Modular Reactors: Techno-Economic Assessment

In March 2015, government commissioned an independent Techno-Economic Assessment (TEA) of Small Modular Reactors (SMRs) in order to contribute to the evidence base and help inform policy decisions.

There are a total of 7 projects that make up the TEA:

- Project 1: Comprehensive analysis and assessment of SMRs. Led by Atkins
- Project 2: Systems optimisation modelling for SMRs. Led by the Energy Technologies Institute
- Project 3: Assessment of emerging SMR technologies. Led by the National Nuclear Laboratory
- Project 4: Assessment of UK regulatory regime for SMRs. Led by Checkendon Hill
- Projects 5-7: SMR Cost reduction study. Led by EY
    - Project 5 – Advanced manufacturing
    - Project 6 – Advanced assembly, modularisation and construction
    - Project 7 – Control, operation and electric systems

Collection: Shoreham Adur tidal walls scheme

The Environment Agency is working with Coast to Capital Local Enterprise Partnership (LEP), Adur District Council and West Sussex County Council to reduce the risk of flooding to Shoreham-by-Sea and Lancing.

The scheme will reduce the risk of flooding to over 2,300 homes and 169 commercial properties by significantly improving the standard of existing tidal defences in Shoreham-by-Sea.

The £32 million project is partnership funded, with a £23.8 million

contribution from government attracting partnership contributions from West Sussex County Council, Coast to Capital LEP, and some private developers through Adur District Council.

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Updated: Amendments to text 15 December 2017.

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