ENERGY

LEAVING THE EU
THE EURATOM TREATY

Institution of MECHANICAL ENGINEERS

The Government's desire to make a clean break from the EU and therefore leave the Euratom Treaty presents the UK nuclear sector with a significant challenge in making alternative mitigating arrangements.

These arrangements are needed to be able to continue to operate our nuclear fleet within an international framework, build new power stations, maintain fuel routes and continue to lead nuclear research. The time needed to make these arrangements is particularly critical, therefore identifying what needs to be done as a priority and negotiating sufficient time to implement changes is of the utmost importance. This paper begins to explore the implications of Euratom departure, the opportunities and threats created, and recommendations towards a strategy safeguarding UK nuclear interests.

The Institution of Mechanical Engineers recommends that:

1. **The UK Government must develop a suitable transitional framework that provides the UK nuclear industry an alternative State System of Accountancy and Control (SSAC) creating the same provision as Euratom prior to leaving the EU and Euratom treaties.** The Institution would welcome the opportunity to support the UK Government and the Office for Nuclear Regulation in the development of this system.
2. **The UK Government must create new Nuclear Cooperation Agreements with Euratom and non-EU trading countries prior to leaving Euratom.** Specific commitments for nuclear goods, services and research activities should be made as part of new trade deals with the USA, Canada, Australia, China and South Africa. The Institution would welcome the opportunity to support the Departments for Business, Energy and Industrial Strategy and International Trade in developing these commitments.
3. **The UK Government through the National Decommissioning Authority enables innovative commercial opportunities to sell nuclear services and waste treatment technology to world trade partners.**

LEAVING THE EU: THE EURATOM TREATY

THE SCOPE OF EURATOM

The implications of the UK's decision to leave the European Union on the power sector are becoming increasingly evident. In the Government's recent draft European Union (notification of withdrawal) Act 2017[1] (Brexit Bill) it outlined that in parallel with leaving the EU, it intended to leave the European Atomic Energy Community (Euratom), a separate entity governed by EU institutions. It is therefore crucial to highlight that leaving Euratom without the correct policy, regulatory and research framework in place, will have significant implications for the UK nuclear and radioactive waste industries.

Euratom covers a multitude of Directives falling into the following sectors:

- Nuclear safety
- Radioactive waste and decommissioning
- Radiation protection
- Nuclear fusion
- Proper use of materials and safeguards
- Nuclear security
- Nuclear fuel supply security[2]

This statement describes how we could potentially manage a transition to a new UK Framework policy, regulation and research or State System of Accountancy and Control (SSAC) for these sectors, and the potential for growth in the nuclear sector post-EU and Euratom[3].

Further to this the Institution would like to draw attention to the intricate links that European Directives and UK environmental safeguards and management have. It is vital that, following departure from the EU, the UK does not lessen the priority given to addressing these environmental challenges.

THE EURATOM TREATY AND HOW IT BENEFITS THE UK

The Euratom Treaty was established in 1957 and signed at the same time as the treaty that created the European Economic Community (EEC). However, when the EEC later became the European Union and a further merger of existing treaties was carried out, Euratom was excluded due to public sensitivities over nuclear power. It therefore became a separate entity, managed by the EU institutions and dealt with separately from the active treaties of the European Union.

Euratom performs four distinct functions for the nuclear industry in the UK:

1. It enables a single market of goods and services for nuclear build, ongoing generation, research and development and decommissioning in Europe.
2. It provides funding for nuclear fusion research being undertaken by UKAEA at Culham in Oxfordshire and it provides access to the European R&D community.
3. It provides safeguards regime to ensure UK compliance with the non-proliferation treaty including inspection, reporting and accounting.
4. It manages and develops the Nuclear Cooperation Agreements (NCAs) with non-EU countries on behalf of Euratom members.

The intention that the UK should leave Euratom was announced in the recent Brexit Bill, in part due to Euratom being enforced by the European Court of Justice and managed by EU institutions. This has led to concerns from the nuclear industry about the continued security of fuel supply, and development and management of nuclear power infrastructure across the UK.

The main concern is that without clear transitional arrangements, leaving Euratom could be a threat to continued consistency in UK energy policy and work on new nuclear and decommissioning activities in the UK. A critical challenge for the UK Government will be putting in place a transitional framework, ie a State System of Accountancy and Control (SSAC), in time and with due care during the two-year Article 50 process.

Taking the above into account, the process of developing a new SSAC for the UK will present difficult challenges, but these are not insurmountable. With strategic focus and support from the nuclear industry, new safeguarding systems, peer review processes, markets and international partnerships can be developed with a sustained public-private partnership approach.

A fundamental part of this challenge will be to develop new Nuclear Cooperation Agreements (NCAs) with non-EU countries, such as the USA and Canada, where there is an obligation from these countries to have an NCA to enable any kind of trade in services, products or research. Currently the UK does not have any NCAs as they have all been developed and managed by Euratom. If the UK leaves Euratom without NCAs in place with non-EU countries and Euratom it will not be able to develop any kind of trade deals for the UK nuclear industry. This will required detailed collaboration between BEIS and DIT and the UK nuclear industry.

It is essential that the UK develops a transitional framework that provides the same provision as Euratom before the deadline to leave both the EU and Euratom. This may need to be in force for a period of time after the UK leaves the EU. It is possible to be an associate member of Euratom (Switzerland) and this approach could be a possibility for the UK transitional model during the development of an SSAC that is broadly the same as Euratom. This would create minimum impact and be in line with the Lords' Amendment to Article 50 Bill:

Nuclear collaboration with Euratom:

After Clause 1, insert the following new Clause:

"**Nuclear Collaboration**

(1) Nothing in this Act shall affect the UK's membership of the European Atomic Agency Community (Euratom).

(2) Notwithstanding the provisions of any other Act, Her Majesty's Government shall treat the process of leaving Euratom as separate from that of leaving the European Union."[4]

THE EU RADIOACTIVE WASTE AND SPENT FUEL MANAGEMENT DIRECTIVE

This EU Directive is part of the Euratom Treaty and therefore will also no longer apply when the UK leaves the EU and Euratom. The Directive requires:

- EU countries should have a national policy.
- EU countries to draw up national programmes for the disposal of nuclear waste. These programmes have to include plans for the construction of nuclear waste disposal facilities.
- Relevant information on radioactive waste and spent fuel be made available to the public.
- EU countries to invite international peer reviews at least every ten years.
- The export of radioactive waste to countries outside the EU is allowed only under strict conditions.

This sector also allows for shared information on research and new technologies for the management of radioactive wastes, and enables close working across borders through research activities to meet the requirements of the Directive.

Leaving Euratom means that the UK will no longer require international peer review of activities and will no longer be required to make information available to the public. It may also not be required to draw up proposals for the construction of nuclear waste disposal facilities, which could lead to a further stifling of the development of critical UK infrastructure, such as the geological disposal facility (GDF).

Retaining the wider elements of Euratom such as the EU Radioactive Waste and Spent Fuel Management Directive will undoubtedly prove challenging for the UK Government. The risk is that we will opt for the 'least difficult' and hence 'least best' scenario for the long-term management of radioactive wastes in the UK.

SKILLS

There are a number of areas across the nuclear sector that are likely to be impacted by leaving the EU and Euratom, particularly if restrictions on the freedom of movement of people are enforced.

Construction: The nuclear sector relies heavily on skilled workers from Europe, and in the case of the construction of nuclear facilities the regulation and skills are very specific. Losing the current skilled workforce could hinder the progress of projects, such as Hinkley Point C and Wylfa Newydd.

Manufacturing: Euratom creates the European single market for goods and services for the nuclear industry. Manufacturing of parts for nuclear facilities is conducted across Europe, and new tariffs and procurement procedures could make this more costly. Upskilling the UK manufacturing sector to repatriate more work is an opportunity for the UK, but only as a long-term solution while the skills are developed.

Technical expertise: As an example, URENCO, the global leader in uranium enrichment services, has located its Technical Authority in Germany. Skills such as centrifuge technology are not available in their totality in the UK, and the mixed European expertise required to maintain consistency in UK nuclear facilities, requires free and easy access to these skills and services.

Research: Euratom provides funding for research into nuclear fusion technology, primarily through the operation of JET by UKAEA, on behalf of European fusion researchers at Culham Science Centre in Oxfordshire, UK. This Euratom research funding maintains Culham as a centre of excellence for fusion research in the UK, and is vital for the UK's continued leadership in this field.

JET is currently funded until the end of 2018, with negotiations well advanced to extend operations – with the proper deuterium and tritium fusion fuels – until the end of 2020. As is the case for the wider nuclear industry, becoming associate members of Euratom (or a suitable transitional arrangement so that the UK remains in Euratom after we have left the EU), would facilitate continued operations, thus securing these crucial experiments in 2019/20.

Researchers in fusion and fission nuclear technologies benefit from European funding programmes and from nuclear companies directly. Maintaining a skilled researcher base that continues to thrive, will rely on free and easy access for Europeans to these research facilities and their services.

The good research base in nuclear technologies at UK universities, also attracts STEM undergraduates and graduates. Traditionally these have been sourced from a variety of countries, with a significant number coming from across Europe. The business model that makes these UK universities' nuclear programmes financially sustainable, clearly relies on the current arrangements to access these students.

OPPORTUNITIES FOR THE NUCLEAR POWER SECTOR FROM LEAVING THE EU

Looking at the longer term, the Institution of Mechanical Engineers has identified a number of areas where the nuclear industry in the UK could benefit and become a global leader in new nuclear build, decommissioning and radioactive waste disposal.

Technical skills and markets: The UK Government could take control of UK enrichment and leave the Almelo Treaty (of international co-operation ensuring a safe, secure and commercially attractive supply of nuclear fuel for the peaceful production of nuclear power) with Germany and the Netherlands. This would enable the UK to supply UK generation and also target non-European markets. It would provide security to UK-centred enrichment and provide impetus to grow UK skills in enrichment activities.

Member state responsibilities: Article 41 of the Euratom Treaty is considered particularly burdensome, as it requires member states of the EU to review investment projects for new-build nuclear across Europe and communicate their views. This is considered a time-consuming activity that would not be missed, and will enable more focus on UK activities across the energy sector.

Procurement and supply chain: Leaving the EU could provide new opportunities for developing a UK supply chain for our new nuclear programme. The Hinkley Point C and the Horizon project at Wylfa Newydd building programmes, will provide significant construction and manufacturing opportunities over the next five to ten years.

These sites could use their procurement power (as part of their agreements with the UK Government) to bolster the UK supply chain. By bringing the technical expertise and capabilities to the UK over the long term, this will increase the UK's competitiveness globally, as the supply chain will have been tested on our own nuclear programme. This could lead to global demand for UK skills, as other EU nations are committed to downsize their nuclear programmes.

Trade deals: Countries where trade deals are required as priorities for the nuclear sector are the USA, China, Canada, Australia and South Africa. Following the development of new NCAs, these would include deals for goods and services related to the disposal and management of radioactive wastes. Opening up the markets to these countries more aggressively could lead to increased use of UK skills, goods and services.

A further opportunity would be to look into new economic and research instruments that require commitments from the governments of those in the trade agreements, to commit to funding joint research activities. This would then develop the markets between those nations in the agreement for new nuclear, decommissioning and radioactive waste management.

Industrial Strategy: The opportunities identified on page four will enable the UK nuclear sector to be "cultivated as a world leading sector" as described in the green paper Building Our Industrial Strategy.[5]

Emerging Technologies: Small Modular Reactors (SMRs) and Radioactive Waste

The UK has a real opportunity over the next few years to become a clear leader in nuclear and radioactive waste technologies. The current SMR competition shows serious commitment to leading on the development of this technology. SMRs offer smaller, shorter-term, more flexible power generation that can be built offsite and installed where required. Developing this technology in the UK and working with manufacturers such as Sheffield Forgemasters and Cammell Laird, will demonstrate how the UK's skilled workforce and supply chain can support innovation.

Combining the new nuclear programme and SMR programme with the design, development and delivery of a GDF in the UK, would also enable the UK to become a leader in GDF realisation. Despite the history of GDF developments in the UK being poor, these new opportunities could lead to growth in niche skills that will become increasingly sought after on a global scale. Pushing the development of this increasingly urgent infrastructure will also support growth in the nuclear power sector, as well as safeguarding our environment.

RECOMMENDATIONS

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REFERENCES

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3. Statement has been developed with input from members of the Institution of Mechanical Engineers' Power Industries Division via an email questionnaire.
4. http://www.labourlords.org.uk/article_50_bill_labour_lords_frontbench_amendments
5. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/586626/building-our-industrial-strategy-green-paper.pdf

Institution of Mechanical Engineers

1 Birdcage Walk
Westminster
London SW1H 9JJ

T +44 (0)20 7973 1293
F +44 (0)20 7222 8553

media@imeche.org
imeche.org/energy

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