Nuclear Industry Association Response to the British-Irish Parliamentary Assembly's Inquiry Into the Role of Nuclear Power Generation in Long-term Energy Security

The Nuclear Industry Association welcomes the opportunity to respond to the British-Irish Parliamentary Assembly's inquiry into the role of nuclear power generation in long-term energy security.

The NIA is the trade association and representative body for the civil nuclear industry in the UK. We represent more than 340 companies operating across all aspects of the nuclear fuel cycle, including the current and prospective operators of nuclear power stations, international designers, and vendors of nuclear power stations, and those engaged in decommissioning, waste management and nuclear liabilities management. Members also include nuclear equipment suppliers, engineering and construction firms, nuclear research organisations, and legal, financial and consultancy companies.

Executive summary

BIPA jurisdictions have some of the highest industrial and domestic electricity prices in the IEA, and still rely heavily on natural gas and oil, leaving consumers vulnerable to price fluctuations in international energy markets.[1] [2] [3] While both the Republic of Ireland and the UK are expanding renewables in the electricity mix, the UK is also deploying nuclear alongside renewables, ensuring the availability of clean, domestic baseload power. To achieve Net Zero by 2050 with energy security and strong economic growth, we would strongly encourage the Republic of Ireland and the Scottish Government to consider nuclear deployment alongside renewables.

1. **What are the advantages and disadvantages, opportunities and challenges of nuclear power generation as a means of achieving long-term energy security across BIPA jurisdictions?**

    a. Nuclear deployment is vital for long term energy security across the BIPA jurisdictions, as it is the only energy technology capable of providing clean, reliable, and domestically produced electricity, protecting consumers from price fluctuations in international energy markets.

    b. Since the start of the Russia-Ukraine war in 2022, households and businesses have experienced the impact of external shocks on energy prices. With the ongoing instability in the Middle East, consumers continue to feel the impacts of price volatility.

        1) In August 2022, power prices reached a monthly average of £370/MWh in the UK, a 246% increase compared to August 2021.[4]

        2) In the second half of 2022, the average electricity price for businesses in Ireland reached 28.4 cents/kWh, and 31.72 cents/kWh for households. [5]

[1] DESNZ (2025) *International energy price comparison statistics*. Available at: https://www.gov.uk/government/collections/international-energy-price-comparisons
[2] IEA (2024*) Ireland*. Available at: https://www.iea.org/countries/ireland/energy-mix
[3] IEA (2024*) United Kingdom*. Available at: https://www.iea.org/countries/united-kingdom
[4] Nuclear Industry Association (2022) *Power Prices Peak Amid Energy Market Chaos*. Available at https://www.niauk.org/power-prices-peak-amid-energy-market-chaos/
[5] SEAI (2026) *Energy price trends*. Available at: https://www.seai.ie/data-and-insights/seai-statistics/prices

3) It is imperative that we do not understate the costs of imports at times of scarcity.

c. Nuclear also reduces grid balancing costs because of its stable and predictable day-to-day output, in contrast to using gas to balance variable generation.
   1) In 2025, balancing the grid cost billpayers in the UK £2.98 billion, putting a strain on domestic and industrial consumers. Scotland, relying heavily on renewable generation, saw the highest constraints costs of any country in the UK at £1.2 billion for 2025.[6]
   2) NESO has identified that in the UK, balancing costs will continue to increase and are forecast to peak between £4-£8 billion in 2030. [7]

d. We would encourage both Ireland and Scotland to learn from the failures of the energy transition in Germany, where the phase out of one of the highest performing nuclear fleets in the world has led to a steady rise in electricity prices, damaging the country's industrial competitiveness. Meanwhile, both Sweden and France have some of the lowest electricity prices, as a result of majority nuclear generation in France, and a combination of nuclear, hydro and wind power in Sweden.

2. Are there particular benefits or risks of Advanced Modular Reactors (AMRs) and Small Modular Reactors (SMRs) over conventional large-scale nuclear reactors?

a. Compared to conventional large-scale nuclear reactors, SMRs and AMRs are smaller in size, and have a modular design that allows the plant to be fabricated in a factory environment and transported to site. These factors could reduce investor risk associated with construction, make these reactors less capital-intensive, and make them faster to build.
   1) SMRs and AMRs also have increased passive safety features which maintain plant safety without the need for active controls or human intervention.
   2) The smaller size of SMRs and AMRs relative to the grid makes them particularly well suited for Ireland. With peak demand in Ireland at 5-6 GW, a GW scale nuclear reactor being offline could cause a power outage. Smaller 200-400 MW units or bundles of reactors, on the other hand, are able to provide clean, reliable, sovereign power, promoting grid inertia and stability, without the risk of a power outage.

b. Beyond providing baseload power to the grid, these technologies can also offer a range of off-grid application to decarbonise industrial activities.
   1) Clean heat from advanced, high-temperature reactors could decarbonise the industries currently reliant on fossil fuels to reach the temperatures they need. AMRs with high outlet temperatures are well suited to provide heat for hydrogen, steel, and cement production.
   2) Stable, scalable, and low-carbon electricity from SMRs and AMRs is well suited to power data centres, synthetic fuel production, and electrolytic hydrogen production.
      a. Advanced nuclear technologies are ideally suited to address the increasing electricity demand from data centres in Ireland.

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[6] NESO (n/a) *Balancing costs*. Available at: https://www.neso.energy/industry-information/balancing-costs

[7] NESO (2025) *2025 Annual Balancing Costs Report*. Available at: https://www.neso.energy/document/362561/download

3) These technologies can also be used to desalinate seawater, providing a sustainable solution for regions facing water scarcity.

3. To what extent will nuclear generation help to meet the energy demand in BIPA jurisdictions in the coming decades?

a. In the UK, the National Energy System Operator (NESO) projects annual electricity demand in 2050 to range from 638 TWh to 761TWh.[1] 24 GW of nuclear would allow about 25% of this to be supplied from baseload nuclear power, which would make a critical contribution, providing a stable electricity system at a low cost and meeting rising energy demands.

1) Sizewell B and current projects — Hinkley Point C, Sizewell C, and Rolls-Royce SMR — will provide 9GW of nuclear capacity by 2050.[8] With significant interest from AMR vendors to deploy in the UK, and further SMR and large-scale deployment, the UK has the potential to reach 24GW of nuclear capacity by 2050.[9]

b. Modelling by the Electricity Supply Board (ESB) suggests that annual electricity needs in Ireland will be 2.5 times higher in 2050, with annual electricity demand at around 82.25 TWh.[10] [11] The ESB has acknowledged that backup technologies will be needed during periods when wind and solar generation cannot meet demand, and nuclear power offers several potential benefits for electricity systems and can help reduce long-term energy storage requirements.[12]

c. Ireland also has one of the highest concentrations of data centres in the world, which has resulted in grid capacity being diverted to new hyperscale sites, accelerated transmission updates, and the government financing emergency fossil fuel generators to maintain stable supply. [13]

1) Data centres require continuous, always available electricity—24 hours a day, 365 days a year. Nuclear generation provides firm, low carbon supply with a compact land footprint and the highest reliability of any major source on the UK grid. [14]

a. To address the global increasing electricity demand from data centres, Amazon, Google, Microsoft and Meta—each with public net zero targets and sustainability commitments—are increasingly investing in nuclear energy.

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[8] Simon Evans & Ho Woo Nam (2025) Chart: The rise, fall and rise of UK nuclear power over eight decades. Available at: https://www.carbonbrief.org/chart-the-rise-fall-and-rise-of-uk-nuclear-power-over-eight-decades/

[9] DESNZ (2025) Golden age of nuclear delivers UK-US deal on energy security. Available at: https://www.gov.uk/government/news/golden-age-of-nuclear-delivers-uk-us-deal-on-energy-security

[10] ESB (2026) *Ireland's pathway to a net zero energy system by 2050*. Available at: Ireland's pathway to a net zero energy system by 2050

[11] SEAI (2025) *Energy in Ireland*. Available at: Energy-in-Ireland-2025.pdf

[12] ESB (2026) *Ireland's pathway to a net zero energy system by 2050*. Available at: Ireland's pathway to a net zero energy system by 2050

[13] Louis Boyd-Madsen (2025) *What Ireland's Data Center Crisis Means for the EU's AI Sovereignty Plans*. Available at: https://www.techpolicy.press/what-irelands-data-center-crisis-means-for-the-eus-ai-sovereignty-plans/

[14] NIA (2025) *Powering the UK Data Boom: The Nuclear Solution to the UK's Data Centre Energy Crunch*. Available at: https://www.niauk.org/wp-content/uploads/2025/11/Powering-the-UK-Data-Boom-December-2025.pdf?ver=1764330829

2) In the UK, SMR deployment for this purpose is planned at Cottam.[15]

4. **What is the environmental impact of nuclear power generation and the disposal of nuclear waste?**

   a. According to the United Nations Economic Commission for Europe (UNECE), nuclear has the lowest land use, lowest ecosystem impact and the lowest lifecycle carbon of all generating technologies at 5.1-6,4g CO2/kWh.[16]
      1) Per unit of energy, it requires 30-34x less land than solar, 27x less land than coal and well over 100x less land than wind. [17]
   b. The nuclear industry is the only energy sector in the UK that pays for and keeps an inventory of its waste. New build projects cannot commence plant construction until funded decommissioning programmes and plans for waste storage and final disposal have been laid.
   c. The amount of waste produced by nuclear is tiny for the electricity generated.
      1) More than 95% of the radioactivity in waste is confined to a small volume of High Level Waste (HLW).
      2) By 2023, 67 years of nuclear power generation in the UK had only produced a dishwasher tablet's worth of HLW for every person in the UK: the packaged volume of HLW was 1,470m^3 for 66 million people, which is a little over two thirds the volume of an Olympic size swimming pool. In that time, nuclear provided over 3000 TWh of electricity, enough to power every home in the country for 28 years. [18]

5. **What effect is the greater use of nuclear power generation likely to have on energy costs for consumers in BIPA jurisdictions where nuclear facilities are in operation or under construction?**

   a. Compared to other system costs, the impact of nuclear on household bills during construction is minimal, and only occurs when the Regulated Asset Base funding model is used.
      1) Over the duration of Sizewell C construction, the impact on consumer bills is limited to an average of around £1 per month, with the power plant providing cheaper clean energy in the long term. [19]

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[15] EDF (2025) *Holtec International, EDF UK and Tritax announce plans to develop Cottam site with data centres and advanced nuclear technologies.* Available at: https://www.edfenergy.com/media-centre/holtec-international-edf-uk-and-tritax-announce-plans-develop-cottam-site-data-centres-and

[16] United Nations Economic Commission for Europe (2022) *Carbon Neutrality in the UNECE Region: Integrated Life-cycle Assessment of Electricity Sources*. Available at https://unece.org/sites/default/files/2022-04/LCA_3_FINAL%20March%202022.pdf

[17] Hannah Ritchie (2022) *Energy: Which electricity source uses the most land?* Available at: https://www.weforum.org/stories/2022/06/energy-electricity-sources-land/

[18] Nuclear Industry Association (2023) *Industry Link: Spring 2023*. Available at: https://www.niauk.org/industry-link-spring-2023/

[19] DESNZ (2025) *Sizewell C gets green light with final investment decision.* Available at: https://www.gov.uk/government/news/sizewell-c-gets-green-light-with-final-investment-decision

b. Operational nuclear facilities lower energy costs by reducing consumer vulnerability to fluctuations in gas prices, and reducing balancing costs which in 2025 added £48.36 to annual household electricity bills in the UK. [20]

c. Nuclear developments also bring investment and well-paying, highly skilled jobs into communities throughout the lifetime of a project.

1) As of 2025, Hinkley Point C is already supporting over 26,000 direct and indirect jobs across Britain, the project is contributing £13.3 billion in Gross Value Added to the British economy, and £5.3 billion has been spent directly with businesses in South West England. [21]

a. Once operational, the station will provide 900 permanent jobs for at least 60 years.[22]

2) The Rolls-Royce SMR programme is projected to create 40,000 regional jobs in the UK by 2050 and generate £52 billion in economic benefit.[23]

6. What alternatives exist to ensuring energy security across BIPA jurisdictions?

a. From a technology perspective, nuclear is our only source of electricity that is clean, reliable, and domestic — there is no credible, clean alternative that provides baseload power.

7. What are the prevailing attitudes towards nuclear power in each BIPA jurisdiction? What opportunities are there for cooperation between BIPA jurisdictions to ensure future energy security?

a. Support from the UK Government towards new nuclear is strong. In the 2025 Spending Review, the UK Government committed financial support for both Sizewell C and Rolls Royce SMR projects, and in February 2026 the Government published the Advanced Nuclear Framework to support privately led SMR and AMR projects coming to market.

1) Support for nuclear is also reflected amongst the public. As of winter 2025, 51% of people in the UK agree that nuclear energy provides a reliable source of energy, and 45% agree that nuclear energy will help combat climate change in the UK. [24]

b. In Scotland, there is currently a ban on new nuclear energy development, despite Torness being the largest, cleanest and most reliable single electricity generator in the country.

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[20] Ben James (2026) *GB Electricity Bills*. Available at: https://www.electricitybills.uk/

[21] Hinkley Point C (2025) *Driving Growth: Hinkley Point C Socio-economic Impact Report 2025*. Available at: https://www.edfenergy.com/sites/default/files/2025-05/Socio%20Economic%20Brochure%202025.pdf

[22] EDF (2024) *New Skills, Better Jobs: Report Reveals the Positive Impact of Hinkley Point C*. Available at: https://www.edfenergy.com/media-centre/new-skills-better-jobs-report-reveals-positive-impact-hinkley-point-c#:~:text=Most%20of%20the%208,000%20trained,and%201,307%20currently%20in%20training.

[23] Rolls Royce SMR (n/a) *Small Modular Reactors*. Available at: https://www.rolls-royce.com/innovation/small-modular-reactors.aspx#section-why-rolls-royce-smr

[24] DESNZ (2026) DESNZ Public Attitudes Tracker: Energy infrastructure and energy security, Winter 2025, UK. Available at: https://www.gov.uk/government/statistics/desnz-public-attitudes-tracker-winter-2025/desnz-public-attitudes-tracker-energy-infrastructure-and-energy-security-winter-2025-uk

1) 54% of the public in Scotland support nuclear power, and as of March 2026, nuclear has become the most supported form of generation. [25] [26]

c. The Irish Government currently prohibits nuclear fission for electricity generation, however, support for nuclear deployment amongst the public is increasing in Ireland, with 32% of Irish adults backing nuclear power plants in 2025, up from 28% in 2024.[27]

d. We strongly encourage the Irish Government to take a pragmatic, science-based and evidence-led approach to reappraising the ban on nuclear.

1) Faced with energy security concerns and decarbonisation targets, European countries are recognising the benefits that nuclear brings to the energy mix:

a. Italy is preparing draft laws to repeal its longstanding ban on nuclear.

b. Belgium is making a U-turn after years of reluctance about investing in nuclear energy.

c. Greece has opened a public debate on advanced reactor designs.

d. Sweden has reversed a four-decade old decision to abandon nuclear technology.[28]

8. In the UK, to what extent is the framework for planning and delivering new nuclear infrastructure, including large-scale and modular technologies, effective? Is this sufficiently future-proofed?

a. In the 2025 Nuclear Regulatory Review, the Nuclear Regulatory Taskforce found that disproportionate, excessive, and inconsistent regulatory and planning processes in the UK have made nuclear deployment slower and more expensive — to streamline the delivery process, the Taskforce put forward 47 recommendations to industry, regulators and Government.[29]

1) In March 2026, the Government responded to the Regulatory Review, committing to go forward with many of the reforms proposed by the Taskforce, and agreeing to implement others in spirit. [30]

2) These reforms, expected to be completed by the end of 2027, will streamline and future-proof the planning and regulatory processes for delivering new nuclear, supporting efficient and cost-effective deployment in the lead up to Net Zero by 2050.

b. In 2025, the National Policy Statement for nuclear energy generation (EN-7) was also updated to include SMRs and AMRs, and expand the range of available sites beyond the 8 previously defined in EN-6.

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[25] YouGov (2026) *Support for nuclear power.* Available at: https://yougov.com/en-gb/trackers/support-for-nuclear-power?crossBreak=scotland

[26] YouGov (2026) *Which for energy generation has the most support*. Available at: https://yougov.com/en-gb/trackers/which-form-energy-generation-has-the-most-support?crossBreak=scotland

[27] KPMG (2026) *Powering Tomorrow 2026*. Available at: https://assets.kpmg.com/content/dam/kpmgsites/ie/pdf/insights/energy/ie-powering-tomorrow-2026.pdf.coredownload.inline.pdf

[28] Katya Adler (2026) *Faced with new energy shock, Europe asks if reviving nuclear is the answer*. Available at: https://www.bbc.co.uk/news/articles/c4g8k8vq8gno

[29] DESNZ (2025) *Nuclear Regulatory Review 2025*. Available at: https://www.gov.uk/government/publications/nuclear-regulatory-taskforce

[30] DESNZ (2026) *Building Our Nuclear Nation.* Available at: https://assets.publishing.service.gov.uk/media/69b3ead0b84f01b2be53a1de/building-our-nuclear-nation-government-response-to-nuclear-regulatory-review.pdf

9. **Whilst the generation of electricity by nuclear power stations is currently illegal in Ireland, what is the current discourse or research around the future potential use of nuclear energy in Ireland, if such a ban were lifted?**

    a. No comment.

10. **What scope is there for greater cooperation between the governments of the UK and of Ireland on nuclear issues within the framework of cooperation in the March 2025 Joint Statement?**

    a. In the March 2025 Joint Statement, Prime Minister Keir Starmer and Taoiseach Micheál Martin recognised the critical importance of the Celtic and Irish Seas and committed to working together to harness their potential by deepening co-operation on offshore energy and interconnection, to help ensure collective energy security as part of the green transition to net zero.
        1) With the development of the Great British Energy-Nuclear and Rolls Royce SMR programme at Wylfa under way in North Wales, we would encourage the governments to explore deploying an interconnector to strengthen collective energy security. Ireland already uses some nuclear power by the electricity it draws over the existing interconnectors. Given the ambition is for up to 8 units of SMR deployment, totally nearly 4 GW of capacity, it is worth exploring the mutual benefit from the buildout of clean, reliable, predictable power generation.
        2) We note that Ireland is considering a major interconnector to France. Since France gets nearly 70% of its electricity from nuclear, this is an implicit recognition by the Irish Government of the benefits of nuclear power generation for reliability, security and sustainability of power supplies.

    b. The Joint Statement also committed to knowledge and experience sharing between the governments to accelerate the delivery of sustainable and resilient infrastructure to drive economic growth, enable new forms of economic activity, and accelerate the transition to Net Zero by 2050,
        1) With increasing demand for clean and reliable electricity for data centres in Ireland, we would encourage the Irish Government to explore the deployment of advanced nuclear technologies for this end energy use and beyond, which could be supported by knowledge sharing from the UK.
        2) Ireland, as John Fingleton has observed, is unlikely to be a first-mover in any advanced nuclear technology. However, it can and should closely observe the developments of different technologies with the potential to become a "fast second-mover", deploying next-of-a-kind plants where other nations have already born the first-of-a-kind design, engineering and construction costs.[31]

Further Information

[31] Barry O'Halloran (2026) *Government should consider lifting ban on nuclear power, says economist John Fingleton*. Available at: https://www.irishtimes.com/business/2026/02/28/government-should-consider-lifting-ban-on-nuclear-power-says-economist-john-fingleton/

The NIA is happy to provide more context, or any clarifications desired on the content of our response and to ask our members where appropriate for additional information that may be useful.

Please contact Elisabeth Roden, Policy Analyst for the Nuclear Industry Association, at elisabeth.roden@niauk.org to do this.