Next Generation
nuclear industry council

Sustainability in the Nuclear Sector

May 2026

Foreword

Prof. Pete Bryant, CEO of the World Nuclear Transport Institute and Professor at the University of Liverpool

The UK nuclear sector stands at an exciting and defining moment. After years of uncertainty, we are seeing real momentum from new nuclear builds progressing at Hinkley Point C and Sizewell C, alongside the growing potential of Small Modular Reactors at Wylfa and innovative micro-reactor proposals emerging at Bridgend. At the same time, the sector is broadening its horizons, with increasing interest in transportable and floating nuclear reactors and civil nuclear powered or propelled propulsion as well as advances in defence. Together, these developments reflect a dynamic, evolving industry with a vital role to play in delivering clean, secure energy and decarbonising shipping for the UK, in addition to the role it plays in national security.

However, ambition and growth must be matched by leadership. For the nuclear sector to succeed, sustainability must be embedded at its core. This is not about compliance, nor about safety and security, which are fundamental and assumed, but about choosing to do better. It means reducing the environmental impacts of our activities, from carbon emissions and waste management to protecting and enhancing biodiversity. It also means taking responsibility for our relationship with people and places: listening to host communities, understanding their priorities, whether that be jobs, skills, transport, noise and quality of life and working in partnership to deliver practical, long-term solutions. In doing so, the sector can create lasting societal value alongside clean power.

Sustainability must extend beyond new build. It is equally critical to existing generation, decommissioning and the long-term management of the UK's nuclear legacy, and defence. How we operate our current fleet, restore sites, manage radioactive waste and pass on skills and knowledge will shape public confidence in nuclear for generations. These are long-term commitments that demand consistency, innovation and trust, and they sit at the heart of the sector's responsibility to society.

Sustainability is also increasingly central to investment decisions. The use of green and ESG-linked finance at Sizewell C shows how strong sustainability credentials can unlock capital, and this approach could play a key role in financing the next wave of new nuclear projects across the UK.

However, at its heart, sustainability is about future generations, meeting today's needs without compromising the opportunities of those who follow. It is therefore fitting that this report has been written by the Next Generation Nuclear Industry Council. Their perspective is a timely reminder that the decisions taken by the industry today will define its legacy tomorrow, and that nuclear can and must be a force for enduring environmental and social good.

Executive Summary

The UK nuclear sector is in a defining period, with new build, decommissioning, waste management, emerging technologies and defence all progressing in parallel. While nuclear's role in delivering secure, low-carbon energy and protecting the nation is well established, there is a growing expectation for the sector to maximise its wider environmental and social value. This report sets out how the nuclear sector can strengthen its contribution by embedding sustainability as a strategic enabler rather than treating it as a compliance-led or carbon-only exercise.

Findings from engagement with sustainability professionals, senior leaders and external stakeholders shows that the nuclear sector lags other industries in the consistent integration of sustainability. At the same time, there is increasing momentum and ambition for more, with growing investor interest, evolving sustainable finance frameworks and strong alignment on priority sustainability themes. Collectively acting on the below recommendations will mean the UK nuclear sector can move from intent to implementation. It can become consistent and a value adding part of how the sector delivers today, while building resilience, trust and a positive legacy for future generations.

Key Recommendation 1: Nuclear sector leaders (industry and government) should target investment that unlocks wider sustainable benefits beyond core functions such as low-carbon energy. Doing so will strengthen its contribution to sustainable development and build greater confidence in the sector's core functions.

Key Recommendation 2: Sector leadership should prioritise the following areas, establishing or continuing collaborative programmes like existing initiatives on skills.

1. **Clean Energy and Decarbonisation**
2. **Climate Resilience and Adaptation**
3. **Skills for All**
4. **Research & Development**
5. **Culture, Diversity and Inclusion**

Key Recommendation 3: Executive teams, boards and nuclear sector bodies such as the Nuclear Engineering Directors Forum (NEDF) should operationalise the priority areas identified in this report into decision making, design standards and operations, making performance beyond legal compliance a core part of "Nuclear Culture".

Key Recommendation 4: Executive teams, boards and nuclear sector bodies working directly with communities should involve these stakeholders in decision making to ensure programmes reflect local needs and delivery of wider societal benefit.

Key Recommendation 5: Executive teams and boards should support initiatives to integrate sustainability into their business and explore solutions presented in this report, as good practice from the nuclear sector.

Introduction

The nuclear sector currently trails other industries on sustainability, driven by inconsistent and changing treatment of nuclear energy in green and sustainable finance and therefore limited access to this, tunnel vision on clean energy and climate change without considering wider impacts, stakeholder pressure, and a tendency to operate as a uniquely isolated sector. These factors limit the nuclear sector's broader societal[1] impact and add to the complexity of the challenge, though growing interest from sustainability-focussed AI and data centre companies offers a fresh push.

This report builds on recent progress, such as the inclusion of nuclear in the UK Government Green Financing Framework. Its purpose is to accelerate outcomes for both the nuclear sector and wider society and is aimed at current and future sector leaders, along with professionals working in sustainability and related areas. The report also draws on work by the Young Nuclear Professionals Forum (YNPF) for the Nuclear Engineering Directors Forum (NEDF), aligning with and complementing their findings.

Despite recent political headwinds, the need for businesses to address major global challenges remains stronger than ever.

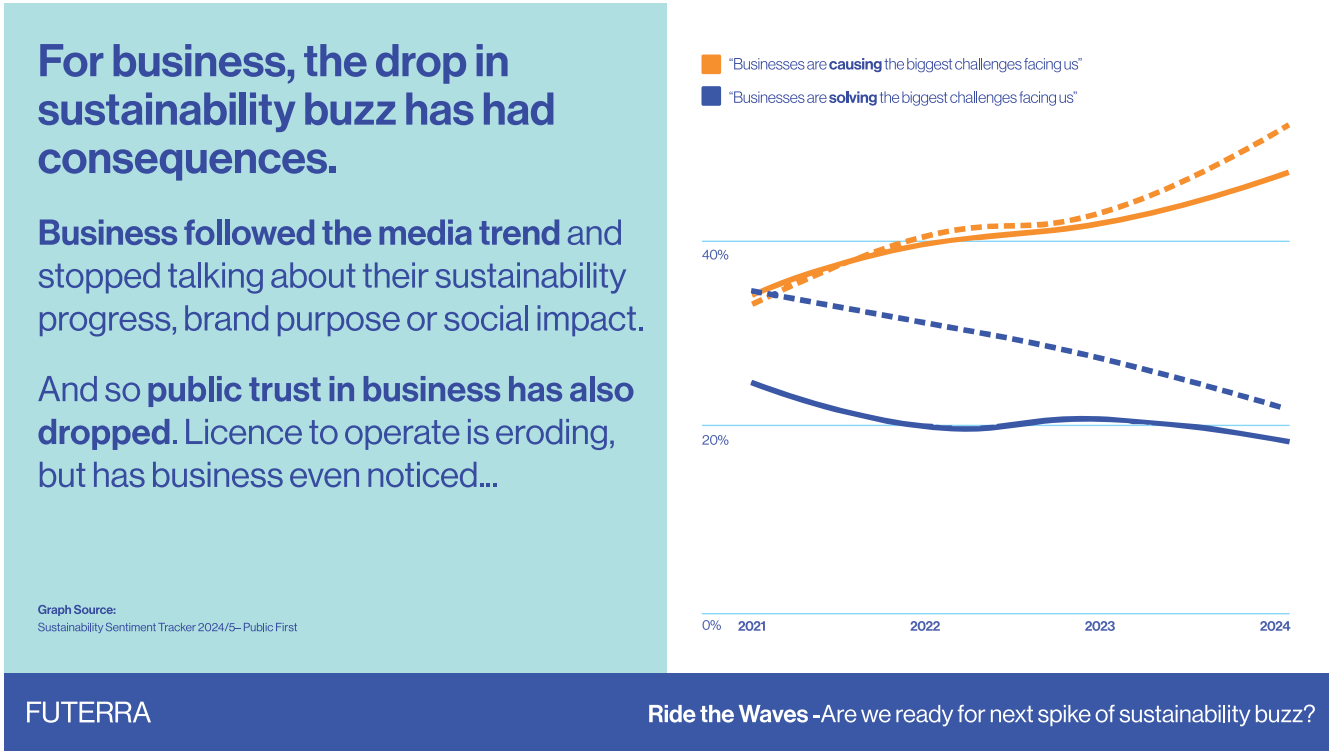


Figure 1 – Extract from Futerra

Futerra's Ride the Waves report shows that fluctuations in sustainability interest have occurred since 1991, with a notable decline beginning in 2023 and continuing into 2025. However, each downturn has historically been followed by renewed momentum. There is therefore a timely opportunity for the nuclear sector to reset and position itself for future leadership and to solve the biggest challenges facing us.

1] The term societal is used to encompass value created for society as a whole, including economic, social, environmental and cultural benefits.

Why be more sustainable?

Focus groups were held with sustainability leads across the UK nuclear sector to inform this report. Contributors are listed at the end of this report. Identifying and ranking the key drivers for sustainability integration within companies was one of the elements considered, with the ranked list seen below.

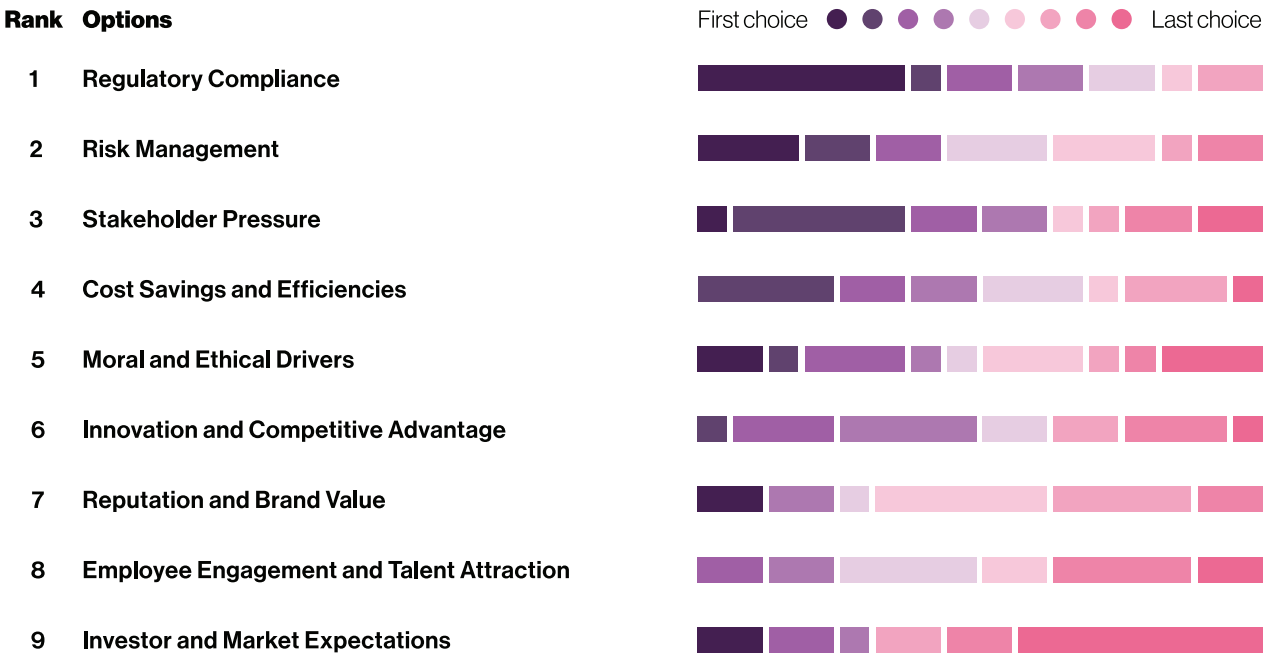


Figure 2 - Sustainability Drivers in the Nuclear Sector

The variance across options was often dependent on type of organisation (i.e. governmental, non-governmental organisations, new build, decommissioning and waste management, defence or civil), and maturity of sustainability in these organisations. Some key observations:

- Whilst compliance ranked first (see box) Risk Management was noted as a particular area where sustainability can provide a new lens to identify risks and opportunities for businesses and also link to cost savings and efficiencies.
- Stakeholder Pressure is a significant driver of sustainability, with many sustainability leaders classing it as the secondary driver after compliance (i.e. adherence to laws and requirements). This shows the wider expectation of stakeholders and the public on sustainability in the nuclear sector.
- Investor and Market Expectations were the key drivers for sustainability in nuclear new build and generation. While the recent green financing framework has made significant progress, further investor demands and challenges are anticipated.

Compliance

Despite compliance being a key driver to progress sustainability in the nuclear sector, sustainability should not be confused with compliance.. It provides a framework for identifying focus areas where companies should go beyond regulatory requirements for the benefit of everyone (industry and public alike), with skills and social mobility being a good example. However, the nuclear sector's strong compliance culture has made adopting a sustainability mindset challenging where compliance is often seen as the goal rather than a given.

Compliance obligations vary across sustainability domains and often relate to legal requirements. Topic-specific legal requirements include for example:

- Biodiversity Net Gain for developments (BNG)
- Streamlined Energy and Carbon Reporting (SECR)
- Gender Pay Gap reporting
- Taskforce for Climate Related Financial Disclosures (TCFD)

Recent UK Government reporting standards require materiality assessments covering a wide range of topics. These may also become legal requirements and would cover an approach to reporting on sustainability related topics, rather than any specific topic focus.

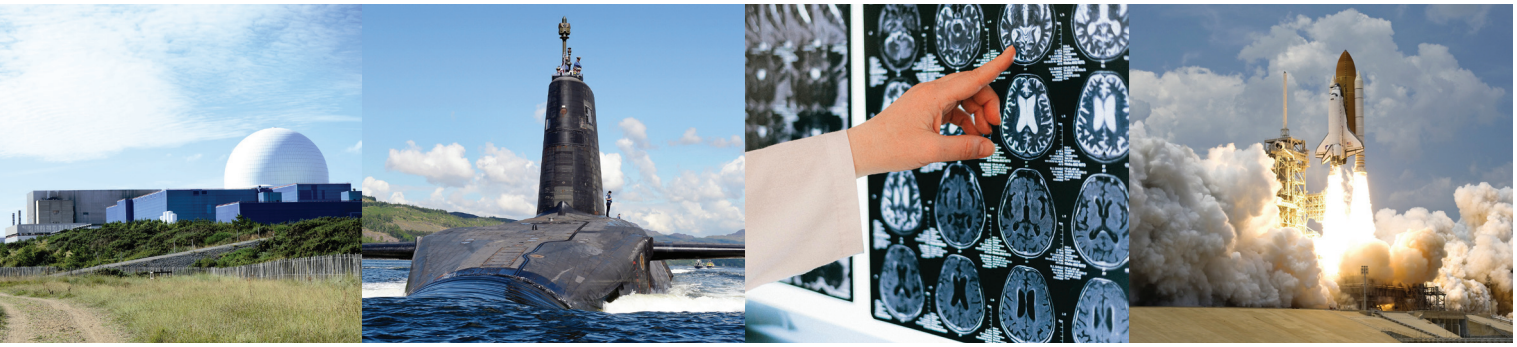
Sector Purpose and Beyond

The UK nuclear sector delivers essential national functions: it provides secure low-carbon energy, and it protects the nation through the defence nuclear enterprise. It also contributes to nuclear medicine and space technologies. These core functions are uniquely addressed by the nuclear sector due to its nature through nuclear technology.

The next section explores how the sector can expand its positive impact beyond its core functions, thereby in turn strengthening those very core functions.

The wider benefits of the sector's core functions are increasingly recognised and often referenced, for example job creation and skills development in areas of need, local economic growth and community health, support to education and investment in research and development. The sector should make decisions that would generate additional value beyond what would naturally arise from delivering the core functions.

Key Recommendation 1: Nuclear sector leaders (industry and government) should target investment that unlocks wider sustainable benefits beyond core functions such as low-carbon energy. Doing so will strengthen its contribution to sustainable development and build greater confidence in the sector's core functions.



Sizewell B power station, courtesy of EDF, Royal Navy submarine HMS Victorious departs HMNB Clyde. MOD Crown Copyright, brain scan by Anna Schvets on Pexels, rocket launch by WikiImages on Pixabay

A Sustainable Nuclear Sector: What Matters Most?

In 2025, the Next Gen Nuclear Industry Council (NGNIC) conducted a Double Materiality Assessment[2] across the UK nuclear sector with input from MPs, senior industry leaders and NGOs. The resulting material highlights priority areas where coordinated action across civil and defence operations can enhance organisational performance and strengthen environmental and social outcomes, supporting the sector's progress towards holistic sustainability.

The nature of these topics and how the nuclear sector interacts with them means that targeted action will deliver a disproportionate positive impact for both society[3] and business, as well as meeting sustainable finance expectations. This justifies their prioritisation while recognising that progress should continue across all other areas.

1. Clean Energy and Decarbonisation

a.	**Description:**	Transitioning to low carbon energy, optimising energy use, improving energy efficiency and reducing greenhouse gas emissions to net zero by balancing emissions with removal or eliminating emissions altogether, aiming to mitigate climate change.
b.	**SDGs Alignment:**	
c.	**Current and Future Nuclear Sector Metrics:**	**i.** Scope 1, 2 and 3 carbon emissions (tCO_2e).[4] 1. Change against scope sub-categories.
		ii. Carbon spend intensity e.g. tCO_2e/£M revenue.
		iii. Energy usage/spend (kWh/£).
		iv. Energy source (e.g. % fossil fuels).
		v. Carbon emissions reduction against baseline (%).
		vi. Net Zero investment (£).
		vii. Waste and Biodiversity KPIs that would result in carbon savings.
d.	**Benefits of working on this topic (non-exhaustive)**	**i.** Business Impact: Major project capital carbon was reduced by up to 39% with an associated 22% reduction in capital expenditure (£) (HM Treasury)
		ii. Societal Impact: £252 per tCO_2e (MeasureUp)[5]
e.	**Case Study**	Uranium centrifuge enrichment 95% more efficient than older techniques and more cost effective

2] A Double Materiality Assessment evaluates both how sustainability-related issues impact an organisation's financial performance ("financial/performance materiality") and how the organisation's activities affect people, society and the environment ("impact materiality").

3] Impacts can be considered through the United Nations Sustainable Development Goals (UN SDGS)

4] Greenhouse Gas Protocol Definitions of Scope Emissions

5] Measure Up – A free, open-source valuation framework which helps organisations estimate, value, and evidence the social, environmental, and economic impact of their activities in a consistent and transparent way. Other frameworks do exist, for example Thrive Impact Evaluation Standard, TOMs etc.

2. Climate Resilience and Adaptation

a.	**Description:**	Managing the effects of climate change, enhancing the ability of communities, ecosystems, and economies to withstand, recover and prosper.	
b.	**SDGs Alignment:**		
c.	**Current and Future Nuclear Sector Metrics:**	**i.**	£ weather related insurance claims
		ii.	No. of identified climate related risks and opportunities (and those prioritised by financial impact assessments)
		iii.	Scope of physical risks and in-depth climate change risk assessment
		iv.	Nuclear safety climate resilience ONR inspection reports
		v.	No. of nature-based solutions
d.	**Benefits of working on this topic (non-exhaustive)**	**i.**	10:1 in benefits:spend including from avoided losses, economic development and social/environmental gains (World Resources Institute)
		ii.	Meeting TCFD requirements
e.	**Case Study**	Extreme climate analysis ensures nuclear safety for decades to come	

3. Skills for All[6]

a.	**Description:**	A skilled workforce in the right place at the right time, ensuring access to education and training and promoting equal opportunities.	
b.	**SDGs Alignment:**		
c.	**Current and Future Nuclear Sector Metrics:**	**i.**	Apprentices and graduates as proportion of workforce (%)
		ii.	No. on early careers programmes
		iii.	Training hours per employee
		iv.	Women in leadership positions
		v.	Outreach % to local schools
		vi.	SME/VCSE spend

6] The National Nuclear Skills Plan is a sector wide collaboration body working to address the challenges around skills. It is therefore mentioned in limited scope here.

7] Figures help organisations estimate, value, and evidence the social, environmental, and economic impact of their activities in a consistent and transparent way.

d.	**Benefits of working on this topic (non-exhaustive)**	**i.**	Business Impact (see national nuclear skills plan for more detail)
		ii.	Societal Impact (MeasureUp):[7] 1. Being on an apprenticeship/traineeship: £32,700/£4,500 2. Adult learning for work £1,100 3. Young persons wellbeing programme £1,400 4. Improved digital skills and inclusion: £700 per person, plus value of any purchased or donated equipment
e.	**Case Study**	Nuclear Skills Plan	

4. Research & Development (R&D)

a.	**Description:**	Investing in R&D & Innovation to drive solutions and advancements in technology that enables better business delivery as well as strengthening environmental and social outcomes.	
b.	**SDGs Alignment:**		
c.	**Current and Future Nuclear Sector Metrics:**	**i.**	R&D Spend (£M)
		ii.	No. of PhDs supported or sponsored
d.	**Benefits of working on this topic (non-exhaustive)**	**i.**	Societal Impact: Civil public R&D investment generates £8 in net economic benefits for the UK over the long term, for every £1 spent (DSIT, 2025)
e.	**Case Study**	An innovative production route for medical radioactive isotopes - United Kingdom National Nuclear Laboratory	

5. Culture, Diversity and Inclusion

a.	**Description:**	Efforts to foster a respectful, equitable, and inclusive workplace that values diverse identities and perspectives.	
b.	**SDGs Alignment:**		
c.	**Current and Future Nuclear Sector Metrics (**Nuclear Workforce Assessment**):**	**i.**	Women in Nuclear (% of women in the workforce)
		ii.	Employee engagement scores
		iii.	Staff turnover rate (%)
		iiii.	Gender Diversity (Gender Pay Gap)
		v.	% disabled
		vi.	% minoritised ethnic groups
		vii.	% sexuality
		viii.	% paid living wage
		ix.	Psychological safety scores
		x.	Whistleblowing response

		xi.	Sickness reporting
		xii.	CEO / average salary ratio
d.	**Benefits of working on this topic (non-exhaustive)**	**i.**	Business Impact: The UK's most diverse workplaces (across gender, ethnicity and sexual orientation) are 12 percentage points more likely to financially outperform their industry average than the least diverse firms (DiversityUK)
		ii.	Firms with the most developed diversity policy are 15 percentage points more likely to financially outperform those with less focus on diversity (DiversityUK)
		iii.	Societal Impact: 1. Bridging the disability employment gap could add £20bn to the UK economy each year (Disability Policy Centre) 2. Improved workplace quality £4,300 (MeasureUp)
e.	**Case Study**	IDN Final Survey Report	

Key Recommendation 2: Sector leadership should prioritise the following areas and establish collaborative programmes, similar to existing initiatives on skills.

1. **Clean Energy and Decarbonisation**
2. **Climate Resilience and Adaptation**
3. **Skills for All**
4. **Research & Development**
5. **Culture, Diversity and Inclusion**

Key Recommendation 3: Executive teams, boards and nuclear sector bodies such as the Nuclear Engineering Directors Forum (NEDF) should operationalise the priority areas identified in this report into decision making, design standards and operations, making performance beyond legal compliance a core part of "Nuclear Culture."

Notable Mentions

Consultations highlighted additional topics of significant importance to the sector, which should also be prioritised. They are mentioned here for reference.

1. Supply Chain (capability and capacity).
2. Waste and Circular Economy.
3. Natural Capital; Nature, Biodiversity, Resources and Ecosystems.

Safety and security remain highly material topics for the nuclear sector, and in fact were highly prioritised from the materiality assessment undertaken. Given the sector's established strength and consistent compliance in these areas, they fall outside the scope of this report as sustainability is about going beyond compliance. However, their exclusion does not diminish their importance.

Community relations and resilience was often noted as a pillar of sustainability in the nuclear sector, with strong links to government missions around opportunities and economic growth, as well as the importance of working with host communities both for new build and in areas undergoing decommissioning and regeneration. Many of the specific topics mentioned could be seen through the lens of this pillar, and delivering with communities involved in decision making would sit at the heart of greater positive impact.

For example:

- Helping to ensure communities around nuclear sites are resilient to climate change and working in collaboration with local authorities in addition to ensuring climate resilient nuclear sites.
- Ensuring skills are developed in communities local to nuclear sites and opportunities are available to those from disadvantaged demographics to help address skills shortages.
- Improving nature and biodiversity for community benefit and access to green spaces, as well as doing what is needed for Biodiversity Net Gain and planning conditions.

Key Recommendation 4: Executive teams, boards and nuclear sector bodies working directly with communities should involve these stakeholders in decision making to ensure programmes reflect local needs and delivery of wider societal benefit.

What challenges do individual organisations face in progressing sustainability?

This section outlines the key challenges reported by sustainability professionals in embedding sustainability, supported by sector-specific insights and additional issues identified through focus group discussions. The figure below ranks these challenges, with them described below.

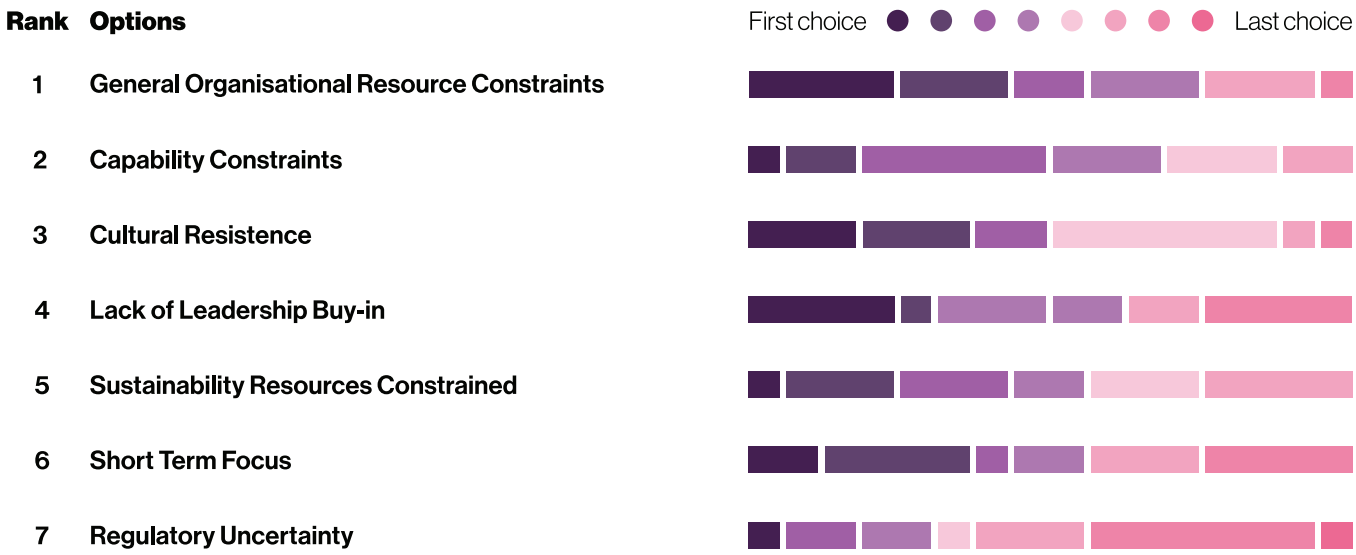


Figure 3 – What do you perceive as the challenges your organisation faces in embedding sustainability?

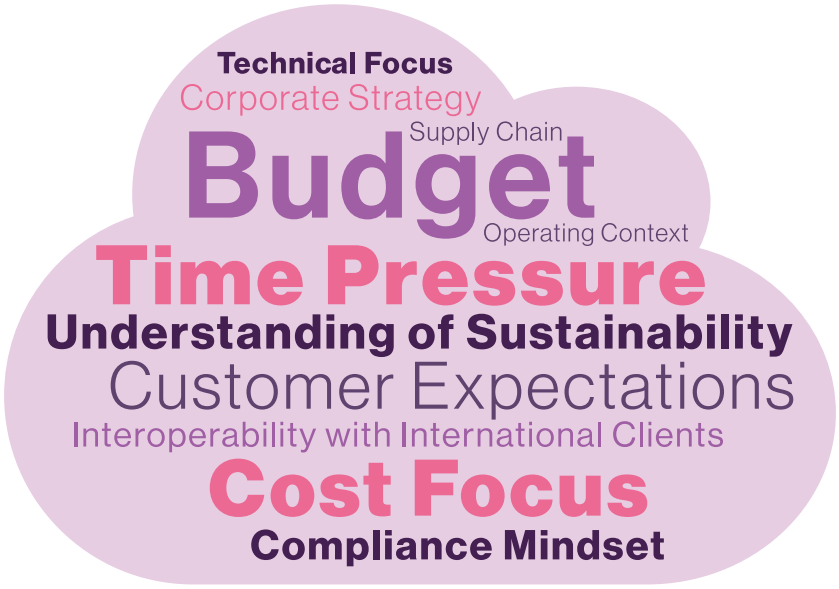


Figure 4 - Word cloud on challenges faced

The following challenges, noted above, were identified from data collection within the focus groups:

1. **Resourcing, Capability and Budget Constraints**
   Restricted budgets, competing priorities, and limited sustainability headcount frequently hinder progress. Some organisations lack dedicated sustainability teams, and individuals often carry multiple responsibilities without the capacity to advance valuable initiatives.

2. **Cultural Resistance and Limited Understanding**
   Long standing workforce cultures and limited awareness of what sustainability truly means remain significant barriers. Many employees, particularly those with decades of service, may not initially see the relevance of sustainability to their roles or assume existing environmental practices are sufficient.

3. **Lack of Leadership Buy-in**
   Some organisations demonstrate clear leadership commitment, which directly supports their sustainability progress. Others, however, lack this commitment, with leadership engagement tending to be either fully present or largely absent, with limited cases in between.

4. **Short-Term Pressures and Time Constraints**
   Major project timelines, ongoing contracting cycles and broader political cycles can make it difficult to embed sustainability early or meaningfully influence scope once work is already underway. Time pressure is especially acute for organisations new to the sustainability journey.

5. **Regulatory Complexity and Compliance-Focused Mindsets**
   While regulation is a major driver, it can also act as a constraint when compliance alone becomes the benchmark for action. The increase in new sustainability-related legislation (e.g., biodiversity, emissions, procurement) is difficult for organisations without legal support to track and interpret.

Other challenges that were identified through discussion:

6. **Commercial and Supply Chain Barriers**
   There is inconsistency in how clients and customers reward sustainability within tenders. Supply chains often face conflicting expectations, complex accreditation requirements, and limited clarity on sector wide priorities.

7. **Lack of Consistency in Metrics, Materiality and Reporting**
   Organisations report different data, interpret material topics differently, and vary widely in maturity. This reduces comparability and creates confusion internally about what matters most and why.

How These Challenges Are Being Addressed

Figure 5 - Word cloud on how challenges are being addressed

The following themes emerged from discussions on how organisations are addressing challenges in embedding sustainability, highlighting what has proved effective in practice.

1. **Building Engagement, Awareness and Cultural Change**
   Organisations are increasingly focusing on making sustainability understandable and relatable. Approaches include:
   - Breaking down government objectives into role specific actions.
   - Using champions or respected long tenure staff to influence peers.
   - Embedding sustainability concepts (e.g., SDGs) into early career development such as apprenticeships and graduate schemes.

2. **Strengthening Leadership and Governance**
   Many organisations are seeing progress where senior leadership visibly champions sustainability. Examples include:
   - Establishing board level governance and sustainability working groups.
   - Appointing sustainability experienced non executive directors.
   - Developing sustainability strategies, policies and materiality assessments with clear accountability.

3. **Demonstrating Value and Aligning to Business Priorities**
   Successful organisations are reframing sustainability in terms of:
   - Cost savings, efficiencies and operational resilience.
   - Competitive advantage in tenders, including lifecycle carbon analysis and responsible procurement evidence.
   - Improved employee retention and engagement, backed by survey data showing sustainability matters to staff.

4. **Enhancing Cross-Sector Collaboration and Knowledge Sharing**
   Stakeholders emphasised the value of learning from one another—both within sessions and through frameworks such as World Nuclear Association ESG groups, SASB, and the Welsh Well-being Goals. Collaboration is helping organisations adopt best practice more rapidly and avoid duplicating effort.

5. **Developing Practical Tools, Processes and Design Integration**
   Organisations are embedding sustainability earlier in the project lifecycle through:
   - Sustainable design guidance and lifecycle analysis for engineering teams.
   - Nature based solutions, biodiversity planning and climate resilience metrics.
   - Circular economy initiatives in asset management and procurement.

6. **Clarifying Metrics and Moving Towards Consistency**
   While full standardisation remains challenging, organisations are beginning to align around shared themes such as those identified in this report. Suggestions include developing sector-level case studies, simplified dashboards and improved narrative reporting to explain “the story behind the numbers”.

7. **Improving Communication and Internal Visibility**
   Many successes to date have arisen from reframing sustainability to match audience needs—whether senior leaders, programme directors or operational teams. Clear, audience-centred communication is helping overcome resistance and ensure sustainability is perceived as integral rather than additional.

Key Recommendation 5: Executive teams and boards should support initiatives to integrate sustainability into their business and explore solutions presented in this report, as good practice from the nuclear sector.

Conclusions and Next Steps

The UK nuclear sector stands at a pivotal moment. As it advances new build, decommissioning, waste management, fuel supply and emerging technologies, it has a clear opportunity to strengthen its contribution not only as a provider of secure, low-carbon energy, and national security, but as a sector that delivers lasting environmental and social value. This report demonstrates that sustainability is not an additional burden or a compliance exercise, but a strategic enabler that can strengthen trust, unlock investment, improve delivery and improve outcomes for society.

Engagement across the sector shows strong alignment on priorities. While decarbonisation remains fundamental, the greatest opportunity lies in addressing sustainability more holistically, including climate resilience, skills, research, development and innovation, and culture, diversity and inclusion, as well as other notable examples. Targeted, coordinated action in these areas going beyond compliance can deliver disproportionate benefits and enable the sector to credibly meet evolving expectations from investors, government, employees and the public.

Progress is already being made with many organisations embedding sustainability into governance, design, and delivery. However, persistent challenges remain, including limited resources, inconsistent metrics, cultural resistance and a tendency towards compliance-only thinking. Addressing these challenges requires visible leadership, clearer prioritisation and stronger collaboration across the sector; this has been strengthened by the PM's strategy on Building our nuclear nation and the letter from Chancellor of the Exchequer to CEOs and dutyholders in the nuclear sector, that has followed the recent Nuclear Regulatory Taskforce Review.

Ultimately, the success of the nuclear sector will be judged not only on what it delivers, but on how it delivers it. The next phase for the UK nuclear sector is to move decisively from intent to implementation. This means translating the priorities and recommendations in this report into practical actions embedded within governance, strategy and day to day decision making, supported by proportionate metrics that demonstrate both business value and societal benefit. By doing so, the nuclear sector can ensure sustainability becomes a consistent, credible and value adding part of how it delivers today, while building resilience, trust and a positive legacy for future generations.

Report Authors

Arun Khuttan – Co-Chair of the NGNIC and Nuclear Decommissioning Authority (NDA)
Dr Adam Sims – NGNIC and Westinghouse
With support from Dr Bethany Jim – NGNIC and Assystem

Supporting sector advocacy groups

Nuclear Institute YGN

Women in Nuclear UK

Inclusion and Diversity in Nuclear

RAINBOW FORUM

Special thanks to

Peter Bryant - CEO of the World Nuclear Transport Institute and Professor at the University of Liverpool

Davide Stronati – Chief Sustainability Officer at the NDA, Chair of the World Federation of Engineering Organisations Working Group on Engineering and Climate Change.

Nuclear Industry Association (NIA)

Nuclear sector contributors

Rolls-Royce Submarines
Cavendish Nuclear
Babcock International Group
Nuclear Decommissioning Authority
Sellafield Ltd
Rolls-Royce SMR
Nuclear Restoration Services
Nuclear Institute
Nuclear Waste Services
AWE Nuclear Security Technologies
Rolls Royce
Great British Energy-Nuclear
World Nuclear Transport Institute
Royal Navy
EDF