

AI Technical Sandbox

National Grid plc response

20 March 2026

This response to Ofgem's "AI Technical Sandbox consultation" dated 26 January 2026 (the Consultation) is from National Grid plc (NG), incorporating the perspectives of National Grid Electricity Transmission plc (NGET) – our electricity transmission business, National Grid Partners (NGP) – our Corporate Venture Capital business, National Grid Group Innovation, National Grid Ventures (NGV) – our electricity interconnector business, National Grid Electricity Distribution (NGED) – our electricity distribution business, and our Strategy, Compliance, Legal, Security, and Responsible AI functions.

Executive Summary

We welcome Ofgem's consultation on its plan for an initial 12-month pilot of an Artificial Intelligence (AI) technical sandbox. National Grid is supportive of the concept of an AI sandbox and of the need to test energy regulation and we see this as an ongoing area as AI continues to evolve. While AI is already widely adopted across the sector, the introduction of generative and agentic AI is still in relatively early stages. Given the rapid evolution of AI, any regulatory framework must be dynamic and adaptable to accommodate emerging technologies and methodologies while remaining proportionate as learning and innovation continue to advance.

AI has the potential to drive innovation, efficiency, and enhanced service delivery within the energy sector. At National Grid, we are actively leveraging AI to benefit consumers, contribute to net zero objectives, enable economic growth and energy independence, and improve operational performance; AI offers fantastic opportunities in the evolution and optimisation of the energy network. An AI technical sandbox provides an excellent opportunity to test use cases in a safe way, and to identify where regulation needs to evolve to enable benefits of new and innovative approaches. National Grid is eager to work with Ofgem and other participants to ensure that AI across the sector is responsibly delivered, has meaningful value, adapts as the technology continues to evolve, and is appropriately regulated. This will help to maximise benefits to consumers, the public, society, and the environment that can be realised in this exciting area while also managing the challenges that must be considered to protect consumers and wider society.

To support participation and to maximise the benefits of the sandbox, there are several areas where we would welcome further clarity on the proposals presented, namely:

The objectives of the sandbox: An AI sandbox provides a quick and agile way to test hypotheses on potential benefits and support faster adoption. However, the proposals do not clearly state the objectives of the sandbox. We would support a clear objective being to 'stress test' existing energy regulation against AI use cases and identifying where regulations need to adapt. To avoid any form of bias in the definition of use cases, we suggest independent evaluation of existing energy regulation through an 'AI lens' to identify where AI is likely to have impact with findings used to identify use cases that sector participants then test.

We also recommend consideration of longer-term objectives as AI will continue to evolve both as a technology and in its uses within the sector. 12-months is an exceptionally long time in AI, and long-term validity of findings must be considered.

How success will be measured: Understanding how Ofgem intends to measure success is essential to ensure that benefits are maximised. Clear pathways from the sandbox to business-as-usual are essential to deliver real value. Consideration should also be given to how lessons from non-selected or unsuccessful applications will be captured and shared to maximise sector-wide learning beyond participants and to allow users of the sandbox to iterate and adapt quickly.

We note Ofgem's description of sector impact, however we believe criteria such as 'non-trivial' and 'sufficiently challenging' need elaboration with a focus on quantifiable value that generates significant consumer benefit. We also regard 'representative' vs 'operational' data to be impactful on success, and so we would be grateful for definitions of both terms. We would also welcome clarity as to whether there would be a requirement for the sandbox to have any direct integration with our internal systems. Relatedly, we believe the term 'sandbox' itself should be defined as this may help understanding of objectives and success measures. Typically, a 'sandbox' is used to develop ideas and not necessarily reflect a production environment. However, if Ofgem's desire is a reflection of 'real world', a sandbox concept may not fulfil that if participants work to different definitions.

Technical and security aspects: The consultation does not detail the ‘technical setup’ and security controls of the sandbox, which in turn makes it difficult to fully assess the suitability of the proposals. We would welcome detail on key technical aspects including the platform that will be used, how the environment will be segregated, what data will be captured and how it will be used, how participant access will be controlled, the security controls that will be applied (with specific detail on prevention of malicious activity), how legal requirements such as business separation rules will be reflected in technical controls, and how the sandbox and the data within it will be decommissioned.

Compliance and legal considerations: We believe a range of compliance and legal topics must be considered, including:

- Collaboration in a sandbox may result in the joint creation of intellectual property – to avoid disputes arising over ownership, clear Intellectual Property (IP) ownership and licensing agreements will be needed beforehand.
- Controls will need to be put in place to prevent the erroneous disclosure of confidential information and personal data – we will also need to have an agreed process to manage any data breaches and liabilities.
- If AI products or services are deployed following development within the sandbox – even on a pilot basis - questions will arise over liability for any harm caused because of any errors made by the AI. Contractual arrangements will need to be put in place with each participant to ensure that liability is apportioned fairly.
- We would need to ensure that if commercially sensitive information is shared, that this does not create any risks under competition law, e.g. unlawful information exchange or gaining unfair commercial advantage.
- Information barriers will be required to avoid disclosure of commercially sensitive information between National Grid Electricity Transmission’s licensed entities and its Relevant Other Competitive Businesses.
- Access to the sandbox and visibility of its “contents” would also need to be agreed – participants may want to be able to experiment privately with new ideas. We would need to ensure that each participant can use the sandbox privately without Ofgem and each of the other participants having access to all information shared within the sandbox.

In addition to the above key design considerations, we would also welcome clarity from Ofgem regarding the timelines for the sandbox pilot, use case selection and the enduring approach. We are also keen to understand how the sandbox will be supported and updated during the pilot, noting that 12-months is a long time in AI development. Furthermore, we would also welcome confirmation from Ofgem on the details of its approach to costs. While the consultation clearly states that there is no charge to participate the sandbox it is unclear whether this covers the cost to an organisation of participating where it is dedicating staff and resources that would otherwise be spent elsewhere. Ofgem should clarify whether it will cover the cost to an organisation of participating and, if not, whether the cost to organisations of participating may affect commercial neutrality. Further details on Ofgem’s plans regarding costs of the sandbox after the pilot would also be welcome.

We also suggest that the pilot places a focus on innovative mitigation of environmental impacts of AI as well as on the use of AI to pioneer sustainability practices and energy transformation. While difficult to quantify, we understand that in some areas of the public and society, concern exists regarding the environmental impact of AI. National Grid believes that we, as an organisation, and the sector holds a unique responsibility to demonstrate to the public and society that we are considering such impact and not taking the use of AI for granted. We believe the sandbox is an opportunity to demonstrate this to the public and society, and we encourage Ofgem to consider this within the proposal.

Our responses to the questions raised in the consultation are set out in the Appendix of this document. We are happy to discuss our feedback in more detail with a view to supporting Ofgem’s ongoing development of the sandbox proposals and we look forward to more engagement with you on this topic.

Appendix: Response to consultation questions

- 1. Eligibility and participation:** Do you agree with the proposed eligibility criteria for lead Participants (licensees, market participants, and operators of essential services) and the encouragement of partnerships with technology providers, academia, and other innovators? Please explain your reasoning.

We agree with the proposed eligibility criteria for lead Participants. In terms of participation, we would welcome clarification from Ofgem that it would operate at the individual licence level which, in the case of National Grid, would exclude multiple licensed entities collaborating in a single use case due to existing separation obligations. Consideration should also be given to how the publication of sector learning will be managed so as not to undermine separation obligations. In some cases, multiple 'Lead Applicants' may be required, Ofgem should consider how this can be accommodated. Regarding partnerships, Ofgem should be mindful that the use of partnerships may lead to specific technology use, which in turn could impact scalability and repeatability - and could also create risks and issues in relation to creation and licensing of intellectual property. Existing partnerships with cloud partners could also present conflicts of interest for participants or create an unlevel playing field, which links back to the legal risks we have raised above. Ofgem should consider carefully how it will manage technology adoption and the selection of cloud partners. Technology selection should ensure equal outcomes for all and best support delivery of the sandbox objectives.

- 2. Use case selection:** Are the proposed use case selection criteria (including commercial neutrality, innovation, sector impact, regulatory uncertainty, testability, governance, and data access) appropriate and sufficient to ensure a fair and transparent process? Are there other criteria, safeguards, or considerations we should include?

Our feedback on the selection criteria included in the consultation is listed below.

Commercial neutrality: The description of commercial neutrality should be further refined to ensure it does not unintentionally exclude system critical or operational AI use cases where some first mover learning advantage is unavoidable. Distinguishing unfair competitive advantage from legitimate early learning would be helpful for eligibility criteria.

Innovation: The definition of innovation appears narrow in its scope and could benefit from being broadened to recognise novelty in deployment models, governance approaches, or scaling decisions for use cases, not only in underlying technology. An extension of this would also encompass innovative regulatory responses to enable effective use of AI within the energy sector.

Sector impact: The definition of 'non-trivial' and 'sufficiently challenging' need elaboration with a focus on quantifiable value, where a trivial improvement may generate significant consumer benefit. This criteria could also more explicitly include potential customer risks (including impacts on vulnerable consumers), mitigation measures, and rollback mechanisms alongside benefits.

Testability: This selection criteria could be strengthened through inclusion of data readiness, including quality, representativeness, and bias awareness, to ensure a robust and transferable learning

Governance: For transparency, we would welcome clarity on the Steering Group's decision rights, escalation powers, and intervention thresholds during live testing.

There are also other important criteria that we believe should be considered in use case selection.

Ethical Considerations: Criteria related to ethical AI use, such as fairness, transparency, and accountability should be explicitly included to align with Ofgem's guidance on ethical AI use and ensure that all trials address these key aspects.

Consumer Protection: Use cases should prioritise consumer protection, including data privacy and security. This can involve pre- and post-test reviews of consumer outcomes and data protection measures.

Scalability: The potential for scalability of the solutions being tested should also be considered, with applicants outlining potential pathways to wider deployment, regulatory implications, and conditions under which scaling may not be appropriate. Considering this at the outset helps to ensure that successful use cases can be implemented more broadly.

Interoperability: Evaluate the interoperability of the proposed AI solutions with existing systems (AI and non-AI systems), and within agentic AI systems in the energy sector. This helps in seamless integration and wider adoption and can help to mitigate against the risk of technology use that is only available to some participants or market actors.

Risk Management: Use case selection should include robust risk management frameworks to identify, assess, and mitigate potential risks associated with the AI use cases, including algorithmic bias and unintended consequences.

More broadly, we think the sandbox could benefit from use of an independent third party to support non-bias use case selection and testing. In practice this could work as follows: Third party proposes use cases > Ofgem ratifies the use cases against the selection criteria > the third party removes bias in the design > Sector Participants test use cases >

Collaborative evaluation of findings > outcomes and learning are applied to Ofgem guidance and regulations > Sector Participants work to updated guidance and regulations.

3. **Alignment with other initiatives:** Is the proposed approach for the AI Technical Sandbox clearly distinct and complementary to other initiatives such as Ofgem's AI Reg Lab, Energy Regulation Sandbox, Future Regulation Sandbox, UKRI-funded and SIF/NIA initiatives, NESO, FCA regulatory sandbox experience, and DSIT AI Growth Lab? Are there other relevant initiatives or examples of best practice that Ofgem should consider, and if so, which ones?

While we agree that the proposal for the AI technical sandbox appears complimentary to existing initiatives, we would welcome further clarity on the distinction and relationships between the various initiatives listed and any dependencies. For example, 'routing' guidance could support better understanding of which initiative is most suitable for a use case and help to avoid potential duplication across innovation funding and testing mechanisms, where many AI use cases could potentially sit in SIF/NIA or a sandbox. This will avoid fragmented delivery and learning where an idea might be developed in one place and tested in another and supports efficiency and faster delivery. Being clear on the purpose of each sandbox or lab will also aid participants in understanding whether solutions need to be tested in multiple areas as part of their scaling journey.

4. **Engagement and governance:** Does the proposed governance structure (steering group, working groups, open forums) provide sufficient oversight, transparency, and opportunities for stakeholder engagement? Are there other mechanisms or safeguards that should be included to ensure effective governance and knowledge sharing?

The proposed governance structure is comprehensive and appears robust. It should be noted that the governance approach appears very traditional while being applied to a non-traditional, fast-moving technology. As such, we suggest that Ofgem is prepared to adapt the governance approach as the sandbox progresses to tailor it as needed and ensure it remains proportionate, while also being responsive and agile to evolutions in AI during the course of the sandbox process. Regarding the Steering Group, we suggest that an independent third party is appointed as chair to support unbiased recommendations, thereby enhancing the credibility and impartiality of the process. As currently proposed the governance will require significant management, effort, and time to maintain effective communication and engagement. Ofgem should consider whether this is required or if alternative options could be explored.

5. **Timelines and next steps:** Are the proposed next steps for developing and launching the pilot clear, and is there anything further we should consider as we refine the timeline?

We would welcome further clarity on when the sandbox is expected to launch, when the composition of the sandbox will be finalised (including technology setup), when use case selection will take place, and how learnings are expected to be taken forward to an enduring approach. Clarity on what Ofgem expects to happen after the 12-month period would also be welcome. Ofgem should also consider how it plans to support and update the sandbox during the pilot, noting that twelve months is a long time in AI.

6. **Ethics and responsible AI:** Does the consultation and proposed pilot sufficiently address ethical considerations (fairness, transparency, responsible use, consumer trust) in line with Ofgem's AI guidance? Are there further steps we should take to embed ethics and safety in the sandbox?

We would expect this to form part of what is evaluated within the sandbox; to understand how to remain in accordance with Responsible AI topics (which include aspects beyond ethics, such as resilience, privacy, sustainability, transparency, supply chain, health & wellbeing) while not constraining innovation nor contravening regulation. We would anticipate development of use cases to specifically evaluate the feasibility of Ofgem's Ethical AI guidance, and cross-sector definition and application of suitable controls and working practices to inform further iterations of the guidance as well as more tailoring to the energy sector. We would welcome third party, non-sector, ratification of findings from testing of the guidance.

7. **Stakeholder support:** Do you have suggestions for how Ofgem can best support stakeholders throughout the pilot and beyond?

We would like to see regular opportunities for discussions on progress and findings with clear explanations as to what may inform new or changed regulation or guidance sufficiently in advance of implementation. Cost forecasts on future sandbox use based on learning and continued advancements in AI would help stakeholders plan involvement without disruption to their own business commitments. Consultation with stakeholders on proposed technical and security changes to the sandbox would also be vital. We would also welcome Ofgem gaining insights from the public as to their perceptions of AI within the sector, so stakeholders are able test relevant use cases.

8. **General feedback:** Do you have any other comments, suggestions, or concerns regarding the proposed pilot, the consultation process, or the expected outcomes? Please provide evidence, examples, or reasoning to support your responses wherever possible.

Overall, we would welcome a much more definitive and clearer objective. National Grid supports the concept of a sandbox, relevant regulation, and the use of AI within the sector, and is eager to collaborate with Ofgem and other participants. To define meaningful use cases will require more clarity on objectives, success measures, and the technical, security and legal aspects of the proposed environment. We are willing to work with Ofgem to reach a point where clarity and therefore confidence exists for the benefit of consumers, the public, society, and the environment, and we look forwards to a further iteration of the proposals in due course.