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Consultation on decision in relation to application for project designation for EDF's Cottam Small Modular Reactor

Summary

National Energy System Operator (NESO) is required to consult before making a decision on whether or not to designate a project using the Project Designation Methodology (30 April 2025) (the Methodology).[1]

NESO received an application from EDF to designate a Small Modular Reactor (SMR) under the category of "Projects with very long lead times". **We are minded to designate this project.** This letter explains the reasons for our minded to position and seeks views from stakeholders.

Our assessment has been made in accordance with the Methodology[2] and reflects our view that the project meets the criteria required for designation under the "Projects with very long lead times" category. We are seeking stakeholder views on our minded-to position to designate Cottam SMR, which will inform our final decision. After we have made our decision, we must submit our decision to Ofgem. If after 28 calendar days, following our submission to Ofgem, it has not decided to reject our recommendation, then it will be deemed to be approved by the Authority.

Project Designation

The Methodology explains how we will designate projects, under the reformed electricity transmission connection process, based on the criteria outlined in the Methodology. The Methodology states:

[1] https://www.neso.energy/document/359786/download

[2] The assessment has taken place using the 2025 Methodology as we are awaiting a decision from Ofgem on the 2026 Methodology for Project Designation. However, the 2026 Methodology only proposes changes to the innovation criterion and therefore does not impact our minded-to position presented within this consultation

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"NESO only envisages designating projects in exceptional circumstances, where those projects demonstrate that they meet the detailed criteria referred to in this Project Designation Methodology."

As set out in the Methodology, project designation can result in two outcomes; projects can:

1. Be included within the reformed connections queue (providing they meet the Gate 2 Readiness Criteria (set out in the Gate 2 Requirements Methodology))[3]; and / or
2. Be prioritised for queue position within a Gate 2 assessment process.
    - By 'prioritised for queue position' we mean that they could have priority access to available capacity / earlier connection dates compared to other projects in that Gate 2 tranche by placing them higher up the queue for network design purposes than those in the queue which are not designated. In addition, designated projects may be eligible for acceleration post signing a Gate 2 Agreement should another project exit and the capacity can be reallocated. The Connections Network Design Methodology sets out how these processes will work in practice.

Our understanding of the Project based on the application

We received a submission from EDF for designation of the Cottam SMR project. From our understanding of the application (a version which excludes commercially sensitive information is published alongside this letter), this project would fall into a technology classification when a Strategic Spatial Energy Plan (SSEP) is developed but would not contribute towards permitted capacity until then. The indicative Transmission Entry Capacity (TEC) of this project is 1600MW, subject to further technical development of the project. A single Holtec SMR-300 unit is expected to produce 320-340MW. EDF expect to procure four units for the Cottam SMR project, resulting in an output range of 1280-1360MW.

EDF have partnered with Holtec International to bring SMR technology, currently in development in United States of America (USA), to Great Britain (GB). The proposed development may include both private and public sector funding: a Power Purchase Agreement (PPA) with a data centre project as large baseload offtake, as well as consumer backed support from the Advanced Nuclear Framework for energy export to the grid.

The applicant has provided NESO with a programme plan which sets out commercial operation around 2037. This is included in EDF's supporting document.

Very long lead times designation criterion

The applicant is seeking project designation under category E, which covers projects with very long lead times (i.e. long design, consenting and construction periods). The relevant criterion is included in full below.

[3] https://www.neso.energy/document/359776/download

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The Methodology states:

> *"NESO will only designate a project under the 'very long lead times' category if that project provides robust evidence of a very long lead time, and specifically a lead time for commissioning and operation beyond 2035, along with evidence:*
>
> *a) that its development timelines are in line with industry best practice; and*
>
> *b) that the project delivers benefits to consumers."*

Summary of the applicant's justification for designation

In the applicant's view, the project will align to industry best practice as it has been "*designed to make extensive use of modular structures, standardised components, and indoor manufacturing processes in order to reduce the total construction period and overall delivery risks"* and EDF will "*work with the Office for Nuclear Regulation (ONR) to minimise the number of UK-specific changes and maximise the benefits of replication and we are aiming for this to be limited to the 50Hz conversion".*

The benefits set out by the applicant include:

1. System: EDF modelling indicates that "*an incremental 1.4GW of nuclear capacity could deliver net electricity system benefits of approximately £0.5 –1 billion per year by 2050, resulting in lower power costs for consumers, compared with alternative net zero - aligned pathways that include no new nuclear beyond Sizewell C. Over the project lifetime, this translates into total system benefits in the £10bns."*
2. Network: The location of Cottam is "*between system boundaries B8 and B9, meaning it is south of all major transmission boundary constraints and well-placed to serve GB's southern-weighted demand profile" and "Subject to detailed assessment by National Grid Electricity Transmission (NGET)*[4] *through the connections process, we (EDF) do not expect that any substantial attributable wider network reinforcement will be required as the Cottam SMR project has a lower planned capacity than previous generation on site."* Moreover, *"On the Cottam site itself we (EDF) are separately progressing up to 1GW of data centre demand which is expected to connect in advance of the SMR, targeting two 500MW phases from the early 2030s. This would be a high load factor demand, meaning the net export from the site could be substantially lower than the headline SMR generation capacity."*
3. Local and GB economy: The application states that the project "*is poised to generate substantial socio-economic value, primarily by driving significant regional regeneration and bolstering the UK's strategic energy ambitions. It can directly address lack of opportunity in the 50-mile Cottam catchment through the creation of jobs, skills*

[4] Cottam SMR is planned to be located on a former coal-fired power station site which is situated within NGET's jurisdiction as Transmission Owner. NGET would be responsible for determining any necessary network reinforcements to connect this project to their network.

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development, and supply chain inclusion. It was found that 16 constituencies in the wider catchment face significant socio-economic challenges and are particularly deprived (IMD < 100) in areas relating to income, employment, education and health. "

Assessment of the Project against the Very Long Lead Time Criterion

We have assessed the Project against all aspects of the Very Long Lead Time Criterion. To be designated a project must initially pass Part 1. Then in Part 2 of the assessment, it must pass (a) and (b). We have summarised our assessment in the table below. Our full assessment is set out in the annex to this letter.

Criteria or criteria element	Pass / Fail	Commentary
Part 1		
Robust evidence of a very long lead time, and specifically a lead time for commissioning and operation beyond 2035	Pass	Given the innovative nature of SMR technology, confirming delivery timelines remains challenging. To assess whether EDF could realistically deliver the project within the Clean Power 2030 Action Plan[5] (CP30) timeframe, NESO reviewed EDF's high-level indicative programme, supplemented by discussions with internal SMEs, engagement with the Department for Energy Security and Net Zero (DESNZ), and benchmarking against comparable SMR projects in GB and internationally, concluding that the proposed timeline of 2037 was broadly achievable and that delivery before end 2035 is not realistic.
Part 2		
a) That its development timelines are in line with industry best practice	Pass	Given the limited evidence base for SMRs, NESO engaged with internal SMEs and DESNZ, concluding that EDF is progressing the project in line with comparable technologies. Benchmarking against international SMR projects indicates that the proposed Cottam delivery schedule is broadly consistent with observed development timelines and therefore appears consistent with current industry best practice.
b) That the project delivers benefits to consumers	Pass	Cottam SMR is likely to deliver consumer benefits, although the scale of direct consumer benefit remains uncertain as the project may operate under a PPA with a data centre. Regardless, the

[5] assets.publishing.service.gov.uk/media/677bc80399c93b7286a396d6/clean-power-2030-action-plan-main-report.pdf

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		project will add low-carbon generation capacity to GB, supporting security of supply. Moreover, we consider a key benefit to be the potential to accelerate wider SMR deployment by providing valuable delivery and regulatory lessons, supporting the longer-term role of SMRs in decarbonisation and system reliability.

As part of this consultation, we are seeking feedback on the following areas:

1. Any views on our assessment and minded-to position to designate the project, including based on the information that has been provided by the applicant; and
2. Any other comments.

This consultation will be open for 28 calendar days. Please email your responses to **Box.Designation@neso.energy.** Following this, we will review all responses and make a final determination to approve or reject this application for designation. If we reaffirm our minded-to position to approve designation, we will publish a notice on our website and notify Ofgem. Within 28 calendar days of receipt of our submission, Ofgem will determine whether to reject the designation decision. If Ofgem do not give a direction to reject within 28 calendar days, we will deem the application to have been designated.

Yours sincerely

James Norman

Head of Connections Strategy

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Annex 1

This annex sets out our full assessment of the project against the long lead time evaluation criterion.

Part 1:

Robust evidence of a very long lead time, and specifically a lead time for commissioning and operation beyond 2035

As SMR's are an innovative technology it is challenging to confirm lead times for this project. NESO's initial assessment focused on if EDF could deliver this project by 2035. This was to ensure fairness to all projects that are required to meet strategic alignment with CP30 when applying for a connection. EDF could not provide a detailed project plan due to commercial sensitivities of publishing this information. Instead, they provided a high-level Indicative Programme Plan (see EDF supporting document). This was utilised for internal discussion with Subject Matter Experts (SMEs) and external engagement with DESNZ, supporting to ascertain a best view of delivery timelines. This analysis considered published literature and stakeholder engagement on nuclear SMR development by internal NESO staff. The analysis suggests that it would be challenging and unlikely for a GB-based SMR development to be operational before 2035. This is in part due to the first-of-a-kind (FOAK) nature of emerging SMR supply chains in GB and its key trading partners. GB's planning and permitting structures for SMRs also play a role, although the exact impact of this on delivery timeframes remains uncertain. We also undertook a review of other SMR projects in development (see below section for further information on the international comparison).

It is important to note that this assessment does not consider timeframes NGET may provide for construction of network reinforcements needed to connect this project, which may result in a connection date beyond the timeframe EDF have proposed within their Programme (2037). Analysis of network reinforcements delivery timescale is out of scope of our assessment, as per the Methodology, and would be undertaken by NGET as part of any future connection application.

Part 2:

a) That its development timelines are in line with industry best practice

As set out above, as this is an emerging technology, there are limited examples of SMRs in development to assess against what could be deemed as "best practice". We therefore undertook a range of internal and external engagement with SMEs. Based on that engagement, it is our view that the project is (1) undertaking credible steps to progress towards construction and commissioning and (2) undertaking the necessary regulatory steps, in alignment with similar technologies in development in GB.

We also undertook an assessment against international SMR projects. While direct benchmarking of Cottam SMR against international SMR projects is challenging given the limited number of operational examples globally, EDF's proposed development and delivery schedule appears broadly consistent with the range of timelines observed across comparable nuclear projects. The Chinese HTR-PM project progressed from concept development in 2004 to commercial operation in 2023, with approximately 10-11 years of construction activity. Although this was a FOAK

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deployment, it demonstrates the lengthy development, licensing and construction periods typically associated with novel nuclear technologies. The more recent ACP100 (Linglong One) programme suggests that delivery times can reduce as technology and regulatory frameworks mature. Development commenced around 2010, with construction beginning in 2021 and commercial operation anticipated in 2026. This equates to an overall programme duration of approximately 16 years from concept stage to operation, compared to EDF's indicative Cottam schedule of around 11 years from project inception in 2026 to commercial operation in 2037. While the technologies, regulatory environments and project scopes differ, the Cottam timeline falls within the broad range evidenced by international SMR programmes and is supported by EDF's position that lessons learned from both overseas SMR development and previous UK nuclear projects can be applied to reduce delivery risk. More broadly, the Cottam SMR programme allocates significant time to development, licensing, financing and regulatory approvals before construction commences. This is consistent with international experience, where a substantial proportion of project duration is typically associated with pre-construction activities rather than the construction phase itself. Consequently, although there is insufficient operational evidence globally to establish a definitive SMR benchmark, the proposed Cottam SMR delivery schedule does not appear materially inconsistent with the limited set of international comparators currently available. Therefore, we are minded-to agree with EDF's evidence that its development timelines are in line with industry best practice.

b) That the project delivers benefits to consumers

Our assessment is that Cottam SMR delivers benefits to consumers, although there is uncertainty towards the quantum of direct benefit it would provide to energy consumers. This is due to the fact that Cottam SMR may have a PPA with a data centre. This results in uncertainty around the quantum of power that will ultimately be exported for use by energy consumers versus private sector use. However, it must be noted that if the data centre proceeds, it will require an energy source. If that source is provided by the SMR project, it ensures that other generation sources can be used by energy customers, which otherwise could have been used to power that data centre.

In their supporting document, EDF stated that the project will result in electricity system benefits of "*£0.5 –1 billion per year by 2050".* These benefits may not materialise if connected to a data centre, and EDF have not provided similar figures to reflect system benefits under the scenario they proceed with the PPA. However, we believe that there are likely economic and system benefits from Cottam SMR, even if co-located with a data centre.

EDF believe that Cottam SMR may not require "*any substantial, attributable wider network reinforcements*", resulting in consumer benefit. This is due to its location on a site which previously housed 2GW of capacity from a coal-fired power station, which closed in 2019. As noted above, we cannot confirm this without detailed assessment undertaken by NGET.

We believe a key benefit of this project arises from its potential to provide wider learnings to industry, which can support commercialisation at a larger scale for SMR technologies. Cottam SMR will take learnings from the USA development, moving it from FOAK to a concept technology which may support in expediting delivery of similar projects in development in GB. Future Energy

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Scenarios (FES) 2025[6] set out that GB's energy mix to 2050 could have up to 12GW of nuclear, with up to 59% of this being provided by SMRs. This supports the key role SMRs could provide towards security of supply as GB transitions to a system dominated by intermittent low carbon generation. We have also performed a check against the SSEP analysis. While the SSEP does not make recommendations on specific projects or sites, its analysis identifies a role for SMR deployment across all pathways, reflecting the potential contribution of SMRs to system reliability, decarbonisation and security of supply.

Further, we believe that additional nuclear generation can in general provide the following system benefits:

- Nuclear power provides reliable, low-carbon electricity regardless of weather conditions, complementing renewable technologies by supplying firm generation when renewable output is variable.
- Nuclear generation produces very low lifecycle carbon emissions, making it an important technology for achieving Net Zero ambitions and supporting decarbonisation of the power sector.
- Nuclear power stations have long operational lifetimes, providing stable generation over several decades and reducing the frequency of asset replacement compared with many other technologies.
- Nuclear energy has a high energy density and relatively small land footprint, enabling significant electricity generation from a comparatively limited area of land.

[6] Future Energy Scenarios 2025: Pathways to Net Zero