

Public

Ref: FOI/25/169

National Energy System Operator
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11 December 2025

Dear requester

Request for Information

Thank you for your request for information which we received on 12 November 2025. Your request has been considered under the Environmental Information Regulations 2004 (EIR) as the requested information meets the definition of 'environmental information' provided at Regulation 2(1)(c) of the EIR.

Request

On 15 October 2025 you submitted an information request (FOI/25/153), which we refused, engaging Regulation 12(4)(c) of the EIR as we determined that the request was unclear due to the use of two terms throughout your request.

You confirmed on 12 November that when you submitted your original request you were '*seeking information on BOTH blackstart (restoration services) AND grid-forming capability*' in relation to the questions throughout your request.

The initial part of your original request is copied below and the full text of your request, as submitted on 15 October, is provided in the annex to this response.

Under the Freedom of Information Act 2000, please provide documents, datasets or briefing material held by the Department for Energy Security and Net Zero and/or National Grid ESO, from 1 January 2018 to the present, that relate to committed, funded, or contractually-approved

projects or programmes whose stated purpose includes maintaining, restoring, or materially improving Great Britain's black-start or grid-forming capability.

Please provide the following for each identified project or programme (or, where no such project exists, please respond "none held"):

- 1. Project or programme title and lead organisation(s)*
- 2. Technology class (for example: synchronous condenser, battery-based grid-forming inverter, pumped storage, fast-start gas turbine, hybrid storage/generation, other - please specify)*
- 3. Contractual/financial status (contract signed / funding allocated / procurement ongoing / planning consent granted / works commenced / completed / cancelled)*
- 4. Contract or programme start date and expected or actual commissioning date*
- 5. Committed or contracted capacity (MW) and whether black-start capability was explicitly referenced in contract documentation (Yes/No)*
- 6. Contract value or budget band (exact figures where available; otherwise provide banding: £0-10m / £10-50m / £50-100m / £100m+)*
- 7. One-paragraph non-technical summary of the project purpose and deliverables as stated in the contract or programme documentation*
- 8. Any internal assessments or modelling summaries that estimate the contribution of committed projects to national black-start and system-restoration capability (please provide tables, charts or summary documents where they exist). If no such assessment exists, please confirm this explicitly.*

Response

We confirm that we hold information in scope of your request. Your request was addressed to both NESO and DESNZ. For the avoidance of doubt, we are responding solely in accordance with NESO's obligations under the information rights legislation, and not on behalf of any other public organisation.

For information, the National Grid Electricity System Operator (NG ESO) was part of the National Grid PLC group of companies until 30 September 2024. On 1 October 2024 we became the National Energy System Operator (NESO) under government ownership (the Independent System Operator and Planner as designated in the Energy Act 2023).

In Great Britain, generation assets are constructed and operated by generation licence holders independent of NESO. NESO oversees the connection process and procures various grid services necessary for system operation. NESO does not fund or manage power plant construction projects. The investment made by generators is typically based on a business case to participate

in the wholesale energy market, balancing market, ancillary service market and distribution flexibility market (for distribution connected generation).

Electricity system restoration (ESR) services ('black start')

Restoration (formerly known as Black Start) is the process used to restore power in the event of a total or partial shutdown of the national electricity transmission system. Electricity system restoration (ESR) (or black start) services were previously procured through bilateral negotiations with capable power plants. Since 2019, in response to changes in the energy sector and to maximise economic efficiency, ESR services are now procured wherever possible via open tender. The typical contract period is five years. Any party that meets the technical requirements may participate, and successful bidders are awarded an electricity system restoration (ESR) contract. Further information including information on ESR tenders, is available here: [Restoration Services | National Energy System Operator](#).

The Government's Electricity System Restoration Standard (ESRS) requires NESO to have sufficient capability and arrangements in place to restore 100% of Great Britain's electricity demand within five days if there was a major supply interruption. The ESRS requirements must be met by 31 December 2026. Information on NESO's progress and the assurance framework is available here: [Electricity System Restoration Standard | National Energy System Operator](#)

We can confirm:

- 27 generators are currently contracted for restoration services
- All ESR providers' primary purpose is restoration of the system, being required to be able to start themselves without external supplies and establish and maintain a power island around them.
- Contracted technologies for ESR services are synchronous power plants (gas, hydro, pumped hydro storages, biomass etc), BESS, Wind and HVDC Interconnectors.
- The annual spend on restoration services is reported annually in the Annual Balancing Services Spend Report:
[Annual Balancing Services Spend Report 2024/25](#)
[Annual Balancing Services Spend Report 2023/24](#)
[Annual Balancing Services Spend Report 2022/23](#)
[Annual Balancing Services Spend Report 2021/22](#)
- Prior to 2021/22 National Grid ESO published an annual Black Start Allowed Revenue Report:
[Black Start Allowed Revenue Report 2020/21](#)
[Black Start Allowed Revenue Report 2019/20](#)
[Black Start Allowed Revenue Report 2018/19](#)

- NESO uses an ESR model to quantify the effectiveness of individual generators on restoration strategies. The annual Assurance Framework includes high level information on effectiveness: see for example [2025/26](#). Previous years are available on the Restoration Services website:

Regulation 12(5)(a) of the EIR allows a public authority to withhold information where disclosure will adversely affect national security or public safety. Generators that are specifically contracted for ESR are critical national infrastructure and any information relating to them is highly sensitive and relates directly to the security and resilience of the GB's energy system. NESO will therefore not disclose information about individual generators contracted for ESR.

Whilst we are in no way suggesting that you intend to use information for malicious purposes, any disclosure under the EIR or FOIA is to the world at large, including terrorists and other bad actors. In the current geopolitical and security environment, there is a need for NESO to take a very careful approach with regard to the disclosure of information relating to critical national infrastructure.

The EIR have a presumption of disclosure and when engaging an exception, we are required to carry out a 'public interest test'. I.e., we are required to balance the public interest in disclosure against the public interest in withholding the information.

There is always a general public interest in transparency and accountability. NESO acknowledges that there is a public interest in energy matters and that the public are interested in the security of GB's energy supply. The public is naturally interested in the measures in place to restore the electricity network in the event of a major supply interruption.

There is, however, an extremely weighty public interest argument in protecting critical national infrastructure and the security of energy supply. NESO needs to protect critical national infrastructure in a volatile and hostile geopolitical climate in which energy related infrastructure and sources have been targeted in other parts of the world.

NESO must balance its transparency obligations with protecting the resilience of the network and the security of supply. Although mindful of the presumption in favour of disclosure under the EIR, we are conscious of the substantial public interest in national security and protecting critical national infrastructure. Having weighed up the public interest arguments our opinion is that the public interest lies engaging Regulation 12(5)(a).

Grid-forming capability

As NESO, it's our job to keep the grid stable so we can deliver safe and reliable electricity. We're looking for solutions that will allow us to operate an electricity system which will carry increasing amounts of energy generated from renewable and low carbon sources. The overarching programme that looks for these solutions is [Network Services \(NS\)](#).

One of those [Stability Network Services](#) look for cost-effective and clean solutions to address stability issues in the electricity system created by the decline in transmission connected synchronous generation and increase in asynchronous technologies.

Grid forming technology is used to maintain the stability of the electricity network. Grid-forming capability is a plant's ability to exhibit similar characteristics to that of a conventional synchronous generator, thereby reducing the impact of any network disturbances that may occur and contributing to the stability of the electricity system. Further information on grid-forming is available here: [What is Grid Forming? | National Energy System Operator](#).

Generators that can provide grid-forming technology are procured through the Stability Market: [Stability Market | National Energy System Operator](#).

Information on the tender rounds for Stability services is available on the Stability Network Services page linked above and directly through the links below. Where a tender round is concluded, information on applicants to the tender and the outcome of that tender process is published.

- [Phase 1 - concluded](#)
- [Phase 2 - concluded](#)
- [Phase 3 - concluded](#)
- [Long-term 2029 tender](#)

Engagement of Regulation 12(5)(e) of the EIR

Further to the engagement of Regulation 12(5)(a) in relation to ESR and the disclosure of publicly available information relating to the Stability Services tenders, we confirm that NESO will not disclose information about specific contracts held by generation licence holders.

We are therefore also engaging Regulation 12(5)(e) of the EIR in respect of information held relating to all contracts with generation providers in scope of this request, except where that information is publicly available.

Information is covered by Regulation 12(5)(e) if:

- The information is commercial or industrial in nature;
- Confidentiality is provided by law;
- The confidentiality is protecting a legitimate economic interest;
- The confidentiality would be adversely affected by disclosure.

We believe that information relating to contracts held by with NESO by generation licence holders is commercial in nature and our use of this exception is primarily in respect of the potential consequence to developers' commercial interests.

Whilst we review each request that we receive on a case-by-case basis, you will see from the responses published on our [disclosure log](#) that our decision to withhold information relating to specific contracts is consistent with our decisions on similar requests for information about specific generation projects.

Commercial companies develop generation projects and are independent of NESO and the respective transmission owners. These development projects are competitive processes, both for the rights to supply electricity to the transmission network and also for funding from investors and any available government funding where applicable.

Given the competitive arena in which renewable energy projects are developed and implemented, a developer would not expect their commercial information to be published. This would, in effect, make it available to other developers who could use it to undermine future bids for other renewable energy projects. Disclosure could also damage the developer's bargaining position whilst investment and build decisions remain outstanding. It could also affect the value and viability of an upfront investment before the project is connected.

Connection offers are made substantially in the form and under the terms of the Connection and Use of System Code (CUSC). The CUSC has exhibits containing proformas of the documents which set out the main content of the connection agreements with a developer. NESO is bound by the confidentiality obligations under the [Connection and Use of Services Code \(CUSC\)](#) and cannot share the specific terms put in place with a developer. NESO also falls within the scope of the Utilities Act 2000 and Section 105 of that Act makes it a criminal offence to disclose

information: a) obtained under the Utilities Act 2000 and any other key energy legislation such as the Gas Act 1986 and the Electricity Act 1989, subject to specific exceptions; and b) where the information relates to the affairs of any individual or any particular business during the lifetime of the individual or so long as the business continues to be carried on.

You may find it helpful to know that this kind of confidentiality obligation is not limited to the energy sector. There are equivalent provisions in legislation governing other sectors (e.g. the Water Act 1989, the Telecommunications Act 1984, the Airports Act 1986, and the Broadcasting Act 1990). In our opinion, the information held by NESO on individual contracts for generation projects is subject to the restrictions at Section 105 of the Utilities Act and does not fall within any of the limited exceptions to that duty of confidentiality. Beyond this, there is also a common law duty of confidentiality based on the expectations of the developers.

All exceptions in the EIR are subject to a public interest test.

NESO acknowledges that there are a number of public interest arguments in favour of disclosing the requested information. There is a public interest in renewable energy development, particularly where the construction and development of such projects may have an impact on local areas. The general public may be interested in the dates and times of construction, the connection dates, and the timelines and scope of developments. In relation to both ESR and grid forming technologies there is also a recognised public interest in the stability of the electricity network and thereby the generators contracted to provide such services.

There is a public interest in ensuring no specific developer is materially disadvantaged through disclosing confidential commercial information, which is not released in respect of other projects. This ensures that there is a level playing field across all projects.

NESO has a public duty under our licence to facilitate competition within the energy market and there is a recognised public interest in allowing competition in the energy industry. Increased renewable generation is crucial to the Government achieving its net zero and clean energy targets and anything that unjustifiably inhibits the competitive development of that renewable generation runs counter to these goals.

NESO is the designated independent system operator and planner under the Energy Act 2023 and must remain independent, fair, and consumer focused. Disclosure could erode trust within the

sector, hampering NESO’s role and our ability to drive forward reforms and initiatives that would bring benefits to consumers and to the environment.

Having weighed up these public interest arguments, our opinion is that the balance of the public interest lies in maintaining the exemption and withholding information relating to the contracts held by generation projects, where it is not already in the public domain. The CUSC information outlines the substantial content of connection agreements whilst preserving the commercial confidentiality owed to the developer and ensuring that NESO meets its legal and licence obligations.

The use of the EIR exception for similar information relating to the connection of windfarms was the subject of a Decision Notice (Reference IC-127537-Q8R6) from the Information Commissioner. Whilst we consider every request for information on a case-by-case basis, the Information Commissioner’s analysis of the connections process and the application of this exemption is helpful context. This decision upheld the use of the exception by the National Grid Electricity System Operator prior to our transition to NESO. The full decision is available on the Information Commissioner’s Office (ICO) website should you wish to check this for yourself.

Response to questions in Annex A

In your request you have also provided a table of questions. You may be aware that requests submitted under the EIR are for recorded information held at the time of the request. A question can be a valid request under the legislation, but an organisation is only required to provide a response where it holds recorded information that would provide the answer to the question.

We have provided a ‘tick box’ response to all questions, highlighting and marking with an X our responses, and further information where required.

<i>Please provide a direct response (tick box or supply data) to each of the following items where answers exist in internal modelling, planning or procurement documents:</i>	
<i>Q</i>	<i>Question and Response Options</i>
<i>1</i>	<p><i>Compared with 2010, will contracted black-start capability be greater, the same or less by 2030?</i></p> <p><input type="checkbox"/> Greater <input type="checkbox"/> Same <input type="checkbox"/> Less X Not assessed</p> <p>Recorded information is not held in scope of this question.</p>

	NESO does not, and is not required to, compare restoration capability in terms of MW contracted. Our obligation is to ensure that there is sufficient capability to restore power in the event of a total or partial shutdown of the national electricity transmission system.
2	<p><i>Are there projects committed (contracts signed or funding allocated) that explicitly require grid-forming capability to be delivered before 2030?</i></p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Please see information provided above in relation to Stability Service tenders.</p>
3	<p><i>Total contracted grid-forming / black-start capable capacity (MW) with contractual commissioning dates before 2035:</i></p> <p><input type="checkbox"/> 0–500 MW <input type="checkbox"/> 501–2,000 MW <input type="checkbox"/> 2,001–5,000 MW <input checked="" type="checkbox"/> >5,000 MW</p> <p><i>(or provide exact figure if not commercially sensitive: _____ MW)</i></p>
4	<p><i>Do current published plans assume future, not-yet-contracted technologies to deliver black-start capability post-2030?</i></p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Partially (please specify which technologies)</p>
5	<p><i>Have DESNZ or NESO modelled recovery time from a full-system blackout under the 2030 generation mix?</i></p> <p><input checked="" type="checkbox"/> Yes (modelling complete) <input type="checkbox"/> No <input type="checkbox"/> In progress</p> <p>Please note that our obligation under the EIR is to respond with recorded information held by NESO. We are not responding to this, or any other question, on behalf of DESNZ.</p> <p>In the information above we provided a link to the 2025/26 Restoration Assurance Framework – please see page 13 of that document</p>
6	<p><i>Under Grid Code or equivalent regulatory framework, are licensed operators required to maintain or procure black-start capability?</i></p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Requirement exists but not mandatory</p> <p>You have asked in this question for information relating to ‘licensed operators’.</p>

	<p>Our response is provided in relation to NESO only. NESO holds the Electricity System Operator Licence. Condition 4 of the NESO licence relates to the Electricity System Restoration Standard.</p> <p>Ofgem’s Electronic Public Register provides access to all energy licences: Home Page - Ofgem Public Register.</p>
7	<p><i>Total contracted synchronous and dispatchable generation capacity with commissioning dates before 2035 (nuclear, gas, hydro, biomass - excludes wind, solar, battery storage):</i></p> <p><input type="checkbox"/> <50 GW <input type="checkbox"/> 50–70 GW <input type="checkbox"/> 71–90 GW <input checked="" type="checkbox"/> >90 GW</p> <p>The TEC Register is a list of projects that hold contracts for Transmission Entry Capacity (TEC) with NESO. These include existing and future connection projects and projects that can be directly connected to the National Electricity Transmission System (NETS) or make use of it. The current TEC Register is published here: Transmission Entry Capacity (TEC) register National Energy System Operator.</p>

This concludes our response to your request.

Next steps

If you are dissatisfied with our handling of your request, you can ask us to review our response. If you want us to carry out a review, please let us know within 40 working days and quote the reference number at the top of this letter. You can find our procedure here: [Freedom of Information and Environmental Information Regulations | National Energy System Operator](#). The ICO’s website also provides guidance on the internal review process: [What to do if you are dissatisfied with the response | ICO](#).

If you are still dissatisfied after our internal review, you can complain to the Information Commissioner’s Office (ICO). You should make complaints to the ICO within six weeks of receiving the outcome of an internal review. The easiest way to lodge a complaint is through their website: www.ico.org.uk/foicomplaints. Alternatively, they can be contacted at: Wycliffe House, Water Lane, Wilmslow, SK9 5AF.

Thank you for your interest in the work of the National Energy System Operator (NESO).

Regards,

The Information Rights Team, National Energy System Operator (NESO)

Annex: Full text of information request

Under the Freedom of Information Act 2000, please provide documents, datasets or briefing material held by the Department for Energy Security and Net Zero and/or National Grid ESO, from 1 January 2018 to the present, that relate to committed, funded, or contractually-approved projects or programmes whose stated purpose includes maintaining, restoring, or materially improving Great Britain's black-start or grid-forming capability.

SCOPE AND DEFINITIONS

For the purposes of this request, "committed, funded, or contractually-approved" means at least one of the following has occurred:

- *(i) Contract signed with supplier(s);*
- *(ii) Funding formally allocated in departmental or programme accounts;*
- *(iii) Planning permission or equivalent statutory consent granted; or*
- *(iv) Physical works commenced ("spades in the ground").*

For the avoidance of doubt: Projects that were committed, funded or contractually approved within this period but have since been completed, cancelled or superseded should still be included, as they establish the historical baseline for capability assessment.

INFORMATION EXPLICITLY EXCLUDED FROM THIS REQUEST

This request does not seek:

- *Site-specific operational procedures*
- *Detailed restoration plans or sequence documentation*
- *Control system designs, architectures or configurations*
- *Passwords, access credentials or security protocols*
- *Real-time operational data or live system status*
- *Any information whose disclosure would, in the opinion of the National Protective Security Authority or equivalent designated security body, materially increase operational risk beyond that already in the public domain*

I am seeking strategic, programme and procurement level documentation and quantitative project metadata only.

REQUESTED INFORMATION

Please provide the following for each identified project or programme (or, where no such project exists, please respond "none held"):

1. *Project or programme title and lead organisation(s)*

2. *Technology class (for example: synchronous condenser, battery-based grid-forming inverter, pumped storage, fast-start gas turbine, hybrid storage/generation, other - please specify)*
3. *Contractual/financial status (contract signed / funding allocated / procurement ongoing / planning consent granted / works commenced / completed / cancelled)*
4. *Contract or programme start date and expected or actual commissioning date*
5. *Committed or contracted capacity (MW) and whether black-start capability was explicitly referenced in contract documentation (Yes/No)*
6. *Contract value or budget band (exact figures where available; otherwise provide banding: £0-10m / £10-50m / £50-100m / £100m+)*
7. *One-paragraph non-technical summary of the project purpose and deliverables as stated in the contract or programme documentation*
8. *Any internal assessments or modelling summaries that estimate the contribution of committed projects to national black-start and system-restoration capability (please provide tables, charts or summary documents where they exist). If no such assessment exists, please confirm this explicitly.*

EXEMPTIONS AND REDACTIONS

If any requested document is withheld under an exemption:

- *Please identify the document by title and date*
- *Cite the specific exemption(s) relied upon*
- *Explain why the public interest in maintaining the exemption outweighs disclosure*
- *Consider partial disclosure where exemptions apply only to specific sections*

If the information requested is held by an external contractor, please either provide the information directly or supply the contractor name and contract reference so I may pursue the information under the Act. If parts of this request are considered sensitive, I would be content to receive a redacted copy limited to programme-level data as described above, with commercially sensitive figures provided in bands rather than exact amounts.

ANNEX A – BINARY / CATEGORICAL QUESTIONS

Please provide a direct response (tick box or supply data) to each of the following items where answers exist in internal modelling, planning or procurement documents:

Q

Question and Response Options

- 1 Compared with 2010, will contracted black-start capability be greater, the same or less by 2030?
 Greater Same Less Not assessed
- 2 Are there projects committed (contracts signed or funding allocated) that explicitly require grid-forming capability to be delivered before 2030?
 Yes No
- 3 Total contracted grid-forming / black-start capable capacity (MW) with contractual commissioning dates before 2035:
 0–500 MW 501–2,000 MW 2,001–5,000 MW >5,000 MW
 (or provide exact figure if not commercially sensitive: _____ MW)
- 4 Do current published plans assume future, not-yet-contracted technologies to deliver black-start capability post-2030?
 Yes No Partially (please specify which technologies)
- 5 Have DESNZ or NESO modelled recovery time from a full-system blackout under the 2030 generation mix?
 Yes (modelling complete) No In progress
- 6 Under Grid Code or equivalent regulatory framework, are licensed operators required to maintain or procure black-start capability?
 Yes No Requirement exists but not mandatory

Then this question:

- 7 Total contracted synchronous and dispatchable generation capacity with commissioning dates before 2035 (nuclear, gas, hydro, biomass - excludes wind, solar, battery storage):
 <50 GW 50–70 GW 71–90 GW >90 GW

PROCEDURAL CLARIFICATIONS TO FACILITATE EFFICIENT PROCESSING

1. Bulk Data Provision to Avoid Cost Limits

To eliminate any potential Section 12 cost concerns regarding contract-level data, I am willing to accept bulk data provision in whatever format you currently hold it (spreadsheets, database exports, unformatted lists). This requires no sorting, filtering, analysis or presentation by departmental staff and should fall well within statutory cost limits. I will undertake all data organisation and analysis myself.

2. Comprehensive Single Response Requested

If you intend to refuse any part of this request under FOI exemptions, please declare all refusals in your initial response, citing specific exemptions and providing public interest assessments for each. I am explicitly seeking to avoid protracted correspondence involving sequential refinements and partial refusals over many months. A single, comprehensive response—even if partially refused with clear justifications—is far more efficient for both parties and demonstrates good faith engagement with the statutory framework.

3. Disaggregation and Partial Disclosure

If cost limits are approached or exemptions apply to specific elements, please apply the principle of disaggregation: provide all non-exempt, readily-accessible information and clearly identify which specific elements cannot be provided and why. Do not refuse the entire request because some parts may be exempt or costly to retrieve.

4. Good Faith Interpretation of Scope

I have deliberately excluded operationally sensitive material (site-specific procedures, control system details, security protocols) from this request. I explicitly require that you do not provide any information that would genuinely compromise national security or operational safety. Please interpret the scope of this request in good faith: I am seeking strategic programme-level data to understand whether grid security capability is being maintained during the energy transition, not operational intelligence that could be misused.

5. The Matrix Questions (Annex A) Are Non-Controversial

The six binary/categorical questions in Annex A pose no security risk and require only straightforward yes/no responses or selection from provided options. This information is essential to understanding the trajectory of energy system resilience and security over the coming half-decade. I cannot identify any legitimate grounds for refusing these questions, as they request only high-level capability assessment data that any responsible grid operator must hold for planning and regulatory compliance purposes. They should be answered fully and truthfully within the framework established above.

PUBLIC INTEREST STATEMENT

This request concerns a matter of exceptional public interest: whether the United Kingdom's electricity grid will maintain adequate black-start and system-restoration capability during the transition to Clean Power 2030. The ability to recover from a total system blackout is fundamental to national security, economic stability and public safety.

Citizens have a legitimate interest in understanding:

- Whether replacement capability is being contracted before existing capability (primarily gas-fired generation) is retired*

- *Whether government policy is supported by contracted projects or relies on speculative future technologies*
- *Whether system restoration capability will be maintained, improved or degraded*

The information requested is programme-level metadata, not operationally sensitive detail.

Similar information is routinely published by grid operators in comparable jurisdictions. Any public interest in commercial confidentiality or generic security concerns is outweighed by the overwhelming public interest in grid security assurance during a major energy transition.