Consultation

Selection of LDES projects for Window 1 Cap and Floor regime

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We are consulting on the approach that Ofgem, working with the National Energy System Operator (NESO), will take to decide which Long Duration Electricity Storage (LDES) projects are awarded a cap and floor regime.

We would like views from LDES projects that are applying to the cap and floor regime following the opening of the first window on 8th April 2025. We would also welcome responses from other stakeholders and the public.

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at ofgem.gov.uk/consultations. If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

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Executive Summary

How Ofgem makes decisions on which Long Duration Electricity Storage (LDES) projects to award a cap and floor regime is a key step in supporting the deployment of LDES to support Clean Power 2030 targets and net zero ambition. This consultation outlines the proposed Multi-Criteria Assessment (MCA) framework for assessing and selecting eligible projects under the LDES cap and floor (C&F) scheme.

Alignment with Ofgem strategic priorities

This work directly addresses the further action set out in the **Technical Decision Document (TDD)**, published in March 2025. It also aligns with the **Ofgem Forward Work Programme 2025/26**, which prioritises enabling a flexible, decarbonised energy system and delivering the UK Government's Clean Power 2030 target.

Project assessment

The selection process involves a Multi-Criteria Assessment (MCA) across three key dimensions:

- **Economic Assessment**: Evaluates consumer and producer welfare, system impacts, and wider economic benefits, including both monetised and non-monetised impacts.
- **Strategic Assessment**: Considers technological diversity, system security, flexibility, and the need for cap and floor support.
- **Financial Assessment**: Reviews project revenues, costs, and financial parameters to ensure value for money for consumers and project viability.

Modelling Approach

Projects will be assessed using scenario-based modelling to capture a range of future system conditions. This includes counterfactual analysis and sensitivity testing to ensure robust and transparent decision-making.

Next Steps

The consultation on our proposed MCA framework is open until 25 June 2025. We invite stakeholders to provide feedback, which will help shape the final decision-making framework, expected to be published in Q3 2025.

1. Introduction

What are we consulting on

1.1 This consultation details Ofgem's proposed approach to project assessment for eligible Long Duration Electricity Storage (LDES) projects applying into the first cap and floor scheme (C&F) application window.

1.2 The purpose of the project assessment process is to identify which eligible LDES projects will be awarded a C&F regime.

1.3 The process adopts a Multi-Criteria Assessment (MCA) framework, incorporating both quantitative and qualitative impact categories. These include the socio-economic welfare (SEW) of consumers, producers, and LDES owners, as well as broader system impacts and strategic benefits. Ofgem has worked closely with the National Energy System Operator (NESO) and Cambridge Economic Policy Associates (CEPA) in developing this framework.

1.4 NESO will evaluate the SEW impact of individual projects on consumers, producers, and LDES owners. NESO has produced a document outlining its proposed assessment methodology for system and welfare impacts (NESO Assessment Methodology Document), which should be read alongside this document. NESO's evaluation will feed into Ofgem's overall Project Assessment. Ofgem will make decisions on which projects will be awarded a C&F regime, drawing on NESO's input, alongside other information.

1.5 Through this consultation, we are seeking stakeholder views on various aspects of Ofgem's methodology, including the proposed impact categories. Specific feedback will help ensure the Project Assessment process is robust and fit for purpose.

Background

1.6 In October 2024, the government decided to use a cap and floor scheme to encourage investment in LDES. This decision came after a consultation on how the policy should work. The new LDES C&F scheme will be similar to Ofgem's existing regime for electricity interconnectors, but with some changes to make sure it fits the needs of LDES.

1.7 Given Ofgem's experience in managing the interconnector C&F regime, the government has asked Ofgem to oversee the cap and floor scheme for LDES. Legislative provisions to enable this are being progressed through the Planning and Infrastructure Bill.

1.8 In March 2025, Ofgem and DESNZ jointly published a Technical Decision Document (TDD), which outlined key design features of the scheme and provided an indicative implementation timeline. Subsequently, on the 8th April 2025, the first application window ("Window 1") for LDES projects was opened.

1.9 The first stage of selecting projects is the Eligibility Assessment. Applications are assessed against the relevant criteria listed in the TDD. More details are provided in the Application Guidance and the Eligibility Criteria Assessment Framework (ECAF) on Ofgem's website.

1.10 The second stage is assessing the projects which have passed the Eligibility Stage. This will determine which projects are awarded a C&F regime. Ofgem has been working closely with NESO and economic consultancy CEPA to develop a robust Project Assessment process.

Next steps

1.11 Due to the large number of stakeholders involved, we will not be able to engage directly with individuals during the consultation period. We will hold a workshop in the 3rd week of the consultation period to provide an opportunity for clarification of anything in this document. We request that representation at this workshop is limited to trade bodies or other representative groups where possible. We will make contact separately with all stakeholders that attended the workshop on 29th April to confirm the details of this workshop.

1.12 We require all responses to this consultation to be submitted by the 25th June 2025. See Chapter 7 for more information.

1.13 The final version of the Project Assessment framework is expected to be published in Q3 2025 which will detail the information that eligible projects will need to submit. The exact timing will depend on the response we receive to this consultation. We plan to make the final decisions on project approval in Q2 of 2026.

1.14 The same online portal used for Eligibility Assessments will be used by applicants to submit information for the Project Assessment stage, and ask any questions related to their submissions.

1.15 As described in the TDD, Ofgem will separately consult on regime financial parameters, competition approach to setting the cap, and details such as project delivery and cost incentives.

Related Publications

1.16 Links to related publications are provided below:

- Long Duration Electricity Storage: cap and floor application window 1 (April 2025):
- Long Duration Electricity Storage: Technical Decision Document (March 2025):
- Long Duration Electricity Storage Response to DESNZ Request: Q1 and Q2 (2025):
- Future Energy Pathways Guidance (2025):
- Ofgem's Forward Work Programme 2025/26:
- Ofgem's Open Letter: A call for input – LDES cap and floor regime (December 2024):
- Clean Power 2030 Action Plan (December 2024):
- Long duration electricity storage consultation: Government Response (October 2024):
- Long duration electricity storage consultation (January 2024):
- Annex 5 of the Planning and Infrastructure Bill Impact Assessment

2. The overall assessment process

In the TDD, we proposed using a Multi-Criteria Assessment (MCA) framework for the Project Assessment process. In this section, we elaborate on how the overall Project Assessment process will function and how the MCA framework will be used to inform decisions on which projects should be awarded a C&F regime.

Questions

Q1. Do you have any views on our overall approach to the MCA, including specifically the proposal to assess the three main areas set out in 2.2?

Q2. Do you have any views on our proposed in-the-round assessment that will rank projects based on NPV and then adjust with non-monetary impact will provide a robust result?

Q3. Do you have any views on using competitive bids - based on project-specific parameters - to inform the financial assumptions and C&F levels in each project's assessment? How might this approach work on a technology-neutral basis?

Q4. Do you agree that some revenue streams - such as from re-optimisation or ancillary services - cannot be fully captured in the Economic Assessment? How could NESO or Ofgem better account for or validate these in the assessment process?

What does the overall assessment process look like?

2.1 As an input to the Project Assessment, Ofgem will determine a Window 1 target LDES capacity range (in MW and MWh). We will aim to offer the C&F regime to projects under Window 1 such that the sum of capacities of those projects falls within the range. We will engage with government and NESO before setting the target range. We expect the range to be aligned with policy assumptions in Clean Power 2030 Action Plan and Strategic Spatial Energy Plan (SSEP).

2.2 The MCA will comprise of three elements:

- The **Economic Assessment**, which considers the overall socio-economic welfare (SEW) impact of each LDES project relative to a counterfactual where the LDES project is not added to the GB electricity system. This will cover a mixture of monetised costs and benefits, quantified metrics, and qualitative assessments. As explained in Chapter 3 it will focus on the key factors that are likely to affect the relative merits of different LDES projects.
- The **Strategic Assessment** will be a qualitative assessment that looks at a range of wider considerations relating to LDES projects that may be hard to monetise, but we consider are relevant to our overall decisions. We expect this will include factors like community benefits/impacts, contribution to

economic growth and how each project contributes to building a balanced mix of LDES assets.

- The **Financial Assessment** will review the expected costs, revenues, and C&F payments between projects and consumers. While the financial impacts are implicitly captured in the Economic Assessment, there is merit in separately understanding the likely impact of the C&F regime on consumers, specifically, how much they might end up paying or saving, and whether the economic modelling suggests that the projects are likely to be financially sustainable.

2.3 These assessments will rely on a combination of inputs from projects, from power market modelling undertaken by NESO, as well as analysis undertaken by Ofgem and its advisors. For the Economic and Financial Assessments, we will be modelling a base case and a series of sensitivity scenarios.

2.4 The results of all three assessments will be considered together within an MCA framework. This is broadly in line with the approach taken by Ofgem for the Initial Project Assessment of the Window 3 Interconnectors. The MCA will help inform our overall decision-making by bringing together evidence from each assessment area.

How will projects be selected?

2.5 The Project Assessment process for Window 1 of the LDES C&F regime will be informed by a target range of LDES capacity. This target will be determined ahead of the assessment process, in consultation with NESO and DESNZ, and will be published in advance of C&F awards in Q2 2026. It is expected to align with the Clean Power 2030 Action Plan assumptions for 2030 and 2035, ensuring consistency with other processes. The Economic, Strategic, and Financial Assessments will then be used to evaluate projects and determine which are awarded a C&F regime, with the aim of meeting the published target capacity.

2.6 As detailed in the subsequent section, the Economic Assessment will primarily comprise of monetised costs and benefits. However, as some of the key impacts and strategic considerations will remain non-monetised, we will not be able to select projects purely on the basis of the economic modelling. Instead, we will assess each impact separately:

- **Monetised impacts** will be expressed as, the Present Value (PV) of the impact in £ terms. To ensure projects of different storage and output

capacities can be compared, we will also normalise the PV of the impact by presenting it in £/MWh and £/MW terms.

- **Non-monetised impacts** will be scored based on whether they are likely to deliver a benefit, based on a like-for-like comparison of different projects. This will be informed by quantitative metrics derived from NESO's power market modelling, evidence submitted by projects and/or Ofgem judgement and analysis.

2.7 We will aggregate all the monetised impacts to provide an overall Net Present Value (NPV) in £, £/MWh and £/MW terms. However, we do not intend to combine this aggregate NPV with the non-monetised impacts into an overall quantitative score. Adopting a mechanistic approach to quantifying and weighting individual non-monetised impacts poses obvious challenges. It also risks yielding sub-optimal outcomes in terms of selecting a balanced portfolio of LDES assets that collectively meet the aims of the LDES C&F scheme.

2.8 We therefore expect project selection to involve the following steps, in which we:

1. Rank projects based on the aggregate NPV of all the monetised impacts, both in £/MWh and £/MW terms, for the base case. We will then consider whether the non-monetised impacts would lead to an adjustment in that initial ranking within the base case.
2. Separately rank projects based on revenues and the net impact on consumers, in £/MWh and £/MW terms, using the results of the base case Financial Assessment. We will use this to determine whether the project is likely to be financially sustainable and represent value for money for consumers.
3. Finally, we will consider our scoring of the strategic assessment, drawing on the sensitivity analysis.

2.9 We will also consider factors such as the cost ranges submitted by projects, the confidence levels associated with those estimates, and the C&F levels they bid (the minimum and maximum revenues they would accept) under their specific regime to deliver their projects. This approach acknowledges the competitive nature of the process, where each project is vying for selection among a large pool of potentially viable alternatives. If a decision is made to proceed with this approach following our upcoming Q2 consultation on LDES C&F financial parameters, these inputs will help us compare projects, ensure that developers are incentivised to deliver them, and help keep costs down for consumers.

Economic and financial analysis produced by applicants

2.10 As with the third cap and floor window for electricity interconnectors, we are not requiring developers to undertake their own market modelling or produce their own Economic Assessment. Nevertheless, we recommend that projects provide their own assessment of monetised impacts, where available, and provide supporting evidence of the non-monetised impacts. This will provide projects with a chance to present their own analysis within their application and will be particularly important for the indicators where we are seeking information from projects to support our assessment.

2.11 Similarly, we are requiring projects to submit a forecast of the revenues they expect to generate from the operation of their LDES asset. We will likely require this to be split by revenues from:

(a) Wholesale market trading split into, where available, revenues from initial arbitrage positions vs re-optimisation.

(b) Participation in the Balancing Mechanism.

(c) Participation in the Capacity Market.

(d) Where relevant, provision of Ancillary Services as described in 3.35.

2.12 We will require projects to set out the assumptions which underpin their revenue assessment. To support this process, we will provide projects with a template spreadsheet which we will ask projects to complete as part of their submission.

2.13 Finally, we will require technical information from projects to allow NESO to undertake its analysis and to support us in performing the overall Project Assessment. These technical inputs are listed in Section 4.1 of the NESO Assessment Methodology Document.

Role of competition in setting some project financial parameters inputs for the Economic and Financial Assessments

2.14 As we set out in the TDD and our decision to open LDES application Window 1, we think that using competition to set certain regime parameters could lead to better outcomes for consumers. We have done further work to develop a competitive approach to setting the cap level that is tailored to LDES projects and the number of applications expected. We plan to now consult on this approach later in Q2.

2.15 As part of the competitive process, projects may be expected to bid not only their preferred rate of return to inform the cap level, but also the proposed regime length and the residual value of the project at the end of that regime.

This added flexibility allows developers to tailor their bids to the specific characteristics of their projects.

2.16 If we decide to use competition to set certain C&F parameters for projects, we expect that the results of that competition for each project will feed into both the Economic and Financial Assessments. We will provide more detail on how this competition would work in the upcoming consultation.

Changes in the project assessment process between interconnector C&F Window 3 and LDES C&F Window 1

Deliverability and project maturity

2.17 The Eligibility Criteria Assessment Framework for LDES Window 1 (see 1.16) explains how project applications will be assessed as eligible in terms of deliverability.

2.18 As with the third cap and floor window for electricity interconnectors, deliverability and project maturity will not be a quantified measure within the Project Assessment. However, every applicant is required to keep Ofgem informed of any material developments or changes that may impact project deliverability, up to C&F regime awards in Q2 2026. Such updates will also be required throughout the delivery period.

2.19 As part of the Project Assessment, Ofgem will reassess deliverability and overall project viability before making any C&F award decisions. If any material changes are identified compared to the deliverability assessment made at the eligibility stage, these will be taken into account. Ofgem will not award a C&F regime to projects that are deemed undeliverable or not viable.

Explicit consideration of Financial Assessment

2.20 As part of a separate Financial Assessment, we intend to explicitly consider the likelihood of net payments being made to each project under the C&F regime. We will estimate the magnitude of these payments over the C&F regime duration. This is necessary for the following reasons:

- For long-lived assets, the C&F may be set in a way that allows investors to recover their investment over a shorter timescale than the useful economic life of the asset. This will not necessarily be captured within the Economic Assessment, as the costs of the LDES project will be spread over its useful economic life. As such, the Financial Assessment will properly account for the degree of risk transfer from producers to consumers, where projects are seeking to recover their investment over a shorter time horizon.

- For some assets, a material portion of the revenue stack may come from services that are not explicitly considered within the Economic Assessment. This includes opportunities to generate revenue from re-optimising LDES assets and/or provision of ancillary services as discussed further in paragraphs 3.35 to 3.38. The Financial Assessment will allow us to consider whether project forecasts for these revenues are realistic and credible.
- For all projects, we want to understand the likelihood of requiring consumer support. Projects that are less likely to need such support and are more likely to return excess revenues to consumers are expected to perform better, in line with our duty to protect consumers.

3. Economic Assessment

The Economic Assessment (called the 'CBA framework' within the TDD) is intended to be used to compare the socio-economic impact of each LDES project. In this section, we detail the costs and benefits that will be captured within the Economic Assessment, explain how we intend to capture them, and discuss the limitations of our approach.

Questions

Q5. Are we considering the right impacts for the Economic Assessment, and have we correctly characterised both monetised and non-monetised impacts?

Q6. Are there important system-level benefits from LDES that are not well captured in the Economic Assessment but could significantly impact outcomes? If so, what are they, and can they be consistently assessed across projects?

The costs and benefits to be captured within the Economic Assessment

3.1 The table below summarises the main costs and benefits that will be captured within the Economic Assessment, and outlines whether we intend to capture them as monetised or non-monetised impacts. Some of these impacts will have offsetting effects between producers and consumers, where changes in consumer welfare are offset by opposite changes in producer welfare. Nevertheless, we intend to estimate these separately to better understand the impact on consumers specifically.

Category	Metric	Proposed methodology
Consumer welfare	Wholesale market costs	Monetised – NESO
Consumer welfare	Constraint management costs	Monetised – NESO
Consumer welfare	Renewable support scheme costs	Monetised – NESO
Consumer welfare	Interconnector and LDES C&F scheme costs	Qualitative – Ofgem
Consumer welfare	Capacity market impacts	Qualitative – Ofgem
Producer excl. LDES project welfare	Wholesale market net revenue	Monetised – NESO
Producer excl. LDES project welfare	Renewable Energy Sources (RES) support scheme revenues	Monetised – NESO
Producer excl. LDES project welfare	Interconnector and LDES C&F scheme revenues	Qualitative assessment – Ofgem/Project
LDES project welfare	LDES wholesale market gross margin	Monetised – NESO

Category	Metric	Proposed methodology
LDES project welfare	Project capex and opex, financing costs	Monetised – Ofgem/Project
System impacts	Security of supply (cost of EENS)	Monetised – NESO
System impacts	Ancillary Services (system operability)	Qualitative – NESO/Ofgem/Project
System impacts	Avoided renewable curtailment	Quantified – NESO
Wider economic and social impacts	Reduction in greenhouse gas emissions	Monetised – NESO
Wider economic and social impacts	Natural capital	Qualitative - Ofgem/Project
Wider economic and social impacts	Landscape	Qualitative - Ofgem/Project
Wider economic and social impacts	Local community	Qualitative - Ofgem/Project
Wider economic and social impacts	Skills and supply chain	Qualitative - Ofgem/Project

3.2 Most of the assessment of consumer and producer welfare and system impacts will be undertaken by NESO. The Assessment Methodology Document produced by NESO provides further detail on how each of these impacts will be assessed. However, below, we provide a summary of each of the assessed impacts and provide details on impacts that we do not intend to capture as part of the Economic Assessment, and our rationale for this.

Consumer welfare

Monetised impacts

Wholesale market costs

3.3 This metric captures the change in wholesale market prices paid by electricity consumers due to the addition of the LDES project. Wholesale market costs are calculated as the sum of hourly demand multiplied by the hourly wholesale market price.

Constraint management costs

3.4 This metric captures the change in system costs associated with curtailment and redispatch actions to resolve network constraints. Overall producer surplus is unaffected by changes in redispatch, as constraint management revenues are assumed to be equal and opposite to changes in production costs as a result of redispatch. However, constraint management costs will impact the consumer surplus and hence the overall SEW.

Renewable Energy Sources (RES) support scheme costs

3.5 Changes in wholesale market prices also impact payments to and from consumers made pursuant to contracts awarded under the Contract for Difference (CfD) support scheme.

3.6 This metric combines the effect of changes in wholesale market prices in periods when supported RES generators are generating, and changes in overall RES generation after curtailment. For example, reductions in the level of curtailment across the system may allow renewable assets to generate more which may impact CfD payments. From a welfare perspective, this represents a transfer between producers and consumers.

3.7 Reduced curtailment may also reduce the strike prices that renewables projects need to bid in CfD auctions to achieve their target hurdle rate, while reducing volume of renewable capacity that needs to be procured. We do not intend to capture these second-order effects within the monetised assessment due to the modelling complexity involved. However, as part of NESO's modelling, we will be able to quantify the projected reductions in the curtailment of renewables. This will allow us to have regard to the likely consumer benefit from these second order effects.

Non-monetised impacts

Cap and floor payments for interconnectors and other LDES assets

3.8 Adding the LDES project to the system may lead to cannibalisation of revenue of some interconnector assets or other LDES assets. This could result in more floor payments or fewer cap re-payments than in the counterfactual. Any change in cap and floor payments represent a welfare transfer between consumers and interconnector/LDES owners therefore they would not impact total welfare. We do not propose to quantify cap and floor payments for all assets under the cap and floor regime as part of the Economic Assessment. However, we will consider the impact of the LDES project being assessed on revenues for interconnectors and other LDES assets, to understand the potential risk to consumers of a change in cap and floor payments.

Capacity market impacts

3.9 While the total volume of derated capacity procured is assumed to remain constant, LDES projects may impact the clearing prices delivered by the capacity market clearing in two opposite ways:

(1) The LDES project will act as a price taker in the capacity market and may push the (otherwise price setting) marginal plant out of the auction merit order, thus potentially reducing the clearing price.

(2) The addition of the LDES project may reduce the frequency and magnitude of high price events, reducing the expected earnings of existing peaking plants and hence increase the "missing money" problem. In turn, this might result in such plants increasing their bids in the capacity market, and thus potentially increasing clearing prices.

3.10 We intend to review potential impacts on the capacity market as part of our analysis to assess if any of the impacts described above are likely to be dominant and material. This will involve considering the impact of the LDES project on the wholesale market revenues of other generators, particularly those that are likely to be price setters in the capacity market. A big drop in revenue with the addition of the LDES project could indicate that the revenue that these generators need to recover in the capacity market may increase. Similarly, the de-rated capacity that the LDES project can offer in the capacity auction will give an indication of the likelihood that the LDES project will affect the merit order and the clearing price in the capacity market.

Non-assessed impacts

Real-time flexibility benefits

3.11 NESO's analysis will optimise the modelled system to minimise system cost assuming perfect foresight of the energy balance. Hence, the model implicitly assumes no intraday uncertainty around demand and supply and no forecast error following initial commitment. The model effectively assumes that the Intraday (ID) and Balancing (BM) Markets clear at the same price as the Day-Ahead (DA) market (ignoring the impact of re-dispatch in the BM).

3.12 In practice, the clearing prices in the ID market change over time as forecasts of demand and supply evolve, and BM prices deviate from DA and ID prices because of these evolutions, as well as re-dispatch requirements. Updates to forecasts of demand and intermittent generation, unplanned outages, and hard-to-predict operational requirements all impact demand and supply in real time.

3.13 Storage assets – including LDES – can provide significant benefits to the system by responding to these real-time changes. Typically, storage assets will engage in price arbitrage in all three markets, as well as continuously re-optimise their initial position as the price curve shifts. Such re-optimisation yields incremental revenues over and above what perfect-foresight models like PLEXOS would suggest, which we discuss further in Chapter 5 - Financial Assessment. This increased revenue is partly a transfer from trading counterparties in the energy markets, but also a reflection of genuine system benefits.

3.14 Additional storage will offer the system operator additional means for managing intraday imbalances, potentially at a lower cost than alternative sources of flexibility, such as curtailing renewable generation, shifting demand, or dispatching thermal generation. Furthermore, additional storage is likely to increase liquidity in the ID market, reducing bid-ask spreads, and in general reduce price volatility the ID and BM market, reducing risk and operational requirements across all participants. These benefits are likely significant.

3.15 The potential of individual LDES projects to deliver such system and market benefits may differ somewhat depending on asset characteristics, notably efficiency and duration. However, our initial analysis does not offer conclusive evidence as to whether any such differences are likely to be material enough to affect the ranking of projects in NPV terms. Furthermore, we are not convinced that a sufficiently robust methodology is available, which will allow a consistent assessment of these benefits across different projects.

3.16 As a result, we do not intend to assess these benefits for the purpose of ranking individual projects as part of the Economic Assessment. As explained in Chapter 5, we do however intend to take account of re-optimisation revenues across the ID and BM markets as part of the Financial Assessment.

3.17 Should projects believe that real-time flexibility benefits will have a material impact on their assessment relative to that of other LDES projects, we welcome any proposals on how these benefits can be assessed in a robust and consistent way across projects.

Producer welfare

Monetised impacts

Wholesale market net revenue

3.18 This metric captures the change in wholesale market revenues due to changes in wholesale electricity prices and volumes minus changes in the cost of electricity production (variable operational costs, fuel, and carbon costs).

3.19 This metric will also capture changes in interconnector congestion rents. For the purpose of assessing GB welfare impacts, we assume that 50% of total congestion rents accrue to GB.

RES support scheme revenues

3.20 As CfD support scheme payments represent a transfer between consumers and producers, any changes in support scheme payments to/from generators are also captured as a producer welfare impact.

Non-monetised impacts

Cap and floor payments for interconnectors and other LDES assets

3.21 As explained above, we do not propose to quantify impacts on C&F payments for other assets with C&F regime support. We will, however, consider the impact of the LDES project being assessed on revenues for interconnectors and other LDES assets, to understand how material the risk of a change in cap and floor payments is.

3.22 As C&F payments to/from interconnectors and other LDES assets represent a transfer between consumers and producers, any changes to net C&F payments are also captured as a producer welfare impact.

LDES project welfare

3.23 As part of the welfare calculation, we will also consider the revenues and costs incurred by the LDES project being assessed. This will form both part of the Economic Assessment and also the Financial Assessment discussed in the next section.

Monetised impacts

Wholesale market temporal arbitrage revenue

3.24 We will estimate the gross margin revenue earned by the LDES asset from arbitraging in the wholesale market, derived from NESO's analysis. This will not include revenues that the projects might earn from re-optimising initial positions, based on changes in the price curve.

Project costs

3.25 To capture the costs of constructing and operating the LDES project, we will use cost information submitted by projects, which we expect to be provided as cost range estimates. The TDD outlines that suitably mature cost estimates will be required. Further guidance will be provided on these cost submissions including maturity class of estimates and treatment of contingency.

3.26 We expect projects to eliminate optimism bias in their estimates, as the information submitted will be used to set cap and floor levels. Once submitted, we expect outturn costs during the delivery phase (up to the start of commercial operations and completion of the Post-Construction Review) to stay within this range.

3.27 The Economic and Financial Assessments will use the medium cost estimate as the base case, with a sensitivity analysis based on the high estimate. This approach ensures that if costs rise, but stay within the submitted range, both assessments will have already accounted for that possibility.

3.28 Any potential updated cost information submitted in Q2 2026 to support the setting of the C&F levels will be expected to also fall within the original range provided for Project Assessment.

3.29 If costs go beyond this range at any point, it could trigger new Economic and Financial Assessments to decide whether the project should still qualify for the C&F regime, which was awarded based on the original cost estimates.

3.30 For the Economic Assessment, we expect to annuitise the cost of the LDES project over its useful economic life, using a notional WACC or WACC based on project bids. This will imply a residual value at the end of the 25-year C&F regime for long-lived assets.

System impacts

Monetised impacts

Security of supply

3.31 The security of supply component of the Economic Assessment measures the impact of the project on the ability of the system to meet demand. It is measured in terms of the change in the cost of Expected Energy Not Served (EENS).

3.32 The EENS is calculated by NESO based on running simulations over multiple weather years and unplanned outages scenarios. The change in EENS is multiplied by an appropriate measure for the Value of Lost Load (VoLL) to provide a monetised measure of this benefit.

3.33 In some cases, the removal of a large LDES project from the counterfactual could potentially result in the system no longer being able to deliver a Loss of Load Expectation (LoLE) that is reasonably in line with the GB reliability standard of 3 hours. In such cases, we will consider sense-checking the security of supply impacts modelled against an estimate of the cost of adding an amount of de-rated capacity, equivalent to the de-rated capacity of the LDES project, in the form of a peaking generation unit. This alternative scenario is realistic given that in a situation where the absence of a LDES project would result in insufficient resource adequacy, additional capacity is likely to be procured through the capacity market.

Non-monetised impacts

Avoided renewable curtailment

3.34 Renewable generation curtailment is a direct market model output. This indicator captures the change in renewable curtailment following the addition of the LDES project. This indicator is reported separately and is not monetised

since the impacts are already partly reflected in the welfare calculations through the impact of changes in curtailment on wholesale market prices and dispatch.

Ancillary Services (System operability)

3.35 LDES assets may support system operability by providing ancillary services such as balancing services (frequency response and reserve), stability services (inertia and short circuit level), and reactive power. The system impacts of an LDES assets providing these services will not be quantified by NESO's market modelling exercise, and we will therefore make a qualitative assessment of the contribution of an LDES asset to system operability.

3.36 We will consider whether the contribution of an LDES asset to system operability is differentiated by the asset's location, technology, duration, efficiency, or other technical characteristic. For example, NESO's needs for reactive power are locational, and therefore an asset in a location where reactive power is relatively undersupplied has a greater system benefit than an asset in a location that has little requirement for reactive power provision or where NESO's requirement is already adequately supplied by other sources.

3.37 We will also consider whether the LDES asset will be likely to choose to provide these services and will be competitive in providing the services. This will reflect the costs, including the opportunity costs, of providing these services. For example, a long-duration storage asset with a high round-trip efficiency will likely be actively dispatching energy in a greater proportion of delivery periods than a storage asset with a low round-trip efficiency. The higher efficiency asset will have higher opportunity costs to deliver the same quantity of reserve capacity, because the asset will forego more energy market revenue to provide the service.

3.38 Projects will be asked to provide the technical characteristics of their LDES assets together with an estimation of the quantity of ancillary services that can be provided by the asset in a cost-effective manner. The system impacts of each asset will then be scored based on its locational and technological characteristics.

Non-assessed impacts

Network reinforcement costs

3.39 We do not intend to capture the impact of individual projects on network reinforcement costs within the Economic Assessment. Instead, any impact on the network will be implicitly captured in the assessment of constraint management costs.

Wider economic and social impacts

Monetised impacts

Unpriced carbon externality cost

3.40 The estimates of consumer and producer welfare capture the monetary cost of emissions through the assumed UK ETS carbon price (or market price), which affects the cost of electricity generation and the wholesale market price. Technically, these carbon costs are a transfer between the power sector and other sectors of the economy, as there is a fixed number of UK ETS allowances. However, modelling other sectors of the economy directly goes beyond the scope of this assessment.

3.41 In addition, the most recent UK Government guidance on appraising reductions in greenhouse gas emissions recommends that reduced carbon emissions be appraised using the relevant carbon values, reflecting the wider marginal abatement cost of carbon (carbon appraisal price). Since these appraisal values are higher than the UK ETS carbon price, an adjustment must be made for the full benefit of reduced carbon emissions.

3.42 To account for this, we will estimate the marginal abatement cost of carbon not implicitly captured in the electricity price, by multiplying the volume of carbon emissions by the differential between the carbon appraisal value and the assumed UK ETS carbon price used in NESO's analysis. This ensures that we do not double-count emissions-related benefits in line with Green Book guidance.

Non-monetised impacts

3.43 The following impacts will be assessed qualitatively as part of our assessment of wider economic and social impacts:

(a) The impact on natural capital.

(b) The impact on landscape.

(c) The impact on the local community.

(d) The impact of the project's plans regarding investment in skills and supply chains.

3.44 We assume that, for the majority of projects, these impacts will be relatively marginal and would be unlikely to change the projects NPV-based ranking. However, there may be exceptions, which we will consider proportionately on an ad hoc basis, based on the information provided by each project.

Natural capital, landscape, and local community impacts

3.45 We expect many projects to have limited impacts on nature, landscape, and communities as they will be relatively small in scale. This relates to both positive and negative impacts.

3.46 In cases where significant negative impacts are possible, we expect the relevant planning authorities to establish these impacts and any mitigation costs to be included in submitted project costs. As a result, we will assume neutral or immaterial impacts on natural capital, landscape, and local communities, provided that projects can show that they have complied with relevant requirements and received appropriate authorisations.

3.47 There might be a case, for individual projects, to consider any significant positive impacts on natural capital, landscape, or local communities. Where developers of applicant projects believe that there is a strong case for such additional benefits to be considered in the assessment, they should provide appropriate evidence in the form of proportionate analysis carried out in line with Green Book guidance and other relevant guidance for this type of appraisal. For example, if payments are made to local communities, it should be demonstrated that these are not transfer payments.

3.48 We expect to assess any project-specific evidence of this type qualitatively, although in some cases it might include ad hoc quantitative analysis.

Skills and supply chain

3.49 We do not propose to assess the direct impact of each project in terms of jobs supported or created, in a mechanistic manner. While some projects may yield new employment opportunities across the construction or engineering sectors, such employment may simply displace similar jobs in other parts of the economy. In addition, we are not convinced that such impacts could be calculated and compared between different projects following a robust and consistent methodology.

3.50 However, we recognise that some LDES projects may have a positive impact on local labour markets and supply chains, through investment in specialised skills, or their commitment to source workers and materials from local markets and domestic supply chains, or by supporting the stimulation, and export potential of UK-developed technology. Where this is the case, we will consider any evidence put forward by project projects and consider it as part of the qualitative assessment of wider economic and social benefits.

3.51 The focus on skills and supply chains is in line with the government's statutory guidance on the Growth Duty for Regulators, particularly relating to Drivers 4, 5, and 6. It is also consistent with what the type of information that the government is requesting for large-scale projects bidding into recent CfD allocation rounds, such as that included in AR7 Supply Chain Plan Guidance. In putting forward proposals for our consideration, we also invite projects to consider the relevant Green Book and other relevant appraisal guidance.

Impacts on economic growth through other mechanisms

3.52 Our assessment of monetised benefits should include the direct impact of each project on the economy, which will therefore be consistent with the wider objectives of economic growth.

3.53 Additionally, the non-monetised assessment of the wider economic and social impacts discussed in this section will consider some of the most important ways in which LDES projects can contribute to economic growth. This is particularly relevant for the assessment of the impact of each project on skills and domestic supply chains.

3.54 It is possible that individual projects could have additional macro-economic effects through different pathways, depending on the technology used and the process used by projects to procure, build and operate the relevant assets. Similarly to the impact on jobs supported or created, we do not believe that these additional impacts are likely to significantly differ between different LDES projects – once adjusted for scale.

3.55 We therefore do not propose to calculate impacts on economic growth separately from what will be captured by the other metrics discussed above in this consultation. For example, we do not propose to consider top-down, multiplier-based estimates of the impacts of projects on economic growth, which would be less transparent and risk double counting other impacts considered in the MCA.

3.56 However, where developers believe that their projects will contribute to economic growth through a mechanism that is not already captured in our proposed MCA metrics, we will consider any evidence submitted to this effect and consider introducing additional metrics if appropriate.

4. Strategic Assessment

Alongside the Economic Assessment, we will conduct a qualitative Strategic Assessment. This will build upon the non-monetised impacts assessed in the Economic Assessment to consider broader impacts of LDES projects that are not easily monetised but are important to our decisions. We welcome feedback on the relevance and completeness of the proposed Strategic Assessment.

Questions

Q7. Do you have any views on the relevance, appropriateness and completeness of the impacts proposed in the Strategic Assessment?

Q8. Are there other impacts that we should be considering in the Strategic Assessment?

Technological diversity

4.1 We recognise that it may be in consumers' interest to have a diverse technological mix within the portfolio of LDES assets. For example, a diverse technology mix may mitigate technology-specific risks, prevent over-reliance on any single technological solution, and foster innovation across multiple LDES pathways. Furthermore, a diverse technology portfolio may provide valuable insight into the relative performance of different LDES solutions under actual operational conditions.

4.2 Where we determine that this is the case, we may attribute additional strategic value to individual projects based on their contribution to enhancing this technological diversity. This consideration becomes particularly relevant when comparing projects that demonstrate similar economic and financial benefits but employ different technological approaches.

Option value

4.3 We recognise that, while each project should be primarily assessed on the back of what it can credibly deliver within the timeframes envisaged by Window 1, some projects may entail a considerable option value. This could come in the form of:

(a) Potential expansion plans of the same plant, which would significantly increase the benefits of the project without a comparable increase in costs.

(b) Significant learning-related benefits for pilot projects or novel technologies, or potential economies of scale, which might enable future projects of a

similar type or technology to be replicated with lower costs (or higher benefits).

(c) Interdependencies between the proposed project and other projects, such as in cases where multiple potential Pumped Storage Hydro projects share the same water resources, with the total number of projects built impacting each project's scope for expansion in the future.

4.4 Where such option value is significant, we invite projects to provide evidence of this, following relevant appraisal guidance and ensuring that their analysis is proportionate to the option value in question.

4.5 We expect any evidence provided to demonstrate significant option value to be assessed qualitatively, although in some cases it might include ad hoc quantitative analysis.

System Security and resilience

4.6 Under this criterion, we will assess whether individual LDES projects are likely to deliver superior performance during system stress events relative to other projects. We will place particular emphasis on an LDES project's ability to provide reliable capacity and energy services during periods of exceptional system strain, such as prolonged low renewable generation, extreme weather conditions, unexpected generation outages, or other significant disruptions to normal system operation.

4.7 We will also consider the geographical location of projects in relation to network constraints and system vulnerabilities, valuing those that can provide localised resilience benefits to areas with limited alternative supply options. Additionally, projects with longer duration capabilities that can sustain output through extended stress periods may receive higher scores under this criterion.

4.8 This assessment recognises that while the economic modelling captures some aspects of stress event performance, the strategic value of resilience during rare but high-impact events may not be fully reflected in the Economic Assessment.

4.9 We invite projects to submit evidence for why their proposed LDES project would deliver additional system security and resilience.

Flexibility

4.10 The flexibility criterion is designed to identify projects that demonstrate robust performance across diverse future scenarios. Projects will score highly if:

(a) They consistently deliver high socio-economic benefits and low consumer risks across the full range of scenarios modelled within the Economic Assessment and Financial Assessment.

(b) They are likely to deliver high socio-economic benefit under additional plausible future scenarios that have not been explicitly modelled in our assessment framework.

(c) They represent low-regrets pathways for delivering LDES capacity by avoiding technological or infrastructural lock-in that might constrain future system development options.

Need for cap and floor support

4.11 Under this criterion, we intend to take a view on whether an LDES project genuinely requires C&F support to proceed, or whether it could potentially be developed on a purely merchant basis without regulatory intervention.

4.12 We will examine evidence regarding each project's commercial viability under different scenarios. Projects that demonstrate a clear investment gap between expected merchant revenues and the returns required to secure financing, despite offering significant system benefits, will score favourably under this criterion. Conversely, projects that appear capable of securing investment on a merchant basis, may receive lower scores in this category.

5. Financial Assessment

The Financial Assessment is intended to be used to assess the direct financial impacts of LDES projects on the projects themselves and on consumers through cap and floor payments. In this section, we detail how we intend to estimate the revenue stack, and what the limitations of our approach are.

Questions

Q9. Do you have specific suggestions for how the Financial Assessment output should be considered alongside the Economic Assessment?

Q10. Do you agree with our proposal to assume that LDES projects will remain revenue neutral following balancing market actions?

Financial Assessment approach

5.1 We intend to develop high-level Financial Assessments for each LDES project, modelling cashflows for each project drawing on the revenue stack that such projects are likely to receive.

5.2 As the Economic Assessment already includes much of the important information needed to compare projects, a separate high-level Financial Assessment is appropriate and proportionate. This approach allows us to maintain rigour while managing the process efficiently. Our assessment will involve three key activities:

a) First, we will establish cap and floor levels using project-submitted cost estimates. This may incorporate project submissions on key financial metrics. The cap and floor levels will ultimately be derived from the Cap and Floor Financial Model (CFFM) which will be published alongside the forthcoming Ofgem consultation on financial parameters later on in Q2 2025.

b) Second, we will independently estimate gross margin revenues, primarily using outputs from NESO's market modelling. We will validate these revenue projections against assumptions provided by projects.

c) Finally, we will assess the calculated gross margin revenues against the established cap and floor levels to calculate expected C&F payments and hence the potential financial impact on consumers.

5.3 The Financial Assessment will evaluate revenues over the full C&F regime duration. This will typically be 25 years, though this timeframe may depend on project characteristics and project submissions. As the market modelling will only cover a 25-year period, we intend to extrapolate revenue projections for

any additional years in line with the approach used by NESO to extrapolate beyond the PLEXOS simulation horizon.

5.4 As it will be important for us to understand how different market conditions might affect consumer outcomes, we will conduct sensitivity analysis to assess the likely impact on consumers under different scenarios. However, as discussed in Chapter 6, we face practical constraints regarding the number of scenarios we can realistically assess within the available timeframe.

Wholesale Market Arbitrage revenues

Temporal arbitrage

5.5 Arbitraging temporal (peak/off-peak) spreads in the day-ahead and intra-day markets is a primary source of wholesale revenue for LDES assets. As part of its Economic Assessment of LDES project welfare, NESO's modelling will estimate the wholesale revenues the LDES asset can earn, given the modelled hourly wholesale prices and accompanying temporal spreads. These estimates represent an assessment of the initial commitment (optimisation) of storage flows. As discussed below, it does not capture opportunities for re-optimising storage positions in response to price fluctuations closer to delivery.

5.6 Our Financial Assessment will consider these wholesale revenues projected by the model. We will also compare the modelled outputs to revenue projections provided by projects in their submissions.

Re-optimisation

5.7 LDES assets will typically be able to earn additional incremental revenues through continuous re-optimisation of the storage asset as prices fluctuate in intra-day markets. By "re-optimisation" we refer to all adjustments to the LDES asset's charging and discharging schedule and accompanying traded positions, following the initial optimisation and commitment for upcoming delivery periods.

5.8 The NESO market modelling, which implicitly assumes perfect foresight, is not able to capture the impact of intraday price fluctuations in response to supply and demand imbalances as the position moves closer to delivery. However, real-world electricity markets consistently experience such imbalances due to forecast errors, unexpected outages, and other system events, creating additional trading opportunities for flexible assets like LDES.

5.9 It is important to note that the notion of re-optimisation does not assume that the initial commitment of an LDES asset necessarily takes place in the day-ahead market. Some LDES operators may choose only to commit the asset from

the intraday stage or arbitrage across the day-ahead and intraday markets (e.g. buying day-ahead and selling intraday). Such strategies seem likely if intraday spreads generally exceed those obtainable in the day-ahead markets. Re-optimisation revenue simply covers the gross margin contribution from all changes to the initial commitment, regardless of the market(s) in which this initial commitment is made.

5.10 The inherent flexibility provided by LDES and other storage assets allow them to respond rapidly to intraday price volatility as actual weather, intermittent generation, demand and system conditions become known closer to real time. The deviations between modelled and actual market conditions are therefore likely to represent a material contribution to the overall revenue potential of LDES projects.

5.11 We will therefore include re-optimisation revenue as part of the Financial Assessment and ask projects to provide an estimate of the incremental gross margin potentially earned through such activities. We will aim to carry out further analysis to enable us to assess and benchmark these estimates and would welcome input from stakeholders on this.

Balancing Mechanism

5.12 In addition to the day-ahead and intraday market, the LDES project can also earn revenue by submitting bid and offers in the balancing market. NESO uses the balancing market to buy and sell energy to maintain system balance (referred to as energy actions) and also to manage network constraints (referred to as system actions).

5.13 The balancing market operates as a "pay-as-bid" market where the parties are paid for the volume of energy provided at the price they tendered into the Balancing Mechanism.

5.14 In a perfectly competitive market, it is assumed that market participants reflect their marginal costs in their bids and offers. This assumption can be challenged especially in the context of system actions to manage network constraints. If an asset is one of only a few assets than can help the NESO manage a particular constraint, then it can leverage its position when submitting a bid or offer into the balancing market, given it would face less competition from other assets. However, given the challenges with assessing the ability to benefit from local network constraints, we propose to build our assessment on the assumption that LDES assets bid competitively in the balancing market.

5.15 If LDES assets behave competitively in the balancing market, the marginal cost associated with changes to their dispatch as a result of NESO actions in the balancing market is the opportunity cost of the trades, and the associated gross margin, that the asset foregoes in a future period. For example, if NESO asks the storage asset to increase output in a given period, then the asset foregoes the opportunity to sell the same volume of energy in a future period.

5.16 Assuming perfect foresight of future trading opportunities, storage operators would be kept revenue neutral from any redispatch actions in the balancing market. In practice, storage operators do not have perfect foresight therefore they may lose out or gain from being re-dispatched. For the purpose of the Financial Assessment, we propose to assume that overall LDES assets remain revenue neutral following balancing market actions and therefore we do not include an element of balancing market revenues in our Financial Assessment.

Capacity market

5.17 The capacity market revenues that each LDES asset will be able to earn depend on two main factors:

(a) The relevant clearing price of the capacity auction the asset will participate in.

(b) The derating factor applied to the asset's capacity in MW, which determines the derated capacity used to calculate the asset's capacity payments.

5.18 Both of these factors represent a source of uncertainty for future LDES revenues. Capacity auction prices can be forecasted but cannot be known until the auction takes place. Derating factors for each auction are determined on the basis of each asset's technology and duration, with derating curves updated regularly based on the expected distribution of the length of LOLE in NESO's modelling of the delivery year in question.

5.19 To assess the contribution of capacity market revenues to assets' gross margin in our Financial Assessment, we will derive a plausible range of future payments based on a consistent methodology used for all assets. We will produce an illustrative range of potential future clearing prices; this could simply be based on clearing prices in recent auctions, since the aim is to provide a reasonable range rather than an accurate forecast. We will also work with the NESO to estimate how the distribution of the length of LOLEs might evolve for future delivery years. We will then use this to derive stylised derating curves for storage assets under a high, medium, and low scenario.

5.20 We will then apply the range of clearing prices and the derating curve scenarios to each LDES asset based on its technology and storage duration. This will result in a range of capacity market revenues which we will use to carry out the Financial Assessment.

5.21 We expect that projects will have formed their own expectations about the likely capacity market revenues that their assets will be able to earn. While we intend to apply a uniform approach to all assets in order to ensure equal treatment, we are interested in understanding projects' forecast methodologies to inform our chosen approach. As such, we invite projects to provide an estimate of the capacity market revenues they expect to earn, with clear sources for their assumptions and an explanation for the rationale behind them.

5.22 For the avoidance of doubt, we do not intend to carry out a detailed forecasting exercise of future capacity auction clearing prices as part of this assessment, nor do we intend to set future derating curves ahead of time. Our aim is simply to derive a plausible range of future capacity market revenues for each asset based on its technology and storage discharge duration in order to assess the likelihood that it will earn a gross margin above the level of the floor.

Ancillary services

5.23 LDES assets may earn revenue by providing ancillary services such as balancing services (frequency response and reserve), stability services (inertia and short circuit level), and reactive power. The proportion of an asset's total revenue that is earned by providing these ancillary services will depend on the asset's round-trip efficiency, output (discharge) duration, location, and other technical characteristics.

5.24 Projects will be asked to include in their submissions an estimate (with justifications) of the revenues that will be earned by provision of ancillary services. To avoid favouring projects that have made optimistic assumptions, a project's estimates will be adjusted up or down based on the submissions of other projects (considering differences in location and/or asset capabilities) as well as the findings in the Economic Assessment. We will also consider the ancillary service revenues against the energy revenues forecast for each project, particularly where the services are mutually exclusive with energy trading activities.

5.25 Although these revenues will not form part of NESO's system modelling, Ofgem will consult with NESO on the assessment of ancillary services revenue estimates submitted by projects.

Cap and floor payments

5.26 Our high-level considerations for setting the cap and the floor were outlined in the TDD, which we published in March 2025. We will separately be consulting on the C&F regime financial parameters later on in Q2 2025. For the Financial Assessment, we will be estimating the C&F levels based on the outcome of that consultation and on project submissions on costs and financial parameters, as detailed below.

Investment and operating costs

5.27 We will expect projects to provide cost estimates for their LDES project. This will cover initial investment costs, fixed and variable operating and maintenance (O&M) costs, and replacement and decommissioning costs where appropriate. The variable O&M component will need to be expressed as a function of the asset's cycling frequency. These cost inputs will be used as inputs in our estimation of cap and floor levels for the Financial Assessment.

5.28 We will publish a cost template and guidance for cost submissions that developers are expected to complete for their eligible LDES projects. This will be published alongside our cost assessment guidance for LDES projects, scheduled for publication in Q3 2025. We expect developers to be careful and realistic with the cost ranges they submit, as well as the confidence levels associated with those estimates. This will help us better understand the potential outcomes and associated risks.

5.29 As part of our Financial Assessment, we will review these costs and use an appropriate level of scrutiny to assess the reasonableness of project costs.

Financial parameters

5.30 In addition to the investment and operating costs, a number of other financial parameters will determine the cap and floor levels. While the exact details of how these parameters will be determined will be set out in the forthcoming consultation, below we summarise the main parameters that will be used:

- **Regime duration**. We anticipate using a standard period of 25 years as the default C&F regime duration. However, we recognise that project-specific characteristics may warrant consideration of alternative durations in certain circumstances. If projects propose an alternate duration that they believe better aligns with their project's technical and economic profile and is in consumer interests, such proposals may be evaluated through the Financial Assessment.

- **Residual value**. Our default assumption will be to apply a residual value of zero at the end of the C&F regime period. However, if projects are proposing an alternative residual value assumption for the purposes of setting the cap and floor, this will be evaluated through the Financial Assessment.
- **Floor rate of return**. We will model this parameter in accordance with the final decision on how the floor rate of return will be set. This may be an administratively set rate of return, or it may be project-specific, competitively derived rate of return.
- **Cap rate of return**. We will model this parameter in accordance with the final decision on how the cap rate of return will be set. Again, this may be set administratively or derived through a competitive process.
- **Interest During Construction (IDC)**: This reflects the financing costs incurred during the construction phase of each project. We will model this parameter in accordance with the final decision on whether IDC will be set administratively or derived as a project-specific, competitively determined rate of return. Where a project-specific approach is proposed, it must be supported by evidence, aligned with the project's delivery plans, and demonstrate improved outcomes for consumers.

Implications of the Financial Assessment

5.31 The Financial Assessment adds a practical layer to the MCA framework we are proposing to use for approving LDES projects for the C&F regime. By modelling project cashflows, cost and financial information provided by eligible projects, it offers a consistent way to compare projects.

5.32 The Financial Assessment is a valuable cross-check on the Economic and Strategic Assessments. While the Economic Assessment focuses on SEW and the Strategic Assessment evaluates alignment with policy goals, the Financial Assessment helps to illustrate whether the projects proposed by developers appear to be financially viable. If a project is expected to operate mostly at the floor, it is important to consider whether the regime will still drive efficient behaviour and deliver good outcomes for consumers.

5.33 This consideration is particularly important for projects seeking to recover their capital investment over a significantly shorter period than the asset's assumed useful economic life. If a project appears, based on the financial analysis, to be likely to require significant floor payments, we will need to consider further whether it is appropriate for consumers to provide such support.

5.34 Additionally, we plan to use competition to help set certain regime parameters. The Financial Assessment will support this process by ensuring that competitive mechanisms continue to serve consumers' interests. Further details will be provided in our upcoming Q2 consultation on financial parameters.

5.35 We welcome comments on the form of the Financial Assessment and how Ofgem should take it into account alongside the Economic Assessment.

6. Approach to market modelling

Questions

Q11. Do you have any views on the proposed Marginal Additional method and whether it provides a robust basis for assessment?

Q12. Do you have any views on the counterfactual to use for this assessment and sensitivities that we could use?

6.1 Many of the monetised and non-monetised impacts included within the Economic Assessment, and some of the revenues captured in the Financial Assessment, will be derived from market modelling undertaken by NESO. Some of the impacts will be direct outputs of the market modelling, while other parts of the assessment will be based on supplementary modelling of NESO's outputs.

6.2 Further details of NESO's proposed market modelling approach are provided in the Assessment Methodology Document published alongside this consultation. We briefly summarise it here for completeness.

Marginal Additional approach and counterfactual definition

6.3 NESO's market modelling will utilise a Marginal Additional (MA) approach. Under this approach, each LDES project will be assessed against a counterfactual which includes a range of other storage and flexibility assets, with the LDES project being assessed being the marginal asset required to meet system needs. This represents a relatively pessimistic scenario from the perspective of the assessed project, as it assumes the system already has a range of storage and flexibility assets and so, the marginal benefit of the LDES project being assessed will be lower.

6.4 Within NESO's market modelling, the counterfactual and factual will be defined as follows:

(a) From a model based on the Holistic Transition Future Energy Scenarios 2025 (FES) pathway, remove LDES projects that have not yet reached a Final Investment Decision (non-FID projects) to establish a baseline capacity.

(b) Build back in a notional LDES plant to each of the modelled zones (37 transmission zones), such that total system capacity is marginally lower than the amount removed. The aim is to develop a single static counterfactual against which all projects are assessed. This counterfactual replaces the removed capacity in a neutral way, avoiding geographic or technological bias.

(c) The factual scenario is created by adding the LDES project being assessed to the counterfactual. The difference in system performance between these two scenarios represents the marginal benefit of the project in terms of socio-economic welfare and system impacts.

6.5 The above approach to developing a counterfactual is different from the approach initially tested at the LDES Stakeholder workshops held on 29th April 2025. This alternate approach involves constructing bespoke comparison groups of LDES assets that broadly total the non-FID LDES capacity from the FES pathway from the full list of eligible LDES projects. Each LDES project would then be assessed against a counterfactual that has all other LDES projects within its comparison group.

6.6 We would welcome views on whether this revised approach to the counterfactual represents a more appropriate baseline from which to estimate the benefits of individual LDES projects.

Scenarios and sensitivities

6.7 As set out in NESO's Assessment Methodology Document (Section 5), we intend to model a single base case with additional sensitivity runs. The sensitivities will be used to understand whether our conclusions for which projects deliver the highest socio-economic value differ materially depending on the underlying assumptions around pricing, demand level and generation mix, and weather patterns. NESO will also be modelling a sensitivity scenario based on zonal pricing arrangements.

6.8 NESO's Assessment Methodology Document outlines a number of potential sensitivities that could be run within its market modelling (see also Annex 2 in NESO's Assessment Methodology Document). In addition, we believe it is useful to assess the impact of the LDES project costing more than planned (i.e. at the upper end of the cost range provided by projects), to see if it would still deliver sufficient benefits to justify going ahead with it – in other words, whether the project's socio-economic value is resilient to cost overruns.

6.9 Ideally, we would be able to model a large number of these sensitivities as part of the project assessment. However, this may not be feasible without impacting the overall timetable, particularly if there are a large number of eligible LDES projects to assess. We would welcome views from projects on which scenarios ought to be prioritised within the sensitivity analysis. We will decide on both the counterfactual and the sensitives when we finalise our MCA methodology later this year.

6.10 We will conduct the Economic Assessment ranking for each scenario independently and evaluate whether the rankings exhibit significant variations across scenarios. Should material differences emerge, we will incorporate this variability as part of the Strategic Assessment. Projects demonstrating robust performance across multiple scenarios would consequently receive favourable scoring within the Strategic Assessment.

Modelling of co-located assets

6.11 We recognise the unique modelling challenges that may arise when an LDES asset is co-located with a new RES asset. In such cases, we expect developers to clearly explain the configuration in a way that enables us to assess the co-located LDES asset in a sensible way.

6.12 Our initial view is that we will model co-located assets in the same way as other LDES assets. The co-located RES asset will be included in the counterfactual scenario, with the LDES asset added in the factual scenario.

6.13 We encourage developers to provide feedback on how information from such configurations can be presented clearly and fairly, to ensure fair treatment across all projects.

Modelling limitations

6.14 Whilst we believe that the Project Assessment approach laid out in this consultation will produce valid and robust results, we recognise that there are two main limitations of our modelling approach:

(a) The counterfactual scenario will not necessarily represent an optimised portfolio of assets which would be built in the absence of LDES assets.

(b) Our modelling approach does not directly measure second-order impacts on generation and network capacity.

6.15 These two points are, to some extent, related: by modelling discrete scenarios with a given stock of generation, storage and flexibility assets, and a given network configuration, we do not capture part of the impact that adding LDES capacity to the system may have. However, as explained below, we do not consider this to be a material limitation when it comes to ranking individual projects in NPV terms.

Choice of counterfactual scenario

6.16 It is important to acknowledge that the counterfactual does not necessarily represent an optimised portfolio in the absence of the LDES project being assessed. As such the monetised impacts derived from the market modelling will

not necessarily reflect the overall socio-economic benefits of the individual LDES projects being assessed. In practice, the actual socio-economic benefits may be either higher or lower than suggested by the Economic Assessment, depending on how the energy system would evolve without these specific LDES assets.

6.17 However, for the purposes of the Economic Assessment, our primary objective is to rank projects according to the overall value they provide relative to one another. In this context, we do not believe that the simplified nature of our counterfactual represents a material issue that would significantly distort project rankings. We also consider that developing such an optimised counterfactual is highly complex and subjective. As such, our initial view is that using a FES pathway to define the counterfactual may be a pragmatic and transparent approach that allows us to robustly assess a large number of LDES applications within the time constraints of the Project Assessment process.

Second-order impacts on generation and network capacity

6.18 We specifically recognise that introducing additional LDES capacity to the system may have broader implications for the required levels of renewable generation, dispatchable peaking generation, or network infrastructure. Our current modelling approach does not explicitly capture these dynamic effects. These considerations are addressed in more detail in our separate sections covering RES support scheme costs (3.5), Capacity Market impacts (3.9), and Constraint Management costs (3.4).

6.19 While these second-order effects are undoubtedly important for assessing the overall impact of LDES deployment on the energy system and determining the optimal quantity of LDES required, we have concluded that these limitations do not materially affect the relative ranking of individual projects. The consistent application of our methodology across all eligible LDES projects ensures that the comparative assessment remains robust for decision-making purposes, even if absolute benefit values may be subject to some uncertainty.

7. Your response, data and confidentiality

Consultation stages

The timelines laid out below are consistent with those in the TDD.

Stage 1: 28th May 2025: Consultation opens.

Stage 2: 25th June 2025: Deadline for responses. Consultation Closed (awaiting decision).

Stage 3: Q3 2025: Final version of the Project Assessment MCA framework is expected to be published. Consultation closed (with decision).

How to respond

7.1 We want to hear from anyone interested in this consultation. Please prepare your responses on a headed pdf document which clearly shows the details of the organisation or person who is responding. Please send your response to LDES@ofgem.gov.uk with the following e-mail header:

Project Assessment Consultation Response from [company/individual name]

7.2 We have asked for your feedback on each of the questions throughout this document. Please respond to each one as fully as you can.

7.3 We will publish non-confidential responses on our website at www.ofgem.gov.uk/consultations.

Your response, your data and confidentiality

7.4 You can ask us to keep your response, or parts of your response, confidential. We'll respect this, subject to obligations to disclose information, for example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.

7.5 If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you *do* wish to be kept confidential and those that you *do not* wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we'll get in touch with you to discuss which parts of the information in your response should be kept confidential, and which can be published. We might ask for reasons why.

7.6 If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in

domestic law following the UK's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Annex 2.

7.7 If you wish to respond confidentially, we'll keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We won't link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

General feedback

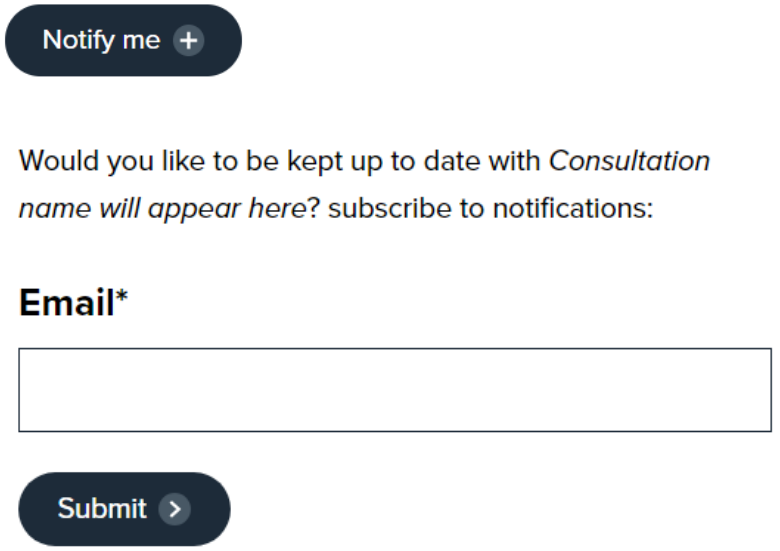
7.8 We believe that consultation is at the heart of good policy development. We welcome any comments about how we've run this consultation. We'd also like to get your answers to these questions:

1. Do you have any comments about the overall process of this consultation?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Were its conclusions balanced?
5. Did it make reasoned recommendations for improvement?
6. Any further comments?

Please send any general feedback comments to stakeholders@ofgem.gov.uk

How to track the progress of the consultation

You can track the progress of a consultation from upcoming to decision status using the 'notify me' function on a consultation page when published on our website. Choose the notify me button and enter your email address into the pop-up window and submit. ofgem.gov.uk/consultations



Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:

Upcoming > **Open** > **Closed** (awaiting decision) > **Closed** (with decision)

Annex 1: List of consultation questions

Annex 2 – Privacy notice on consultations

Personal data

The following explains your rights and gives you the information you are entitled to under the General Data Protection Regulation (GDPR).

Note that this section only refers to your personal data (your name address and anything that could be used to identify you personally) not the content of your response to the consultation.

1. The identity of the controller and contact details of our Data Protection Officer.

The Gas and Electricity Markets Authority is the controller, (for ease of reference, "Ofgem"). The Data Protection Officer can be contacted at dpo@ofgem.gov.uk

2. Why we are collecting your personal data.

Your personal data is being collected as an essential part of the consultation process, so that we can contact you regarding your response and for statistical purposes. We may also use it to contact you about related matters.

3. Our legal basis for processing your personal data.

As a public authority, the GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. i.e. a consultation.

4. With whom we will be sharing your personal data.

We may share your personal data with NESO and DESNZ.

5. For how long we will keep your personal data, or criteria used to determine the retention period.

Your personal data will be held for six months after the final publication of the Project Assessment MCA framework as outlined in Section 7.

6. Your rights

The data we are collecting is your personal data, and you have considerable say over what happens to it. You have the right to:

- know how we use your personal data
- access your personal data
- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it
- ask us to restrict how we process your data

- get your data from us and re-use it across other services
- object to certain ways we use your data
- be safeguarded against risks where decisions based on your data are taken entirely automatically
- tell us if we can share your information with 3rd parties
- tell us your preferred frequency, content and format of our communications with you
- to lodge a complaint with the independent Information Commissioner (ICO) if you think we are not handling your data fairly or in accordance with the law. You can contact the ICO via their webpage or by telephone on 0303 123 1113.

7. Your personal data will not be sent overseas.

8. Your personal data will not be used for any automated decision making.

9. Your personal data will be stored in a secure government IT system. (If using a third party system such as Survey Monkey to gather the data, you will need to state clearly at which point the data will be moved from there to our internal systems.)

10. More information.

For more information on how Ofgem processes your data, please see Ofgem privacy policy.