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CAPS AND FLAWS: OFGEM'S APPRAISAL OF LONG DURATION ELECTRICITY STORAGE PROJECTS AND LESSONS FROM INTERCONNECTORS

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INTRODUCTION

After an 18-month period of consultation and review, Ofgem intends to publish its initial decision on the award of a cap and floor (C&F) for long-duration electricity storage (LDES) in Spring 2026. Ofgem plans to procure 2.7 to 7.7 GW of storage capacity in this first application window.[1] The publication will follow the release of Ofgem's project selection methodology, underlying financial parameters, and an initial draft of the licence.

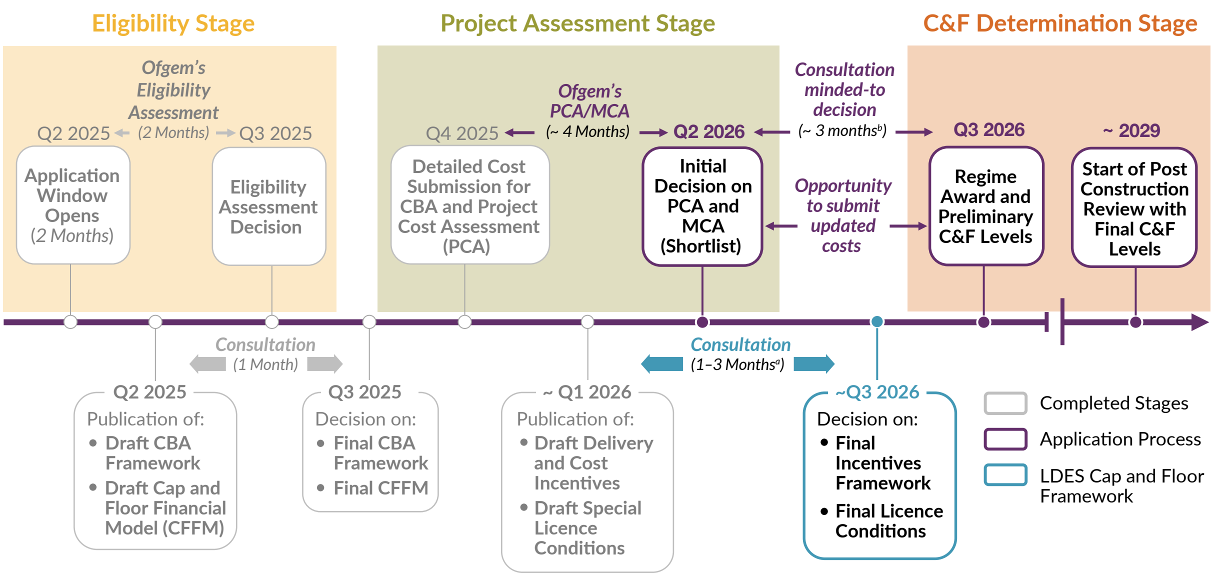
Until recently, storage has been among the last technologies operating on a purely merchant model in the British electricity market. Ofgem and the Department for Energy Security and Net Zero (DESNZ) have expressed doubts that the market alone will address the expected peaks and troughs in a future renewables-led system. Instead, as is so often true of energy policy in the current environment, Ofgem and the National Energy System Operator (NESO) intend to replace imperfect market signals with imperfect market modelling. In response, industry stakeholders concerned by the distortive impact on market prices have already launched an appeal before the Competition Appeals Tribunal.[2]

Ofgem's approach to setting C&Fs for LDES draws heavily on the C&F regime it developed for interconnectors in 2014.[3] In this paper, we briefly describe Ofgem's approach for assessing LDES applications for a C&F and highlight lessons learned from the interconnector regime. Ofgem's decisions on interconnectors suggest that arguments over modelling assumptions and approaches to quantifying the benefits may have a material impact on which projects are approved for the C&F. The subjectivity inherent in Ofgem's proposed approach for LDES is arguably even greater and risks inefficient outcomes. Depending on which projects are approved, Ofgem's forthcoming decisions risk ending up where the whole process has begun—in dispute.

OFGEM'S THREE-STAGE PROCESS FOR SETTING CAPS AND FLOORS

The application process for the LDES C&F regime consists of three primary stages (see Figure 1): the eligibility stage, the project assessment (PA) stage, and the C&F determination stage. Ofgem plans that the process to final award will take up to 15 months from the beginning of the application period, ending in Q3 2026. During that period, Ofgem is designing the framework and assessing specific project applications in parallel.

Figure 1. **Key Timeline and Milestones for LDES Window One**



[a] The TDD only details the duration for consultation for the CFFM. Previous consultation periods on the interconnector scheme have lasted three months.
[b] Approximation based on duration of consultation period following minded-to decision for interconnectors.

Source: NERA adaptation of "Long Duration Electricity Storage: Technical Decision Document," *Ofgem*, 11 March 2025, p. 13 and "LDES Window 1 Financial Framework Decision," *Ofgem*, 23 September 2025, p. 11.

Eligibility: Ofgem Approved 77 Projects

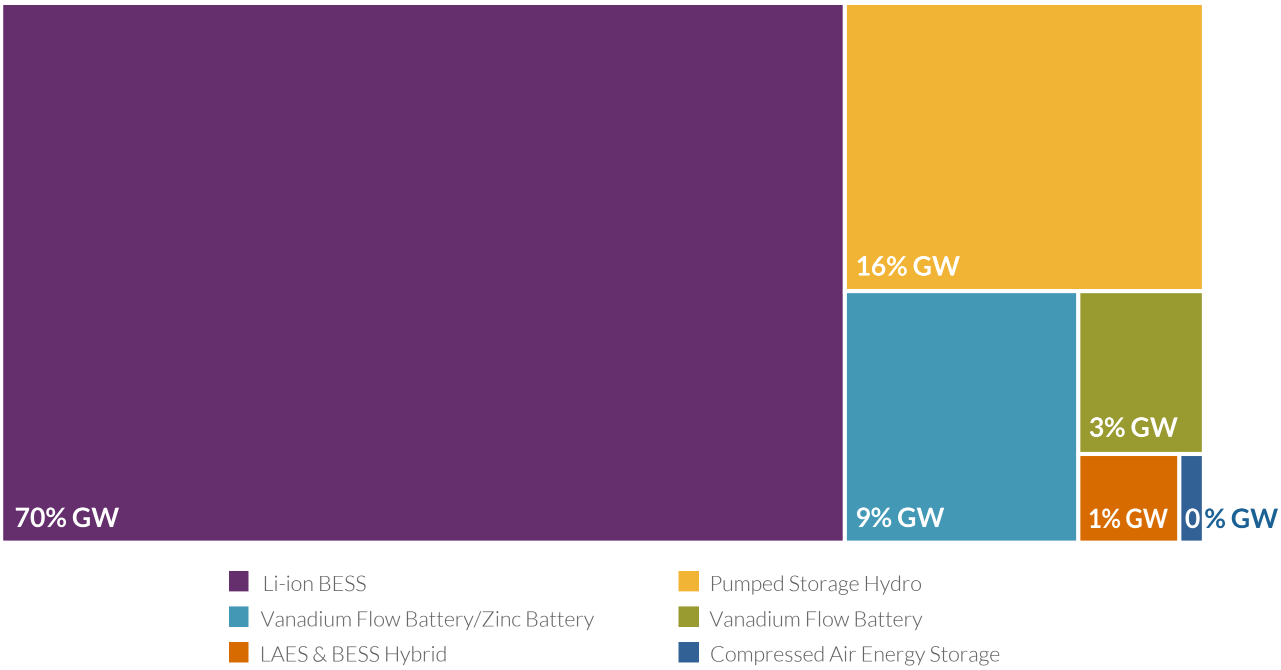
In the eligibility stage, Ofgem requires projects to demonstrate that they meet criteria set out in the Technical Decision Document (TDD), including:[4]

- The scheme is limited to new or refurbished projects that can be delivered by 2030 (Track 1) or 2033 (Track 2).
- The minimum capabilities the assets must be able to provide when operational. They include the minimum duration (eight hours) and the minimum discharge capacity (100 MW for established technologies with Technology-Readiness Level (TRL) 9 and 50 MW for more novel technologies with TRL 8).
- Further criteria that projects will be delivered to plan. They include requirements on the maturity of cost estimates and project plans, grid connection status, and planning consent.

Ofgem received a total of 171 applications to Window 1, with a total discharge capacity of 52.6 GW that far exceeded the capacity to be procured through the framework.[5] In its eligibility decision, Ofgem allowed 77 projects to proceed to PA, which accounted for only 45 percent of total applicants and 55 percent of total capacity.

Most eligible projects are Li-ion BESS with 70 percent of eligible capacity, followed by pumped hydro (see Figure 2). Ofgem rejected all applications from iron-air, sodium sulphur, and hydrogen batteries and all but six of the 35 Track 2 applications for delivery by 2033.[6] For those not involved in the decisions at project level, Ofgem's reasons have been a black box; Ofgem has not published its decision on each application.

Figure 2. **Total Discharge Capacity of Applications and Eligible Projects by Technology (% GW)**



Source: NERA Analysis of Ofgem.[7]

Project Assessment: Ofgem Adopts a Multi-Criteria Assessment

Successful projects from the eligibility assessment proceeded to the PA stage. During the PA stage, Ofgem is working with the NESO to select a list of projects that will receive a C&F award in Summer 2026. Ofgem plans to rely on a multi-criteria assessment (MCA) including an economic assessment (EA), a strategic assessment (SA), and a financial assessment (FA). Ofgem plans to publish an initial shortlist of projects in Spring 2026.

As we will describe in more detail, Ofgem's MCA of LDES projects is opaque, which will make it difficult for project developers to reconcile and scrutinise its results. Specifically:

- The results of the MCA hinge on NESO's simplified electricity market model, which is a black box to project developers and investors; and

- Ofgem and NESO retain high levels of discretion over each project's outcome across assessments.

Economic Assessment: Ofgem Conducts a Cost-Benefit Analysis (CBA) to Estimate a Project's Contribution to Socio-Economic Welfare (SEW)

Ofgem intends that the EA estimates the benefit each project will deliver to overall SEW over the regime horizon, including:[8]

- **Monetised Impacts**: Wholesale market revenues and costs; constraint management costs; contracts for difference (CfD) support scheme revenues and costs; project costs; security of supply costs; and carbon costs

- **Non-Monetised Impacts**: Real-time flexibility benefits; avoided renewable curtailment; natural capital, landscape, and local community; skills and supply chain; and economic growth

For the monetised impacts, NESO is using a proprietary market model to conduct a CBA that evaluates the net impact a project has on consumer and producer welfare, as well as system value. Ofgem will use the net benefit resulting the CBA to create an initial monetised ranking.[9] The initial ranking will be adjusted by a project's performance across the non-monetised impacts.

Financial Assessment: Ofgem and ARUP Assess Project Costs and Revenues to Estimate the Required Consumer Support for Each Project

In the FA, Ofgem uses submitted project costs and expected revenues to estimate required C&F payments by consumers. To avoid excessive consumer burden, Ofgem excludes projects in which it expects a high level of floor payments by consumers. The assessment essentially follows three steps:[10]

1. Ofgem and its technical consultant ARUP assess the efficiency of cost estimates submitted by applicants and exclude costs they consider inefficient.[11] Any costs excluded at this stage will also reduce the initial C&F levels (before postconstruction review) that determine project returns.

2. Ofgem measures the revenue potential for each project. Ofgem considers revenues generated from (i) temporal arbitrage, (ii) alleviating network constraints, (iii) ancillary services, and (iv) the capacity market. Instead of relying on a project's own revenue submissions, Ofgem estimates revenue components based on NESO's market modelling and its own calculations.[12]

3. Ofgem determines an FA score for each project based on the amount of consumer support required via floor payments.[13] Projects that score below a minimum threshold and therefore require high levels of consumer support will not receive funding, while those scoring above a maximum threshold receive a higher ranking in the FA. Ofgem has not set out these thresholds in advance but will disclose them with its shortlist.

Strategic Assessment: Ofgem Evaluates Wider Benefits and the Overall Portfolio of Projects

The SA seeks to assess projects beyond their direct social and economic impact. In this evaluation, Ofgem aims to consider wider strategic objectives, individual benefits, and project-specific risks. Ofgem uses a mix of qualitative approaches, such as red-amber-green ratings, alongside quantitative scoring, using a flexible weighting method.[14]

Ofgem Retains Discretion in Combining Assessments and Developing an Initial Shortlist

For the weighting of projects "in the round" (i.e., within each assessment), Ofgem has largely declined to introduce explicit scoring and weighting of the many non-monetised criteria. Instead, Ofgem intends to use a "swing-weighting" approach as recommended in the government's Green Book. In this context, we understand that Ofgem may:

1. Define "critical success factors" (CSFs) within the assessment criteria. CSFs act as gatekeepers to exclude projects from the shortlist if they fail to meet Ofgem's view of the most important benefits; and

2. Quantify qualitative criteria by evaluating projects based on their relative performance against others.

Both approaches involve a high level of discretion and rely on Ofgem's judgment on the importance of individual criteria to identify projects that are economically efficient and serve consumers' interests. The Green Book further highlights the resource intensity of this approach, which may limit Ofgem's ability to provide a rigorous and fair assessment of all eligible projects. So far, Ofgem has provided very little detail as to how it will combine the economic, financial, and strategic assessments to arrive at its shortlist.[15]

C&F Determination: Ofgem Will Determine the Caps and Floors Levels

For those projects that form the shortlist, Ofgem will calculate preliminary C&F levels based on a regulatory asset value (RAV). Ofgem will base the RAV on costs that it deems "economic and efficient" as a result of its FA and updated cost estimates. Ofgem then uses a different rate of return on the RAV for the cap and the floor.

For the floor, Ofgem follows its approach for interconnectors, in which it sets the rate of return to reflect the notional cost of debt for the project.[16] Alternatively, projects can choose a "project finance" approach, in which commercial lenders compete to fund the floor under Ofgem's oversight. Under the project finance approach, the floor reflects the actual rather than notional cost of debt and gearing.[17]

For the cap, Ofgem uses the capital asset pricing model (CAPM) and estimates a notional cost of equity for LDES projects of 7.48 percent (CPIH-real), which it applies to the full RAV.[18] As an alternative, projects may propose a competitive cap level, which must remain below the administrative cap ceiling. Ofgem defines the cap to be a "soft cap:" Projects will retain 30 percent of revenues above the cap and will be required to return the remainder to customers.[19]

Ofgem sets the final C&F levels during its postconstruction review (expected for 2029), which involves an assessment of the actual costs incurred. Ofgem's principles for setting the RAV during the review include separating cost differences from those submitted to enter the shortlist into:[20]

- Noncontrollable costs, such as licence fees and regulated network charges, which will be passed through to consumers 100 percent;

- Market-related costs with some ability to manage or forecast, such as energy purchase costs or marginal cycling costs, which will be passed through to consumers following set calculation methods and parameters; and

- Capex overruns, in which developers will bear 100 percent of any additional costs deemed inefficient or exceeding the developers' high cost estimate.

OFGEM'S PROCESS FOR INTERCONNECTORS PROVIDES A CAUTIONARY TALE

For those following developments in British electricity markets, Ofgem's approach to supporting LDES will be familiar from its process for setting C&Fs for interconnector revenues. In concept Ofgem's approach for appraising LDES applications is similar: It seeks to award C&Fs to projects resulting in positive social welfare and with a viable business case. Based on experience from the interconnector regime, Ofgem's analysis is critically dependent on its assumptions and methods. They risk inefficient decision making and may be overturned in part or in whole in response to stakeholder feedback for at least three reasons: Results are sensitive to modelling assumptions and scenarios, NESO's modelling of constraint costs is uncertain (and may prove decisive for LDES projects), and Ofgem's approach to assessing the marginal benefit of projects is opaque.

Ofgem's Results Are Sensitive to Modelling Assumptions and Scenarios

The first lesson from the interconnector process is that assumptions matter. Ofgem may well revise its position materially between its "minded-to" shortlist and final decision after pressure from stakeholders.

For instance, for the latest application round for C&F support for interconnectors (Window 3), Ofgem's minded-to position was that it would support only one of seven applications (the Tarchon project with Germany). After stakeholder feedback, Ofgem approved three applications (adding the MaresConnect interconnector with Ireland and the LirIC interconnector with Northern Ireland).[21]

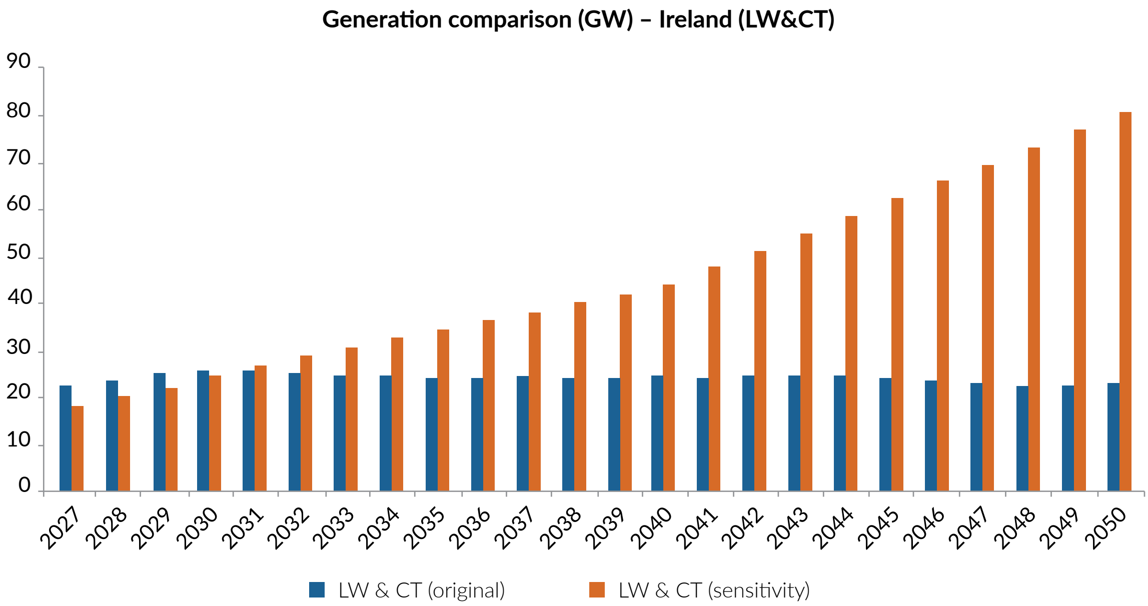
Ofgem's changed position to approve the interconnectors MaresConnect and LirIC reflected a material change in its assumptions. Ofgem revised its assumptions about generation capacity that is likely to be installed in the Single Electricity Market (SEM, comprising Ireland and Northern Ireland) by 2050 by a factor of almost four (see Figure 3).[22]

Unsurprisingly, this large increase in the volume of wind capacity in the SEM led to a material change in SEW from the minded-to to the final decision for the two projects: Building the interconnector facilitates the export of Irish wind power that would otherwise be stranded. The change in capacity assumptions improved estimated economic welfare for Great Britain from a range of -£1,100 million to -£700 million to a range of -£200 million to £200 million for MaresConnect and from -£1,000 million to -£600 million to -£200 million to £40 million for LirIC, respectively.[23]

This example illustrates the importance for LDES operators to remain vigilant and proactive in influencing the modeling assumptions that underpin the CBA. For the LDES scheme, one key assumption is the Future Energy Scenarios (FES) that NESO applies in its CBA—"Holistic Transition" in NESO's base case.[24] The FES scenario influences, for example, capacity availability, demand patterns, and required network reinforcements. Selecting a different FES scenario can affect the socially optimal level of LDES capacity and how this capacity is distributed. While NESO intends to model two alternative FES scenarios as sensitivities, it remains unclear how Ofgem will incorporate these results into its overall assessment.[25]

For the interconnector regime, Ofgem demonstrated a willingness to revise its position based on stakeholder feedback. Different scenarios may impact projects differently, so operators will likely scrutinise the outcomes published in the shortlist and seek to influence the assumptions used. Ultimately, Ofgem changing position for Window 3 illustrates how adjustments to these assumptions can have a material effect on the overall evaluation of a project.

Figure 3. **Ofgem Revised Assessment of the Irish Capacity Mix Upward Materially**



Source: "Decision on the Initial Project Assessment of the Third Cap and Floor Window for Electricity Interconnectors," *Ofgem*, 12 November 2024, p. 42, figure 6.

NESO's Modelling of Constraint Costs Is Uncertain

The second lesson from the interconnector regime is that a superficial analysis of constraint costs will not provide a reliable guide to the potential benefits of LDES.

Where a project would reduce the costs of transmission constraints, this represents an economic benefit for society and a potential source of revenues for the project. For the interconnector regime, Ofgem commissioned NESO to conduct detailed analysis of system constraint costs in addition to separate market modelling by Ofgem's consultants that disregarded constraint costs.

After Ofgem's minded-to decision, stakeholders pointed to inconsistency with the market modelling and argued that NESO had not accounted for mitigations it would put in place were constraint costs to rise. In response, NESO introduced a constraint reduction factor to reflect the incremental cost of actions NESO could take to alleviate constraints.[26] Effectively, the constraint reduction factor, itself of uncertain estimation, became the primary determinant of estimated constraint costs because it reduced NESO's initial estimates by up to 79 percent.[27]

Estimating constraint costs is challenging and requires careful scrutiny. Correctly estimating constraint costs is similarly important for LDES because the impact of storage on constraint costs varies depending on the geographical location of the storage capacity and the specific technology employed.[28] Different estimates of the cost of transmission constraints will favour some LDES projects over others during the PA stage. The overall estimate of constraint costs will also depend critically on the market arrangements in place during the operational phase and the incentives that batteries have to dispatch against a national or locational price.[29]

In principle, modelling constraint costs for LDES accurately would require developing a model with dynamic locational and national prices. The value of storage is uncertain, and storage faces intertemporal constraints across its dispatch. As a result, modelling constraint costs for LDES would require stochastic constrained optimisation.

In practice, NESO's approach to modelling constraint costs for the LDES framework remains similar to the apparently deterministic methodology applied under the interconnector regime. NESO uses a static comparison method, first modelling the electricity market without constraints, and then adding network constraints from the Beyond 2030 pathway (2024).[30] As such, NESO's calculation of constraint costs cannot react to (i) changes in the capacity mix and distribution (including LDES rollout) in the 2025 FES compared with the assumptions in Beyond 2030 and (ii) changes in network expansion or reinforcement actions following these deviations. Beyond 2030 also has a limited assessment horizon, proposing network upgrades only throughout the 2030s.

Applicants may find themselves reviewing the constraint costs NESO presents for their project in the minded-to decision and concluding those costs estimates are unreliable. Given the precedent from the interconnector regime, it is plausible that NESO may apply (or stakeholders may persuade it to apply) additional ex-post adjustments to constraint costs.

Ofgem's Approach to Assessing the Marginal Benefit of Projects Is Distortionary

Our third lesson from the interconnector regime is that Ofgem's approach, all else equal, tends to understate the incremental benefits of a project for the system.

In the case of interconnectors, Ofgem assessed SEW benefits relying on a marginal additional (MA) approach: Ofgem modelled the benefits of each interconnector, assuming it approved all other interconnectors rather than assessing each individually or in specific combinations.

If interconnectors are substitutes, the MA approach is the lower bound of the potential benefit that each interconnector can provide to the system. It is therefore not surprising that under the MA approach, Ofgem initially decided not to grant C&F support to six of the seven interconnectors that had applied.

Ofgem and NESO have decided on a modified MA approach for LDES, which seeks to account for the greater range of project sizes of LDES applications compared to interconnectors.[31] In the modified approach, NESO evaluates projects against a counterfactual that reflects the installed LDES capacity projected in NESO's 2025 FES. Instead of including all projected LDES capacity, NESO creates an artificial capacity gap in the counterfactual, as outlined by the formula. For the factual scenario, NESO includes the full capacity and technical characteristics of the project.[32]

Counterfactual: $FID + NFID - \underbrace{0.5 \times C(x)}_{\text{Capacity Gap}}$

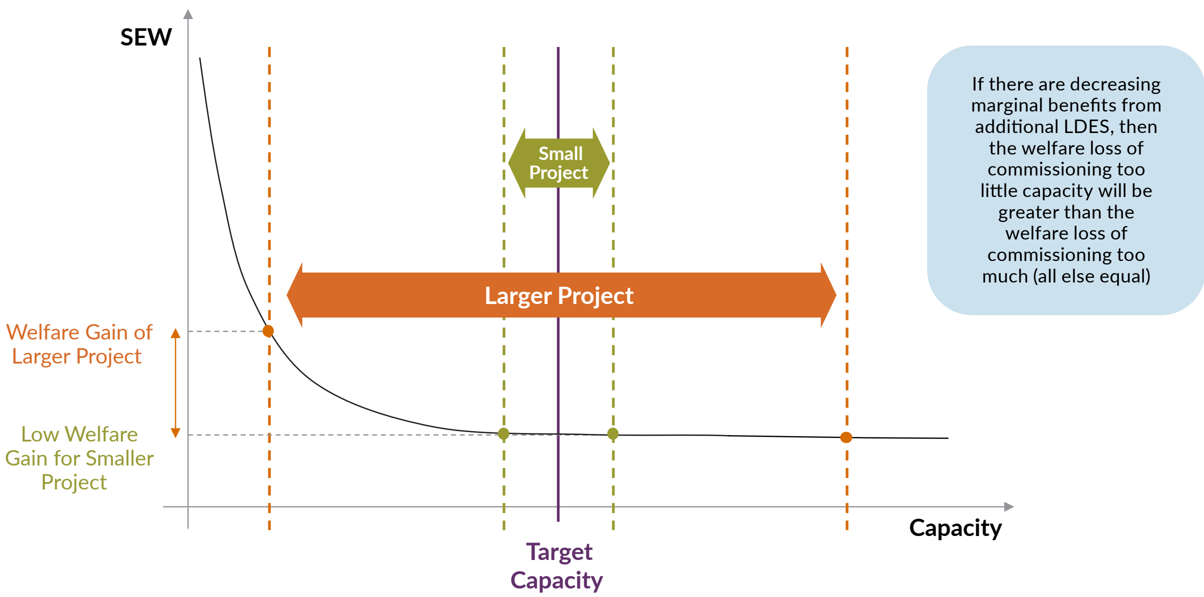
Factual: $FID + NFID - 0.5 \times C(x) + C(x)$

NESO calculates this capacity gap as half the capacity of the project under assessment (C(*x*)), which scales with project size. NESO removes the capacity gap from the projected capacity of projects that had not received a final investment decision (non-FID) when the FES scenarios were developed (NFID). NESO removes the capacity gap primarily from the project's transmission zone or evenly from all non-FID projects if the capacity gap exceeds the non-FID capacity in that zone. NESO does not adjust the projected LDES capacity that has already received a final investment decision (FID).

In other words, instead of creating a single consistent counterfactual for all projects, NESO calculates a unique counterfactual for each project. Each project's modelled benefits depend in part on how its capacity and location affect NESO's modelled counterfactual and the relative costs of a shortage of capacity or capacity overhang. If there are decreasing marginal returns from additional LDES capacity, a capacity gap that scales with project size will systematically favour larger projects (see Figure 4). That is not to say that Ofgem's assessment favours larger projects overall. Reaching that conclusion would require a more detailed assessment of the scheme in total, other attributes that may be correlated with size, and the scale of the effect empirically. Nonetheless, the potential to distort competition between projects illustrates the conceptual problems with Ofgem's MA approach.

Perhaps more critically, NESO's decision to include non-FID projects in the counterfactual may overstate the capacity that will be available and systematically understate each project's benefits. If Ofgem awards few projects a C&F (or some of the awarded projects do not receive an FID), the capacity gap may be much larger than NESO assumes and the social benefits of additional storage commensurately higher.

Figure 4. **Depending on the Curvature of the Net Benefits Function, Ofgem's Marginal Additional Approach May Tend to Favour Larger Projects Over Smaller Ones (All Else Equal)**



CONCLUSION

Measured by interest in the scheme, Ofgem's C&F for LDES appears a striking success with 171 initial applications and 77 remaining projects at the time of writing. Yet a more-than-cursory examination suggests the scheme poses risks for society and consumers. In addition to reviewing project applications, Ofgem is also designing the framework in tandem. Depending on their ultimate satisfaction with the outcome, bidders may describe Ofgem's approach as either "regulatory decision making at pace" or "making it up as one goes along."

The complexity of the evaluation process relies heavily on modelling and qualitative analysis that is neither transparent nor objective. As prior assessments for interconnectors have shown, Ofgem's results depend heavily on its inputs and how it grapples with the complex challenges of modelling the energy system (such as constraints). Ultimately, consumers and policy makers should be concerned that Ofgem will commission an inefficient combination of volumes and technologies.

The high level of interest may stem from and contribute to a further flaw of the scheme. The LDES scheme offers developers and investors a free option without stiff penalties for non-delivery. Those in the industry with long memories will recall that offering market participants a free option to develop rarely works out well: The Non-Fossil Fuel Obligation (NFFO) in the 1990s, the initial capacity market design in 2014, and even the recent connections queue demonstrate the risk that free options lead to "zombie" projects.[34] In the case of the LDES process, the potential presence of zombie projects in its PA may lead it to conclude erroneously that deliverable storage projects have low benefits.

Whatever the imperfections of the theoretical framework for assessment, it is likely that stakeholder feedback will play a role in Ofgem's final decision making. In previous consultations for interconnectors and the C&F regime, Ofgem has changed methods and assumptions in response to comments from interested parties. As is often the case in regulatory processes, winning a C&F may hinge not only on the quality of the project itself but also on the quality of the evidence presented.

HOW NERA CAN HELP

LDES projects pose economic and regulatory challenges for developers and policymakers. Our team can help by:

- Providing economic and regulatory support on the design of regulatory frameworks for LDES (and other assets) for developers and regulators;
- Reviewing regulatory decisions on LDES and providing support in preparing a response;
- Developing cost benefit analyses and business cases for long duration storage;
- Identifying flaws in modelling conducted by regulators, system operators, and their advisors and preparing persuasive evidence to change regulator decisions;
- Identifying risks and opportunities in regulatory arrangements for investors, including during due diligence exercises;
- Conducting electricity market modelling to identify revenue streams for long duration storage and other assets; and
- Preparing expert evidence for public or private disputes related to LDES.

George Anstey is an expert on energy regulation and market design. He has wide experience supporting investors in regulated and commercial energy assets internationally as well as supporting regulators in developing regulatory frameworks. He has worked repeatedly on the cap and floor regimes in Great Britain for interconnectors and LDES.

NOTES

1 Ofgem states that this target aligns with NESO's Future Energy Scenarios (2024). These indicate that the system requires an additional 2.7–7.7 GW of LDES by 2035. "Long Duration Electricity Storage: Technical Decision Document," *Ofgem*, 11 March 2025, p. 15.

2 The battery operator Zenobē has applied to the Competition Appeal Tribunal for a review of the LDES scheme as a subsidy decision under the Subsidy Control Act 2022. Zenobē's application argues that "the Scheme's design risks distorting competition by enabling supported LDES projects to compete directly with unsupported short-duration energy storage." While Zenobē's appeal is ongoing, there is a risk that the Ofgem's September 2025 decision on the C&F framework could be quashed and that any decisions Ofgem makes on the successful applications could in turn be affected. Competition Appeal Tribunal, Case No. 1754/12/13/25, *Zenobē Energy Limited v. Gas and Electricity Markets Authority*, registered 22 October 2025, accessed 7 April 2026, available at https://www.catribunal.org.uk/cases/1754121325-zenobe-energy-limited.

3 "Decision to Roll Out a Cap and Floor Regime to Near-Term Electricity Interconnectors," *Ofgem*, 6 August 2014, available at https://www.ofgem.gov.uk/sites/default/files/docs/2014/08/decision_cap_and_floor_near_term_electricity_interconnectors.pdf.

4 "Eligibility Criteria Assessment Framework for LDES Window One," *Ofgem*, 8 April 2025, Appendix 2.

5 "LDES Eligibility Assessment Outcome," *Ofgem*, 23 September 2025, Table 1.

6 The six Track 2 applications that Ofgem progressed to the PA stage include two out of three pumped storage hydro projects. See "LDES Eligibility Assessment Outcome," *Ofgem*, Table 3.

7 Ibid.

8 "LDES Window 1 Cap and Floor Multi Criteria Assessment Framework," *Ofgem*, 23 September 2025, p. 16–17.

9 Specifically, Ofgem will rank projects according to their benefit cost ratio (BCR). Ofgem calculates the BCR by dividing the calculated net benefits by a project's costs. This allows Ofgem to normalise the SEW effects for differences in project size.

10 "LDES Window 1 Cap and Floor Multi Criteria Assessment Framework," p. 37.

11 Ofgem and its technical consultant ARUP retain a level of discretion to exclude costs they deem inefficient in that they do not provide "appropriate, good value for money." "Cap and Floor Cost Assessment Guidance," *Ofgem*, 23 September 2025, p. 8.

12 Ofgem states that it will nonetheless use applicants' revenue expectations for comparative and calibration purposes. "LDES Window 1 Cap and Floor Multi Criteria Assessment Framework," p. 40.

13 To generate the FA score, Ofgem calculates the projected annual revenues (before payments to consumers) as a percentage of the project's floor level. A score below 100 percent indicates that revenues fall below the floor, suggesting the project may require floor payments, and a score above 100 percent indicates that revenues exceed the floor, with no expected floor payments.

14 Ofgem assesses projects against a range of strategic criteria and may adjust project scores from the EA and FA at its discretion, without following a deterministic framework. The strategic criteria include (i) technological and locational diversity of accepted LDES projects, (ii) the sensitivity of the EA and FA ranking toward alternative modelling scenarios, (iii) the sensitivity of the EA and FA ranking toward cost overruns, and (iv) the deliverability and maturity of the project plan. "LDES Window 1 Cap and Floor Multi Criteria Assessment Framework," p. 30.

15 In the MCA framework, Ofgem states, "We do not plan to apply fixed weightings across these assessments, as doing so could lead to an excessively rigid, score-driven approach. Instead, we will take a balanced view of each Project, similar to our approach for Interconnectors." Id., para 6.22.

16 It calculates the notional cost of debt using the iBoxx GBP Non-Financials 15+ BBB benchmark, expressed in CPIH-real terms. Ofgem will set the floor return level based on the date of a project's final investment decision (FID). Specifically, Ofgem will calculate the floor return as the average yield over the 20 trading days preceding the FID. Ofgem applies the floor return to the full RAV, consistent with its approach for interconnectors. "LDES Window 1 Financial Framework Decision," *Ofgem*, 23 September 2025, p. 25.

17 In cases in which the floor under the project finance approach is higher than the notional cost of debt, Ofgem expects developers to repay consumers any difference between the two floors before any equity distribution takes place. Id., p. 27.

18 Ofgem uses an equity beta of 1.125, a risk-free rate of 2.26 percent (CPIH-real), and a total market return of 6.9 percent (CPIH-real), resulting in a cap rate of return of 7.48 percent in CPIH-real terms. Id., p. 30.

19 Id., p. 29.

20 "Long Duration Electricity Storage: Call for Input on Draft Special Licence Conditions and Ofgem (March 2026), Electricity Generation Licence: Special Conditions for Long Duration Electricity Storage Facilities Subject to the Cap and Floor Regime, Consultation Draft March 2026, Part C and D," *Ofgem*, 16 March 2026.

21 Ofgem rejected the interconnectors Aminth (with Denmark), AQUIND (with France), Cronos (with Belgium), and NU-Link (with the Netherlands). "Decision on the Initial Project Assessment of the Third Cap and Floor Window for Electricity Interconnectors," *Ofgem*, 12 November 2024, Table 1, p. 10.

22 The revised SEM capacity projection of 80 GW includes the "ambitious" Irish government target of 37 GW of offshore wind by 2050, which is approximately six times Ireland's current peak electricity demand. "Offshore Wind Energy," *Department of Enterprise, Trade and Employment*, accessed 10 March 2026, available at https://enterprise.gov.ie/en/what-we-do/the-business-environment/offshore-wind-energy/.

23 "Decision on the Initial Project Assessment of the Third Cap and Floor Window for Electricity Interconnectors," p. 75 and 79.

24 The "holistic transition" scenario is one of the three decarbonisation pathways from NESO. The system is assumed to meet net zero through a high level of renewables uptake combined with a mix of electrification and hydrogen. Furthermore, supply-side and demand-side flexibility is high: The scenario assumes relatively high levels of storage and interconnector capacity, and consumer engagement is very strong through improvements in energy efficiency and demand response. "Future Energy Scenarios: Pathways to Net Zero," *NESO*, November 2025, p. 20.

25 Ofgem notes that it will consider the outcomes of the sensitivity scenarios in the SA, but given the level of discretion involved, it is unclear to what extent this is the case and how much of an impact deviating sensitivity results have. "LDES Window 1 Cap and Floor Multi Criteria Assessment Framework," p. 32–33.

26 "NESO System Impact Report—Cap and Floor Window 3 and OHA Needs Case Assessment: Post Consultation Analysis," *NESO*, November 2024, p. 15.

27 NESO applies post-2035 constraint reduction factors of 69 percent, 79 percent, and 68 percent for leading the way, consumer transformation, and falling short, respectively. Ibid.

28 "Long Duration Electricity Storage: Technical Decision Document," *Ofgem*, p. 21.

29 In principle, LDES projects are well placed to alleviate constraint costs by providing backup power and grid flexibility in areas with high demand or generation bottlenecks. LDES projects can relieve congestion by charging or exporting from export-constrained zones during peak supply and discharging or importing to import-constrained zones during peak demand. Conversely, LDES units may be incentivised to exacerbate constraint costs if located in areas where thermal constraints are prevalent, for example, the export-constrained zone north of the B6 boundary. This is because LDES units respond to price signals and are unable to internalise constraints on the network with a nationally determined price. When the national market price is high, units behind a constraint will schedule to discharge despite existing constraints and vice versa. In these situations, the system operator can intervene through the balancing mechanism by curtailing the LDES unit, which results in additional curtailment payments borne by consumers. To circumvent this problem, the Irish system operator EirGrid has proposed a mechanism for its LDES support scheme: Units that are part of the LDES scheme would be subject to export and import limits that seek to prevent scheduled dispatch, which exacerbates constraints. See also Anstey, George and Somme, Kardin, "Whose Line Is It Anyway? A Primer on Locational Pricing and Why It Is Controversial," *NERA*, 19 December 2024, available at https://www.nera.com/insights/publications/2024/whose-line-is-it-anyway--a-primer-on-locational-pricing-and-why-.html?lang=en and "Long Duration Energy Storage (LDES) Procurement Mechanism Consultation," *EirGrid*, 13 October 2025, p. 78.

30 "LDES Window 1: Assessment Methodology for System and Welfare Impacts," *NESO*, September 2025, p. 13 and "Beyond 2030, a National Blueprint for a Decarbonised Electricity System in Great Britain," *NESO*, March 2024.

31 Window 3 interconnectors ranged from 750 MW to 1,400 MW. Projects eligible for the LDES C&F scheme vary from 50 MW to 1,800 MW. "LDES Eligibility Assessment Outcome," *Ofgem*, Table 2, p. 8–11.

32 Formula based on "LDES Window 1: Assessment Methodology for System and Welfare Impacts," p. 23–24. We simplify NESO's formula for the factual scenario. NESO introduces a new variable P(*x*) to emphasise that the factual adds the real project including location, duration, efficiency, operating profile, and other relevant parameters. We refrain from this complexity here.

33 We can show this algebraically with the formula for the relative SEW effect $B(x)$. $B(x)$ is defined as

$$\frac{\Delta SC(x)}{C(x)},$$

that is the difference in system costs scaled by capacity x. In terms of system costs, we assume decreasing marginal benefits from storage capacity. A conceivable function could be

$$SC(x)=\frac{1}{x}.$$

Inserting Ofgem's formulae for the counterfactual and factual scenarios, we obtain

$$B(x)=\frac{\left(\frac{1}{z+\frac{1}{2}x}\right)-\left(\frac{1}{z-\frac{1}{2}x}\right)}{x},$$

where $z=FID+NFID$. This function can be simplified to

$$B(x)=-\frac{1}{z^2-\frac{1}{4}x^2}.$$

$B(x)$ is negative and decreasing, so the absolute value (magnitude) represents the increasing relative SEW gain. To understand how this function behaves toward increasing capacity x, we form the first derivative:

$$B'(x)=-\frac{x}{2(z^2-\frac{1}{4}x^2)^2}$$

For $x>0,\ B'(x)<0$. So $B(x)$ decreases (becomes more negative) as x grows, which is equivalent to the magnitude $|B(x)|$, meaning the relative SEW gain per unit capacity increases with x. In other words, due to the decreasing marginal benefits assumed, the relative welfare gain increases with project size.

34 Across NFFO-1 to NFFO-5, approximately 60 percent of awarded projects never materialised. Estimate as of 2003 based on Mitchell, C. and Connor, P., "Renewable Energy Policy in the UK 1990–2003," Figure 1.

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