



Dear Ofgem Team

LDES project assessment consultation

Intelligent Land Investments Group plc (ILI) is a leading UK energy storage developer. We specialise in undertaking the early development of energy storage projects, bringing them to a 'ready to build' stage before seeking investors to take over construction and operation.

By way of background, ILI has, to date, successfully developed the 450MW Red John Pumped Storage Hydro (PSH) at Loch Ness in Scotland, with Statkraft acquiring the project from us in December 2023. We committed several years of development effort to this project, undertaking all the early development work, gaining land rights, grid connection, and the planning consent.

In addition, we have also successfully developed 400MW of lithium-ion battery storage projects in Scotland, all being acquired by respected investors and operators. We are proud that our energy storage projects can help deliver Net Zero, security of supply, lower energy costs, and UK economic growth, all in the national interest. They will play a critical role in providing flexibility as intermittent renewable generation grows, especially in Scotland.

ILI is currently developing the Balliemeanoch Pumped Storage Hydro (PSH) project at Loch Awe, Scotland. This project is expected to have a maximum generating capacity of 900MW, able to operate continuously for 15 hours. It has 13 GWh of storage capacity. We have been developing this project for the last three years, completing detailed preparatory work, including extensive engagement with the local community and Council.

The project has the necessary land rights and a 2034 grid connection date, although we have requested this be advanced. Our planning application was submitted last summer and will shortly be reconsidered by the planning authorities in Scotland followed a project redesign. We expect these consents will be in place by September 2025.

We submitted our application for Balliemeanoch to the Ofgem LDES eligibility process on 9th June this year.

Background

In October 2024 the Government published its decision to enable investment in Long Duration Electricity Storage (LDES) by introducing a cap and floor regime run by Ofgem. The purpose of the regime was to overcome investment barriers to LDES resulting from high capital costs and long build times. We had been advocating this approach for some time and welcomed the decision.

We also welcome the progress that Ofgem has since made in developing the LDES cap and floor (C&F) regulatory regime. In June we responded to Ofgem's first application window for LDES, applying for a C&F award for our Balliemeanoch project to be delivered by 2033.

In this letter, we are responding to Ofgem's consultation (launched on 28th May 2025) on proposals for evaluating and selecting LDES projects that have qualified for the first application window. Key points from our response are summarised below with detailed responses to questions attached as an annex.

Summary comments on Cap and Floor assessment proposals

1. The overall assessment and selection process

Ofgem's proposals seem to envisage a process where an economic assessment is first performed to rank individual projects, then this ranking is adjusted by their results of strategic and financial assessments. Ofgem are also exploring if competition may be used to further determine project rankings.

We agree with the need to include economic, strategic and financial assessments in the evaluation and ranking of projects. However, we are concerned that insufficient weight may be given to strategic factors such as UK domestic energy security and economic growth. We suggest that a more explicit scoring approach be used to recognise the importance of such strategic factors.

On competition, we suggest that asking projects to compete at this stage e.g. through bidding of financial parameters, would be difficult to achieve given the uncertainty associated with high value projects before final investment decisions, and indeed of the C&F regime itself. This may result in bids that are highly caveated or cannot be delivered – both of which would be undesirable.

2. Economic Assessment

Ofgem propose that the NESO will evaluate the socioeconomic welfare of individual projects. Their evaluation will capture monetised and non-monetised values for customer/producer welfare and system impacts.

We agree this is an appropriate evaluation approach but are concerned that the modelling approach proposed may not capture all potential benefits e.g. benefits from re-optimisation (intraday trading), balancing actions, ancillary services (including congestion mitigation). We would disagree that these limitations may not materially affect project rankings – to the contrary, it will impact technologies differently according to their different operating characteristics. Also, we suggest potential network reinforcement savings should be included.

Furthermore, the modelling approach appears to focus on benefits arising from the 25-year period of the C&F regime. This does not recognise the additional benefits arising from PSH assets which have lifetimes expected to be more than 100 years.

The evaluation approach invites submissions from developers for non-monetised impacts such as natural capital, skills and supply chain, and economic growth. While Ofgem expects impacts of economic growth to differ between technologies, this is not addressed in the modelling. We suggest there will be significant differences in non-monetised impacts between projects. For example, Scottish Renewable analysis shows that an economic benefit of some £1.2 billion Gross Value Added per GW of new PSH capacity may be realised. This should be recognised in the economic or strategic assessment.

For the reasons above, we are concerned that the proposed economic assessment will not robustly represent the benefits that PSH can bring from their operating characteristics, asset

lives and economic growth. We suggest that the proposed assessment process should be modified to take appropriate account of these factors.

3. Strategic Assessment

In this assessment, Ofgem proposes to assess project benefits from a diverse technological mix, options for future expansion/learning, provision of resilience, and flexibility across multiple future scenarios. Projects that appear capable of securing investment on a merchant basis will receive lower scores.

We suggest that other strategic and policy issues should be addressed in this assessment category. As well as resilience, these should include factors such as economic growth from green jobs and investment and ensuring domestic energy security. It is unclear how the proposed factors of technological diversity, option value, and flexibility will be defined and assessed in a competitive assessment process.

The purpose of the C&F regime is to support the financing of viable high capital value projects that cannot otherwise be financed. We agree that technologies capable of securing investment on a merchant basis e.g. Li-ion BESS, should not be awarded a cap and floor.

4. Financial Assessment

Ofgem will use the Financial Assessment to check if the projects are financially viable. Ofgem proposes to use project-submitted financial information, then to validate against their own assumptions. Revenues will be evaluated over the 25-year C&F period. As for the economic assessment, Ofgem will not model re-optimisation or ancillary service revenues but will seek input from developers. Balancing revenues will be excluded.

We agree that the Financial Assessment should provide a valuable cross check of project viability. However, we are concerned that the assessment may not accurately represent the benefits arising from the operating characteristics and asset lifetimes of PSH plant. The omission of balancing market revenues will distort the assessment.

5. Market modelling

NESO's project assessment proposes to use a Marginal Additional (MA) approach where each LDES project is assessed against a counterfactual of the 2025 FES Holistic (highest renewable) Pathway. This Pathway already includes a range of other storage and flexibility assets which will result in the marginal benefit of each new project being lower than if it was optimised with the existing storage/flexibility assets. Ofgem considers this simplified approach is appropriate, given that the aim is to rank projects in terms of the value they provide relative to one another.

We agree this is a pragmatic approach for ranking projects. However, this simplistic approach does not take account of locational benefits, or other benefits from individual operating characteristics (and access to a wider revenue stack), asset lifetimes, etc. These are benefits that PSH projects can provide and will need to be addressed proportionately elsewhere in the assessment.

Ofgem also highlights that the modelling approach does not capture the second-order impacts of new LDES projects on generation and network capacity and suggests that this does not have a material impact on the ranking of individual projects. We would disagree – we suggest that some LDES technologies can deliver significant benefits through, for example, reduced network reinforcement or displacement of gas peakers.

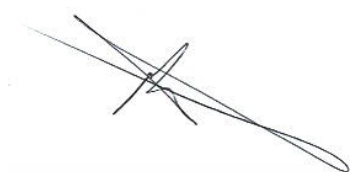
Conclusion


Overall, we welcome the approach that Ofgem has proposed to assess the comparative benefits of LDES projects. In conclusion, we have three main concerns from the perspective of our Balliemeanoch project:

- firstly, that the three-stage assessment approach does not sufficiently value the benefits of economic growth and domestic energy security that PSH can provide, and
- secondly, that the modelling approach does not incorporate revenues and value attributable to PSH assets by virtue of their operational characteristics and long asset lifetimes
- thirdly, that the proposed evaluation and scoring approach needs to demonstrate that it is realising the Government aim of enabling the financing of high value, long build projects (such as PSH), that otherwise cannot be financed and built.

We trust you find these comments helpful. We welcome the rapid progress that Ofgem is making on delivery of LDES and stand ready to engage further as and when it is helpful to do so.

Yours Faithfully,

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke.


ILI Group, CEO

Annex – Responses to consultation questions

Responses to each of the consultation questions are provided below with reference to the respective consultation chapters.

Chapter 2: The overall assessment process

Multi-Criteria Assessment (MCA) framework

Q7: 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 8.8?

Ofgem proposes to assess both quantitative and qualitative impacts. These include socioeconomic welfare (SEW) of consumers, producers, and LDES owners, as well as broader system impacts and strategic benefits. The key elements are:

- Economic Assessment - the SEW impact of each LDES project, including both monetised and non-monetised costs and benefits.
- Strategic Assessment - a qualitative assessment including technological diversity, system security, flexibility, community benefits, and contribution to economic growth.
- Financial Assessment - review of project costs, revenues, and financial parameters to assess value for money for consumers and if projects are financially sustainable.

Our response:

Ofgem's proposals seem to envisage a process where an economic assessment is first performed to rank individual projects, then this ranking is adjusted by their results of strategic and financial assessments. Ofgem are also exploring if competition may be used to further determine project rankings.

We note from the consultation that Ofgem proposes to set a LDES target (in MW and MWh) in consultation with NESO and DESNZ, 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 and the Spatial Energy Plan (SSEP). The C&F regime will be offered to eligible projects that fall within that range.

We agree with the need to include economic, strategic and financial assessments in the evaluation and ranking of projects. However, we are concerned that insufficient weight may be given to strategic factors such as UK domestic energy security and economic growth. We suggest that a more explicit scoring approach be used to recognise the importance of such strategic factors.

On competition, we suggest that asking projects to compete at this stage e.g. through bidding of financial parameters, would be difficult to achieve given the uncertainty associated with high value projects before final investment decisions, and indeed of the C&F regime itself. This may result in bids that are highly caveated or cannot be delivered – both of which would be undesirable.

Q8: 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?

Ofgem propose that NESO will evaluate the SEW impact of individual projects, which will feed into Ofgem's overall assessment. Ofgem will make decisions on which projects will be awarded a C&F regime. The proposed assessment approach is as follows:

- 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.
- All the monetised impacts will be aggregated to provide an overall Net Present Value (NPV) in £, £/MWh and £/MW terms.
- Ofgem 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.

Our response;

This is a logical approach but we have concerns about the modelling rigour and whether appropriate assumptions will be used for the Economic Assessment. - this may not allow a fair representation of costs and benefits between competing technologies and projects.

Overall the use of quantified and non-quantified assessments appears appropriate. Given the above concerns about the robustness of monetised Economic Assessment of projects we suggest that greater emphasis is placed on the Strategic and Financial Assessments to reflect policy goals and project viability.

Deliverability and project maturity

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

Our response;

Yes this appears an appropriate approach. However all large infrastructure projects may face unforeseen delays that are outside their reasonable control including supply chain delays. For example the regime that Ofgem has established for the delivery of the ASTI transmission works has sought to establish a pragmatic approach to ensure delivery.

While changes to deliverability should be assessed such that non-viable projects are not pursued a balance needs to be struck to enable viable projects to proceed if they face delays that are out with their reasonable control.

With regard to PSH we would point out that this is a very mature technology with a strong track record of successful construction and long-term operation. It is important to take account of both technology maturity as well as project maturity.

Role of competition in assessing some financial parameters

Q9; 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?

Ofgem propose that projects may be expected to bid 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. Ofgem suggest that this added flexibility allows developers to tailor their bids to the specific characteristics of their projects.

Our response;

The ability of projects to bid a preferred rate of return is highly dependent on the individual projects assumptions which will be derived well ahead of contractual commitments and final investment decisions. Asking for bids on the cap or floor may lead to low bids that subsequently cannot be delivered or are highly conditional. An administrative cap with suitable incentives for optimisation above and below the cap appears more appropriate.

Economic and financial analysis produced by applicants

Q0: 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?

To support the assessment process, Ofgem proposes that projects provide their own assessment of monetised impacts, where available, and provide supporting evidence of the non-monetised impacts. Ofgem proposes projects should forecast the revenues they expect to generate from the operation of their LDES asset, including:

- (a) Wholesale market trading revenues from initial arbitrage positions and re-optimisation.
- (b) Participation in the Balancing Mechanism.
- (c) Participation in the Capacity Market.
- (d) Where relevant, provision of Ancillary Services.

Our response;

We suggest that the NESO should be able to model re-optimisation and ancillary service revenues. However, if this is not possible or the information is insufficiently robust, projects should be able to provide supporting evidence to clarify both monetised and non-monetised elements of the assessments. It will be important for Ofgem–NESO to clarify how this information will be used in the assessment process.

Chapter 3: Economic assessment

Q1. Are we considering the right impacts for the Economic Assessment? and have we correctly characterised both monetised and non-monetised impacts?

The NESO will evaluate the socioeconomic welfare of individual projects, capturing monetised and non-monetised values for customer/producer welfare and system impacts as listed below.

- Consumer welfare
 - o Wholesale market costs (Monetised - NESO).
 - o Constraint management costs (Monetised - NESO).
 - o Renewable support scheme costs (Monetised - NESO).
 - o Interconnector and LDES CTM F scheme costs (Qualitative - Ofgem).
 - o Capacity market impacts (Qualitative - Ofgem).
 - o Non-assessed impacts - Real-time flexibility benefits.
- Producer excl. LDES project welfare
 - o Wholesale market net revenue (Monetised - NESO).
 - o Renewable Energy Sources (RES) support scheme revenues (Monetised - NESO).
 - o Interconnector LDES CTM F scheme revenues (Qualitative assessment - Ofgem-Project).
- LDES project welfare
 - o LDES wholesale market gross margin (Monetised - NESO)
 - o Project capex and opex, financing costs (Monetised - Ofgem/Project)
- System impacts
 - o Security of supply (cost of EENS) (Monetised - NESO).
 - o Ancillary Services (system operability) (Qualitative - NESO-Ofgem-Project).
 - o Avoided renewable curtailment (Quantified - NESO).
- Non assessed impacts - Network reinforcement costs.
- Wider economic and social impacts
 - o Reduction in greenhouse gas emissions (Monetised - NESO).
 - o Natural capital? Landscape? Local Community (Qualitative - Ofgem-Project).
 - o Skills and supply chain (Qualitative - Ofgem-Project)
- Impacts on economic growth through other mechanisms

Our response:

We agree this is an appropriate evaluation approach but are concerned that the modelling approach proposed may not capture all potential benefits e.g. benefits from re-optimisation (intraday trading), balancing actions, ancillary services (including congestion mitigation).

We would disagree with Ofgem's claim that these limitations may not materially affect project rankings – to the contrary, it will impact technologies differently according to their operating characteristics.

Furthermore, the modelling approach appears to focus on benefits arising from the 25-year period of the C&F regime. This does not recognise the additional benefits arising from PSH assets which have lifetimes expected to be more than 100 years.

Ofgem does 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.

The failure to capture the benefits of LDES upon transmission investment appears to be a significant omission. While it may be difficult to assess the wider system benefits of LDES due to the potential complexity of assessment, significant value to customers may be lost. For example, PSH LDES development in Scotland may reduce the need for investment in high cost network infrastructure. If the assessment ignores such benefits, then inefficient decisions may result.

Q2. 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?

Our response:

The evaluation approach invites submissions from developers for non-monetised impacts such as natural capital, skills and supply chain, and economic growth. While Ofgem expects impacts of economic growth to differ between technologies, it is not proposed to incorporate top-down modelling of these factors in the economic methodology.

Ofgem does not propose to assess the direct impact of each project in terms of jobs supported or created, in a mechanistic manner. Ofgem says it is not convinced that such impacts could be calculated and compared between different projects following a robust and consistent methodology. However, Ofgem has stated that they will consider any evidence submitted will consider introducing additional metrics if appropriate.

We consider that there will be significant differences in non-monetised impacts between projects. For example, the Scottish Renewables report, 'The Economic Impact of Pumped Storage Hydro'¹, indicates that six PSH projects under development could deliver £5.8 billion in Gross Value Added (GVA) and create nearly 15,000 jobs by 2035, assuming a further 4.9GW of PSH capacity was added. Around 70% of PSH investment is forecast to be spent in the UK economy. This should be fully recognised in the economic or strategic assessment.

For the reasons above, we are concerned that the proposed economic assessment will not robustly represent the benefits that PSH can bring from their operating characteristics, asset lives and economic growth. We suggest that the overall assessment process should be designed to take appropriate account of these factors.

¹ <https://www.scottishrenewables.com/publications/1292-the-economic-impact-of-pumped-storage-hydro>

Chapter 4: Strategic Assessment

Q3. Do you have any views on the relevance, appropriateness and completeness of the impacts proposed in the Strategic Assessment?

Ofgem has proposed the following strategic issues should be considered:

- Technological diversity - Ofgem may attribute additional strategic value to individual projects based on their contribution to enhancing technological diversity.
- Option value – this may include plant expansion, novel technologies or project independencies. Where such option value is significant, Ofgem will invite projects to provide quantified evidence of this, following relevant appraisal guidance and ensuring that their analysis is proportionate to the option value in question.
- System Security and resilience - Under this criterion, Ofgem proposes to assess whether individual LDES projects are likely to deliver superior performance during system stress events relative to other projects.
- Flexibility – this is designed to identify projects that demonstrate robust performance across diverse future scenarios.
- Need for cap and floor support - Ofgem propose 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.

Our response:

We suggest that further explanation is needed for each of these assessment areas and how they will be valued and scored. If projects are being asked to address these factors in their submissions, then it will be important to define how these will be assessed.

For example, taking technological diversity – such diversification may be seeking to address technological risks arising from construction, supply chain, operation, decommissioning, and geopolitical risks. These risks could be addressed by individual projects as part of their bid submission.

It is unclear how the proposed factors of technological diversity, option value, and flexibility will be defined and assessed in a competitive assessment process. If high levels of resilience are required, this could be addressed through LDES design requirements,

The purpose of the C&F regime is to support the financing of high capital value projects with long built times that cannot otherwise be financed. We agree that projects capable of securing investment on a merchant basis should not be awarded a cap and floor. In this context, we consider that Li-ion BESS projects that extend their duration to 8 hours to qualify for the C&F should not have access to the regime.

Q4. Are there other impacts that we should be considering in the Strategic Assessment?

Our response:

We suggest that other important strategic and policy issues should be addressed in this assessment category. As well as resilience, these should include factors such as economic growth from green jobs and investment and ensuring domestic energy security.

To repeat our example of economic growth benefits, the Scottish Renewables report, 'The Economic Impact of Pumped Storage Hydro', indicates that six PSH projects under development

could deliver £5.8 billion in Gross Value Added (GVA) and create nearly 15,000 jobs by 2035, assuming a further 4.9GW of PSH capacity was added.

Chapter 5: Financial Assessment

Financial assessment approach

[Q64.Do you have specific suggestions for how the Financial Assessment output should be considered alongside the Economic Assessment?](#)

Ofgem propose to develop high-level Financial Assessments for each LDES project. The assessment involves three key activities:

- a) First, Ofgem will establish C&F levels using project-submitted cost estimates and key financial metrics.
- b) Second, Ofgem will independently estimate gross margin revenues, primarily using outputs from NESO's market modelling. They will validate these revenue projections against assumptions provided by projects.
- c) Finally, Ofgem will assess the calculated gross margin revenues against the established C&F levels to calculate expected C&F payments and financial impact on consumers.

The Financial Assessment will evaluate revenues over the full C&F regime duration, obtaining and validating company forecasts for wholesale market, capacity market and ancillary service revenues.

The assessment period is proposed to 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, Ofgem proposes to extrapolate revenue projections for any additional years in line with the approach used by NESO to extrapolate beyond the PLEXOS simulation horizon.

Ofgem proposes to use the Financial Assessment as a practical cross-check on the Economic and Strategic Assessments. The Financial Assessment would be used to assess whether the projects proposed by developers appear to be financially viable.

Our response:

In this assessment, we welcome that Ofgem proposes to use project-submitted financial information, then to validate against their own assumptions. As for the Economic Assessment, Ofgem will not model re-optimisation or ancillary service revenues but will seek input from developers. Balancing revenues will be excluded.

We agree that the Financial Assessment should provide a valuable cross check of project viability. However, we are concerned that the assessment as currently proposed may not accurately represent the revenues and benefits arising from the operating characteristics and 100+ year asset lifetimes of PSH plant.

Balancing Mechanism revenues

[Q76j.Do you agree with our proposal to assume that LDES projects will remain revenue neutral following balancing market actions?](#)

Ofgem consider that, 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, Ofgem propose to assume that overall LDES assets remain revenue neutral following balancing market actions and therefore balancing market revenues are not included in the Financial Assessment.

Our response:

We disagree with this position - the omission of balancing market revenues will distort the assessment. We suggest that these figures are also submitted by developers and validated by Ofgem/NESO.

Modelling financial parameters

Ofgem will separately be consulting on the C&F regime financial parameters later in Q2 2025. For the Financial Assessment, Ofgem will estimate C&F levels based on the outcome of that consultation and on project submissions on costs and financial parameters.

Ofgem expect projects to provide cost estimates for initial investment costs, fixed and variable operating and maintenance (O&M) costs, and replacement and decommissioning costs where appropriate. During Q3 2025 Ofgem plans to publish a cost template and submission guidance for eligible LDES projects. Ofgem will assess the reasonableness of these project costs.

Financial parameters - Ofgem proposes that the main financial parameters to determine cap and floor levels are:

- Regime duration - a standard period of 25 years is proposed as the default C&F regime duration. If projects propose alternative durations, these may be evaluated through the Financial Assessment.
- Residual value - a residual value of zero is proposed at the end of the C&F regime period. If projects propose alternative residual value assumptions, these may be evaluated through the Financial Assessment.
- Floor rate of return - this may be an administratively set rate of return, or it may be project-specific, competitively derived rate of return.
- Cap rate of return – this may be set administratively or derived through a competitive process.
- Interest During Construction (IDC) - this may be set administratively or derived as a project-specific, competitively determined rate of return.

Our response:

Ofgem have proposed that all projects should have a residual value of zero at the end of the 25-year C&F period. As mentioned earlier in our response, PSH projects are expected to have asset lives of more than 100 years. This value (and benefit) will need to be appropriately reflected in project financial parameters in due course.

Competition to set financial parameters

Ofgem plans 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.

Our response:

We suggest that asking projects to compete at this early stage by bidding of financial parameters, would be difficult to achieve given the uncertainty associated with high value

projects before final investment decisions, and indeed of the C&F regime itself. This may result in bids that are highly caveated or cannot be delivered – both of which would be undesirable.

Chapter 6: Market modelling

Marginal additional approach and counterfactual definition

[Q77: Do you have any views on the proposed Marginal Additional method and whether it provides a robust basis for assessment?](#)

Monetised and non-monetised impacts in the Economic Assessment, and some of the revenues in the Financial Assessment will be derived from NESO's market modelling.

NESO proposes to use a Marginal Additional (MA) approach where each LDES is assessed against a counterfactual of the 2025 FES Holistic (highest renewable) Pathway. This Pathway already includes a range of other storage and flexibility assets which will result in the marginal benefit of each new project being lower than if it was optimised with the existing storage/flexibility assets. Ofgem considers this simplified approach is appropriate, given that the aim is to rank projects in terms of the value they provide relative to one another.

Ofgem notes that 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.

Within NESO's market modelling, the counterfactual and factual are proposed 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.

Our response:

We agree this is a pragmatic approach for ranking projects. However, the removal of technological and geographic benefits in the model means that these will need to be reflected elsewhere in the assessment. As discussed earlier in our response, it is important that the modelling of additional project benefits reflects their individual operating characteristics (and access to a wider revenue stack) and asset lifetimes.

Second-order impacts on generation and network capacity - Ofgem notes that adding LDES capacity to the system may also impact the required levels of renewable generation, dispatchable peaking generation, or network infrastructure. The proposed modelling approach does not explicitly capture these dynamic effects.

Ofgem suggests these limitations do not materially affect the relative ranking of individual projects, and a consistent application of their methodology ensures that the comparative assessment remains robust for decision-making purposes, even if absolute benefit values may be subject to some uncertainty.

Our response:

While it may be difficult to assess the wider system benefits of LDES due to the potential complexity of assessing the wider system benefits, significant value to customers may be lost. For example, LDES development in Scotland may reduce the need for costly network infrastructure. If the modelling ignores such benefits, then inefficient decisions may result.

Ofgem also highlights that the modelling approach does not capture the second-order impacts of new LDES projects on generation and network capacity and suggests that this does not have a material impact on the ranking of individual projects. We would disagree – we suggest that some LDES technologies can deliver significant benefits through, for example, reduced network reinforcement or displacement of gas peaking plant.

In summary, Ofgem notes that there are two main limitations of their modelling approach:

- The counterfactual scenario will not necessarily represent an optimised portfolio of assets which would be built in the absence of LDES assets.
- The modelling approach does not directly measure second-order impacts on generation and network capacity.

Ofgem do not consider this to be a material limitation when it comes to ranking individual projects in NPV terms.

Our response:

We would agree that the proposed simplistic modelling approach will allow projects to be ranked against each other. However, the analysis does not take account of locational or technological differences or other individual limitations or benefits. These will need to be considered elsewhere in the assessment.

Counterfactual and sensitivities

[Q78; Do you have any views on the counterfactual to use for this assessment and sensitivities that we could use?](#)

Counterfactual - Ofgem's view is that using a FES pathway to define the counterfactual is a pragmatic and transparent approach that allows them to robustly assess many LDES applications within the time constraints of the Project Assessment process.

Our response:

The NESO proposes to use the FES 2025 Holistic Transition (HT) scenario as the counterfactual. This has not yet been published, so the following comments reflect the 2024 FES HT scenario.

The 2024 Holistic Transition scenario is the NESO's highest renewable pathway with unabated gas dropping to zero shortly after 2036. Supply side flexibility is high, delivered through electricity storage and interconnectors. By 2035, this scenario assumes 48 GW and 172 GWh of total storage capacity (excluding vehicle to grid capacity).

The FES 2024 also makes assumptions about consumer flexibility – it is assumed that consumer flexibility reaches 29 GW by 2035, increasing from 7 GW in 2023. This increase predominately arises from growth in vehicle to grid and smart charging flexibility. This increase appears highly uncertain, potentially further depressing marginal benefits from additional LDES and distorting the analysis. Also, the FES appears to make assumptions about BESS development for flexibility which may be displaced by the emergence of lower cost LDES enabled by the C&F regime.

It is unclear what impact such uncertainties have upon the LDES volume and benefit calculations.

Sensitivities - Ofgem intends to model a single base case with additional sensitivity runs. The sensitivities will be used to understand which projects deliver the highest socio-economic value differ materially depending on the underlying assumptions around pricing, demand level and generation mix, weather patterns, and zonal pricing arrangements. The proposed sensitivities are:

- a) Base Run: Central Future Energy Pathway
- b) Additional Future Energy Pathway
- c) Zonal
- d) Weather Year 2010
- e) Weather Year 1985
- f) High Gas Prices (optional) – higher gas prices are likely to increase the value of LDES
- g) High Demand Side Response (optional) – increased demand side response may reduce the need for LDES

Ofgem will also 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. They propose that projects demonstrating robust performance across multiple scenarios would receive favourable scoring within the Strategic Assessment.

Our response:

These appear to be a logical set of sensitivities to assess the impact of extreme events. We would suggest that a low demand side response scenario is also modelled as described above.

In addition, given the growing reliance on interconnectors to provide low carbon flexibility, we would suggest modelling a low interconnector capacity scenario. This might be based on the major French nuclear outages in 2022 for example.