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## **British Hydropower Association – Response to Ofgem LDES Window 1 Financial Framework Consultation**

**17<sup>th</sup> July 2025**

The British Hydropower Association (BHA), representing a broad range of stakeholders including developers of Pumped Storage Hydro (PSH) projects, welcomes the opportunity to respond to Ofgem’s consultation on the Long Duration Electricity Storage (LDES) Window 1 Cap and Floor Financial Framework. This response is submitted on behalf of BHA’s membership to ensure the final design of the regime supports investability, fair competition, and the accelerated deployment of vital low-carbon infrastructure in the UK.

### **Q1. What are your views on our proposal to move beyond focusing solely on project return rates at the C&F levels, towards a more flexible approach that allows projects to tailor key parameters to the needs of their LDES project archetype?**

The BHA supports giving developers more scope to tailor parameters to the needs of their projects. Making the LDES scheme technology agnostic was always a difficult proposition – notably for PSH vs BESS which are more akin to attributes and complexities of nuclear vs solar. We oppose the use of competitive bidding on financial parameters for major infrastructure like PSH. This is likely to lead to over-optimistic, caveated and ultimately undeliverable bids, whilst discouraging viable developers from applying.

We support the use of an administrative approach to C&F setting, prioritising strategic and economic value over speculative competition. For PSH in particular, which faces long construction timelines and uncertain ground conditions, financial bids would be premature and undermine investor confidence. It may work for more modular, scalable technologies like BESS that have less construction risk.

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### **Q2. How well does the proposed competitive framework accommodate the differing risk profiles of various LDES technologies? Are there any technology-specific considerations that should be better reflected?**

The BHA considers that Ofgem’s competitive framework will fail to bring forward the full range of technologies notably those of greater consumer value over the long term. It may bias selection toward less capital-intensive, shorter-duration and shorter-life technologies like BESS.

We recommend assessing the merits of different technologies within their class – ie: PSH vs PSH and only comparing different technologies when it comes to fundamental attributes of capacity, duration, lifespan, ancillary services (synchronous inertia), community and wider economic benefits. PSH requires a FOAK premium (150bps+) to reflect greater construction risks vs other technologies and interconnectors for which the C&F was originally designed.

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**Q3. How can Ofgem best ensure comparability between bids given the bespoke nature of the proposed parameters? Are there specific normalisation techniques or benchmarks you would recommend?**

The BHA considers Ofgem should not attempt to design a complex assessment tool to compare fundamentally different technologies but should focus on an administrative process.

**The five parameters;**

1. **Target rate of return** – Bids chosen on the lowest value, risk not having factored in full costs and so be undeliverable longer term – ‘the winner’s curse’.
  2. **Residual Value** – PSH has timescales c.100 years requiring a fundamentally different consideration of value vs other technologies. The BHA cannot suggest a specific financial solution, however PSH is like investing in a house with a mortgage, vs shorter-lived technologies akin to buying a car on finance. One increases in ‘value’ the other typically does not.
  3. **Regime length** – We concur that there should be no fixed maximum regime length, although asking developers to propose their scheme’s design on such a fundamental point rather undermines Ofgem’s more assertive criteria elsewhere.
  4. **Interest during Construction (IDC)** – Rates should be considered an output to calculate the C&F levels, not a criteria against which projects will be compared in competition. IDC rates for PSH will inherently be higher due to time and risk in construction.
  5. **Decommissioning costs** – The lifespan of PSH makes it very unlikely a % of capex would be retained by either a public or private entity. Due to such timescales, these should be a cost to consumers in the same way that public sector pensions are paid from general taxation. Any fund retained from capex is likely to be mismanaged over such a long term unless it forms part of a major renewable energy ‘sovereign wealth fund’ designed to run for the sector over such timescales.
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**Q4. What are your views on the proposed truth telling incentives? Do you think these will effectively discourage inflated or strategic bidding?**

The BHA considers Ofgem’s ‘truth telling’ incentives (e.g., enhanced revenue sharing for low-bid projects) are likely to be ineffective and counterproductive. We believe the structure incentivises strategic underbidding, especially by less credible projects that may later request

revisions or drop out entirely. We stress that the best way to avoid this is through robust project assessment and administrative financial setting. Whilst the truth-telling incentive proposes a doubling of the 10% revenue sharing above the cap, we do not consider this sufficient either for efficient operation of the asset or to discourage strategic bidding.

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#### **Q5. What are your views on our proposed approach to floor setting?**

The BHA supports the use of an administrative floor for both balance sheet and project financing. We welcome the use of BBB-rated bond indices for floor setting, acknowledging that LDES projects carry higher credit risk than interconnectors. We strongly support the use of a FOAK or novelty premium to the floor rate for PSH. These projects have not been built in the UK for over 40 years and are typically government-backed globally. Applying a flat BBB-rated cost of debt with no uplift fails to reflect construction and market risks. The absence of this premium could make PSH unbankable under the proposed regime. We recommend at least a 150bps uplift in line with the NSI precedent, and suggest that the floor be indexed to actual CPIH rather than fixed inflation assumptions.

If the C&F levels are to be indexed to target inflation (2% BoE), this is yet another aspect of uncertainty that developers need to consider in their modelling. Whilst it is true that they can hedge this risk, the costs of doing so should be added to the floor. One of the fundamental attractions of infrastructure investment is its protection from inflation through contractual rates that rise with or above inflation. Removing this benefit further detracts the appeal of the LDES scheme for the private sector.

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#### **Q6. What are your views on our proposed performance-linked measures to access the floor and incentives below floor?**

The BHA considers that PSH and other LDES projects are already highly incentivised to operate efficiently in wholesale and balancing markets. We support performance-linked access to the floor, provided that Minimum Availability Threshold (MAT) levels are customised, fair, and exclude planned outages and force majeure. However, we stress that penalties alone are not enough. Ofgem should introduce symmetric incentives that reward high availability not just the reward of a stable income through the avoidance of a penalty. This is particularly relevant for PSH, which offers unparalleled reliability and duration but requires constant operational expertise and judgement.

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#### **Q7. Does the proposed cap design provide the right balance between incentivising efficient operation and sharing upside with consumers?**

The BHA strongly supports increasing the sharing factor above the cap to 50%. For PSH projects, the potential to earn a meaningful upside is essential due to the timescales and complexity in

construction and the significant marginal costs in current in operations. These challenges for developers need to be weighed against the value to consumers from the high round trip efficiency, GW scale output and genuine long duration in the critical 10 – 30-hour gap when designing a clean power grid with so much dependence on intermittent renewables.

CEPA’s analysis is considered overly optimistic in its assumption of operator foresight. A low incentive will deter optimal operation, reduce value for money, and hinder investor appetite. Merchant risk is typically avoided in investor credit analysis so the rewards must be appropriate. We recommend stronger alignment with other schemes; e.g., the Dispatchable Power Agreement’s 30% gainshare, or the 50:50 incentive splits in RIIO network price controls.

The 10% remains below international comparables; the Australian LTESA scheme and the California LDES procurement programme (SB100 and AB 209) use 20-50% revenue share. The New Zealand ‘Flexibility market & Contracts Initiative’ allows developers to retain 60-80% of the upside. Whilst each scheme will have differences including in downside protection, these benchmarks are more in line with the rewards required by the private sector if they are to commit such long-dated capital at relatively high risk for PSH projects. The existing 10% may be appropriate for BESS.

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**Q8. What are your views on the use of the CAPM and the proposed input assumptions (e.g. equity beta, RFR, TMR) for calculating the cost of equity for LDES? Are there refinements or alternatives you would recommend?**

The BHA recommends excluding National Grid from the comparator group due to the beta underestimating merchant risks faced by PSH including construction risk, unproven revenue stacking dynamics in the ‘clean energy markets’ we are likely to see in the next 20 years vs historic examples where UK PSH has been in operation. Using a beta based on merchant-like firms (closer to 1.33–1.5) would better reflect the reality. Additionally, given the novelty of the regime and the fact that this is effectively a pilot, an uplift to the cost of equity for PSH is appropriate, consistent with the treatment of the NSI pilot.

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**Q9. What are your views on the proposed capital cost components for determining the RAV and C&F levels, including the equity and debt transaction cost allowances?**

The BHA supports the inclusion of all listed capital components, including a clear definition of marginal cycling costs. For PSH, this must cover specific operational modes such as spinning reserve and black start. These costs should be treated separately from fixed opex to preserve operational flexibility and ensure transparency. The proposed equity (5%) and debt (2.5%) transaction cost allowances are appropriate and reflect market norms.

**Q10. Do you agree with limiting reopeners during the operational phase to opex (after 10 years) and decommissioning (if there's a legal change)?**

The BHA supports more frequent reopeners compared to interconnectors which are more passive assets with more predictable Opex profiles. We recommend reopeners every 5 years for PSH projects due to their long operational lifespans and evolving maintenance requirements. We also support developer-triggered decommissioning reopeners where planning authorities may impose post-construction obligations. This flexibility will lower financing risk and improve value for money.

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**Q11. What are your views on the treatment of decommissioning costs and IDC – particularly around timing of recovery, project delays, and legislative changes?**

The BHA firmly opposes requiring developers to 'bid' for decommissioning costs. These should be treated as prudent, estimated costs based on technology and planning expectations, and should be recovered over the life of the asset not just the initial LDES regime. For PSH, developer-triggered reopeners for changes in decommissioning scope must be allowed. As stated previously, with PSH having operational lives of perhaps over 100 years, no public or private entity can be expected to manage and protect funds for decommissioning over such timescales. Even at 100 years on the assumption energy markets remain dynamic, it is likely PSH would be refurbished – akin to our Victorian railways. For PSH specifically, it would be simpler for Ofgem to accept this as a cost to the consumer akin to some public sector pensions. We acknowledge shorter-lived assets need to factor decommissioning costs into to capex.

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**Q12. What are your views on the proposed IDC rate approach and the option for projects to bid their own rate? Should riskier technologies receive a different rate?**

The BHA supports an administratively-set, risk-stratified IDC rate, with a clear uplift for PSH reflecting extended construction periods and complex geotechnical risk. A 100bps uplift is appropriate vs the NSI regime. Projects should be allowed to bid and justify their individual IDC rate. The fact that IDC maybe excluded or adjusted in the event of a delay, increases the risk premium at the very point we need projects to be considered investable.

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**Q13. What are your views on the types of cost efficiency and delivery performance incentives included in the regime?**

The BHA agrees that PSH developers already have strong incentives to avoid overruns. Introducing 50:50 cost-sharing and delivery clawbacks on top of high construction risk will increase the required return on equity. These mechanisms should be removed but if they remain, they are likely to be complex and costly to administer. Penalties for late delivery will

likely incur sub-optimal construction towards the deadline which is likely to increase operational risk.

The existing post-construction review which acknowledges force majeure is welcomed and provides consumer protection. We hope that the definition used for force majeure will be in line with interconnectors and 'ASTI' projects in being sufficiently broad. The list of exceptional events should cover grid connection delays, planning authority delays and environmental issues which are all aspects under direct control or of interest to the British or Scottish Governments or the Welsh Assembly.

Ofgem should use reference class forecasting data (we recommend Oxford Global Projects) to determine PSH overruns in cost and schedule. Headline data is relatively supportive of PSH projects where bigger is typically more cost efficient. Most experience cost overruns at an average of 18% which is notable compared to nuclear at 132%, and PSH has an average schedule delay of 39% which is comparable to wind and battery technologies. Their data also focuses on 'tail risk' (>50%) where a small number of projects go significantly over budget and time – again pumped storage is not an outlier, albeit government and developer ambition to shorten timescales in build can make overruns look typical.

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**Q14. What is your preferred approach to cost incentives (e.g. cost sharing vs. outturn comparison), and how should these be appropriately calibrated?**

The BHA supports cost control by modifying the RAV up or down from a cost benchmark but consider the 50:50 cost sharing imposes too much uncertainty at the point of FID. A sharing model more favourable to developers would be deemed appropriate. We agree that only economic and efficient costs should be added to the RAV, and that the risk of disallowance at the post-construction review stage already incentivises developers to control costs. We oppose clawbacks of floor payments tied to cost increases deemed 'efficient'. These add unnecessary uncertainty and deter investment in PSH, where cost variance can result from unforeseen like ground conditions.

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**Q15. Does our proposed mix of gearing caps, ringfencing, and financial reporting strike the right balance between financial resilience and flexibility for LDES projects? If not, what would you change?**

The BHA defers to individual developers on these matters but broadly acknowledges a gearing cap at 80% is sensible and that ringfencing provisions and reporting requirements as outlined appear appropriate.

**Q16. Which charges - TNUoS or BSUoS - do you consider more appropriate for funding cap and floor payments and receipts, and why?**

The BHA defers to individual developers who have stated that the BSUoS is more appropriate for funding cap and floor payments due to the reflection of actual electricity consumption. Developers welcome guidance as to whether these would be pass through costs.

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**Q17. What are your views on including a residual value at the end of the cap and floor period, and how should this affect depreciation and investor returns?**

The BHA supports the option for a flexible regime length notably for long-lived assets but recognises that a fixed 25-year regime, in line with the interconnector precedent maybe more appropriate for financing arrangements from the outset.

It is clear that long-lived PSH assets will have residual value but this is a key attribute that investors and owners will want to control. The notion that such an uncertain residual value would be factored into a lower cap and floor at the start of the scheme directly hinders investability. This is an upside wholly for the benefit of the developer and investors.

A default residual value based on post-regime revenues across the same asset class may help financial modelling and therefore bankability. Allowing residual value competitive bidding distorts financial assessment and risks under-rewarding long-life assets like PSH. We oppose the concept of post-regime clawbacks which run counter to the investment case and an effective cap and floor scheme.

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**Q18. What policy mechanisms should be introduced to support investability now and post regime or recovery of residual value beyond the C&F period?**

To support investability, Ofgem needs to simplify the scheme by revisiting several clawbacks and penalty clauses throughout the TDD and subsequent documentation. Clawbacks are always an option for the state as seen by windfall taxes on the oil and gas sector. However, highlighting them at the point where the government is trying to encourage private sector investment is an active hindrance. Window 3 of the interconnector cap and floor has been cited as a good balance of investability and consumer protection. The BHA urges Ofgem to treat Window 1 as a generous, foundational regime, not a pilot.

Investors are making decisions now, and the credibility in a UK LDES scheme has already been hindered by several aspects. The 11 UK PSH projects currently under development depend on a stable, investable, and fair regime from the outset. The BHA and developers are keen to support Ofgem in refining the framework to ensure long-term value for consumers whilst providing confidence to investors. LDES delivery in line with Clean Power 2030 is a political goal not one for the private sector who will only participate with the right risk-return profile.

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**Q19. What are your views on our proposed financial model and handbook? Do you have any suggestions for simplifying it while keeping it clear and robust?**

The approach of using the interconnector C&F financial model for LDES appears appropriate but as with recommendations throughout this consultation, changes are required due to the very different technologies involved in LDES. Aspects of particular importance to be tailored include; treatment of cost and delivery incentives which appear to be more onerous than those applied to the interconnector C&F, calculation of C&F levels and definition of post-regime arrangements.

PSH developers and investors will gain confidence in the Ofgem scheme from a bespoke approach to this GW-scale, 100-year life technology in the handbook and modelling. Significant devex has already been spent and there only 11 PSH projects under development with likely less than 5 having applied to the Window 1 LDES scheme. How these few will be treated relative to the majority of the 171 project applicants will be a key in the months ahead.

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The BHA expresses thanks to the Ofgem LDES team for swift policy development and open, regular consultations with industry. We are ready and willing to assist, notably if Ofgem needs developer views on a more specific or informal basis.

For any follow up please get in touch; [REDACTED]