NatPower
GROWING BY NATURE

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Project Assessment Consultation Response from NatPower Development Limited

NON CONFIDENTIAL

Dear Sir/Madam,

In response to the LDES Project Assessment Consultation, please find below our response to the Questions Asked:

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

Response:

Given previous target LDES capacity ranges from both Ofgem and NESO, NPDL's assessment has exposed flaws in the appraisal of need. There has been a failure to include the network impact of decarbonisation of the shipping industry, which will require large increases in the renewable generation capacities forecasted as well as the storage requirement resulting from the intermittancy of both this increased renewables generation and the intermittancy of the demand. In addition, the scale of additional demand from data centres has been underestimated as has the requirement for data centres to have access to back up electricity supply in the form of large scale storage to replace diesel generation sets.

NPDL's assessment indicates an immediate target of c. 14GW of LDES will be required to be delivered by 2035, with as much as possible as early as possible, to maximise consumer and network benefits. Additional large scale LDES will be required post 2035.

Important elements of the proposed MCA should be approached with a weighted/prioritisation assessment, with significant weighting/prioritisation given to the scale of the benefits specific projects provide and the projects deliverability/reliability. Deliverability/reliability risk is an important metric. If a particular project, granted a Cap and Floor fails to be delivered, there will be significant costs to consumers and the network. In addition, project operational availability/reliability will have a significant impact on delivering the consumer and network LDES requirements and minimising consumer costs for unavailability, hence, proven, reliable projects with very low maintenance downtime, should be prioritised.

Under Strategic Assessment, regionality and location also need to be included and prioritised. LDES projects sited within areas of need for immediate and future need will be important to enable i.e. large LDES projects in network constrained areas, areas where significant offshore wind is connecting, close to data centre areas of interest, close to the UK's major ports.

Project scale must also be scored, with larger projects having the ability to enable wider benefits i.e. a 500MW with GWh scale storage project can satisfy the needs of large data centres and attract investment, with significant wider economic benefits, that cannot be satisfied by smaller LDES projects.

Regarding Lithium Ion BESS, the unfair treatment of Li for NESO grid connection offer i.e. Li LDES not being

awarded a grid connection offer in NESO Window 1 alongside other LDES technologies, and having to wait until after the award of a Cap and Floor contract before being able to apply for a connection offer as an LDES project, will add at least 1 year delay to financial close and the delivery timeframe of Li LDES. It is therefore not a level playing field when Li LDES projects are assessed against other technologies re. Eligibility and deliverability by 2030. Otherwise deliverable Li lDES projects by 2030 may not be able to demonstrate a 2030 delivery date because of this 1 year delay to achieve financial close. In addition, Li LDES developers and investors may cancel viable projects due to inability to continue financing project development, in an already extensively delayed grid connection confirmation environment.

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

Response:

An NPV adjustment is recommended to reflect the risks of CAPEX over runs for different technologies. For instance, projects with construction cost risk such as pumped hydro that could potentially lead to very large cost over-runs, new technologies with little record of demonstrating project delivery costs. It is common for projects requiring significant construction works and for new technologies to under-estimate project CAPEX, and delivery time, giving over optimistic NPV and therefore incorrect project ranking. In addition, projects with complex construction or long construction timeframes are also exposed to increased risk of CAPEX over-runs.

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

Response:

We support competitive bids within each technology, however, on a non-technology basis, bids will be exposed to CAPEX assumptions that may not be achieved as a result of our response in Q2. For projects that end up with large CAPEX over-runs, they will then not achieve their required rate of return and in order to be financially viable, would then require a subsequent increase in the Cap. Equally, the Floor may also have to later be increased during construction in order to fund completion of the project. This will be after C&F award. Competitive bidding across technologies will make this scenario more likely.

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

Response:

Yes, NPDL agree that fully capturing some revenue streams is a challenge.

Large transmission connected projects can access additional revenue streams DNO connected projects cannot. Providing services to the transmission network such as Dynamic Containment. It is important these revenue streams are captured to reflect the true competitiveness of these projects. Furthermore Li BESS can operate with new revenue streams on intermittent demand (e.g. marine demand for cold ironing and propulsion, eHGVs demand) or business continuity (e.g. for data centres)

Li BESS also has the ability to capture additional revenues, due to lower cycling costs. The lower cycling cost of Li BESS and technical advantages mean that Li BESS can out compete other technologies in the provision of system services in the future.

Additionally, the lower cycling costs will allow Li BESS to operate at a tighter Bid-Offer spread, increasing revenues from re-optimisation and thereby improving wholesale liquidity and market function, lowering the costs of managing intermittant generation sources and improving the ability of the market to respond to system fundamentals.

To make the assessment more robust NPDL believe using a common revenue forecaster would ensure a consistent methodology across all technologies and strategies and would provide a more robust dataset with which to assess the relative merits of different technologies.

NPDL would argue that the dominance of Li BESS in providing Ancillary Services today will carry through (and possibly accelerate) towards 2030 as deployment increases. Its natural technological and operating cost advantage over other technologies will persist and lead to lower cost provision of necessary system services.

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

Response:

We welcome the inclusion of both monetised and non-monetised impacts, but some of the most important characteristics of Li BESS are undervalued or omitted. Key points to consider:

i) include a specific non-monetised impact metric for response time and controllability, which can be assessed based on project specifications (e.g. ramp rate, cycle duration, inverter response time).

ii) the framework assumes a fixed annuitisation of project costs over useful life, but doesn't distinguish between degradation-linked costs (i.e. cycle dependant for li-ion) vs. static performance in hydro.

iii) missed opportunity to credit Li BESS sites for their geographic location where it adds system value (e.g. constrained geographies or potential for co-location with renewables).

iv) classification of use of Li BESS for further decarbonisation of entire sectors (e.g. Marine which will need additional 7GW of BESS capacity and 11GW if clean generation capacity) and critical business continuity capacity (e.g data centres).

v) the NESO approach is too conservative for fast acting Li BESS and may under value the project's revenue potential e.g. the perfect foresight assumption undervalues BESS flexibility.

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

Response:

The assessment appears focused on wholesale cost savings and energy arbitrage, undervaluing operational flexibility and real-time dispatch contributions.

There is limited recognition of value stacking (e.g. simultaneous participation in balancing and ancillary services). Avoided reinforcement costs and locational constraint value are barely addressed.

Li BESS sites contribution to de-carbonisation of entire sectors (e.g. Marine which will need additional 7GW of BESS capacity and 11GW if clean generation capacity) and critical business continuity capacity (e.g. data centres) is completely missed.

We recommend adding dynamic operational value, constraint alleviation potential, and multi-market participation as explicit evaluation dimensions. These materially affect BESS project value and viability.

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

Response:

The current UK LDES landscape is heavily skewed towards a limited number of pumped hydro schemes. To diversify the UK portfolio and manage risk it is important to support a diverse technology offering in the LDES Cap & Floor scheme. This diversity would better support operational resilience and gain benefits such as the fast response times of Li BESS and their modular nature.

Specific technology/project weighting matters. Strategic value should strongly favour flexibility, speed of deployment, and service diversity. Li BESS are fast to build (under 1 year for construction), can provide multiple grid services daily, and respond within milliseconds. That's strategic.

Flexibility and proven deliverability should outweigh pure technology diversity. Projects that meet multiple needs now — energy shifting, stability, reserve — offer more than those promising future potential.

Transmission-scale BESS deliver this reliably and cost effectively today, with the lowest risk of CAPEX over-runs. Also, modularity enables future expansion and easy replication. Ofgem should prioritise these strategic advantages in scoring.

There's no mention of deployment feasibility, control characteristics, or adaptability to evolving system needs. Strategic value of modular technologies (like BESS, which can be added to or scaled flexibly) is unaccounted for.

We encourage inclusion of upgradeability, deployability, and future service adaptability — areas where Li BESS outperform fixed civil infrastructure.

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

Response:

Include assessment of project future proofing — i.e. the ability to easily expand a project in the future as market/NESO needs evolve.

Include scoring of locational system support value, such as proximity to generation clusters or constraint pinch points and include locational support of wider economic advantages i.e. in areas of data centre clusters and around strategic UK ports.

Potential construction and permitting delays are not treated as strategic differentiators — though they clearly are. Delivery and Capex over-run risk is a strategic factor.

Large-scale Li BESS could be commissioned in phases (e.g. 200MW modules), which would provide early grid value ahead of full energisation.

Li-ion BESS is highly flexible (both in terms of modular nature and revenue stacking) and so can better follow evolving system needs, which should be considered a strategic advantage compared to more fixed technology like pumped hydro.

Large scale LDES projects can enable the deployment of renewable generation assets such as onshore wind

and solar, with the ability store the entire output of these generators during periods of high generation on the local network via a private wire direct connection.

Li-ion BESS has relative environmental benefits that should be considered in the strategic assessment (e.g. no major land reshaping, low visual/landscape impact).

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

Response:

Projects should be scored based on their reliance on floor support (e.g. floor reliance ratio or a payback buffer). Assessment should include not only the expected cost to the consumer, but the spread/volatility around that expectation (particularly for factors such as the likelihood of CAPEX overruns) and the value of the trading strategy for allowing further decarbonisation of the economy.

The financial assessments should differentiate cost of capital to reflect (a) higher merchant exposure in BESS (thus higher equity expectations early on) but (b) lower construction risk than pumped hydro (e.g. shorter timeline).

Project maturity and flexibility should be considered. Li-ion BESS has an advantage that it can phase the build and co-locate with renewables (options for modular expansion at a later stage if needed) whereas pumped hydro is binary (built/not built). As mentioned above, consideration of the construction risk buffer is essential - pumped hydro is more likely to overrun on time and cost.

Consider that BESS augmentation will be at reduced costs and increase in energy density, benefits that will be captured by the periodic review, while pumped hydro cannot benefit by these future cost reductions.
NESO's economic model may understate re-optimisation and BM revenues for Li BESS. Financial assessment should consider allowing robust project supplied revenue forecast data to override conservative modelling.

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

Response:

No, balancing mechanism is a major revenue stream for Li BESS and would earn non-neutral outcomes. Li BESS has much faster response time and control than say pumped hydro. This also has locational benefits for BESS assets in more constrained areas. We would expect Li BESS to achieve significant revenue uplift in such events. Recommend removing or relaxing the neutrality assumption to more accurately reflect the upside that Li BESS would earn.

Prioritising based on total system benefit ensures the most impactful and cost-effective assets are deployed first. Treating projects in isolation risks awarding support to lower-value or less deliverable options. Given the diversity of LDES technologies and capabilities, comparative evaluation is essential to avoid inefficient outcomes.

Ofgem should score projects on core criteria (e.g. system impact, flexibility, readiness, revenue stack, additional impact on economy decarbonisation) and allocate support based on merit — not just pass/fail thresholds. Treating this as a pass/fail risks funding lower-impact or speculative projects at the expense of provable ready to build ones.

The Cap & Floor negotiation should also take into consideration those criteria, for example in creating differentiated incentives to trade over the cap if this is providing more systemic benefits, as not all trading strategies are creating the same qualitative impacts.

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

Response:

The Marginal Additional method is useful for estimating project-specific system impacts, but it is not robust enough in isolation to support final decisions.

The outputs are highly sensitive to dispatch assumptions, and there is a risk this method understates the value of Li BESS compared to pumped hydro. If all projects are evaluated with the same counterfactual but modelled with simplified assumptions, the results may systematically favour technologies with predictable, bulk shifting profiles (e.g. pumped hydro). The Li BESS benefits (e.g. flexibility, dynamic cycling) are more sensitive to input assumptions and can be missed in central models. A de-carbonised grid will require more flexibility and faster response.

The marginal system cost saving will not equal the project revenue nor guarantee project viability. Our financial models are based on actual market-facing revenue streams, and these merchant facing revenues do not always align with the system savings identified by a NESO model. The Marginal Additional method might show high system value to the consumer, but if that benefit isn't monetised by the project directly then the project's actual cash flows may be weak even if the marginal value looks strong and hence a higher cost to the consumer from triggering the floor. Conversely, a Li BESS project may deliver reliable, bankable revenues via BM and arbitrage, but the marginal model may show low system cost savings.

There is a risk that a project with high marginal value might still fail financial close, while one with stronger financial returns might appear marginal in the NESO model. A project might deliver stable but modest system benefit while also earning solid market revenues, meaning it's floor exposure is low and is a low-risk use of consumer support. Conversely, a project might score high system value on paper but if it earns minimal revenues in the market, then it's floor payments will be large and the consumers get less value per £ of support.

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

Response:

Sensitivities on CAPEX should include not just the magnitude of additional CAPEX spend, but the likelihood of that happening.

Model high renewable curtailment periods - in such scenarios Li BESS can better capture and store that surplus energy than pumped hydro.

Include scenarios that test deployment speed, locational revenues and revenue stack diversity.
Include the benefit of being able to cope with the new phenomenon of massive scale intermittent demand, as marine decarbonisation, which will require 32TWh of additional clean electricity, 11GW of grid connection for generation and 7GW of import / export gird connection for LDES BESS.

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Yours faithfully,

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