Consultation response

Long Duration Energy Storage – proposals to enable investment

Response from Regen and the Electricity Storage Network

March 2024

Contents

1 Background and contacts

Regen is an independent centre of energy expertise with a mission to accelerate the transition to a zero carbon energy system. We have 20 years of experience delivering expert advice and market insight on the systemic challenges of decarbonising power, heat and transport. Regen has over 150 members who support our mission, including clean energy developers, businesses, local authorities, community energy groups, academic institutions, and research organisations across the energy sector.

Electricity Storage Network

Since 2018, Regen has managed the **Electricity Storage Network (ESN)**, **the industry group and voice for grid-scale electricity storage in GB**. The ESN has over 90 members who have a shared mission to promote the use of energy storage and flexibility to support the net-zero transition. The ESN membership includes clean energy developers, owners, investors, optimisers, and academic institutions. This includes representation from publicly listed specialist funds focusing on storage and independent developers that have raised several billion pounds to invest in this new technology class.

The Electricity Storage Network has been engaging extensively on Long Duration Energy Storage and hosted a specific members workshop, one-to-one meetings, and our Innovation and Technology working group on 27 February 2024. The points made in those meetings and workshops – as well as feedback from bilateral conversations with members – have fed into this response.

Call for evidence response

Regen and ESN responded to the call for evidence on Long Duration Energy Storage (LDES) launched by the Government in 2021. Many of the messages in that response are still relevant today and fed into our thinking.

Report for the Government on Long Duration Energy Storage

DESNZ commissioned Regen and LCP Delta to assess the optimal level of LDES deployment and the role LDES could play in delivering flexibility requirements in a range of electricity market and system scenarios. A crucial part of this work was to seek stakeholder feedback to inform a modelling study looking at the role of LDES in the future energy system. Using our ESN contacts, Regen conducted an engagement process with leading UK storage technology and project developers, with 25 storage technology developers covering 11 storage technologies, including several ESN members.

The full report is available at: Scenario Deployment Analysis for Long-Duration Electricity Storage. We have also created a short summary blog explaining some key findings (see Figure 1).

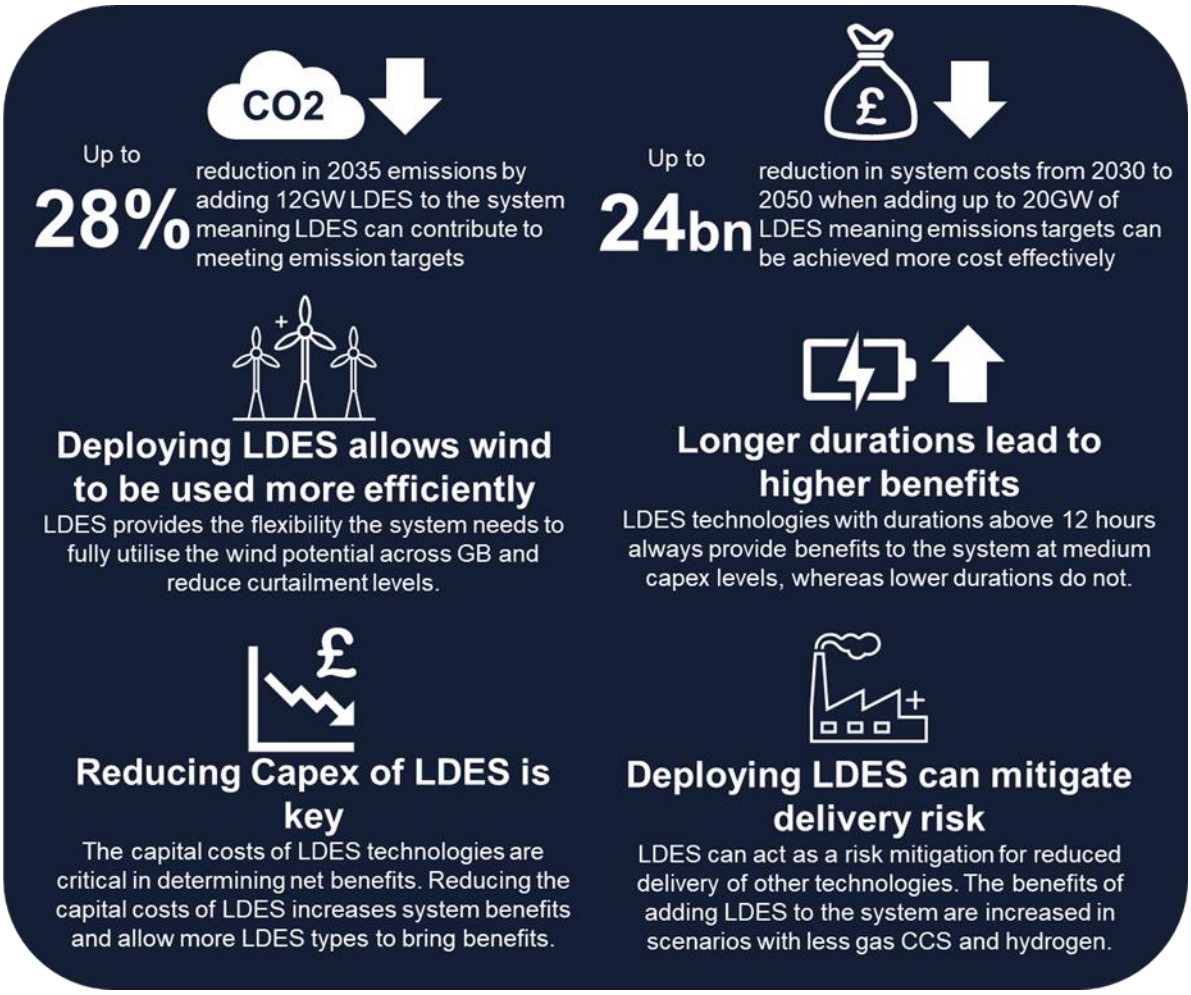

Figure 1: key findings of the scenario report provided to DESNZ

1.1 Continuing engagement

Electricity Storage Network Lead – Olly Frankland

T: 07465 201596 E: ofrankland@regen.co.uk

Associate Director, Regen – Ray Arrell

E: rarrell@regen.co.uk

2 Response to the consultation

We have set out our response to the questions below look forward to working with the DESNZ policy team on the detailed design of the LDES cap and floor scheme over the coming months.

2.1 Response to questions

2.1.1 Addressing barriers to LDES deployment

Q1. Do you agree with the policy objectives that have been identified? Please explain your reasoning.

Q2. Are there other factors we should consider in our policy objectives?

Q3. Will these policy objectives help to bring forward LDES projects to help the electricity system reach net zero in the most effective way? If so, why?

Broadly, we agree with the high-level policy objectives outlined.

We think there needs to be more focus on the requirement for low carbon flexibility that delivers capacity over longer periods of stress on the system with low wind output and the need to replace the services provided by unabated gas. As the report we completed with LCP Delta for Government outlined, "Of GB's total energy shortfalls/excess in 2035, over 50% of TWhs occur in shortfall/excess events lasting more than 24 hours, and over 25% in periods lasting more than 48 hours". This is due to the wind-dominated generation mix being deployed in GB that is impacted by the multi-day/weekly variation of wind patterns.

Ensuring that assets supported under the LDES cap and floor are available when the system requires it (importing or exporting) should be a fundamental aspect of the policy design. The current market framework and cap and floor will not deliver energy security from LDES assets in a future stress event that is longer and more pronounced (e.g. 20 hour duration). See our answer to Question 4 for more details.

The third policy objective states that the policy should "enable investment in large-scale, long-duration electricity storage.". As in our feedback to the call for evidence in 2021, we believe there will need for a diverse set of technologies and different scales to meet the system's needs in the 2030s and beyond. We do not agree only large-scale projects (assumed to be 50 or 100 MW+) should be supported. We believe the system will have significant value from smaller long-duration assets connected to the distribution system. See our answer to Question 9 for more details.

> **Recommendation:** remove large scale from the third policy objective and recognise the benefits of smaller projects connecting at the distribution network level.

2.1.2 Assessment of policy options

Q4. Do you agree with our assessment that a cap and floor is the most appropriate policy option to enable investment and bring forward the required LDES? Please explain your reasoning.

We agree that a cap and floor scheme is the most appropriate route for delivering LDES projects. However, we believe there is a risk that, without further market signals, the intended flexibility from supported assets will not be available to the system when required. There is currently no market signal for the operational assets that will be supported by the cap and floor to be dispatching and helping the system in a longer-term stress event that we will likely see in the 2030s. For example, ahead of a shortfall of energy in an extended low wind event, LDES would need to import energy to be full and ready to dispatch over the period. Therefore, we believe the LDES cap and floor needs to be linked to wider market reform or a new system service from NESO. The expected second REMA consultation, ongoing reforms and future CM-specific consultations are opportunities to develop this thinking.

Another solution could be a bespoke service from NESO that pays assets to import ahead of a tight period, alongside an availability payment. This design would need to be worked on by Government, industry and NESO. The NESO Thermal Constraints Collaboration project is a good model for how this could work and be developed. A shift to specific constraint markets, with long term contracts and short term markets (similar to Balancing Reserve), that is included as one of the options in this NESO project could become a useful market signal for LDES operation.

> **Recommendation:** NESO will need to develop clear market signals, alongside the investment support, to ensure LDES is available when the system needs it in longer term stress events.

We also recommend a new grant funding programme following the successful Longer Duration Energy Storage Demonstration (LODES) grant funding programme under the Net Zero Innovation Portfolio. This will be particularly important to support the commercialisation of more first-of-a-kind (FOAK) technologies and projects that may have missed out on the previous LODES grant funding. This would allow technologies to develop up to the TRL 8 eligibility proposed in stream 2.

> **Recommendation:** Government to develop grant support programme to follow on from the successful LODES programme.

Following the launch of the UK Battery Strategy in December 2023[1], we would like to see further work on developing a thriving UK supply chain for stationary grid scale storage, including wider LDES technologies. We are a member of the Battery Strategy Taskforce that is reforming to advise on the delivery of the strategy, and we would like to see a more prominent role in the development of stationary storage going forward. The supply chain to deliver the LDES needed up to 2035 and 2050 needs to grow and be supported by the Government rapidly. There may be opportunities to build on existing manufacturing capability and develop new sites where appropriate.

> **Recommendation:** DESNZ to work with Department of Business and Trade to support delivery of UK Battery Strategy and wider LDES supply chain in UK.

2.1.3 Scale and scope of an LDES scheme

Q5. Do you agree with our approach to not set an overall scheme capacity?

Following our engagement with members and wider industry, we believe that the Government should outline an overall scheme capacity. This would be a clear signal to the industry that the Government is committed to developing a pipeline of LDES technologies in the long term and allow for the market to respond. While we recognise that this may be more appropriate for further detailed design, there is precedent for targets in the hydrogen production business model[2], interconnectors (18 GW by 2030) and other technology areas. The Government has included a wider need for long-duration flexibility of "at least 30 GW, but potentially up to 50 GW" across hydrogen-to-power, LDES, unabated gas and gas CCUS by 2035 in the consultation, which is welcome. However, the wide mix of technology types included does not provide any clarity to the market.

The previous Afry report and our recent report with LCP Delta recommended around 3 GW of LDES by 2035 as the low-regrets option. And in our Day in Life of 2035 project for ESO in 2022 we suggested up to 5 GW of LDES by 2035[3].

Given the Government's ambition regarding renewable energy deployment and the significant system benefits that LDES can provide, we believe an overall LDES target of a minimum of 5 GW and up to 12 GW by 2035 is more appropriate. This would send a clear message to investors and the wider industry that this group of technologies will be supported in the long term, helping to reduce uncertainty and allowing the supply chain to ramp up in response to the ongoing development of these technologies.

[1] Department for Business and Trade, 2023 https://www.gov.uk/government/publications/uk-battery-strategy/uk-battery-strategy-html-version

[2] DESNZ, 2024 https://www.gov.uk/government/publications/hydrogen-production-delivery-roadmap

[3] Regen, 2022 https://www.regen.co.uk/publications/a-day-in-the-life-2035-second-edition/

> **Recommendation:** Set target of an overall scheme capacity of a minimum of 5 GW and up to 12 GW of LDES by 2035.

Following discussions with our members, we recommend that the Government should develop a set of system needs 'pots' alongside an overall target. This would include GW capacity and requirements ranges in separate pots of system need (providing an approximate GWh storage capacity). For example, X GW of 8-12 hour duration, X GW of 12-24 hour duration, X GW of 24-48 hour duration and X GW of 48-100 hour duration storage. The ranges of these pots could be included and updated over time and in response to the changing needs of the system. This would provide more clarity to the market and allow the Government to focus support on LDES projects that meet system needs and significantly reduce carbon emissions.

The needs assessment would need to be developed by the NESO and aligned with the Strategic Spatial Energy Plan. The latter will be crucial in identifying what scale of LDES projects (and other storage types) we will need to deliver on our 2035 power decarbonisation target and where they should be located. This should include short/medium duration electricity storage. There will also be a need to integrate with the NESO-managed Regional Energy Strategic Planners focused on the distribution network. We called for this strategic approach in our REMA response in 2022[4].

> **Recommendation:** Government should work with NESO to develop pots of LDES requirements for different duration ranges (e.g. X GW of 12-24 hour duration) and share this with the market.

We repeat the recommendation to set a target for grid-scale electricity storage capacity overall that we included in our response to the UK Battery Strategy in October 2023[5]. We have the existing National Grid Future Energy Scenarios as a guideline to inform the levels of storage required, and we understand these scenarios are changing under the shift to NESO in 2024 and beyond. This overall target would sit above the pots of requirements for different durations that we have already outlined and should be a key part of the upcoming NESO Strategic Spatial Energy Plan.

[4] Regen, 2022 https://www.regen.co.uk/publications/regens-rema-consultation-response/

[5] Regen/ESN, 2023 https://www.regen.co.uk/wp-content/uploads/UK-Battery-Strategy-Electricity-Storage-Network-response-FINAL.pdf

> **Recommendation:** The government should set an overall target for grid-scale electricity storage capacity for 2035 in collaboration with NESO and industry.

Q6. Have we sufficiently identified wider risks and do you agree with the proposed mitigations? Please provide your reasoning.

It is important to assess any unintended consequences of the LDES cap and floor on wider markets and build out of projects. Over 120 grid-scale battery sites are now installed across GB, totalling 3.6 GW and 4.7 GWh. 2023 was a record year for deployment, with 1.5 GW installed. Deployment is set to remain strong in 2024 and some estimates are we could have 6 GW installed by the end of the year[6], an investment of approx. £920 million. The wider pipeline of Pumped Hydro is around 7 GW (with 4 sites with planning) and there are 150 MW of Liquid Air Energy Storage projects with connection offers. We have developed a pipeline dashboard focused on assets with contracted connection offers across transmission and distribution, available here.

The industry developed this pipeline of grid-scale electricity storage without any subsidy and relies on the revenues from the current and future market and services framework. While the GB market is still very popular there have been well-publicised concerns regarding the current revenue levels in recent months.

If a significant intervention in the market, from adding revenue support via a cap and floor to a specific set of new LDES projects, is not well designed it could impact the business case for the pipeline of electricity storage projects in the UK and lead to investors moving to other international markets. This should be part of an impact assessment of the LDES cap and floor scheme alongside future consultations expected in the coming months.

> **Recommendation:** The government should assess the unintended consequences of the cap and floor and impact on wider market and deployment, publishing a detailed impact assessment in future consultations.

A clear message from the Regen and LCP Delta report was the benefit of LDES increases if there are delays to the deployment of hydrogen to power projects and gas carbon capture and storage (CCS). Or they are more expensive to deploy, and the learning curves are slower than predicted. Given hydrogen to power and gas CCS have not yet been deployed at scale it would be prudent for Government to

[6] Modo Energy, 2024 https://modoenergy.com/research/q4-update-2023-battery-energy-storage-revenues-balancing-mechanism-ancillary-services

increase the ambition for storage capacity deployment, including LDES, to mitigate the risks associated with these technologies.

> **Recommendation:** Government should plan for the possibility that hydrogen to power and Gas CCS will not come forward at the speed or scale expected and increase the ambition of LDES deployment setting a target of a minimum of 5 GW and up to 12 GW by 2035.

Q7. Do you agree that only those technologies that meet the electricity storage definition should be eligible for an LDES scheme?

Yes. We agree that this definition should be used. The ESN developed this wording, and we were delighted that the definition was finally included in the Energy Act 2023.

Q8. Do you agree that it is appropriate to exclude technologies that can already be funded under existing market arrangements and/or those that would be eligible for multiple business model support?

No. Support mechanisms should be technology-agnostic and not exclude specific technology types (Li-Ion in this case). A competitive and technology-agnostic approach focused on system needs has reduced costs for consumers and led to the development of a world-class market for low-carbon flexibility providers in GB.

For example, in principle, a one-hour duration 100 MW (100 MWh) battery storage site can be operated as a 100-hour battery if split into 1 MW segments. Equally, technologies designed to have much longer storage durations, such as pumped hydro, can also provide shorter term intra-day flexibility requirements.

Whilst Li-ion projects to address short term flexibility requirements are investable in the current market, designing these systems to address longer term storage needs is not.

If we design the right support system to signal the system needs and the appropriate market signals to deliver at the right times then the market can be left to respond with the most effective technology mix to deliver those needs. Government should not be picking between technologies.

As stated in Question 5, we would like to see DESNZ focus on work with NESO to develop storage 'pots' and LDES requirements for different duration ranges (e.g. X GW of 12-24 hour duration) and share this with the market rather than exclude specific types of technology from the proposed cap and floor scheme.

> **Recommendation:** The Government should use a technology agnostic approach to the LDES cap and floor scheme focused on system needs informed by NESO.

Q9. Do you agree with our proposal for a minimum duration of 6 hours? If not please provide a rationale.

We agree with the Government's decision to upgrade the definition of LDES from four hours as previously defined in the call for evidence in 2021. However, we do not think this has gone far enough. We suggest a minimum duration of eight or perhaps ten hours would be more appropriate. The latter aligns with the US Department of Energy, which is developing and supporting ten hours plus[7]. The analysis completed in our report with LCP Delta found the longer the duration of assets installed, the more system and carbon benefits to the system, "The modelling shows that adding LDES to the system can have a positive impact on both emissions and the system costs, with the duration of deployed LDES being the biggest factor in the size of that impact"[8].

There is a link between the duration and CAPEX of an installed LDES project. And while this link is much less pronounced in some technologies compared to grid-scale batteries, it remains a factor. By starting at a six-hour duration, there is a risk that many projects that apply for a cap and floor aim for the lower end of the duration requirements, close to six hours. This does not necessarily align with wider system needs and longer-term stress events that will become increasingly common in the 2030s. And while this can be tempered by the pre-qualification and assessment process, we consider it remains a risk.

For more details, see the answer to Question 5.

> **Recommendation:** Set an 8 hours+ duration eligibility criteria for the LDES cap and floor scheme, an overall target and pots of requirements that align with system needs.

Q10. Do you believe we should be setting a minimum efficiency criterion? Please provide your reasoning.

We do not believe a minimum efficiency criterion should be used. However, we believe that Round Trip Efficiency (RTE) should be used in the assessment process for identifying sites that should receive support. And perhaps alongside this an assessment of the Levelised Cost Of Storage (LCOS) together with system value analysis, which would consider various factors, including round-trip efficiency.

> **Recommendation:** We do not suggest the use of a minimum efficiency in the eligibility criteria. But we do think that it should be a factor in the assessment process per site.

[7] US Department of Energy, 2024 https://www.energy.gov/eere/long-duration-storage-shot

[8] DESNZ, 2024 https://www.gov.uk/government/publications/long-duration-electricity-storage-scenario-deployment-analysis

Q11. Do you agree with the proposed approach to splitting the streams by TRL level? Please provide your reasoning. If not, please suggest an alternative approach.

Q12. Do you agree with the different capacity minima set out for the streams? Please provide your reasoning.

We agree with setting different capacity minima per stream and using TRL levels as a basis for splitting streams. One comment we have had from our members is that providing clear evidence on the TRL level can be challenging. And that any assessment may risk being subjective. However, we believe this risk can be mitigated with the appropriate methodology.

For Stream 2, we believe that the 50 MW+ threshold is too high and there is a need to drop this minimum. From engagement with our members, we believe a 10 MW+ (rather than 50MW+) threshold for Stream 2 would be more appropriate. This is for four main reasons:

- Firstly, the maximum level of capacity of any LDES technology successful in the LODES competition was 10 MW[9]. Therefore, it would seem pragmatic to follow on from this level.
- Secondly, the jump between the current project being supported by LODES to financing commercial 50 MW projects is too large. For example, a 50 MW project will likely be a £100m CAPEX project. Obtaining debt and equity funding for this project scale, with an emerging technology at TRL8, would be challenging with bankability and insurance costs a particular concern.
- Thirdly, delivering several smaller 10 MW+ projects in parallel will help technologies shift from TRL 8 to 9 faster than one larger 50 MW+ project. Learnings can be shared from each project to help the development of the technology.
- And finally, the lower limit will help to support more sites connecting to the distribution network where a large share of the renewable energy capacity is connected and there will be ongoing system needs.

> **Recommendation:** For stream 2 we suggest a 10 MW+ (rather than 50 MW+) eligibility threshold would be more appropriate.

We are aware of approximately 7 GW of pumped hydro in the pipeline (around four sites with planning), 150 MW of Liquid Air Energy Storage, and a small amount of Compressed Air Energy Storage. One concern we have received from members is that many sites often have 49.9 MW or 99.9 MW

[9] DESNZ, 2024 Longer Duration Energy Storage Demonstration (LODES) competition (closed to applications) - GOV.UK (www.gov.uk)

connection capacities, and we would like it to be clear that these sites will be rounded up and included in the respective streams when we move to detailed design.

Q13. Do you agree that the identified wider system benefits should be considered when assessing a project?

We strongly agree with this approach. As in our answer to Question 5, we think the cap and floor scheme should be closely aligned with system needs. This should take the form of the Government working with NESO to develop pots of LDES requirements for different duration ranges (e.g. X GW of 12-24 hour duration) and share this with the market. This needs to be closely aligned with the Strategic Spatial Energy Plan in development. The initial figures with ranges may need to be updated as the energy system evolves and existing high-carbon thermal plants come offline. By sharing more details with the industry and being more prescriptive on where and what type of system needs are trying to be solved by LDES upfront, we will avoid effort and resourcing from unnecessary applications from the market and streamline the process.

Q14. Would an approach similar to that of the interconnector scheme be appropriate? If not, what alternative would you suggest?

The interconnector scheme has a clear target for capacity to be achieved by 2030, and the process has improved and been amended over time. We would like to see both of these aspects emulated in the LDES scheme.

However, the recent example of the potential rejection of 6 out of 7 interconnectors in window three at the initial project assessment stage is not something we would like to see replicated. Providing more clarity to the market on the system needs and locations where LDES would be required would help avoid this situation. See our answer to Question 5 for more details.

Q15. Are there any wider economic and societal benefits that have not been identified that LDES projects could provide that we should include in the criteria?

While it is implied by the scheme's initial design, we believe that low-carbon technologies should explicitly only be eligible for the scheme. A further eligibility factor should be added that excludes technologies that are not in line with our target for a zero carbon emissions power sector.

> **Recommendation:** Add a carbon focused eligibility factor to ensure the cap and floor is only focused on low carbon technologies.

Q16. Do you agree with allowing recovery of debt via the floor and recovery of equity via the cap? Please provide your reasoning.

For more mature technologies, we agree with using the cost of debt as the floor. However, one of the points made by our members is that setting the floor at the cost of debt could incentivise projects into overleveraging their projects. We think this risk can be managed in the next phase of detailed design. And there could be a role for the UKIB in benchmarking debt levels in existing deals outside of the cap and floor.

For Stream 2 and lower TRL technologies, the risk associated with investment is considerably higher and, therefore, requires a greater ROI than mature technologies to be attractive to project investors. We would like to see a more generous scheme design for the lower TRL stream to motivate project finance players to provide funding for TRL 8 projects. Perhaps with a higher floor through a separate assessment/criterion. Given that Stream 2 should fund no more than 2-3 projects per technology type before increasing to TRL 9 (Stream 1), we do not think this change will considerably increase the costs.

> **Recommendation:** We support a different floor assessment methodology in stream 2 to take into account the additional investment risk.

We believe a soft cap would be the best design, allowing the project owner to keep a reasonable share of the revenues above a cap. This could be implemented in various ways, e.g., an attenuating gross margin split above a revenue threshold.

> **Recommendation:** We support the option of applying a soft cap, subject to reviewing the detailed design.

.

Q17. What costs should be eligible for inclusion in the cap and floor reconciliation calculations?

No answer provided as this will be a key part of the detailed design process.

Q18. How do we design the thresholds to be at the appropriate level to balance investment certainty with potential consumer exposure to additional support costs?

No answer provided as this will be a key part of the detailed design process.

Q19. Should we require projects to outline how they intend to operationalise the asset to exceed the floor?

No answer provided as this will be a key part of the detailed design process.

Q20. Do you agree using annual gross margin is a suitable approach to setting the cap and floor thresholds? If not, what alternative would you suggest?

We believe that gross margin is a reasonable approach to setting the cap and floor. However it is hard to comment at this early stage of policy development on how this will work in practice. We suggest that any deemed index would need to vary by technology type and each stream. And we look forward to engaging with DESNZ on this topic in the detailed design process.

Q21. What performance incentive could be used to encourage full operation of assets to prevent dispatch distortions around the cap?

See answer to Question 28.

Q22. What performance incentive could be used to encourage full operation of assets to prevent dispatch distortions relating around the floor?

See answer to Question 28.

Q23. Do you agree with our proposed mitigations, or would you recommend others?

No answer was provided as this will be a key part of the detailed design process.

Q24. Have we identified relevant operational risks associated with creating an LDES investment scheme?

No answer was provided as this will be a key part of the detailed design process.

Q25. Are our proposed mitigations sufficient for mitigating the operational risks, like gaming? Please provide your reasoning.

No answer was provided as this will be a key part of the detailed design process.

Q26. Do you agree that the cap and floor scheme should be allocated administratively?

In general, we think that a competitive process and allocation provides lower costs to consumers and a better industry outcome. We would like to see competitive allocation included as an option in further assessment of the scheme and detailed design. A possible compromise would be for a competitive process in Stream 1 with an administrative process in Stream 2.

Q27. Do you agree that the length of a cap and floor contract should be based on the project length?

This is a crucial aspect of the design of the scheme and will have significant implications on the value of the contract. We would like to see more detail on how project lifetime is defined, as there are significant variations that could be included between different technology types. It may be best to specify per technology.

In addition, refurbishment and repowering are key aspects that need to be considered in the next phase of detailed design.

> **Recommendation:** Government to prioritise providing more detail in the detailed design on how the project lifetime will be defined and how this will impact contract length.

Q28. Do you agree that cap and floor recipients should also be able to participate in other electricity markets, such as the CM? Please provide reasoning.

We agree that assets supported by the cap and floor scheme should be able to participate in other markets. This principle that these assets should be playing in wider markets and maximising revenues is a valid one. But we would highlight our answer to Question 6 and the potential for unintended consequences on those markets.

We have been asking for several reforms in the Capacity Market, see recent consultation responses to DEZNZ[10] and Ofgem[11]. The Capacity Market is becoming less and less fit for purpose and needs to be reformed.

As we mention in our answer to Question 4, we think that a reformed Capacity Market contract could be one option for ensuring that the operation of the LDES assets is available when the system requires it. We need to signal and incentivise the behaviour of the asset to get the system value from the asset at timeframes that work for NESO and deliver improved energy security. These changes are likely to come under the future work of REMA and wider Capacity Market consultations.

[10] Regen & ESN, 2023 https://www.regen.co.uk/regen-and-esns-response-to-phase-2-of-the-governments-capacity-market-consultation/

[11] Regen & ESN, 2024 https://www.regen.co.uk/consultation-response-ofgems-ten-year-review-of-capacity-market-rules/

> **Recommendation:** We agree that LDES assets should be able to access wider markets and services, as long as they are available when the system is under stress and this will require a new market signal.

Q29. To what extent could finance be needed from the UK Infrastructure Bank or elsewhere, alongside the cap and floor scheme, to help address barriers to investment in LDES?

The Electricity Storage Network has been engaging with the UK Infrastructure Bank over recent months, including presentations and discussions at our innovation and technology working group and winter conference in November 2023.

There is a clear role for the UKIB in the development of the LDES projects and they have been actively engaging the industry on deals in this space. We believe there is a risk that the cap and floor scheme is too focused on bringing new projects forward from 2025 onwards and that this could undermine existing and current investments that are being confirmed. Enabling UKIB investment to be recycled into other projects would be a better outcome for the industry and UKIB.

> **Recommendation:** Work with UKIB to understand how existing investment will be recycled ahead of the LDES cap and floor implementation in 2025.

Q30. Do you agree that the proposed pre-qualification criteria are reasonable for both streams? Please provide your reasoning.

No answer was provided.

Q31. Are there additional pre-qualification criteria that should be considered to establish the eligibility of a project?

No answer was provided.

Q32. If you have an LDES project in the pipeline, how would these eligibility parameters affect your project's application?

No answer was provided.

Q33.What time length would you recommend for conducting reviews of cap/floor threshold (e, g, annual or multi-year)?

A multi-year solution would be more beneficial, allowing the smoothing of revenues over a longer timeframe. This should mean less intervention from the body running the scheme as the floor and cap are less likely to be breached, reducing administration costs. We suggest three years would be a reasonable timeframe to review the cap and floor thresholds, similar to the interconnector approach.

> **Recommendation:** Use a multi-year (three-year) approach to reviewing the cap and floor thresholds.

Q34. Do you agree that an exceptional event should be considered as part of the review of the cap/floor? Please provide your reasoning.

No answer was provided.

Q35. What criteria could a proving period for LDES be based on?

No answer was provided.

Q36.Do you agree that target start dates should be set? If not, please explain why.

No answer was provided.

Q37. Are there any other parameters that we should be considering in the design of the scheme?

There is no mention of co-location in the consultation regarding multiple types of storage technology, demand and renewables being located together with LDES. We have welcomed the further guidance for co-location provided on the Contracts for Difference (CfD) scheme[12]and believe there are clear opportunities for the co-location of LDES under the proposed cap and floor. For this to occur Government will need to provide guidance on LDES co-location, including but not limited to the following:

- Co-location definition and grid connection arrangements (transmission Grid Connection Agreements can currently only be assigned to one SPV)
- Details of any impacts on co-located renewable energy with CfD and Renewables Obligations supported assets
- Impacts on any ancillary service and other market participation.

[12] Low Carbon Contracts Company, 2023 https://www.cfdallocationround.uk/publications/cfd-co-location-generator-guidance

Overall, it is crucial that the design of the cap and floor schemes does not create any barriers to the co-location with renewables and other forms of energy storage.

> **Recommendation:** Ensure LDES co-location with renewables and other types of demand and storage is enabled in the detailed design process with clear guidance and definitions.

2.1.4 Delivery routes

Q38. What are the important factors for deciding who is the appropriate body to bring forward this scheme?

The key factors are the speed of delivery, experience from other schemes and resources available. And while we believe that both options are tenable. The key priority is delivering a workable solution in the shortest period, allowing applications to open in 2025. And as we don't have the internal information on the preparedness and capabilities of each option, it is difficult to assess the appropriate body.

Our preferred option would be the DESNZ option alongside Low Carbon Contracts Company (LCCC). The main reason is that the interconnector windows managed by Ofgem have dealt with relatively small numbers of projects. We expect that the proposed cap and floor scheme will deal with many more than in the interconnector example from a wider range of technologies - particularly in Stream 2. This lends itself to an organisation more experienced at dealing with many applications in specific auction rounds. This is where the LCCC has knowledge and experience from the Capacity Market and Contracts for Difference frameworks.

We believe that the knowledge and experience from the management of the interconnector scheme in Ofgem could be efficiently shared with DESNZ and LCCC, including the existing guidance and processes. However, there would need to be significant changes and updates to this process to make it appropriate for LDES.

Regarding resourcing, we believe that DESNZ, alongside the LCCC, would be in a better place to build the capabilities rapidly, alongside third-party support, to deliver the scheme.

> **Recommendation:** Our preferred option for delivery is DESNZ alongside the LCCC. However, the most important factor has to be speed of delivery of the scheme, and this should inform any final decision.

Q39. Would either of the delivery routes set out affect the investment case for LDES projects?

No answer was provided.

Q40. Are there any additional benefits or risks to a delivery route that have not been identified?

No answer was provided.

Q41. Do you believe TNUoS charges should be used if the scheme is administered by Ofgem (option 1)? If not, please provide your reasoning and/or an alternate method.

We do not believe TNUoS charges should as a way to fund the mechanism. These charges are used to recover the costs of installing and maintaining the transmission system, and LDES is a significant departure from other aspects funded by TNUoS (e.g. interconnectors).

In addition, the current TNUoS regime is uncertain and in a state of reform with several significant modifications underway that would change how TNUoS is charged to storage projects. NESO has formed a new storage group to guide Ofgem on necessary reforms. We also believe that using TNUoS would be slower than the other identified option, potentially delaying the scheme development and rollout.

Funding the scheme through the supplier obligation levy will likely be a more transparent way of passing the scheme's cost through to consumers. Funding LDES through the supplier obligation levy is also more consistent, given this is the principal route for funding other new generation (CfDs) and the Capacity Market amongst other things.

> **Recommendation:** We do not believe the use of TNUoS charging is an appropriate way of funding the scheme and suggest the Supplier Obligation levy is better suited.

Q42. Do you believe a supplier obligation levy should be used if the scheme is administered using a CfD-style approach (option 2)? If not, please provide your reasoning and/or an alternate method.

See answer to Question 41.

Regen and Electricity Storage Network
Bradninch Court, Castle Street, Exeter, EX4 3PL
01392 494399