Department for
Business, Energy
& Industrial Strategy

STORAGE AT SCALE

Demonstrating Innovative Energy Storage at Scale

Clarification Questions & Answers

April 2019

This document covers questions that prospective applicants have asked about the Storage at Scale Competition.

General

1. **Will BEIS target 3 projects or if there is one project which clearly meets the criteria, will they consider allocating all funds to one project?**

   Two energy storage technology areas are within scope of the competition – Electrical Energy Storage and Power-to-X. BEIS aims to allocate funding to at least one project in each area.

   BEIS will allocate funding according to scoring against the Assessment Criteria. An overall application ranking list will be determined at the Moderation panel during assessment. This will be used to determine the selected projects. The total allocated funding may be less than total competition budget. Lower scoring projects in different technology areas may be allocated funding to widen support. Individual project allocation may be less than bid for in the application proposal.

2. **Please can we have a meeting with BEIS?**

   We are happy to answer your questions over email if submitted by the 3rd of April 2019. Clarification questions which do not have commercial sensitivities will be published on the Competition website to ensure transparency. In the interest of fairness and transparency, we are unable to hold face-to-face meetings to discuss prospective applications during the application preparation period. We cannot guarantee to address queries submitted after 3 April.

3. **We have been rejected a number of times for funding applications: would you accept another application for it?**

   Each application submitted is considered independently from previous competition applications. Your application will be assessed against the criteria of this competition.

4. **How was the competition timescale determined?**

   The Storage at Scale competition design was informed through stakeholder consultation and by the Energy Storage Feasibility Studies that were completed in 2018. We appreciate that projects have external dependencies, which is why the project has an additional 9 months available from build completion (by March 2021) to conduct operational testing (by December 2021).

   As Grant funding is restricted to March 2021, due to Government spending period constraints, match funding can be retained to deliver the operational piloting,

testing and validation (and related dissemination, reporting and payments) if these activities occur post March 2021.

5. **What needs to be demonstrated by 31 March 2021?**

All build work must be completed by 31 March 2021, with proof of no further infrastructural work required. All reporting and knowledge dissemination activities covering the project to this date must also be completed by 31 March 2021. Operational testing is not required by this date.

The demonstrated technology must be operational and able to start piloting its impact by 31 December 2021. The technology should demonstrate that it has the capability to interact with the market by end December 2021. Full participation in markets must only occur after project closure.

6. **How will Energy Systems Catapult and Ofgem support this call?**

BEIS are in regular liaison with Ofgem. The ESC may wish to bid with you as part of a consortium.

7. **We are aware that funding isn't available for technologies that 'has received UK, EU or other grant funding for a project at similar scale'.**

We plan to deploy a solution which we do not believe has been deployed on a similar scale. However can you please confirm if this solution is compliant with the grant terms and has not received other grant funding at a similar scale?

Ineligibility due to previous grant funding for technology demonstration at a similar scale is specifically in relation to the applicant's technology proposal. If you haven't demonstrated your technology solution at a similar scale before then you are eligible for this grant funding.

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8. **"Section 5e. Please provide your past 3 years' financial statements and/or if not available letters of support."**

Can the Financial statements and the letters of support be provided as attachments? Instead of being copied/pasted into this section?

It is fine to submit the Financial statements and Letters of Support as attachments, however, please clearly title the documents and reference them as Annexes in your proposal.

9. **Please can you clarify the difference between question 1b and 1c?**

- 1b's focus is on what the whole system innovation is and how this innovation results in your technology being competitive with other solutions within the field;

- 1c focuses on the scale of the performance improvements of specific parameters that will be achieved through the project. A strong answer would highlight the TRL transition and also highlight how your parameters compare to other technologies in the field.

10. **Section 5D "Please provide your Business Plan Executive Summary and Financial Model". Is the business plan specific to the project or the company?**

A strong application will provide a Business Plan Executive Summary for the company, highlighting how the project is factored in to the overall plan. The Financial model will demonstrate the impact of the project on the overarching business plan.

The main purpose of the business plan / financial model is for bidders to demonstrate to BEIS that they have developed a robust plan for financing and delivering the proposed project and to set out their financial and commercial assumptions for the ongoing business. If the bidder has developed their project plan/model as part of an overall business undertaking, then it is up to bidders to demonstrate the robustness and deliverability of both the business and the specific project.

11. **The guidance notes state that the project outputs must be "widely disseminated through conferences, publication, open repositories, or free or open source software". Is there an expectation that these dissemination activities will be local, national and/or international; and will outreach activities involving non-experts also be expected.**

The knowledge dissemination activities must adhere to the State Aid Article 25(6) definition as detailed in your question. It is for project teams to determine the knowledge dissemination plan, however, please note GBER practical guidance recommends results to be disseminated to the widest extent possible, at national as well as EU level.

For Criterion 6 highest marks will be awarded to proposals which have clear dissemination and knowledge-transfer plans and resources to deliver them.

12. **Are you able to advise whether there is likely to be a follow up energy storage at scale competition?**

Currently there are no planned follow up energy storage at scale competitions. However, we are scoping potential future innovation support to feed into the Spending Review, which we welcome feedback on via email (smart.innovation@beis.gov.uk).

Competition Scope

13. **Why has "Proof of concept" not been allowed within scope of the competition?**

BEIS have conducted previous programmes to support proof of concept, cost reduction and smaller-scale demonstration. The Storage at Scale competition has been developed based upon previously funded BEIS feasibility studies, as well as stakeholder feedback that "there are technologies if only a large enough grant was available".

We welcome further feedback on potential future innovation support to feed into the Spending Review – please email us at the competition email address (smart.innovation@beis.gov.uk).

14. **We propose to undertake an initial professional FEED and run trails through electronic simulation before we put kit on the ground. Would this FEED and electronic simulation and trails be eligible under the call?**

Yes, the FEED, electronic simulation and trails would be eligible under the call, depending on the project proposal meeting other eligibility criteria (such as current TRL). BEIS would expect the activities to be stated clearly in the proposal's project plan against milestone dates. Please note – to be eligible in the competition the final deliverable of the project must be the operational energy storage technology.

To strengthen your proposal it may be useful to conduct some preliminary simulations to demonstrate project feasibility.

15. **If we use surplus electricity to generate heat is that eligible?**

Only if heat is stored and re-converted back to electricity. Thermal energy storage is not within scope of the competition. Electrical Energy storage must be electricity in / electricity out.

16. **We understand that conventional pumped hydro is not within scope. We have a combination of tidal plus pumped storage. Is this eligible?**

As an electricity in / electricity out technology, the project would be eligible, depending on meeting other eligibility criteria. Eligibility will depend on a number of factors, e.g. technological readiness level and the overall project structure. Projects where the great majority of storage capacity is provided by the non-conventional technology are likely to score higher against Criterion 1 ("Innovative technology demonstration, performance improvement and cost reduction").

17. **Can I have funding for a technology that starts with steam, converts to electricity and then proceeds to store and return as either electricity or X?**

Yes, but the defining feature of all eligible technologies is that the input is in the form of electricity. So, funding would be available for the input electrical elements onwards (i.e. after the initial steam conversion process).

18. **Is all pumped liquid energy storage out of scope?**

No, it is only conventional, commercially exploited or widely deployed pumped-water energy storage that is out of scope. Technologies using alternative fluids, which meet the eligibility criteria, are within scope of the competition.

19. **What are the restrictions on battery technology?**

BEIS will not fund projects using technologies which have been widely deployed or widely commercially exploited. This therefore rules out several widely deployed battery chemistries and conventional pumped water hydro, but not, for example, flow batteries or new battery chemistries (as long as they are sufficiently advanced in developed to meet the technology readiness criteria for this Competition).

20. **Is Lithium-ion excluded as a class of battery, including new Lithium technologies such as solid state electrolyte?**

The competition is open to novel energy storage technologies. Non-conventional lithium energy storage technologies are eligible e.g. solid state electrolyte, if they meet the other eligibility criteria (e.g. a minimum technology readiness level of 6).

21. **Are li-ion hybrid technologies eligible?**

In principle such projects may be eligible. It will depend on a number of factors, e.g. technological readiness level and the overall project structure. Projects where the great majority of storage capacity is provided by the non-conventional technology are likely to score higher against Criterion 1 ("Innovative technology demonstration, performance improvement and cost reduction"). Projects where the majority or a significant proportion of the storage capacity is provided by conventional, widely deployed or commercial technologies will not be eligible.

22. **Given the complexity of the solution to be developed please advise**

(a) If funding for a feasibility study only would be eligible for an award providing BEIS was convinced of the quality and competence of the consortium developing the feasibility study. Or,

(b) would BEIS consider the design and development of the control software system and financial model as eligible for a competition award based on the whole energy system premise.

The Storage at Scale competition is for Demonstration, not for feasibility studies. A key deliverable of the project will be the development of a demonstrator and this is a requirement for the award of funding. BEIS conducted feasibility studies for large scale energy storage in 2017/2018; you can view further details of the closed competition here. The Storage at Scale competition was designed drawing on the feasibility studies findings, as well as discussions with stakeholders.

A key deliverable is the demonstration of the energy storage technology, therefore the delivery of the software and financial model without accompanying storage technology would not be an eligible proposal. We recommend reaching out to potential project partners to collaborate with, utilising networks such as the Knowledge Transfer Network.

23. **Can you define "pumped heat"?**

Electricity is used to drive a storage engine connected to two large thermal stores. To store electricity, the electrical energy drives a heat pump, which pumps heat from the "cold store" to the "hot store". To recover electricity the heat engine is reversed, and drives a generator. The engine takes heat from the hot store, and transports it to the cold store, producing mechanical work which drives a generator.

24. **If the output is both electricity as well as heat, is that eligible?**

Yes, however assessment scoring will depend on the overall business case you propose and that the electrical output is substantial. The levelized cost of storage calculations will be based on electrical energy generated.

25. **Can you have high temperature process heat in / electricity out?**

No. The defining feature of all eligible technologies is that the input is in the form of electricity.

26. **If our product delivers both electrical and heat output, are we power-to-X or electrical storage?**

You would be considered electrical in / electrical out i.e. Electrical Storage.

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27. **Would a new innovative flywheel energy storage system be eligible for the competition?**

We welcome proposals for novel, non-traditional energy storage technology solutions. Non-conventional energy storage technologies are eligible e.g. your innovative flywheel energy storage system, if they meet the other eligibility criteria (e.g. a minimum technology readiness level of 6; not widely deployed).

Technology Parameters

28. **The guidance notes (section 4.1 1) on page 11) exclude energy storage technologies already deployed at large scale 'from 10MW/10MWh for electrical energy storage'. Is this '10MW and 10MWh', or '10MW or 10MWh'?**

This is the latter - 10MW or 10MWh.

29. **Is there a particular reason for BEIS specifying systems with no minimum power/capacity?**

The range of technologies and use cases within scope of the competition require different minimum power/capacity metrics to be feasible technically and financially. Stating both a target minimum power and capacity for electrical energy storage technologies may limit the identification of innovative solutions.

The minimum electrical energy storage technology parameter is either 30MW or 50MWh. If your technology meets either of these minimums it is eligible for the competition, depending on meeting other eligibility criteria. However, please note that to achieve highest marks against Criterion 1 (Innovative technology demonstration, performance improvement and cost reduction) the technology must "demonstrate a robust and competitive levelised cost of storage, taking into account performance and lifecycle cost information and other technology benefits" which will take into account both capacity and power.

30. **Do you own analysis of how you would treat two technologies with same round-trip efficiency.**

Round trip efficiency is only one technical parameter that will be considered, alongside many other assessment areas e.g. financial viability. Technical advisers in BEIS will consider treatment of like-for-like performance as part of the assessment.

31. **For energy storage, the minimum energy is 50MWh and the minimum power is 30MW:**

(a) What is the minimum capacity (MWh) for the 30MW requirement?

(b) **What is the minimum power (MW) for the 50MWh requirement?**

The eligibility criterion specifies that the projects must meet **either** the target minimum of 30MW power output **or** 50MWh capacity. Therefore there is no minimum capacity requirement if the target minimum output power of 30MW is achieved, and no minimum output power requirement if the target minimum capacity of 50MWh is achieved.

The minimum scale is either 30MW or 50MWh. If your technology meets either of these minimums it is eligible for the competition, depending on meeting other eligibility criteria. Duration and scale of storage are both assessed.

32. **The guidance notes mention use of a BEIS LCOS model. Please could you share the equation/model being used for this (as we are aware of at least two LCOS methodologies, which use different formulae).**

A model based on standard LCOS methodology will be used. Please see Annex A of this document for the formula.

Please note this LCOS model and its use cases have been designed specifically for the parameters of the Storage at Scale competition to enable comparison of proposals. The LCOS model and use cases do not represent government policy. BEIS are aware that project team proposals may have different use cases and are asked to submit their own LCOS value in the application form (table 1b). However the use cases set out in Annex A will be used to ensure equal comparison across the competition submissions.

Location

33. **Is the idea that prior to submitting the application we need a secured site? Or can we have say 3 sites currently under negotiation. And we could present three different programmes / Gantt charts for each location? as well as letters of support?**

If the deployment of your energy storage solution at different proposed sites is at a different scale and has different interactions with key stakeholders (e.g. generators, consumers etc.) and distinct business models we would expect separate applications to be submitted for each site solution. BEIS would consider

these as unique projects, and would assess the project team capability to deliver multiple projects if multiple proposals were successful.

A strong proposal would have a site secured for demonstration, however, we are aware that these agreements may not be finalised until confirmation of award. Therefore, letters of support from site owners would be required to confirm commitment to the project.

34. **Can an international entity apply with the intent of establishing a presence if their application is successful?**

If project team partners are not already UK based, they must demonstrate clear and definitive intent of establishing a UK presence on application. If successful, all formal project team partners must have a UK presence and provide BEIS with a UK Company number to receive payment. In practice BEIS would expect all project partners to have a UK presence at the time of issuing the Grant Offer Letter.

To note - the majority of project spend must take place in the UK, and highest marks for Criterion 6 “will be awarded to those projects that are likely to result in a strengthening of the large-scale energy storage industry, supporting services and supply chains in the UK therefore building capacity".

35. **The document simply says that “the majority of the spend must take place in the UK”. Would it be possible to be more specific? Does majority simply mean >50%?**

The majority of project spend means more than 50% of project spend must take place in the UK.

Project eligibility will depend on a number of factors and as per the competition objectives to reduce the UK’s carbon emissions and the cost of decarbonisation, projects which are conducted and deployed in the UK are expected to score higher against Criterion 2 “Energy System Benefits to be secured by this technology type” and Criterion 6 “Contribution to sector capacity building and knowledge dissemination”.

36. **Do you have more specifics on the minimum role required for the UK partner, or any limits on participation by non-UK (e.g. US) participants?**

The majority of project spend must take place in the UK. International entities are welcome to be part of project teams. If project team partners are not already UK based, they must demonstrate clear and definitive intent of establishing a UK presence on application. If successful, all formal project team partners must have a UK presence and provide BEIS with a UK Company number to receive payment. In practice BEIS would expect all project partners to have a UK presence at the time of issuing the Grant Offer Letter.

Eligibility will depend on a number of factors and as per the competition objectives to reduce the UK's carbon emissions and the cost of decarbonisation, projects deployed in the UK are expected to score higher against Criterion 2 and Criterion 6.

37. **Is an energy storage system manufactured in the UK (with the majority of project spend in the UK) and then exported and installed in Europe, eligible for this competition?**

In brief, in order to be eligible a project must have the majority spend in the UK, and the project team must be UK based. More fully, article 1(5) of the General Block Exemption Regulation 2014, prohibits any requirement that the aid recipient has their headquarters in the UK or to be predominantly established in the UK. It does, however, allow a requirement that the aid recipient has an establishment or branch in the UK and, as noted above, the project does have this requirement. Therefore in principle a project with majority spend in the UK which is then exported and installed in Europe is eligible.

38. **Will there be a scoring penalty for projects installed outside the UK, providing the energy storage manufacturing is in the UK and the majority of project spend is in the UK?**

Eligibility and proposal assessment will depend on a number of factors. Projects deployed in Europe or other countries are eligible if the majority of project spend occurs in the UK. With respect to assessment, we would expect justification of how the proposal meets the programme objectives to reduce the UK's carbon emissions and cost of decarbonisation.

As stated against Criterion 2 "Highest marks will be awarded to applicants with large-scale energy storage technologies which demonstrate the best economic benefits against the required energy system benefits and/or the potential impact on greenhouse gas emissions in the UK". Additionally, please note Criterion 6 stating "Highest marks will be awarded to those projects that are likely to result in a strengthening of the large-scale energy storage industry, supporting services and supply chains in the UK therefore building capacity, and have clear dissemination and knowledge-transfer plans and resources to deliver them."

39. **We do not have a UK presence now. Do we have to establish before application or on grant award?**

If project team partners are not already UK based, they must demonstrate clear and definitive intent of establishing a UK presence on application. If successful, all formal project team partners must have a UK presence and provide BEIS with a UK Company number to receive payment. In practice BEIS would expect all project partners to have a UK presence at the time of issuing the Grant Offer Letter.

To note - the majority of project spend must take place in the UK, and highest marks for Criterion 6 “will be awarded to those projects that are likely to result in a strengthening of the large-scale energy storage industry, supporting services and supply chains in the UK therefore building capacity".

40. **Is a project deployed in Europe, rather than the UK, anticipated to be penalised when scoring question 2 in the application form? (Question 2 refers to deployment in the UK up to 2030).**

Eligibility and proposal assessment will depend on a number of factors. Projects deployed in Europe or other countries are eligible if the majority of project spend occurs in the UK. With respect to assessment, we would expect justification of how the proposal meets the programme objectives to reduce the UK’s carbon emissions and cost of decarbonisation.

As stated against criterion 2 “Highest marks will be awarded to applicants with large-scale energy storage technologies which demonstrate the best economic benefits against the required energy system benefits and/or the potential impact on greenhouse gas emissions in the UK”. Additionally, please note Criterion 6 stating “Highest marks will be awarded to those projects that are likely to result in a strengthening of the large-scale energy storage industry, supporting services and supply chains in the UK therefore building capacity, and have clear dissemination and knowledge-transfer plans and resources to deliver them.”.

41. **You mention the project team must be UK based. Does this mean:**

(a) all direct labour costs must be in the UK? OR;

(b) simply that a majority of total labour costs must be in the UK? OR;

(c) that any direct labour costs outside the UK are acceptable project costs but are simply not claimable costs? OR;

(d) All senior staff labour costs must be in the UK.

All options listed above are <u>not</u> required by the GBER definition of “UK based”. However, for an application to be eligible the majority of project spend must be within the UK.

The lead organisation and all formal consortium partners (if applicable) do need a UK branch or establishment. The Competition Guidance says that “Projects may either be delivered by sole organisations or by a consortium of project partners, which must be UK based”. This is derived from Article 1(5) of the General Block Exemption Regulation 2014 which says that aid can be granted subject to “the requirement to have an establishment or branch in the aid granting Member State [i.e. the UK] at the moment of payment of the aid”.

42. **Does the storage have to be demonstrated at a single site or can it be demonstrated across multiple sites?**

The Storage at Scale programme is for the demonstration of large scale static single site energy storage.

43. **Are there any limits on country of origin?**

There are no limits on country of origin.

If project team partners are not already UK based, they must demonstrate clear and definitive intent of establishing a UK presence on application. If successful, all formal project team partners must have a UK presence and provide BEIS with a UK Company number to receive payment. In practice BEIS would expect all project partners to have a UK presence at the time of issuing the Grant Offer Letter.

To note - the majority of project spend must take place in the UK, and highest marks for Criterion 6 “will be awarded to those projects that are likely to result in a strengthening of the large-scale energy storage industry, supporting services and supply chains in the UK therefore building capacity".

44. **I understand this to be around £40m of private/public money. Who is hosting (e.g. DNOs)? How will you evaluate business cases?**

Hosting is your responsibility and is to be demonstrated as part of your application. BEIS would expect to see evidence of the status of your connection discussions with the DNO (if relevant) as part of the application.

Business Cases will be assessed on market viability and future potential uptake.

45. **Are there any restrictions on having foreign investors funding a portion of the project?**

There are no restrictions on foreign investment. One of the objectives of the competition is to “encourage private sector investment in the UK”.

46. **The guidance notes state the majority of spend must take place in the UK. Can you please clarify what this means? E.g. would placing an order in the UK for parts manufactured by an international manufacturer count as UK spend?**

The majority of project spend means more than 50% of project spend must take place in the UK. Activity associated to the UK spend must also occur in the UK. Therefore your example would not count towards the majority UK spend.

TRL Levels

47. **An aspect of the solution is at TRL 4-5 and will not reach level 6 until later this year. Therefore, would we be eligible to apply for the call, with the current technology TRL status please?**

To be eligible for the programme funding, applications need to be at TRL 6 upon submission. Unfortunately, as an aspect of your technology isn't at TRL 6 at present your project would be ineligible. As stated in the guidance the Competition cannot support early stage research (basic or applied), technology development or technologies which are at TRL 5 or below at the start of the project.

48. **You state "pre-commercial". Our demonstrator would, after demonstrating the technology, be readily adapted to operate commercially: would that make us ineligible?**

This term refers to the state of the technology prior to the competition. An objective of the demonstration competition is to enable the technology to reach TRL 9 ("System Proven and Ready for Full Commercial Deployment").

49. **Is the TRL 6 requirement at the time of the application (2019), or rather at the time of project deployment (2021)?**

Technologies must be at TRL 6 or above at the beginning of the project to be eligible for funding, with a target end result of TRL 9 at deployment.

50. **Can you re-justify the TRL requirements? Is there a size threshold (e.g. 1MW) that I need to have met?**

We are looking at TRL 6 and above. We recognise that it may be hard to "verify" a prototype at this stage due to the inherent scale of the final deliverable. There is no hard-size limit on previous prototypes however there needs to be evidence of how it will be scaled up. Please note that deliverability will be judged.

Power-to-X

51. **If the "X" in power to X is used within transport where it is turned back into electrical energy within the vehicle, is this counted as "electricity storage" or "Power to X"?**

The levelized cost of Power to X systems is measured up to the point of production of X as the final energy vector. Further energy conversions within e.g. a train or vehicle will not be considered in the levelized cost calculations within Criterion 1 but the end use of the energy produced will be considered under other

assessment criteria, including Criterion 2 (energy system benefits) and Criterion 3 (market potential).

52. **Is the assumption that the storage system will be the gas grid only and if so is the vector to be quantified in heat production terms rather than electricity?**

The storage system is determined by the project and is not limited to the gas grid. The levelized cost of Power to X systems is measured up to the point of production of X as the final energy vector. Further energy conversions e.g. to heat will not be considered in the levelized cost calculations within Criterion 1 but the end use of the energy produced will be considered under other assessment criteria, including Criterion 2 (energy system benefits) and Criterion 3 (market potential).

53. **Is the competition restricted to the storage media only or to the technical processes by which hydrogen is produced, stored and reconverted to electricity?**

In this instance, the eligible costs are the technical processes by which gas is produced and stored, if relevant to the project. The gas does not need to be reconverted to electricity.

54. **More broadly is storage of hydrogen based purely on hydrogen from steam methane reforming? And if so why?**

No, hydrogen can be produced from any means, considering environmental, economical and efficiency factors.

55. **If the gas grid is not the sole storage destination who is the potential developer/user/ beneficiary of the storage facility? Is the facility a hydrogen drop box or part of an integrated energy system**

This is for the projects to identify in their applications. We welcome proposals from consortium to address the end use options, or letters of support from potential users.

56. **Will the ability to use the "X" in "Power to X" be judged – for example there are limited applications of hydrogen at present?**

The end use and market availability of "X" will be scored against Criteria 3 and 5.

Eligible costs

57. **For "Power to X" projects will the costs of the end-user devices (e.g. fuel cell vehicles) be eligible for funding?**

The funding is for the power-to-X production facility and any storage facility, if relevant, not for the end use devices.

58. **Can you clarify the treatment of costs? We understand that components can be fully expensed, but that measurement equipment should be depreciated. Particularly devices in the "middle" such as inverters?**

In compliance with Article 25(3) of the EU State Aid General Block Exemption Regulation, BEIS will only pay the depreciation costs of instruments, equipment, land and buildings for the funded activities that take place over the life of the grant term as defined by the Template Grant Agreement i.e. until 31st December 2021. This ensure the project can be commercialised after the project end date.

All non-consumable components and equipment (such as inverters) should be depreciated since these can be utilised beyond the end of the project.

59. **Are we able to revisit costs during the project if indicative estimates prove not to be viable?**

BEIS encourage you to include contingency. Grants are provided on an "up to" upper limit and this should inform your strategy towards building up cost estimates. Please note, robustness of costs will form part of the assessment.

60. **Will BEIS give SME's flexibility on the application's project costs based on equipment indicative costs used for the application process and firm costs obtained later during detailed engineering?**

(a) Can the indicative costs include a margin?

(b) Is it expected that the match funding would cover any difference between indicative & firm costs? Or can BEIS support the mismatch?

Application project costs should be based on expected costs and BEIS would encourage applicants to factor in potential increases in costs in to their proposals. BEIS will only provide support for costs identified in the proposals and therefore will not support any increase in costs which occur during project delivery.

These costs are however expected to be realistic and justified in terms of the proposed project and they shall be scrutinised during the application assessment process.

61. **Am I right to amount the max amount per project is Euro 15m?**

The Euro 15m limit is per project partner within the project.

62. **Is the Limit per project €15m based on EU State Aid Rules?**

Yes, the limit is set in accordance with Article 25 of the GBER. The limit in Article 25 is set at 15,000,000 Euros per undertaking per project. This value could vary depending upon exchange rate movements. The exchange rate that is in force at the point at which aid is granted will determine the value of the aid given.

63. **For Power-to-X projects, I presume the funding is just for the facility for the production of the ammonia, biomethane, hydrogen (etc.) and not for the direct use of that gas.**

You are correct, funding is for the production of the storage vector and not the end use.

64. **We are looking to increase an existing site's import and export capacity to accommodate an installation of storage however wondering whether the upgrade (beyond the existing site requirements) would fall under IX in List of non-eligible costs in Annex 2 of the Competition Guidance Notes?**

Costs against IX in the list of non-eligible costs in Annex 2 of the competition guidance notes, are treated as eligible costs if they are compliant with the GBER definition of Experimental Development and are included within the GBER eligible costs (see section 5.2 and Annex 2 of the competition guidance notes). Please note, that if the upgrade benefits persist beyond the project duration only the depreciation costs are eligible for grant funding.

65. **Under Annex 2 of the Competition Guidance Notes, the list of eligible costs specifies that the costs of instruments or equipment (in this case the storage assets which would be installed for the project), only the depreciation costs corresponding to the life of the project are eligible, however grant funding is only available until 31st March 2021 which is also the target for the project commissioning date.**

As the project term is only between the date of the Grant Award Letter and the 31st March 2021, would the full value of the equipment installed be eligible for the capital grant subject to the equipment being installed before the 31st March 2021?

The deadline for commissioning is 31st December 2021. Build of the storage technology must be completed by the grant funding end date of 31st March 2021. However please note, the demonstration project end date and in turn the commissioning date can fall prior to these end dates, as determined by the projects. In compliance with Article 25(3) of the EU State Aid General Block

Exemption Regulation, BEIS will only pay the depreciation costs of instruments, equipment, land and buildings for the funded activities that take place over the life of the grant term as defined by the Template Grant Agreement i.e. until 31st December 2021. This ensures the project can be commercialised in compliance with State Aid regulations after the project end date.

66. **Is it permitted to obtain match funding at a higher intensity than the stated intensities?**

The stated match funding for projects is the minimum requirement; projects that have secured match funding at a higher intensity are still within scope of the competition. On submission of the application we require proof of match funding either through accounts or through letters of support indicating funding to be secured if the project is awarded the grant funding.

Criterion 5 – Project Financing – considers the extent of match funding leveraged, with higher scores achieved by greater match funding leveraged.

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67. **Does this grant constitute state aid for the purposes of cumulative state aid considerations under the Capacity Market rules? If we were to be successful in this competition and receive a grant of £Xm; then should we assume that any future Capacity Market contract we were to be awarded would have this £Xm deducted from any Capacity Market payments to us?**

Your interpretation is correct - The Storage at Scale grant will need to be considered when bidding in to the Capacity Market due to cumulation of State aid and resulting deductions/exclusions. Please note, as the Capacity Market is currently under review, a strong application would demonstrate in their business case and financial model what impact this would have and what mitigations are in place, as well as identifying alternatives.

68. **Can the grant funding be used to establish a manufacturing facility?**

The competition key deliverable is the demonstration of an operational large-scale energy storage solution. Grant funding can be used in compliance with the General Block Exemption Regulation eligible costs to achieve this deliverable. You can view the eligible costs in Annex 2 of the Competition Guidance Notes. In compliance with Article 25(3) of the EU State Aid General Block Exemption Regulation, BEIS will only pay the depreciation costs of instruments, equipment, land and buildings for the funded activities that take place over the life of the grant term as defined by the Template Grant Agreement i.e. until 31st December 2021. This ensures the project can be commercialised after the project end date. All non-

consumable components and equipment should be depreciated since these can be utilised beyond the end of the project.

Additionally, please note that we will select projects that offer the best value for money based on their assessment against the assessment criteria outlined in section 7.2 of the Competition Guidance Notes.

Applicant status

69. **Does the consortium leader and/or the applicant for the grant need to be a SME?**

The consortium leader / applicant for the grant must be a private sector company. They do not need to be a Small-Medium Enterprise.

70. **Could the grant applicant be a special purpose project vehicle?**

Yes, Special Purpose Vehicles are able to apply for the competition.

71. **Could the grant be awarded to a SME and then novated to a project SPV?**

No, awards cannot be novated to other organisations.

If a project team intend to form a SPV if successful, the lead co-ordinator should submit an application clearly stating the intention to form a SPV. If successful, upon notification of award the enterprises would have a month to establish a SPV. This is required for the Grant Offer Letter to be issued.

Annex A – LCOS Model

Please note this LCOS model and its use cases have been designed specifically for the parameters of the Storage at Scale competition to enable comparison of proposals. The LCOS model and use cases do not represent government policy. BEIS are aware that project team proposals may have different use cases and are asked to submit their own LCOS value in the application form (table 1b). However the use cases set out in Annex A will be used to ensure equal comparison across the competition submissions.

$$LCOS = \frac{\sum_{n=0}^{N} \frac{Capex_n + (\#\ cycles * Paux * time\ in\ store * £_{e\ aux}) + O\&M_n + (\#\ cycles * W_n\ h) * \frac{£_{e\ in}}{Eff * ESE}}{(1+r)^n}}{\sum_{n=0}^{N} \frac{\#\ cycles * W_n\ h}{(1+r)^n}}$$

where

$£_{e\ aux}$	is the price of energy for auxiliaries, which we assume to be a constant over time. This is modelled based upon an average of the wholesale electricity price in the most recent full year,
$£_{e\ in}$	is the price of input energy, which we assume to be a constant over time. This is modelled based upon an average of the wholesale electricity price during the night 12pm to 7am throughout the year as a reasonable assumption of when charging may take place.
$\#\ cycles$	Number of cycles per year (defined in use case)
Capex$_n$	CAPEX in year n
ESE	Energy Storage Efficiency $= (1 + self\ discharge\ rate\ per\ hour)^{\ time\ in\ store}$ Applicants are asked to provide the time elapsed before their storage device discharges to 80% of capacity. We assume an exponential decay and thus calculate the discharge rate as: $self\ discharge\ rate\ per\ hour = 0.8^{\frac{1}{time\ elapsed}} - 1$
h	Hours of discharge at maximum discharge rate
N	Project lifetime (years)
n	year modelled
Opex$_n$	OPEX in year n exclusive of the electricity costs associated with auxiliaries and the electricity costs associated with charging the storage device.
Paux	Auxiliary Power Consumption when storing energy
r	Discount rate, which we assume is 3.5% based on HM Treasury guidance.
Eff	is the Roundtrip Efficiency of electrical energy storage applications, i.e. $\frac{E_{out}}{E_{in}}$, which we assume to be constant over time; and is the output-to-input efficiency of Power-to-X applications. We will expect Power-to-X applicants to demonstrate they have applied suitable conversions between energy vectors and reasonable assumptions in calculating *Eff*.

$$time\ in\ store\ (hours) = \frac{8760}{\#cycles} - time\ to\ charge - h - idle\ time$$

is time in which energy is held in the store and exposed to the effects of self discharge.. The number of hours that energy is held in store per cycle can be calculated from the *#cycles* and *idle time* given below for each use case.

idle time is time in which the storage is held intentionally empty whilst waiting for the next requirement for the energy storage to provide its function, and the next opportunity to charge it at favourable electricity rates ($£_{e\ in}$) ahead of delivering that function.

W_n electrical power output, which may degrade over time (reduced capacity rating)

Notes

- We have omitted a potential residual asset value.

Use Cases

The LCOS will be estimated from the applicant's parameters provided as part of its application, and based on the following use cases;

Parameter	Electrical energy storage applications: Use Case A	Electrical energy storage applications: Use Case B	Power-to-X applications Use Case
# of cycles	52	260	52
h	20	8	[applicant's figure will be used]
idle time	24	4	24

Note on LCOS for Power to 'X'

For the purpose of this LCOS model we expect CAPEX values to only include the CAPEX of equipment for the generation of 'X'. The storage of 'X' and delivery mechanism at the output, where appropriate, are to be stated in the application form CAPEX values (table 1b) but will not be used within this model.

We will expect the applicant to demonstrate in their business case calculations an evidence-based value (per kWh) for the consumption of the 'x' and which is not solely based on discussions with potential client sites but also based on values of competing energy vectors. This value will not be used within the LCOS calculation itself.

Storage at Scale Competition

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