Department for
Business, Energy
& Industrial Strategy

Proposals regarding the planning system for electricity storage

Government response to October 2019 follow up consultation

July 2020

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General information

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England and Wales, the territorial sea adjacent to England and Wales, the Welsh Zone, and the Renewable Energy Zone except those parts in relation to which the Scottish Ministers have functions.

Executive Summary

Electricity storage is a key technology in the transition to a smarter and more flexible energy system and will play an important role in helping to reduce emissions to net-zero by 2050. Technologies such as storage, demand side response and interconnection can provide flexibility to the system, by shifting when and where electricity is generated and shifting when electricity is used. Flexibility is essential in order to integrate high volumes of low carbon power, heat and transport into our energy system. A study carried out for the Government estimated that the benefits to the UK of a smart and flexible energy system could be £17-40 billion to 2050.[1]

In July 2017 the Government and Ofgem published the Smart Systems and Flexibility Plan ('the Plan')[2], this was followed by a Progress Update to the Plan[3] in 2018. These documents set out 38 actions for the Government, Ofgem and Industry to take forward to support the transition to a smarter and more flexible system, including removing barriers to electricity storage. One of the commitments in the Plan was to review how storage is treated in the planning system. In the Progress Update we confirmed we would consult on the planning treatment of storage.

Following an initial consultation[4] (January 2019), which proposed changes to make it simpler to co-locate storage with another form of generation, the Government launched a follow-up consultation[5] on 15 October 2019. This outlined new proposals to amend the treatment of storage within the planning system, based on evidence received in response to our first consultation.

The October 2019 consultation proposed to remove electricity storage, except pumped hydro, from the Nationally Significant Infrastructure Projects (NSIP) regime in England and Wales. This was on the basis that the planning impacts of the types of storage being deployed (predominantly batteries), are much lower than other forms of generation. In addition, stakeholders provided evidence which demonstrated that the 50MW NSIP threshold was distorting sizing and investment decisions for these types of projects. This included clustering just below the 50MW threshold, with no standalone facilities deploying above this. Some providers were choosing to develop multiple projects with 49.9MW batteries rather than one larger battery, to avoid the NSIP regime.

We received 28 responses to the consultation. All of the stakeholders that responded to the questions outlined in the consultation (27/28 respondents) agreed with our proposals to remove storage from the NSIP regime in England and Wales. However, five respondents disagreed that pumped hydro should remain subject to the 50MW threshold. Most of these five respondents agreed with our position that it would not be appropriate to remove pumped hydro entirely from the NSIP regime, however they felt that the 50MW threshold should be raised, particularly on brownfield sites which they argued have lower planning impacts. All but one of these five respondents suggested that the 50MW threshold should be raised to 200MW.

Following consideration of the responses provided **we have decided to proceed with the proposals outlined in our October 2019 consultation.** Therefore, we will legislate to:

[1] An analysis of electricity system flexibility for Great Britain, November 2016
[2] The Smart Systems and Flexibility Plan, July 2017
[3] Progress Update to the Smart Systems and Flexibility Plan, October 2018
[4] Consultation on the treatment of storage within the planning system, January 2019
[5] Follow up consultation on the treatment of electricity storage within the planning system, October 2019

- **Remove electricity storage, except pumped hydro, from the NSIP regime, both onshore and offshore, in England and Wales**. This will mean that the primary consenting route for electricity storage (except pumped hydro) in England will be under the Town and Country Planning Act 1990 (TCPA). Section 35 of the Planning Act 2008 will continue to apply in England, allowing the Secretary of State to direct projects into the NSIP regime, where he considers it appropriate. In Wales, planning decisions for electricity storage (except pumped hydro) of any size will generally be consented by the relevant Local Planning Authority under the TCPA regime, whereas currently this is only the case for electricity storage (except pumped hydro) below 350MW.

- To achieve this, we will bring forward two statutory instruments; one order under the Planning Act 2008 and one order under the Electricity Act 1989. These will begin their passage through Parliament on 14 July, when the first order (under the Planning Act 2008) will be laid before Parliament. Subject to passage of the instruments through the Parliamentary process we will ensure that the two statutory instruments needed to enact the proposals will come into force on the same date.

These changes will apply to applications for new storage facilities whether as part of a composite project or a freestanding generating station. It will also apply for extensions of storage facilities to existing consented generating stations (either granted under the NSIP regime or previously under the Electricity Act 1989) from the date the legislation comes into force. Applications for storage facilities which have already been accepted and are within the NSIP regime when the changes are introduced will continue to be consented under that regime, unless the applicant chooses to withdraw the application.

Following implementation of the two statutory instruments, the regimes relating to storage will not be fully aligned for *offshore* facilities between England and Wales. We are, however, working closely with the Welsh Government, who intend to put requisite legislation in place to ensure co-ordination of approaches, where it concerns electricity storage, (except pumped hydro) which is located offshore in Welsh Waters. This is to provide legal clarity; we are not aware of any such projects in the planning pipeline.

We will retain the 50MW NSIP threshold in the case of pumped hydro storage due to the larger planning impacts of this technology. Whilst some stakeholders suggested a threshold of 200MW could be appropriate for pumped hydro storage, there was little evidence provided to support that figure. In addition, our internal analysis shows the planning impacts of pumped hydro storage will be an order of magnitude larger than other storage technologies. Furthermore, this type of project often requires several other consents which can be provided through a Development Consent Order (DCO), which may make the NSIP regime a more appropriate consenting route. Retaining the 50MW threshold means that the planning regime for pumped hydro storage across Great Britain will largely align, and that the planning treatment of pumped hydro will align with that for hydro generation, which has many similarities in terms of planning impact. Due to the locational requirements for pumped hydro, we do not expect to see many (if any) facilities deployed in England, and it is only in England where we have the powers to make changes to the treatment of energy infrastructure, as planning is largely a devolved matter.

We are currently considering the next phase of work under the Smart Systems and Flexibility Plan. For electricity storage this means considering whether there are remaining barriers to storage deploying at different levels, including large-scale, longer-duration storage such as pumped hydro storage. We will engage with stakeholders on this over the coming months.

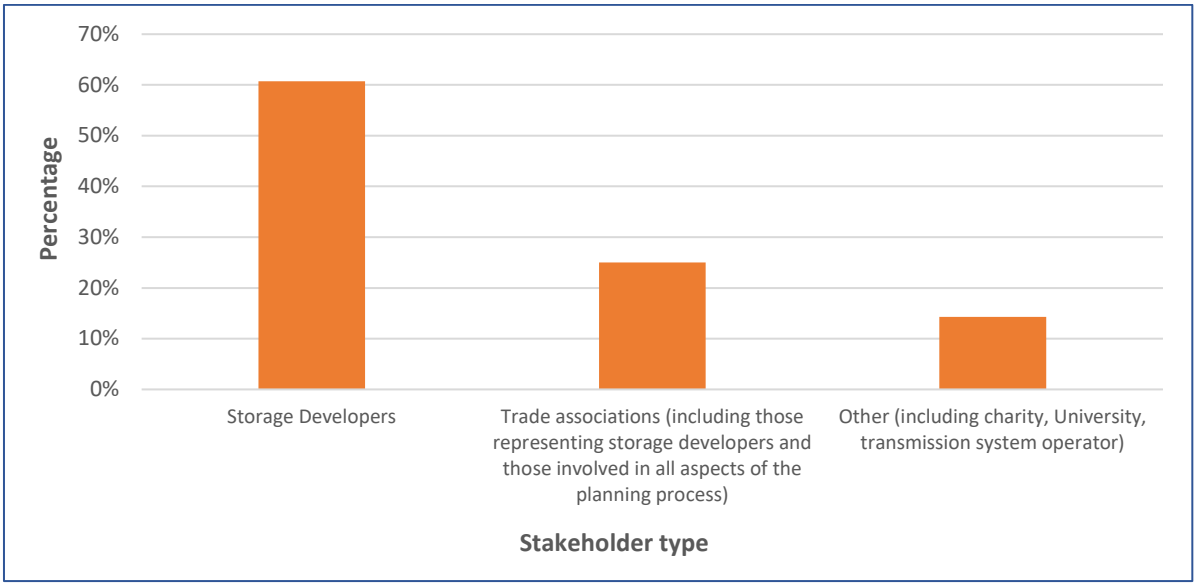
One of the other key areas that was identified within the consultation responses related to updated guidance for local authorities. We are working with the Ministry of Housing

Communities and Local Government to update the Planning Practice Guidance to include reference to electricity storage. In addition, we will engage with stakeholders to understand what further guidance is needed to support the legislative changes that we are making.

Chapter one: Summary of responses to our October 2019 consultation and Government response

This section sets out a summary of the responses received to each question and the Government's response. We received 28 responses in total, from a range of stakeholders (see Annex B for a list of respondents and Figure 1 for the split by stakeholder type). We have not included all the feedback provided in our summaries below, but we have read all responses and considered them when finalising our policy.

Figure 1: Responses by stakeholder type



Consultation question:

1. **Do you agree that it is appropriate to carve out electricity storage, except pumped hydro, from the NSIP regime in England and Wales?** If not, please provide justification and evidence to support your answer.

Summary of responses to question one

Twenty-seven respondents directly answered question one, all of these respondents welcomed the proposals and were in agreement with the principle of removing barriers to storage and ensuring its treatment within the planning system is appropriate. Respondents felt that the proposals would help to unlock investment and bring forward larger storage facilities. They outlined that under the current regime this is unlikely to happen because of the increased time and cost of the NSIP regime in proportion to the scale/planning impacts of storage projects. Stakeholders also felt that that these changes would help to enable more co-located projects to be deployed. In addition, respondents recognised the benefits of extending the carve out to Wales, outlining that this would help to reduce regulatory differences and complexity, leading to greater confidence and potential investment.

Four respondents, including two trade bodies, argued that whilst they agree pumped hydro storage shouldn't be entirely removed from the NSIP regime (recognising that new greenfield developments are much larger with greater planning impacts), the current 50MW threshold is too low. They argued that there are small to medium sized pumped hydro storage facilities that could deploy on brownfield sites, which would have lower planning impacts. A few of these stakeholders also referred to innovation and developments which may enable the technology to provide the same capacity but at a smaller physical size in the future. All of these stakeholders recommended the threshold should be raised to 200MW, to not commercially disadvantage these small-medium scale developments against other forms of storage. One respondent felt that all technologies (including pumped hydro) should be removed from the NSIP with an opt-in mechanism to the regime. The rest of the respondents, including five trade bodies, agreed with our proposals to retain the 50MW threshold for pumped hydro storage, with four respondents directly referring to the larger planning impacts of this technology which make the NSIP regime more appropriate.

Government response to question one

We will legislate to remove electricity storage, except pumped hydro, from the NSIP regime in England and Wales.[6] To achieve this, we will implement two statutory instruments; one order under the Planning Act 2008 and one order under the Electricity Act 1989. We will begin this process on 14 July 2020. Please see chapter two for further details of the legislative changes. This will mean that generally these types of storage facilities will be consented by the Local Planning Authority. In England, s.35 of the Planning Act 2008 will continue to apply, allowing requests to be made to the Secretary of State for a project to be directed into the NSIP regime for consent.

The changes will enable developers to seek planning permission from the local planning authority to include storage to generating stations which have already obtained consent under the NSIP/s.36 regimes, rather than automatically needing to amend their current consent or seeking a new Development Consent Order. However, where it is appropriate,[7] it will remain possible to make an application to amend the Development Consent Order/s.36 consent. This approach also enables electricity licence holders[8] to use their permitted development rights to add storage to existing licensed sites, subject to the limits and conditions set out under Class B of Part 15 of Schedule 2 to the Town and Country Planning (General Permitted Development) (England) Order 2015.

The NSIP regime, as set out in the Planning Act 2008, was established to assess projects which are of national significance. For these projects, whilst sometimes significant impacts may be local, the project may contribute to meeting a national need. In these situations, it is appropriate for the Secretary of State to weigh up the planning balance between the benefits

[6] Under Schedule 7A to the Government of Wales Act 2006, planning in relation to "relevant nationally significant infrastructure projects" is a reserved matter. This includes projects falling within section 14(1)(a) of the Planning Act 2008 (the construction or extension of a generating station). Once the legislation is made, electricity storage (except pumped hydro) facilities would no longer fall within this reservation.

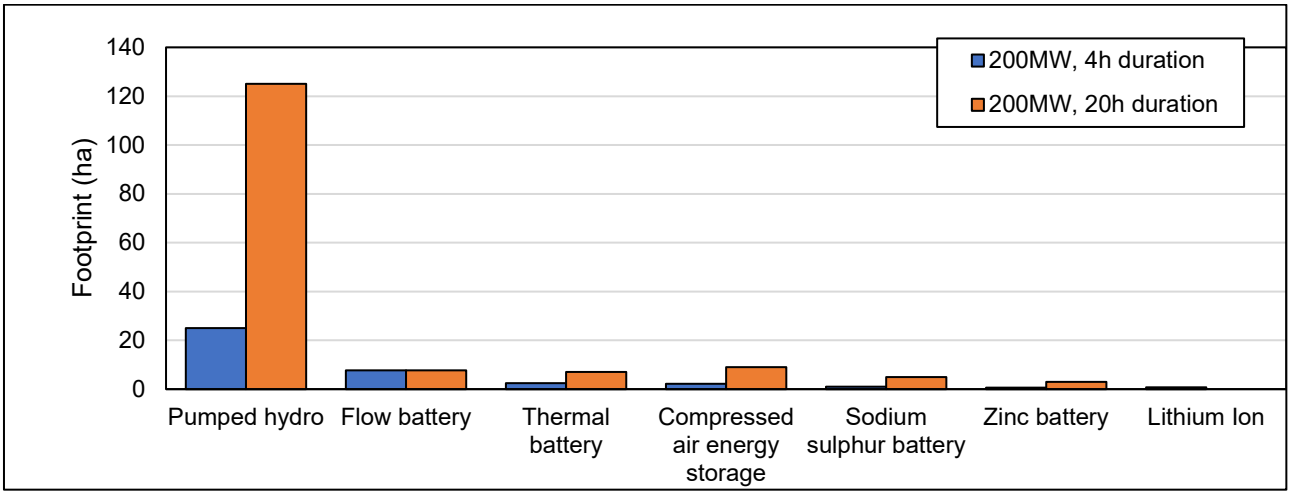
[7] A Development Consent Order may still be required where the extension also involves non-storage development. Additionally, existing generating stations which exceed NSIP capacity thresholds are likely to have been consented by a Development Consent Order granted under the Planning Act 2008 or under s.36 of the Electricity Act 1989. Developers proposing storage-based extensions will need to consider whether any new planning permission granted under the TCPA regime would be compatible with existing consent(s) and/or whether an amendment or variation of the existing consent(s) may be required.

[8] Article 2(1) of the Town and Country Planning (General Permitted Development) (England) Order 2015 and article 1(1) of the Town and Country (General Permitted Development) Order 1995 (which continues to apply in Wales) define "statutory undertakers" to include licence holders under section 6 of the Electricity Act 1989.

and impacts of the project. With respect to the types of electricity storage, other than pumped hydro, that are currently being deployed in Great Britain (e.g. batteries), the more limited nature of the impacts suggests that Local Planning Authorities will be able to appropriately assess and determine applications through the TCPA regime now and in the future. We therefore consider the change to be a more proportionate treatment of storage technologies, taking into account their planning impacts. It will result in the treatment of storage being largely aligned across England and Wales, ensuring as much as possible a level playing field between jurisdictions.

We have considered the concerns raised by a few respondents about retaining the 50MW threshold for pumped hydro storage, but do not consider that it is necessary or appropriate to raise the threshold at this point in time. Four of the five stakeholders who raised this concern suggested raising the threshold to 200MW, however there was limited evidence provided for why this is an appropriate figure. Figure 2 provides estimates, from a commissioned study, of the footprint impacts in hectares (which can be used as a reasonable proxy for several other planning impacts) of a few different storage technologies including pumped hydro.

Figure 2: Estimates of the footprint of storage technologies under two use-cases



Source: BEIS-commissioned estimates 2018, does not include underground infrastructure

The information in Figure 2 illustrates that a pumped hydro storage facility is an order of magnitude larger than other forms of storage. It also shows that a pumped hydro facility of 200MW can vary significantly in footprint depending on the duration[9] of the facility, suggesting that a 200MW threshold would not be appropriate for determining whether the project should apply to the NSIP or local planning regime. Data from the Renewable Energy Planning Database shows that all but one of the current and prospective pumped hydro projects are larger than 200MW (all have durations of four hours or longer and three have durations of around 20 hours), giving a sense of the size and potential footprint impacts of pumped hydro in the future. A 50MW threshold would be consistent with the planning treatment of hydro generation facilities, which share many similarities with pumped hydro in terms of planning impact. In addition, this type of project often requires several other consents which can be provided through a Development Consent Order, which makes the NSIP regime a more appropriate consenting route for this type of project.

Retaining the 50MW threshold will also ensure consistency, as far as possible between the planning regimes in Scotland and Wales. In Scotland pumped hydro facilities are consented by Scottish Ministers when they are above 50MW and in Wales they are consented by Welsh

[9] This is the amount of time storage can discharge at its full capacity.

Ministers when they are above 10MW. Deployment of this technology depends on the availability of natural reservoirs and favourable geographic sites. As a result, all the existing and prospective pumped storage capacity is currently expected to be deployed in either Wales or Scotland where planning is devolved.[10]

We are now considering the next phase of work under the Smart Systems and Flexibility Plan. For electricity storage this means considering whether there are remaining barriers to storage deploying at different levels, including large-scale, longer-duration storage such as pumped hydro storage. We will engage with stakeholders on this in due course.

Table 1 splits electricity storage into three main categories and outlines how each will be treated following the legislative changes.

Table 1: Treatment of different types of storage following the legislative changes

Type of electricity storage	Removed from the NSIP regime following legislative changes?	Justification
Pumped hydro storage	**No** – pumped hydro storage will remain within the NSIP regime, meaning that it is subject to existing NSIP capacity thresholds. In England it will be consented by the SoS as a NSIP where the capacity is 50MW or above. In Wales, where the capacity is between 10MW and 350MW consent will be sought from Welsh Ministers under the Developments of National Significance regime, facilities with a capacity above 350MW, will be consented by the SoS as a NSIP.	As illustrated by Figure 2 the planning impacts of pumped hydro are much greater than other storage technologies. These projects are often large and complex and can take several years to obtain the necessary planning approvals before construction begin. They often require several other consents, which can be provided through a Development Consent Order, making the NSIP regime a more appropriate consenting route for this type of project. Finally, we expect very few, if any, pumped hydro storage facilities to deploy in England, where we have legislative competence over the relevant part of the planning regime.
Battery storage	**Yes** – removed from the NSIP regime and consented by the relevant Local Planning Authority, unless it is directed into the NSIP regime under s.35 of the Planning Act 2008 or consented as associated development as part of a composite project where the other	Battery storage has relatively low planning impacts when compared to other forms of generation, it therefore tends not to have significant local impacts that would make it difficult for local authorities to balance against national benefits. Therefore, it would be more proportionate for the planning impacts from this type of development to be considered and determined by Local Planning Authorities under the local TCPA 1990 regime.

[10] BEIS, Renewables Energy Planning Database (REPD) – December 2019

	form of generation falls into the NSIP regime.	
Other forms of storage (e.g. compressed air energy storage, liquid air energy storage)	**Yes** – removed from the NSIP regime and consented by the relevant Local Planning Authority, unless directed into the NSIP regime under s.35 of the Planning Act 2008 or consented as associated development as part of a composite project where the other form of generation falls into the NSIP regime.	Initial evidence suggests that although the planning impacts of these technologies may be slightly greater than batteries, they are lower than the impacts of other forms of generation and pumped hydro storage. We have not yet seen these technologies deployed commercially and/or at scale in GB, and therefore do not have a detailed understanding of how they may develop. We therefore consider that they should be removed from the NSIP regime unless sufficient evidence emerges to demonstrate that their inclusion in the NSIP regime is appropriate. This approach has been taken for other emerging technologies, which are often by default consented through the TCPA until such a point that Government decides they should be in the NSIP.

Consultation question:

2. **Do you agree that we should carve out electricity storage, except pumped hydro, from the offshore planning regime (NSIP and s.36 consent)?** Please provide evidence to support your answer where appropriate.

Summary of responses to question two

Twenty-one respondents answered question two, 100% of whom agreed with our proposal to remove electricity storage, except pumped hydro, from the **offshore** planning regime (both NSIP and s.36 consent). They agreed that a marine licence from the Marine Management Organisation (MMO) would be an appropriate consenting mechanism for this type of project. Stakeholders commented that this proposal will ensure consistency across the regime, therefore reducing regulatory complexity which is important for industry and investor confidence. Stakeholders also identified that this would help to future proof the planning regime for further developments in storage.

Government response to question two

We will ensure that the removal of electricity storage, except pumped hydro, from the NSIP regime in England and Wales applies to both the onshore and offshore regime (NSIP and s.36 consent).

Consents under section 36 of the Electricity Act 1989 are executively devolved to Welsh Ministers in relation to generating stations in Wales and Welsh waters which do not exceed the devolved capacity of 350MW. Following implementation of the two statutory instruments, **the**

regimes relating to storage will not fully align offshore across England and Wales. We are, however, working closely with the Welsh Government, who intend to put requisite legislation in place to ensure co-ordination of approaches, where it concerns electricity storage, (except pumped hydro) which is offshore in Welsh Waters.

Once this legislation is implemented, any storage facilities deployed offshore in the territorial sea adjacent to England and Wales, the Welsh Zone, and the Renewable Energy Zone except those parts in relation to which the Scottish Ministers have functions, must be granted a marine licence under the Marine and Coastal Access Act 2009. The marine licence will be provided by the MMO in England and by Natural Resources Wales (NRW) in Wales.

Section 35 of the Planning Act 2008 will continue to be available for offshore projects in England and adjacent waters, allowing anybody including, developers, local authorities and local objectors to make a request to the Secretary of State for the project to be directed into the NSIP regime.

Consultation question

3. **Do you have any comments on the draft legislation or transitional arrangements?** Please specify which areas of the legislation you are referring to.

Summary of responses to question three

Seventeen respondents (61%) provided comments in response to this question. Many of these related to a request for greater guidance to support the changes that this legislation will implement. Suggestions included updating documents such as the National Policy Statement and the National Planning Practice Framework to make provision for storage. Stakeholders argued that guidance should set out the need case for electricity storage and benefits to the system, which should make the process for seeking planning permission simpler.

A few stakeholders commented on the transitional arrangements that we set out. Some agreed with our proposal that projects already in the NSIP regime when the legislation comes into force should remain in this regime but urged Government to legislate as soon as possible to enable larger storage facilities to come forward. A couple of other stakeholders argued that the transitional arrangements should be amended to enable projects which are already within the NSIP regime to move across to the local planning regime if the developer considered that to be appropriate/beneficial.

A further point raised was the need for clarification around the consenting process for co-located generating stations. Specifically, clarity for developers who want to retrofit existing generating stations that have either a DCO under the NSIP regime or a s.36 consent under the Electricity Act 1989 with storage. As well as for new co-located projects where the other form of generation falls into the NSIP regime. In particular, they sought clarification over whether storage can be treated as associated development where the facility may be carrying out multiple functions. For example, where the facility was storing energy from the other form of generation to be discharged at a later point but also providing ancillary services to the grid, which may involve importing and exporting electricity from the grid.

Government response to question three

We will continue to work with the Ministry of Housing, Communities and Local Government and industry to update relevant pieces of guidance and tackle any further areas of uncertainty within the planning regime.

We have made some minor corrections to the draft orders that we published to ensure cross-references are accurate. Apart from this, the legislation that we will lay before parliament remains the same as published alongside the consultation. We will proceed with the transitional arrangements that we set out in the consultation; therefore, the **removal of storage will apply from the date that the legislation comes into force.** This is to ensure that there is certainty in relation to applications which have already been made for projects. Any projects which are already in the NSIP regime before the legislation comes into force will remain in the NSIP regime, unless the application is withdrawn.

With regards to guidance for Local Authorities to support the implementation of removing electricity storage, except pumped hydro from the NSIP regime, we are continuing to work with MHCLG to update the renewable and low carbon energy planning practice guidance to refer specifically to electricity storage. Stakeholders suggested a range of guidance documents that could be updated to support the implementation of this policy. We will engage further with industry over the next few months to gain views on what any further guidance should cover.

Clarifications for the treatment of co-located projects following the removal of storage, except pumped hydro, from the NSIP regime:

Where projects involve electricity storage (except pumped hydro) facilities deployed alongside other forms of generation which remain subject to the NSIP regime, the capacity of the storage facility will not be considered when calculating whether the NSIP threshold has been exceeded. The project will therefore only qualify as a NSIP where its non-storage generating capacity exceeds the NSIP capacity thresholds. This means that:

- For **new composite generating stations** where the other form of generation exceeds the NSIP capacity thresholds, storage facilities which form part of the generating station could be consented within the same Development Consent Order if they qualify as "associated development" within the meaning of section 115 of the Planning Act 2008. Developers should refer to the principles stated within the MHCLG's guidance document on associated development[11] when making the case for classing storage as associated development. This will be determined on a case by case basis. Alternatively, if the storage element did not fall within the ambit of associated development an application for consent could be made to the local planning authority under the TCPA.

- Where "**retrofit" projects, which were previously constructed under a Development Consent Order or a s.36 consent** are extended to include storage facilities, developers will be able to seek consent for the extension of storage from the local planning authority under the TCPA regime rather than being required to seek a Development Consent Order. However, developers will need to consider whether any new planning permission granted under the TCPA regime would be compatible with the existing DCO/ or s.36 consent and/or whether an amendment or variation of the existing consent(s) may be required.

[11] Planning Act 2008: associated development applications for major infrastructure projects

- Where a **generating station has been consented by a Development Consent Order or a section 36 consent and construction has not yet commenced or not yet completed**, developers will need to determine whether there is a need to amend or vary the existing consent.[12] This will depend on the nature of the development and whether it is a material change. If an amendment is not required, then developers can seek consent from the local planning authority.

[12] Schedule 6 to the Planning Act 2008 provides for material and non-material changes to Development Consent Orders. Section 36C of the Electricity Act 1989 provides for the variation of s.36 consents.

Chapter two: Legislative changes

To remove electricity storage, except pumped hydro, from the NSIP regime in England and Wales we will:

- make an order under section 14 of the Planning Act 2008 to vary the circumstances in which the construction or extension of a generating station constitutes a NSIP;
- make an order under section 36 of the Electricity Act 1989 to exempt electricity storage (except pumped hydro) facilities from the requirement to obtain consent under that section to ensure that the position is aligned with the NSIP regime as far as possible in England and Wales; and
- work closely with the Welsh Government who will need to put in place requisite legislation to align regimes, where it concerns electricity storage (except pumped hydro) which is offshore in Welsh Waters.

These changes will not impact the overall classification of storage, it will continue to be considered as a distinct subset of generation for planning and licensing purposes. However, electricity storage (except pumped hydro) will no longer be considered as a form of generating station subject to the NSIP regime thresholds. Therefore, it will not be a form of development that requires Development Consent under section 31 of the Planning Act 2008.

We will begin the parliamentary process for implementing these changes on 14 July, when the first order will be laid before Parliament. We will ensure that the two statutory instruments needed to enact this will come into force on the same date.

Transitional arrangements

These changes will come into force for new storage facilities whether as part of a composite project or standalone, and new extensions of storage to existing s.36/Development Consent Order consented generating stations from the date the legislation comes into force.

Applications for consent in relation to storage facilities which have already been accepted into the NSIP regime before the changes are introduced will continue to be dealt with under that NSIP regime, unless the application is withdrawn.

Annex A: Analytical assessment of the impacts of removing electricity storage (except pumped hydro) from the NSIP regime

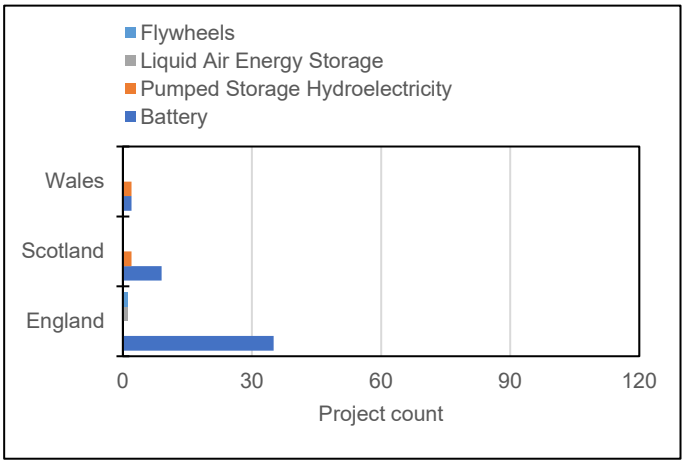
Policy overview and rationale for intervention

Flexible technologies provide distinctive benefits that will reduce the cost of the UK's transition to net zero. We want to ensure that these technologies do not face unnecessary barriers to their deployment. Our evidence suggests the current planning regime is distorting the size of storage projects, meaning they may not be deployed at the most efficient size to provide grid flexibility and manage intermittent generation. Our evidence also suggests the time and cost of the NSIP regime is not proportionate to the planning impacts of these technologies (except pumped hydro).

The overarching policy aim is to support the deployment of electricity storage by ensuring the planning system in England and Wales treats storage appropriately relative to its impacts and doesn't impose significant unnecessary barriers.[13] This policy aims to increase investor confidence, remedy the potential distortionary impacts on developers' sizing decisions and ensure developers of large co-located or standalone storage projects face planning costs proportionate to these sites' impacts.

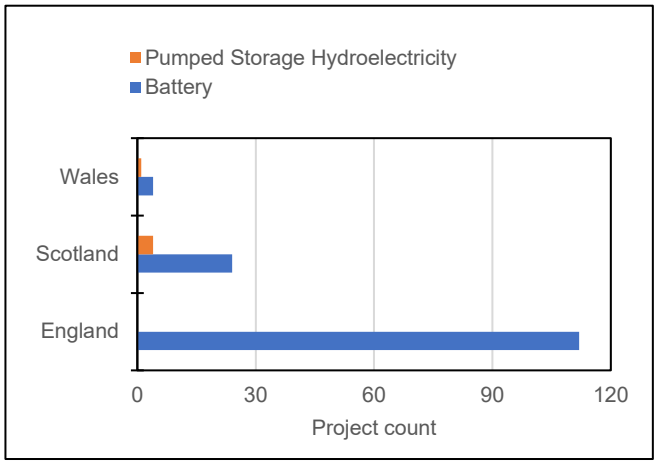
The government considers electricity storage facilities to be a form of electricity generating station for planning purposes. Therefore, currently if these facilities have a generating capacity of 50MW or less in England or 350MW or less in Wales they require planning permission from the relevant Local Planning Authority. Those exceeding the capacity threshold constitute 'nationally significant' developments and require consent from the Secretary of State under the NSIP regime.

Figure A1: Operational storage projects as of December 2019



Source: REPD December 2019

Figure A2: Prospective storage projects as of December 2019



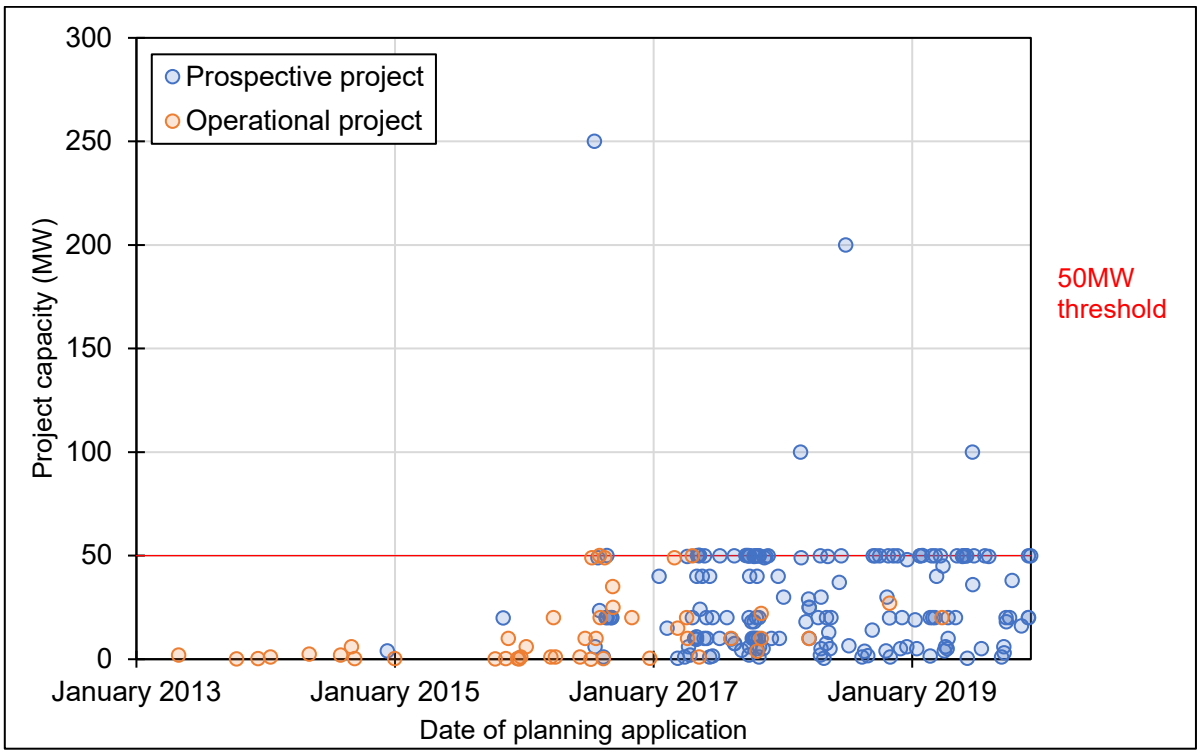
Source: REPD December 2019

[13] Energy infrastructure consenting is devolved in Scotland and Northern Ireland.

According to the Renewable Energy Planning Database (REPD)[14] battery storage makes up over 90% of operational and prospective[15] storage projects in GB at the end of 2019. The data shows most of these battery storage projects (around 80%) are expected to be deployed in England (Figure A1 and Figure A2).

Figure A3 illustrates while a clear majority (just under three quarters) of battery projects have capacities under 49MW, the remaining projects cluster at or just below the 50MW capacity threshold; one quarter of all projects are sized between 49 and 50MW. There are no operational batteries larger than 50MW, and of the four prospective over the threshold, three are co-located with a generator already in the NSIP planning regime.

Figure A3: Capacity of battery projects by time of planning application as of December 2019



Source: REPD December 2019

Prior to the January 2019 consultation, our stakeholder engagement had led us to conclude there were other reasons for the clustering effects (revenues, connection costs, capital costs etc). However, evidence received in response to that consultation suggested that the NSIP capacity threshold itself has been distorting sizing/investment decisions for storage, which led us to update our policy, as set out in the October 2019 consultation

In addition, our evidence suggests the planning impacts of battery storage technologies are lower than those of other forms of generation. Responses to the January 2019 consultation[16] suggested the footprint of a 50MW lithium-ion battery storage plant is likely to be in the order of 1 hectare, whereas a 50MW solar or wind farm is likely to have a footprint in excess of 100 hectares. This relative assessment of footprints is consistent with data on existing planning applications for these technologies. Although footprint is not a necessary nor sufficient condition for a project to be deemed nationally significant, we consider it a reasonable proxy

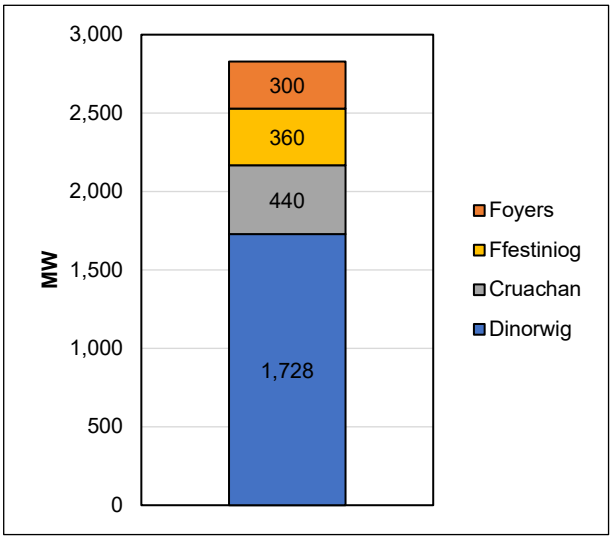
[14] BEIS, Renewables Energy Planning Database (REPD) – December 2019
[15] We define 'prospective' as projects whose status is either 'Application submitted', 'Permission granted', 'Appeal granted' or 'Under construction' where the end capacity is known.
[16] The treatment of electricity storage within the planning system, January 2019. For a summary of responses see The planning system for electricity storage: follow up consultation, October 2019.

for a number of the planning impacts that could be expected from a project (relating to visual, environmental, landscape, security of supply impacts, and noise).

This implies that lithium-ion battery storage has relatively low planning impacts when compared to other forms of generation, and it tends not to have any specific impacts that would make it difficult for local authorities to balance national benefits against local impacts.

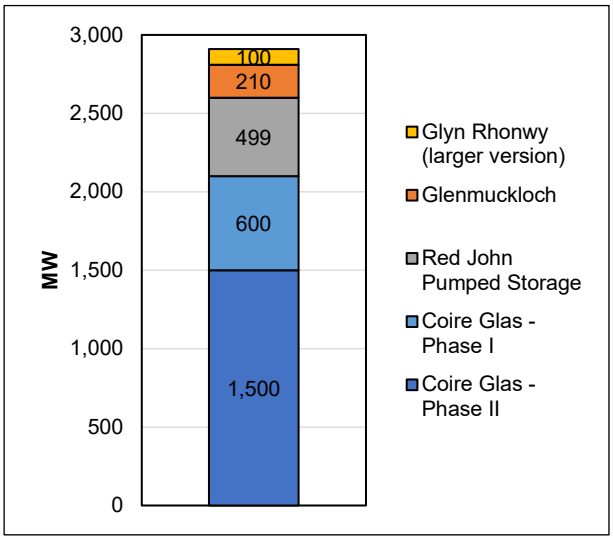
Pumped hydro projects have larger footprints than battery technologies at the same capacity (see Figure A6). Moreover, pumped hydro storage projects generally have larger capacities than battery projects (see Figure A4 and Figure A5). Existing and prospective projects generally have hundreds of MW capacity with durations in excess of 4 hours. This suggests the typical pumped hydro project will have a much larger planning impact than the typical battery storage project. Deployment of this technology depends on the availability of natural reservoirs and favourable geographic sites; as a result, all existing pumped storage capacity and all prospective projects are deployed or expected to be deployed in Wales or Scotland where planning is devolved.[17] These projects are large and complex and it can take several years to obtain the necessary planning approvals before construction begins.

Figure A4: Capacity of existing pumped hydro projects as of December 2019



Source: REPD December 2019

Figure A5: Capacity of prospective pumped storage projects as of December 2019



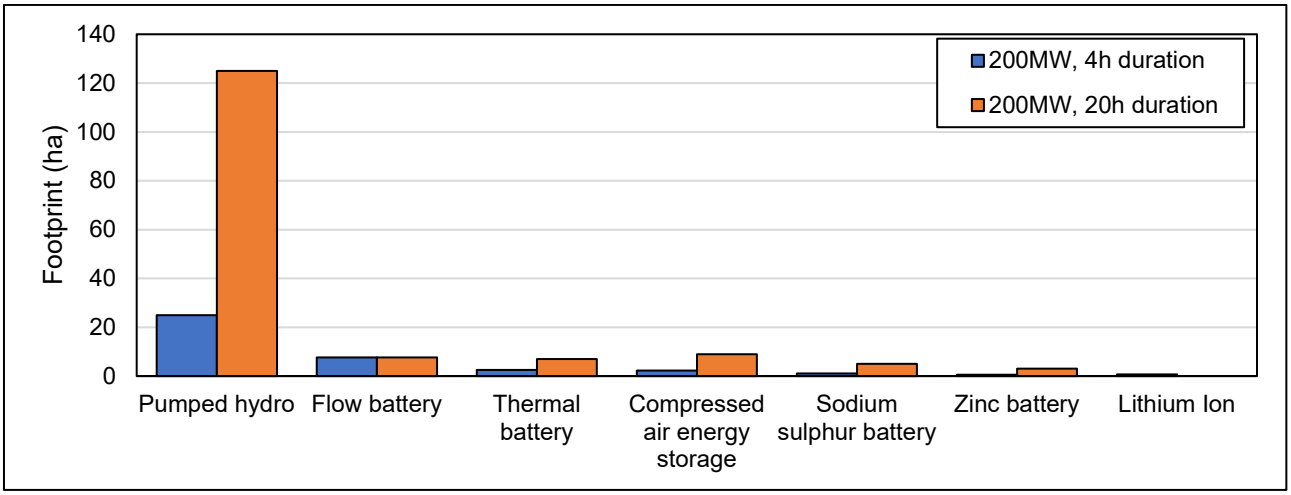
Source: REPD December 2019

Other forms of electricity storage could deploy at scale in the future as technology matures, costs decline, and new revenue opportunities become available. These include liquid air (cryogenic storage), sodium/metal/zinc/flow batteries, compressed air energy storage (CAES) and certain forms of thermal and hydrogen storage, among others. The evidence available for a sample of these storage technologies (see Figure A6) indicates that, although some of these technologies are likely to have slightly larger footprints than lithium-ion battery storage, their footprints are expected to be significantly less than pumped storage. Moreover, we have seen limited deployment of these technologies to date, and as such have not yet uncovered evidence that it would be appropriate for them to be consented under the NSIP regime. It is our intention to keep the issue under review as other technologies develop to ensure all technologies are treated appropriately under the planning regime.

[17] BEIS, Renewables Energy Planning Database (REPD) – December 2019

Based on the evidence available, we consider that the NSIP capacity threshold for generating stations is not a proportionate regime for any electricity storage technology, except pumped hydro, given the likely scale of the technologies' planning impacts.

Figure A6: Estimates of the footprints of different storage technologies under two use cases



Source: BEIS-commissioned estimates 2018, does not include underground infrastructure

Costs and benefits

This section outlines the assessment of the potential costs and benefits of our policy to remove electricity storage, except pumped hydro, from the NSIP regime in England and Wales, relative to a counterfactual representing the status-quo (i.e. retaining the existing 50MW capacity threshold in England and 350MW capacity threshold in Wales).

Benefits to the UK power sector

Flexible technologies (such as storage) provide distinct benefits which can help support the UK energy sector's transition to net zero. This policy measure will mean sizing and investment decisions can be based on factors such as the project's economic potential, or capability to manage intermittent generation, rather than whether it falls under the NSIP threshold. This benefit has not been quantified.

This measure may also result in an indirect benefit in the form of increased investor confidence for the storage sector. This is because it will help to demonstrate the Government is committed to developing a more appropriate, consistent and supportive regulatory framework for storage. As we do not know how the pipeline of future storage projects will develop, it is not possible to quantify this potential indirect benefit of increased investor confidence.

However, following publication of the October 2019 consultation, a number of developers have provided anecdotal evidence of storage projects sized above 50MW that they are considering in anticipation of the legislation coming into force. This could lead to wider power sector benefits due to the larger amount of flexible technology being deployed and making it easier for co-located storage to be sized appropriately for the generating facility.

Familiarisation costs (one-off costs to businesses interested in investing in storage)

There may be one-off familiarisation costs for market participants to read and understand the proposed legislation. We estimate these are approximately £80,000.[18] Assuming 150[19] businesses are likely to read the proposed legislation and assuming each business would require a combined full day (4 hours each) of additional legal and managerial resource at £65 per hour.[20]

Transitional costs

Some projects in England and Wales may incur transitional costs as a result of this measure if they are at the pre-application phase by the time this measure is enacted (developers may have started work and incurred costs associated with obtaining consents). While, the type and magnitude of such projects is uncertain, we assume the potential transitional costs associated with this measure are likely to be broadly negligible for two reasons.

- We expect to enact the measure within 4 months of this response being published (subject to passage of the instruments through the Parliamentary process) and the change was signalled in the October 2019 consultation, therefore developers have had time to factor this into their planning.
- A significant proportion of the work undertaken at this early stage in the planning process would have been otherwise incurred under the Town and Country Planning Act, this includes work on the Environmental Impact Assessment, consultations, design work, and legal fees. Any work and associated costs incurred under the Planning Act that would have been required under the Town and Country Planning Act are by definition not incremental to the policy relative to the baseline.

Direct impacts to business

Relative to the counterfactual, this measure results in savings in the form of reduced planning costs (which are made up of planning fees, legal/project management resource, surveys, ground investigations, consultations) and/or infrastructure costs (which are made up of electrical connections) for some developers seeking to build out larger co-located or standalone projects for the following reasons.

- Firms who may have brought forward multiple smaller applications to avoid breaching the NSIP threshold, will now incur the costs of only one planning application and one electrical connection if they choose to combine.
- The measure will help ensure that storage projects do not incur additional planning costs through the NSIP regime, which are disproportionate to their planning impact.

The overall magnitude of these savings will depend on several factors including the type and number of storage businesses affected.

[18] Discounted, 2018 prices and base year. Familiarisation costs assumed to be incurred in 2020.
[19] The number of interested parties in 2020 (who would likely read the new legislation) is based on the number of responses to the Government and Regulator's Call for Evidence in 2016.
[20] Undiscounted, including non-wage-costs of around 20%. Wage costs based on ONS – ASHE: Table 14.5a, 2018.

Type of business affected

There is uncertainty around the types of storage projects that are likely to deploy over the appraisal period. Based on the evidence gathered to date, this analysis assumes the following regarding the possible behavioural impacts of this measure.

- Decisions to invest in storage (rather than not) will not be directly affected by the proposed measure.
- Decisions on how to size storage projects especially at the margin and whether to co-locate with other forms of generation may be affected by this policy.

This measure could result in different one-off cost savings for different types of businesses looking to deploy storage. The different types of storage technologies that could be affected are summarised in Table A1 and the assumptions underpinning the cost estimates are outlined in the assumptions Table A2.

Number of businesses affected

The expected number of storage projects deployed in any given year over the appraisal period is uncertain. The number will vary over time as it depends on future revenue streams and business models. However, as the technology develops, we anticipate more projects will be deployed each year. Therefore, as a central estimate, we have assumed the average annual deployment over the 2020 to 2029 appraisal period will be equal to the maximum annual deployment seen over the last ten years (around 20 projects).

This figure is corroborated by BEIS's 2018 Energy and Emissions Projections (EEP) and National Grid's 2019 Future Energy Scenarios (FES). Both suggest around 500MW of storage could be deployed each year.[21] If the existing average size of 30MW[22] for prospective storage projects (excluding pumped storage) remains broadly constant over the appraisal period this could mean around 20 projects could be commissioned each year over the appraisal period.

Further, to indicate the range of possible outcomes we have used a low estimate equal to the average deployment over the last three years (around 10 projects per year), and a high estimate twice the size of our central estimate (40 projects per year).

Not all storage projects will be affected by this measure, for example standalone projects under 50MW or co-located projects whose combined capacity is under 50MW. We do not know the proportion of current prospective projects of types A to F in Table A1, and the number of projects of each type becomes more uncertain over the course of the appraisal period. To reflect this uncertainty we assume around 50% of commissioned projects could be affected (10 projects per year in the central scenario; 5 and 20 in the low and high scenarios, respectively).

Quantified direct impact

The relative likelihood of the deployment of the type of storage projects affected by this measure is uncertain as this will depend on several factors including future costs, revenues and business models.

In the government response to the January 2019 publication, we assumed it was equally likely for affected businesses to be types A to F, implying an average cost saving of £400,000. We

[21] BEIS. Energy and emissions projections. 2018.
National Grid, Electricity Market Reform Delivery Body. 2019. *Future Energy Scenarios* Two degrees scenario
[22] BEIS, Renewables Energy Planning Database – December 2019

have updated this assumption to better reflect our understanding of the current types of prospective storage projects.

Of the 314 battery projects in the REPD only 1 is a standalone project over 50MW, and it is not operational. This implies there will be very few projects of type B during the appraisal period; we assume 0%. Further, we assume the 25% of standalone battery projects in the REPD with capacities between 49MW and 50MW represent projects that, were it not for the NSIP threshold, would size above 50MW. The relative proportions of the remaining projects (types A, C, D and E) are still uncertain, so we assume an equal share of each. Further we maintain the assumption 50% of all projects will be affected by the measure. The final proportions of affected businesses used in this analysis are presented in Table A1.

Therefore, we assume the average one-off cost saving for the representative business affected by this measure to be around £200,000 with a range between £100,000 and £800,000.

Over the 10-year appraisal period, we estimate the total discounted net benefit to be £15m with a range of £3m to £62m.[23]

Impacts on small businesses

The proposed measure will apply to all electricity storage developers regardless of the size of the business. This measure is not expected to result in a disproportionate impact on small businesses.

Wider impacts

The number of applications consented by local planners and national planners may change, and the total net change will depend on the types of storage projects that come forward. However, the planning fees charged by both national and local planners recover the cost required to consent the projects.

Finally, the cost of delivering the legislation will be absorbed within existing resources. Consequently, the additional costs to government are also expected to be zero or negligible.

[23] Appraisal period 10 years (2020 – 2029) including one year of familiarisation, discount rate of 3.5% was used and figures are in 2018 prices and base year. The equivalent annualised cost to business is around negative £1.5m with a range of negative £0.5m to £6m (rounded to the nearest £0.5m, 2015 base year and 2014 prices).

Table A1: Types of projects likely to be affected by this measure

	Type	Impact of measure	Average one-off cost savings for each business that falls under each type category	Share of affected businesses [24]
A	Small standalone storage project (under the capacity threshold) in the counterfactual but chooses to co-locate as a larger project (over the threshold) under this measure	*Infrastructure cost savings* Behaviour change: incentivised to co-locate as a larger joint project and make more efficient use of site and grid capacity	£160k Range: (£60-380k)	13%
B	Large standalone storage project (over the capacity threshold) under this measure and counterfactual scenario	*Planning cost savings* No behaviour change: saves on planning costs as a result of now having to obtain consent under the appropriate planning regime (local) rather than the national planning regime	£820k Range: (£0.41-1.64m)	0%
C	Two small standalone storage projects in the counterfactual (separated out to avoid triggering the threshold) but one large project (over the capacity threshold) under this measure	*Planning and infrastructure cost savings* Behaviour change: incurs half the planning and infrastructure costs that it would have in the counterfactual	£340k Range: (£150-740k)	13%
D	Small storage project co-located with existing NSIP plant (over the capacity threshold)	*Planning cost savings* No behaviour change: More likely to go through local planning route which could result in planning cost savings assumed to be equivalent to a local planning application	£180k Range (£90-360k)	13%
E	Co-located NSIP project under this measure, where the storage element triggers the threshold in the counterfactual scenario	*Planning cost savings* No behaviour change: incurs more appropriate planning costs (local instead of NSIP)	£820k Range (£0.41-1.64m)	13%
F	Standalone project under the threshold in the counterfactual chooses to resize as a large project (over the threshold) under this measure.	*Negligible* Behaviour change: Projects sized at the margin of the threshold in the counterfactual are more likely to be this type, but the impact on these projects is expected to be negligible because in either scenario local planning fees will be incurred with the key benefit being a reduction in the sizing distortions at the margin so that businesses can choose to size above the threshold if it is profitable to do so.	Negligible	50%

[24] Representing the proportion of the assumed 50% of all projects affected by the measure. Figures do not add to 100% due to rounding.

Key assumptions and uncertainties for assessment

As outlined in the previous sections, the key uncertainties related to this analysis are the number and type of businesses likely to be affected and the associated cost savings to these businesses. Ranges have been used to reflect these uncertainties where appropriate. The level of analysis that supports the measure set out in this document is considered proportionate and where possible has incorporated feedback from the consultation.

Table A2: Key inputs, assumptions and uncertainties

Assumptions/ inputs	Detail	Source
Appraisal period	1 year of familiarisation (2020) and 10 years (2020–2029) for policy appraisal	Standard assumption
Discount rate	3.5%	Standard assumption
Price Base/Base year	2018 unless otherwise stated	Standard assumption
Familiarisation costs	Estimated number of parties who would likely read the legislation: 150 Additional resource required to read and understand the legislation: a combined full day (4 hours each) of additional legal and managerial resource Wage rate £65 per hour	BEIS estimate for the number of parties likely to incur familiarisation costs is based on the number of responses (on storage) to the Government and Regulator's Call for Evidence in 2016 Wage costs based on ONS – ASHE: Table 14.5a 2018 (legal profession and corporate managers and directors at the 90th percentile). 2018 data were used since the coefficient of variation on the 90th percentile earnings of legal professionals was too large for practical use in 2019 data. Non-wage cost uplift factor of 20% has been applied to account for employer's national insurance contributions, superannuation and accommodation costs.
Planning costs	Additional cost of going through the NSIP regime rather than the TCPA system per project: £800,000 (Range £400,000–£1,600,000). This assumption is based on an average estimate of planning costs for <50MW storage projects (£200,000) and an average planning cost estimate for >50MW storage projects (£1,000,000). These estimates were used as a proxy for the possible additional planning costs (due to possible additional fees, resource required to produce applications and time to obtain full consent which could be in the order of 1-2 years) for larger co-located/standalone storage projects that breach the NSIP threshold. In reality these costs will depend on a number of factors that are project specific, including but not limited to: the number and type of permits/consents, consultations, environmental assessments and the number planning inspectors required. A range (+/-100% on the central estimate) has been used to reflect this uncertainty.	BEIS estimates based on internal figures

Infrastructure costs	Infrastructure cost savings per co-located project: £200,000 (range £100,000–400,000). This assumption is based on half the estimated range of the possible infrastructure costs for a 50MW/50MWh storage project to illustrate the potential cost savings for a co-located project relative to a standalone project. These costs are expected to vary between different types of storage projects, a range (+/-100% on the central estimate) has been used to reflect some of this uncertainty.	BEIS estimates based on internal figures
Number and type of storage projects affected by the proposed policy	Assumed annual deployment of battery projects: 20 (range around 10–40) per year. For this analysis it has been assumed that half of the estimated number of projects that are commissioned in each year could be affected by this policy. i.e. 10, with a range 5–20. The number and type of projects affected by this policy in each year of the appraisal period is uncertain. There may be more projects or fewer projects than is currently assumed in the central scenario. A range has been used to capture some of this uncertainty. Table A1 outlined the key type of storage projects that could be affected by this measure. However, the likely incidence of each type of project is uncertain as this will depend on future costs, revenues and business models. Hence, for this analysis we have taken the proportions of business types B and F from the REPD and assumed the remainder of the 50% of projects are evenly distributed across types A, C, D and E.	Sources underlying the estimate **Average annual storage deployment to 2030: 500MW** National Grid, 2019 Future Energy Scenarios (FES), Data Workbook, Two degrees:[25] 2018 Energy and Emissions Projections, Annex H/Annex I:[26] **Average size of prospective[27] storage projects: 30MW** Around 20 storage projects are assumed to be commissioned per annum on average. This was based on the estimate of around 500MW of storage that could be deployed per annum on average out to 2030 (given an average size assumption of 30MW based on prospective storage projects in the REPD).[28] Renewables Energy Planning Database (REPD), December 2019: The most recent release when this analysis was conducted. https://www.gov.uk/government/publications/renewable-energy-planning-database-monthly-extract

[25] Although this policy will only apply in England and Wales, it is considered reasonable to use these estimates given that most prospective storage projects are expected to be deployed in England.
[26] As above.
[27] In this analysis the term 'prospective' is used to denote projects with a planning status of either 'submitted', 'granted', 'awaiting construction' or 'under construction', where the capacity is known.
[28] For context, around 40 known storage projects have been deployed in England/Wales with a maximum outturn annual deployment figure of around 15 projects thus far.

Annex B: List of respondents

- Anesco Ltd
- British Hydropower Association
- The Campaign to Protect Rural England
- Cleve Hill Solar Park Limited
- Ecotricity
- EDF Energy
- Eelpower Limited
- Electricity Storage Network
- Energy UK
- Harmony Energy
- Highview Power
- Hive Energy Ltd
- National Grid
- National Infrastructure Planning Association
- Orsted
- Private Response 1
- Private Response 2
- Private Response 3
- Renewable Energy Association
- Renewable Energy Systems Limited
- Renewable UK
- RheEnergise
- Royal Town Planning Institute
- RWE Generation UK plc
- Scottish Power
- University of Newcastle
- Wirsol Energy Limited
- Zenobe

The consultation is available at: https://www.gov.uk/government/consultations/the-treatment-of-electricity-storage-within-the-planning-system

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