



BATTERY BOX REDGATE BOX ENERGY STORAGE SYSTEM

PLANNING STATEMENT

AMP CLEAN ENERGY

[DATE]

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1.0 Introduction

1.1 Overview

This application seeks permission for a 200kW (800kWhr) Energy Storage System (ESS) ('Battery Box') ("the proposed development") at **Land by Redgate House, Vicarage Lane Suffolk Wherstead IP9 2AF**. AMP Clean Energy is developing Battery Boxes across the UK to provide a low carbon, flexible and de-centralised source of electricity that benefits local communities, businesses, and homes. Battery Boxes are micro energy storage assets, ~24sqm, equivalent to roughly 2 car parking spaces in size.

AMP Clean Energy build, fund, own and operate renewable and low carbon energy facilities and flexible power assets across the UK. We have over 160 assets and provide service and maintenance to over 1,000 customer sites and have 175 staff nationwide.

1.2 What is a Battery Box?

A Battery Box is an ESS that imports electricity from the local electricity network when demand for electricity is low or when there are high levels of renewable energy available. It then exports that electricity back to the grid when required in periods of high demand. This provides a solution to the growing need for flexibility and helps address concerns regarding grid reliability prompted by an increase reliance on intermittent generation of the electricity system.

Battery Boxes connect into the low voltage (LV) network, this is the lowest and most local point in the system where there is an increasing demand for electricity with the electrification of transport and heating systems. Stored electricity from the Battery Box will be exported and consumed in the locality of the box (when it is required).

AMP Clean Energy is developing up to 1,000 Battery Boxes in the UK over the next 3 years. For reference we have included a list of recent Battery Box planning consents in Appendix 02.

1.3 Why do we need Battery Boxes?

The UK's electricity system was traditionally dominated by a small number of large power stations fuelled by fossil fuel (namely coal and natural gas). However, the system is now becoming increasingly supplied by intermittent sources of renewable energy such as wind and solar power.

Renewable power generation does not always match when the demand for electricity is highest. To overcome this, we need a more flexible energy system that allows to shift renewable energy to the periods of the day when the demand for power is at its greatest. And as the UK builds more and more renewable projects, increasingly there are times when the amount of renewable electricity on the system is greater than the demand for it.

ESS's allow this 'excess' renewable electricity to be stored and used later when low carbon sources are unable to generate enough electricity (i.e., when it isn't windy and sunny). By doing so ESS's can prevent the need to turn on fossil fuel generators and allow the UK to maximise the use of renewable power and to facilitate the UK's transition to net-zero.

In addition, ESS's can provide services to both National Grid (NG) (who operate the transmission network) and Distribution Network Operators (DNOs) who operate the local electricity networks. For example, they can help maintain services during network outages, support the network frequency and 'black start' which helps energise a network following a power cut. ESS also can replace the need for wider network upgrades. This reduces the cost for

all bill payers and also the inconvenience of road works and building works associated with replacing electricity cables and substations.

1.4 The Benefits of Battery Box

Urban, suburban, and industrial areas consume large amounts of energy, however, are not well suited for large scale storage assets (typically requiring one acre or more), solar farms (typically requiring 25 acres or more) or large wind turbines. Battery Boxes have a comparative small footprint and connect into local Low Voltage networks making them uniquely suited to these areas.

In doing so they can provide the following benefits:

1.4.1 Reduce Carbon Emissions

By charging the ESS during periods of high renewable generation you charge up the Battery Box with low carbon energy. When demand is high and renewable power is not otherwise available, rather than turn on a fossil fuel power plant, ESSs can export the stored energy. This reduces the amount of carbon used on our energy system.

Whilst the amount of carbon saved each year will vary with changing weather and demand patterns, AMP Clean Energy expect each Battery Box will save 80 tonnes of Carbon each year and 2,400 tonnes of carbon over the project Lifecycle.

1.4.2 Improve Energy Security

ESS can displace the need for fossil fuels and in doing so reduce the need to import natural gas from other parts of the world, meaning the UK is less reliant on foreign energy sources.

1.4.3 Reinforce Local Electricity Networks

An average home may use up to 1kWh in any given hour. A battery box stores 800kWh and has the potential to power 200 homes for four hours where there is a disruption to the supply to an area.

Also, as people electrify the heating in their homes and switch to Electric Vehicles the demand on local networks has never been greater. ESS's can provide additional capacity to those local networks when demand is high.

2.0 Site Information and Background

2.1 Location and Planning History

The proposed development is located at the Land by Redgate House, Vicarage Lane Suffolk Wherstead IP9 2AF . The grid reference of the site is **TM 16141 40170** and the site location is shown on drawing reference 01 Battery Box – Location Plan accompanying the application.

An online search of Babergh and Mid Suffolk Council showed no applications within the proposed site.

The site is found on a flat grass verge at Park Farm House, adjacent to Redgate House.

2.2 Development Drawings

The planning application is accompanied by the following drawings:

- Site Location Plan
- Site Layout Plan
- Battery Equipment – Plans and Elevations
- Electrical Cabinet – Plans and Elevations
- Paladin Fence Elevations

2.3 Site Selection

Suitable available land for energy development is not easy to find. A suitable site must be within 50m of an existing substation or a large 3 phase low voltage cable to allow for a viable electrical connection.

Sites must also have available space and a landowner who is prepared to host a battery box. However, having a small footprint makes battery boxes ideal for urban and built-up areas in which other renewable technologies are not suited.

This site has been carefully selected for the following reasons:

- Close proximity to secondary substation
- No Impact on driver visibility;
- Available land;
- Suitable land;

2.4 Development Description

The proposed development will consist of:

- Installation of a concrete plinth foundation;
- Installation of the battery containerised units and associated equipment;
- The construction of a new fence surrounding the Battery Box;

Full site layout and equipment drawings accompanying the application.

2.4.1 Construction

The construction of the site would take approximately 4 weeks. The electrical equipment is manufactured off site and is lifted in to position on the concrete plinth before the electrical connection is complete.

2.4.2 Operation

Battery Boxes provide additional power and flexibility to the local electricity networks when it is needed most; typically, during periods of high demand (typically known as 'peak periods'). The ESS imports electricity when there is a surplus, for example a sunny and windy day during summer when electricity produced by wind turbines and solar panels exceeds real-time demand. Stored energy is then exported back to the local networks at peak periods (typically evenings between 16:00 and 20:00, Monday to Friday).

3.0 Policy Review and Context

The below highlights the governments support for flexible energy developments and specifically Energy Storage and highlights their importance in the ever-changing energy system as we move to a more renewables dominated electricity network.

3.1 National Grid Future Energy Scenarios

Nations Grid's Future Energy Scenarios¹ clearly set out that flexibility is crucial to operating the energy system where the supply and demand of energy needs to be balanced.

In July 2021, National Grid Electricity Systems Operator (ESO) published its Future Energy Scenarios (FES) report in which flexibility and energy storage are predominant themes and point to the need to develop both small-scale localised ESS (like the proposed development) and larger storage. This will then in turn reduce the overall dominance of large-scale transmission connected generation (traditionally coal-fired power stations), through the storage of renewable energy at times of lower demand, to then be used at peak times.

ESS's respond rapidly to changing supply and demand conditions which is what a system with a high level of intermittent (renewable) generation needs. Battery Boxes ability to store and provide peak / flexible services is key to enabling the growth of renewables and therefore helps to achieve the phase-out of out-dated technologies such as coal at the same time as minimising the risk of electricity shortages.

The FES expands on the role that storage will play in the UK's energy portfolio, specifically stating:

"Falling costs of batteries and changing system needs mean we expect a greater use of batteries that can deliver maximum power output for two to four hours. This increases the use of battery storage for shifting demand within the day and managing constraints on the network.

Storage will play a key role in managing renewable generation output and meeting peak demands on the electricity system..." (p.201)

3.2 Transitioning to a net zero energy system – Smart Systems and Flexibility Plan 2021

The Department for Business, Energy, and Industrial Strategy (BEIS) and Ofgem published in July 2021 a paper called Transitioning to a net zero energy system – Smart Systems and Flexibility Plan 2021².

The paper sets out that the electricity system will need significant levels of flexibility *"... so that it can be almost entirely run-on low carbon energy sources. The need for flexibility will rapidly increase as variable renewable power replaces fossil fuel sources... Around 30GW of low carbon capacity in 2030, and 60GW in 20250 may be needed to maintain energy and security, and cost effectively integrate high levels of renewables"*. The report further estimates flexibility will reduce the costs on our energy system by up to £10bn a year.

Regarding consumer costs, the paper states *"Battery storage can be deployed on the grid, and also at a domestic and commercial scale enabling consumers to reduce their energy bills and support the integration of low carbon transport and heating"* (p. 38). It is therefore vital for the proliferation of renewable and the net zero target that we build and develop flexible, local energy storage systems.

¹ National Grid ESO, *Future Energy Scenarios*, 2021. Available at: [Future Energy Scenarios 2021 | National Grid ESO](#)

² <https://www.gov.uk/government/publications/transitioning-to-a-net-zero-energy-system-smart-systems-and-flexibility-plan-2021>

3.3 National infrastructure Strategy

In November 2020 the Government published its National Infrastructure Strategy³. On page 50, it states *“To achieve net zero by 2050, the power system will need to be virtually carbon free and significantly larger to cope with the additional demand from electrification in transport heading, and some industrial processes. This expanded system will require increase investments in networks infrastructure, sources of flexibility, such as interconnection, demand response and storage, and enough low carbon generation capacity to provide the vast majority of the UK’s electricity needs.”*

3.4 Energy White Paper: Powering Our Net Zero Future

The government published its Energy White Paper: Powering Our Net Zero Future⁴ (published December 2020), where it states, on page 72, that *“Gas-fired power stations have traditionally provided the flexibility needed to match supply to demand at peak hours, or when renewable output is low. Increasingly flexibility will come from new, cleaner sources, such as energy storage in batteries.”*

3.5 National Planning Policy Framework

The National Planning Policy Framework (NPPF) (revised September 2023)⁵ seeks to achieve sustainable development and set three overarching interdependent objectives for the planning system of: building a strong, responsive, and competitive economy; supporting strong, vibrant communities; and contributing to protecting and enhancing the natural, built, and historic environment (para 8).

Paragraph 152 highlights the need to support energy development that contributes to security and stability of supply:

“The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contributed to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.”

Paragraph 155 also states:

“To help increase the use and supply of renewable and low carbon energy and heat, plans should:

- a) Provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);*
- b) Consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and*
- c) Identify opportunities for development to draw its energy supply from decentralised renewable, or low carbon energy supply systems for collocating potential heat customers and suppliers.”*

Paragraph 158 of the framework states:

³ HM Treasury, *National Infrastructure Strategy*, 2020. Available at: [National Infrastructure Strategy - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/437283/national-infrastructure-strategy.pdf)

⁴ Department for Business, Energy & Industrial Strategy, *Energy white paper: Powering our net zero future*, 2020. Available at: [Energy White Paper \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/437283/energy-white-paper.pdf)

⁵ Ministry of Housing, Communities & Local Government - *National Planning Policy Framework, 2012 (revised 2023)*. Available at: [National Planning Policy Framework - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/437283/national-planning-policy-framework-2012-revised-2023.pdf)

When determining planning applications for renewable and low carbon development, local planning authorities should:

a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions;

The UK's electricity generation mix continues to diversify, which means the need for flexibility is growing. The UK is becoming increasingly reliant on intermittent sources of electricity generation such as wind, hydro and solar. In 2020, a record 59.3% of electricity was generated from low carbon sources⁶. By enabling the storage, and future flexible use of electricity when renewable generation output is high, but demand is low, the proposed development is designed to further promote the penetration of renewables into the UK's electricity networks.

In turn this support allows inflexible fossil-fuel fired plants to be decommissioned; thereby reducing Greenhouse Gas emissions and furthering Climate Change mitigation efforts.

3.6 National Policy Statement for Energy

The overarching National Policy Statement for Energy (EN-1)⁷ which sets out national policy for energy infrastructure in the UK, similarly, echoes support for the development of Energy Storage infrastructure by also seeking to promote resilience in the supply of energy. Paragraph 2.2.20 states:

"It is critical that the UK continues to have secure and reliable supplies of electricity as we make the transition to a low carbon economy. To manage the risk to achieving security of supply we need:

Sufficient electricity capacity (including a greater proportion of low carbon generation) to meet demand at all times... Demand for it [electricity] must be simultaneously and continuously met by its supply. This requires a safety margin of spare capacity to accommodate unforeseen fluctuations in supply or demand."

As the grid becomes greener, and the UK becomes increasingly reliant on intermittent sources of electricity generation, such as wind and solar, the system needs flexible dispatchable technologies, like energy storage, in order to maintain network stability and security of supply. Paragraph 3.3.12, recognises that:

"...there are a number of other technologies which can be used to compensate for the intermittency of renewable generation, such as electricity storage..."

However, EN-1 also acknowledges that:

"although [the] Government believes this technology will play important roles in a low carbon electricity system, the development of these technologies [such as commercial batteries] at the necessary scale has yet to be achieved."

Tremendous advances have, and continue, to be made in energy storage technology since the publication of the National Policy Statements. Yet there remains a strong and recognised need for more storage infrastructures, like the proposed development, to enable an increase in the storage of excess renewable generation. In turn, this allows a greater number of renewables to penetrate the UK's electricity networks and facilitate a swifter transition towards net-zero. Battery Boxes therefore play a key role in the ongoing rollout of renewable, intermittent, technologies.

⁶ Department for Business, Energy & Industrial Strategy – *Digest of UK Energy Statistics Annual data for UK, 2020*. Available at: [Digest of UK Energy Statistics \(DUKES\) 2020 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/531111/digest-of-uk-energy-statistics-annual-data-for-uk-2020.pdf)

⁷ Department of Energy & Climate Change – *Overarching National Policy Statement for Energy (EN-1), 2011*. Available at: [National Planning Policy Framework - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/531111/digest-of-uk-energy-statistics-annual-data-for-uk-2020.pdf)

The Office of Gas and Electricity Markets (Ofgem) and Business Energy and Industrial Strategy (BEIS) published an open letter in July 2019⁸ about the importance of connecting flexibility capacity at distribution level. The opening paragraph notes:

“To remain fit for purpose in this transforming system, energy networks will need to evolve too. Flexibility will be crucial, facilitating significant deployment of renewables, electrified transport and, potentially, electrified heat. A smarter and more flexibly system could save the UK £17-40bn by 2050, and many of these benefits will be realised at the distribution level.”

This letter makes it clear that flexibility in the networks is essential in supporting the on-going deployment of renewable generation resources. Battery Box provides the network with this flexibility.

3.7 Local Planning Policy

At full Council meetings on 23rd July 2019 and 25th July 2019 respectively Babergh & Mid Suffolk District Councils recognised the existence of a climate emergency and committed to investigating ways in which they could reduce their own emissions and to supporting the Suffolk-wide aim to become carbon neutral by 2030. Both Councils also agreed to establish a joint council, cross-party Environment and Climate Change Task Force to examine ways in which they could respond to the climate change challenge on a spend to save basis. The Task Force prioritised a number of proposals from the full list of possible actions and table two below shows: (a) The prioritised proposals from the Task Force; (b) Additional comments from Assistant Directors on viability, indicative costs and timescales; and (c) Comments from the Cabinets and whether each proposal from the Task Force is agreed or amended. The proposed development will help the council work towards this aim. AMP Clean Energy expects each Battery Box to save ~80 tonnes of carbon each year, and 2,400 tonnes of carbon over the project lifecycle.

⁸ Business, Energy & Industrial Strategy and Ofgem - *Letter from BEIS/Ofgem to Energy Networks Association, 2019. Available at: [Open Networks project: letter from BEIS and Ofgem to the Energy Networks Association \(ENA\) - GOV.UK \(www.gov.uk\)](#)*

4.0 Environmental Review

A Battery Box is a small development and appears much like other utility structures, such as small substations, gas kiosks, and telephone exchanges. As such, alongside careful site selection, the potential impacts are very limited, and are offset by the significant benefits the projects offers.

4.1 Impacts

Aspect	Comment
Landscape	<p>Impacts on landscape and visual amenity are not considered to be significant due to the small scale of the development. The existing cover and screening of the site means there will be no visual impact, especially as this site cannot be seen from vicarage lane.</p> <p>We acknowledge that site is located on the west side of Vicarage Lane beyond the edge of the Suffolk Coasts and Heaths Area of Outstanding Natural Beauty (AONB), the boundary of which is formed by Vicarage Lane.</p> <p>We would like to communicate that, despite the site being located within a protected area, we believe that the proposed development of a small-scale battery storage facility with a footprint of 23 square meters will have negligible impact on the surrounding landscape. As a result, we argue that the undertaking of a Landscape and Visual Impact Assessment (LVIA) is unnecessary in this instance. The compact size of the proposed facility ensures minimal visual intrusion, and its design has been meticulously crafted to harmonize with the natural surroundings, preserving the aesthetic integrity of the protected area. Additionally, the facility's footprint is carefully situated to minimize any potential impact on the local flora and fauna, with environmentally friendly construction practices being employed to further mitigate any ecological concerns.</p>
Ecology	<p>The site is within an existing farm area and no significant demolition or site clearance would be required.</p> <p>The proposed development will not have a significant impact on the local Ecology the development will be on a small area of unused verge, with no existing vegetation. No vegetation or assets will be removed.</p>
Land Quality	<p>As the application site is within an existing developed area and minimal ground-breaking is required, there is no anticipated land quality issues.</p>
Cultural Heritage	<p>As the development involves minimal sub-surface construction work, no sub-surface archaeological concerns are therefore anticipated.</p> <p>Given the location and small-scale nature of the development, it is not envisaged that there will be any wider heritage issues from this proposal.</p>

Hydrology	<p>The site is located in Flood Zone 1 therefore no flood risk assessment is required due to the proposed development site being smaller than 1 hectare.</p> <p>The proposed development will not change the surface water drainage characteristics of the site and will continue to feed into the existing surface water management system.</p> <p>The battery storage facility is designed and constructed to prevent any contamination or damage to the reservoir.</p>
Traffic and Transport	<p>The development will be using the existing accessway. Traffic generation during construction and operation of the development will be minimal.</p> <p>Construction is anticipated to last for approximately 4 weeks. A total of 6 HGV movements (3 arrival, 3 departures) are expected to site. Consequently, the volume of trips generated by the site during construction will be negligible.</p> <p>The ESS is controlled remotely, therefore during the operational phase visits to site are only anticipated to respond to a fault or maintenance activities. The additional road traffic cause by the development is negligible.</p>
Air Quality	<p>The battery units do not produce any air emissions and therefore do not impact air quality.</p>
Noise	<p>There will be no impact in terms of Noise and Vibration, any noise arising from the equipment will be minimal and indistinguishable from the background levels.</p>
Health and Safety	<p>The energy storage systems are based on highly stable Lithium Iron Phosphate battery cell and include a battery management system that monitors the system 24 hours a day. An AI-powered internal short circuit detection system, temperature sensor and built in current and voltage sensors all provide early warning of a malfunction and permit automatic or switch off.</p> <p>The system is capable of operating in extreme temperatures between -30°C and 55°C well within the normal climatic environment of the UK.</p>

5.0 Conclusion

The proposed development is for a 200kW Energy Storage System and would be one of many ESS's being developed by AMP Clean Energy around the UK. Battery Boxes provide a flexible and decentralised additional source of local grid capacity to address the growing need for flexibility as the UK's generation mix continues to diversify and rely on intermittent renewable energy generation.

The growth of intermittent renewables signifies the need for greater system flexibility to ensure the stability and security of our electricity supply. The ability to dynamically respond to changes in supply and demand is paramount to the resilience of our electricity networks. The proposed ESS will provide resilience to the local grid network by providing a secure and stable electricity supply and emergency backup power which will support and benefit local homes and businesses.

The location and small footprint of the proposed development means it will have no impact on the surrounding site, it will however benefit the local area and national energy network. The overall contribution of the development towards the delivery of the social and economic benefits to the site and the wider surrounding area is following local and national policies.

Accordingly, Babergh & Mid Suffolk District Councils is respectfully requested to approve this Planning Application.

Appendix 01:

- Site Location Plan
- Site Layout Plan
- Equipment Plan and Elevations
- Battery
- Cabinet
- Fence

Appendix 02: List of Battery Box Consents

AMP Clean Energy is developing up to 1,000 Battery Boxes in the UK over the next 3 years. For reference we have included a list of recent Battery Box planning consents below.

	Project Name	Local Planning Authority	Reference
1	Grange Box	Colchester Borough Council	222430
2	Heysham Box	Sefton Council	DC/2022/01871
3	Finmere Box	Eastbourne Borough Council	220755
4	Tame Box	Tameside Metropolitan Borough	22/00811/FUL
5	Creswell Box	Bolsover District Council	23/00182/FUL
6	Whitbrook Box	Rochdale Borough Council	23/00104/FUL
7	Breck Box	Cornwall Council	PA22/10869
8	Whittle Box	Dorset Borough Council	P/FUL/2022/05957
9	Nobel Box	Stevenage Council	23/00041/FP
10	Westthorpe Box	North East Derbyshire Council	23/00283/FL
11	Bartley Box	Birmingham City Council	2023/02936/PA
12	Storforth Box	Chesterfield Borough Council	CHE/23/00461/FUL
13	Brownfields Box	Welwyn Garden City Council	6/2023/1616/FUL
14	Chandos Box	Buckinghamshire Council - Aylesbury Vale Area	23/02026/APP
15	Miners Box	Dover District Council	23/01090
16	Forge Box	Cornwall Council	PA23/08866
17	Penrod Box	Lancaster City Council	23/01305/FUL