

Battery Storage Facility, Clay Lane, Norden, Rochdale

Sustainability & Energy Statement

Shaw Energi

July 2023



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Client Shaw Energi
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1. Introduction

1.1 Introduction

This Sustainability & Energy Statement has been prepared by Turley Sustainability on behalf of Shaw Energi ('the Applicant'). It supports a full planning application to Rochdale Borough Council ('the Council / RBC') for the installation of a 57 megawatt (MW) Battery Storage Facility ('the Development') at land at Clay Lane, Norden, Rochdale ('the Site').

The Statement sets out the planning policy context for sustainable development at the national, regional and local levels, together with the recognised need to rapidly deploy battery storage at scale in order to meet the UK's grid decarbonisation, electricity market reform and net zero targets.

It then reports the various measures incorporated into the construction and operation of the proposed development in order to maximise its sustainability performance.

1.2 Application Site and Surroundings

The application Site comprises approximately 0.7 ha of land situated off Clay Lane / Furbarn Road, Norden. It is bounded to the north by Rake Lane, to the west and south by Lower Jowkins Lane and to the east by Furbarn Road (see **Figure 1**).

The perimeter of the development is formed by existing hedgerow, and the site will hardcore stone surfaced.

The area surrounding the Site is primarily agricultural, with cultivated fields and grazing land to the north, south and east of the site. Ashworth Cattery (Waterloo Farm) is located directly to the west, between the development and Jowkins Wood. There are no other residential dwellings within the immediate vicinity of the site, although land on the opposite side of Furbarn Road has been proposed for allocation in the draft PFE plan for residential development (proposed allocation JPA7).

1.3 Proposed Development

The Applicant is seeking planning permission for the construction and operation of a 57 MW Battery Storage Facility and associated infrastructure, with vehicular access as presented in **Figure 2**.

The Development comprises the following components:

- Batteries modules and bi-directional inverters with their outdoor-rated enclosures with integrated DC combiner panel;
- Thermal management system;
- Battery Management System (BMS);
- Site Controller;
- Pre-wired DC cabling and communication cable harnesses;
- AC Circuit breaker;
- Transformer(s), switchgear(s), etc.; and
- System meters.

The Development is designed to support the flexible operation of the National Grid and the decarbonisation of electricity supply. The Development will store, import and export electricity but will not generate any additional electricity nor have any direct on-site emissions of CO₂ in the course of its normal operation.

The electro-chemical battery energy storage facility uses lithium-ion as its storage technology. Intelligent battery software uses algorithms and computerised control systems to decide when to store energy or release it to the grid.

Energy is released during times of peak demand, keeping costs down and reducing reliance on other forms of flexible power generation that emit greenhouse gas (GHG) emissions such as combined cycle gas turbine (CCGT) power stations, thereby supporting decarbonisation of the national grid.

Refer to the *Planning Statement* and *Design & Access Statement* for further details of the proposed development.

Please note the terms “greenhouse gases (GHGs)”, “carbon dioxide (CO₂)” and carbon dioxide equivalent (CO₂e)” are used interchangeably in this Statement depending on the terminology of referenced documents.

Figure 1: Site Location [Pye Design Architects]



Figure 2: Proposed Development [Pye Design Architects)



2. Policy Context

2.1 National

2.1.1 National Planning Policy Framework

Paragraph 7 of the *National Planning Policy Framework*¹ (NPPF) explains that the purpose of the planning system is to contribute to the achievement of sustainable development.

Paragraph 8c) goes on to explain that, in order to deliver sustainable development, three overarching objectives should be pursued in mutually supportive ways, with the **environmental objective** including protecting and enhancing our natural, built and historic environment, mitigating and adapting to climate change and supporting the transition to a low carbon economy.

The most recent (July 2021) NPPF update recognises the key role of planning in supporting the UK's pursuit of the 17 *United Nations Sustainable Development Goals* (UN SDGs)² which

address social progress, economic wellbeing and environmental protection. Example UN SDGs which relate to the development proposals are presented in **Figure 3**.

Regarding planning for climate change, paragraph 153 requires the planning system to support the transition to a low carbon future in a changing climate by supporting renewable and low carbon energy and associated infrastructure.

Paragraph 158 further explains that, when determining planning applications for renewable and low carbon development, local planning authorities should 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. Applications should be approved if its impacts are (or can be made) acceptable.

Figure 3. Applicable UN Sustainable Development Goals



¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

² <https://sdgs.un.org/2030agenda>

2.1.2 Planning Practice Guidance

*Planning Practice Guidance (PPG)*³ provides guidance on various planning issues associated with development, underpinning policies within the NPPF including those linked to sustainability, energy and climate change.

PPG is a material consideration in planning decisions and should be followed unless there is clear justification not to do so. It sets out how Local Authorities should include policies that protect the local environment, mitigate climate change and support developments that are functional and adaptable for the future.

In relation to energy infrastructure, PPG highlights the importance of maximising the supply of renewable and low carbon technologies to ensure the UK has a secure source of energy whilst reducing GHG emissions. PPG advises local authorities not to rule out renewable and low carbon energy based on inflexible rules on buffer zones and separation distances.

2.1.3 Climate Change Act

The *Climate Change Act (2008)* as amended⁴ sets a legally binding target for the UK to reduce CO₂

emissions to net zero by 2050, the world's first major economy to do so.

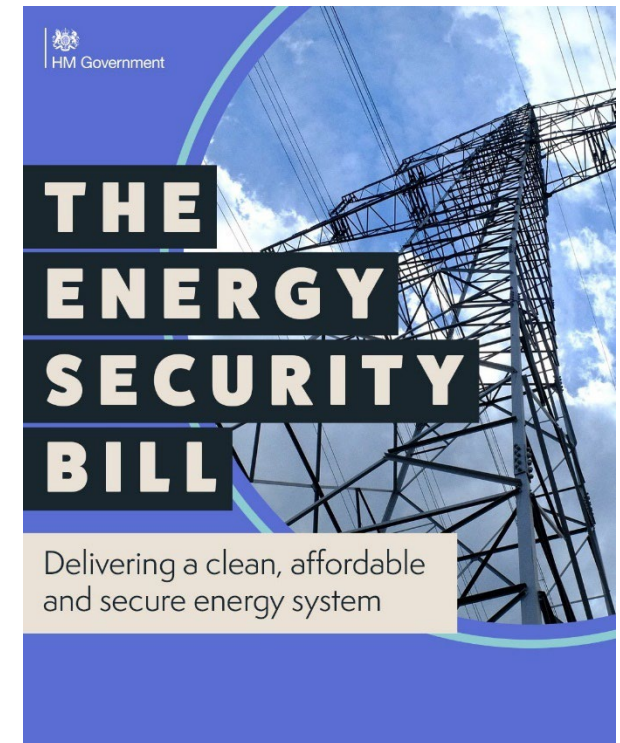
The Act requires Government to set legally-binding 'carbon budgets' to act as stepping-stones towards the 2050 target, establishing a cap on the amount of greenhouse gases emitted over a five-year period. Six carbon budgets have been put into law to date and run up to 2037, aiming to have reduce GHG emissions by 78% by 2035.

2.1.4 Energy Security Bill

The *Energy Security Bill (2022)*, now known as the Energy Bill, was introduced to Parliament on 6 July 2022 in order to deliver a cleaner, more affordable, and more secure energy system⁵.

The *Energy Security Bill factsheet: Defining electricity storage (June 2023)*⁶ explains that flexibility from technologies such as electricity storage could save up to £10 billion per year by 2050 by reducing the amount of generation and network needed to decarbonise whilst creating 24,000 jobs.

Government is legislating to clarify electricity storage as a distinct subset of electricity generation in the 1989 Electricity Act.



Formalising electricity storage as a distinct subset of generation removes current ambiguities and provides long-term clarity and certainty over its treatment within the existing frameworks (e.g. planning and licensing) and possible future frameworks.

Government is facilitating the deployment of electricity storage at all scales through the joint Ofgem and BEIS Smart Systems and Flexibility

³ <https://www.gov.uk/government/collections/planning-practice-guidance>

⁴ <https://www.legislation.gov.uk/ukdsi/2019/9780111187654>

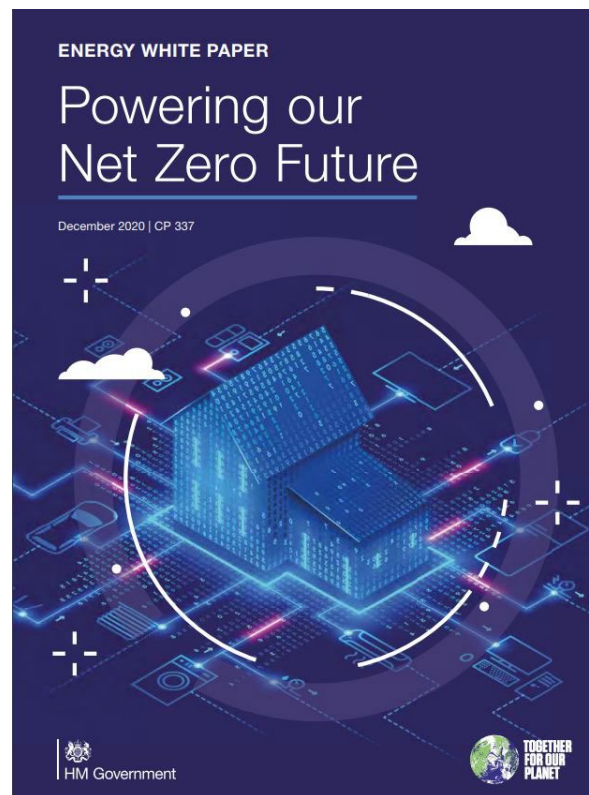
⁵ <https://www.gov.uk/government/collections/energy-security-bill>

⁶ <https://www.gov.uk/government/publications/energy-security-bill-factsheets/energy-security-bill-factsheet-defining-electricity-storage>

Plan. This focuses on actions to create a best-in-class regulatory framework by removing regulatory and policy barriers to the implementation of storage, ensuring that markets reflect the value of flexibility to the system and investing in innovation. Defining electricity storage in primary legislation is central to this approach.

2.1.5 Energy White Paper

The *Energy White Paper - Powering our Net Zero future (2020)*⁷, sets out a long-term strategic vision for the UK energy system and its transition to net zero emissions by 2050. The paper indicates that electricity demand could double as a result of the future electrification of heat and transportation and recognises battery storage of clean energy as a low-cost solution for meeting the demand for energy storage and flexibility which has traditionally been met by natural gas with associated climate change impacts.



2.1.6 Smart System and Flexibility Plan

The *Smart System and Flexibility Plan: Transitioning to a net zero energy system (2021)*⁸ published by UK Government and Ofgem explains how a smart and flexible energy system is essential to achieving the UK's net zero climate goal while keeping energy bills affordable for everyone. This Plan is an important step in

transforming not just how electricity is generated, but also how it is used and paid for, and for which removing barriers to electricity storage is a critical component.

2.2 Regional

2.2.1 Places for Everyone

*Places for Everyone; Joint Development Plan Document – Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford, Wigan; Publication Stage (August 2021)*⁹ is the Greater Manchester Combined Authority's (GMCA) plan for sustainable growth in the nine boroughs.

The vision of Places for Everyone ("PfE") includes being at the forefront of action on climate change with clean air and a flourishing natural environment.

Key PfE sustainable development policies relevant to the battery storage development are summarised below.

Policy JP-S 1: Sustainable Development explains that to help tackle climate change, development should aim to maximise its economic, social and environmental benefits simultaneously, minimise its adverse impacts, utilise sustainable construction techniques and seek opportunities

⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf

⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003778/smart-systems-and-flexibility-plan-2021.pdf

⁹ <https://www.greatermanchester-ca.gov.uk/media/4682/places-for-everyone-compressed.pdf>

to secure net gains across each of the different objectives.

Policy JP-S 2 Carbon and Energy sets the aim of delivering a carbon neutral Greater Manchester by 2038. In order to achieve the required and significant reduction in GHG emissions, the policy encourages a number of measures including a positive approach to renewable and low carbon energy schemes as well as supporting a balanced and smart electricity grid including electricity storage infrastructure.

Policy JP-S 4 Resilience requires development to be designed and managed in way to grow the capacity of its citizens, communities, businesses and infrastructure to survive, adapt and grow in the face of physical, social, economic and environmental challenges, including climate change.

2.3 Local

2.3.1 Rochdale Adopted Core Strategy

The *Rochdale Adopted Core Strategy (2016)*¹⁰ is the key document of the Local Plan for RBC which seeks to deliver sustainable development and growth whilst addressing the challenge of climate change in accordance with the NPPF. Relevant policies are summarised below:

Policy SD1: Delivering Sustainable Development Applications that accord with Local Plan policies will be approved without delay unless material considerations indicate otherwise.

Policy G1: Tackling and Adapting to Climate Change explains RBC will address climate change and ensure growth does not increase CO₂ emissions through measures including the use of renewable and low carbon energy technologies. New development is expected to address the impacts of climate change by incorporating adaptation measures.

Policy G3: Renewable and Low Carbon Energy Developments requires proposals and associated infrastructure to avoid harm to the health and safety of the public, and with any harm minimised and appropriately mitigated.

Policy G7: Increasing the Value of Biodiversity and Geodiversity requires new development to protect and enhance features of biodiversity and geodiversity, and no development should result in net loss of biodiversity or geodiversity.

Policy G8: Managing Water Resources and Flood Risk requires new development to not increase flood risk locally or downstream, reduces] flood risk where possible, be well protected from flood

risk and not negatively impact water management or quality.

Policy G9: Reducing the Impact of Pollution, Contamination and Land Instability new development must not unacceptably increase air, water, noise, light or other pollution.

2.3.2 Climate Change Strategy and Delivery Plan 2021-2025

In July 2019, RBC declared a Climate Emergency and is resolved to work towards ensuring that the Council and the Borough of Rochdale is carbon neutral by 2038.

RBC's *Climate Change Strategy and Delivery Plan 2021-2025*¹¹ identifies the urgent action that is needed to achieve environmental sustainability and enhance the prosperity of people and the planet. It recognises that cutting emissions requires RBC to make significant changes in key areas including clean energy production and consumption and flexibility and diversity in energy supply.

¹⁰ <https://www.rochdale.gov.uk/downloads/file/405/core-strategy>

¹¹ <https://www.rochdale.gov.uk/downloads/file/1120/climate-change-strategy-and-delivery-plan>

3. Sustainability & Energy Strategy & Performance

3.1 Introduction

This chapter summarises the sustainability and energy strategy and performance of the proposed development under each of the following topic headings:

- Grid services
- GHG emissions savings;
- Climate change resilience;
- Land use & biodiversity;
- Transport; and
- Noise.

3.2 Grid Services

3.2.1 Introduction

Battery storage enables power system operators and utilities to store energy for later use. A battery energy storage system (BESS) is an electrochemical device that charges from the grid then discharges that energy at a later time to provide electricity or other grid services when needed.

Increasing needs for system flexibility, combined with rapid decreases in the costs of battery technology, have enabled BESS to play an increasing role in the power system in recent years.

As prices for BESS continue to fall and the need for system flexibility increases with wind and solar deployment, more policymakers, regulators, and utilities are seeking to develop policies to jump-start BESS deployment.

Studies and real-world experience have demonstrated that interconnected power systems can safely and reliably integrate high levels of renewable energy from variable renewable energy sources without new energy storage resources.

3.2.2 What services can batteries provide?

In many cases, a BESS will be technically capable of providing a broad range of services as summarized.

Arbitrage

Arbitrage involves charging the BESS when energy prices are low and discharging during more expensive peak hours. For the BESS operator, this practice can provide a source of income by taking advantage of electricity prices that vary throughout the day.

One extension of energy arbitrage is **reducing renewable energy curtailment**. System operators and project developers have an interest in using as much low-cost, emissions-free renewable energy generation as possible; however, in systems with a growing share of variable renewable energy, limited flexibility of conventional generators and temporal mismatches between renewable energy supply and electricity demand (e.g. excess wind generation in the middle of the night) may require renewable generators to curtail their output.

By charging the battery with low-cost energy during periods of excess renewable generation and discharging during periods of high demand, BESS can both reduce renewable energy

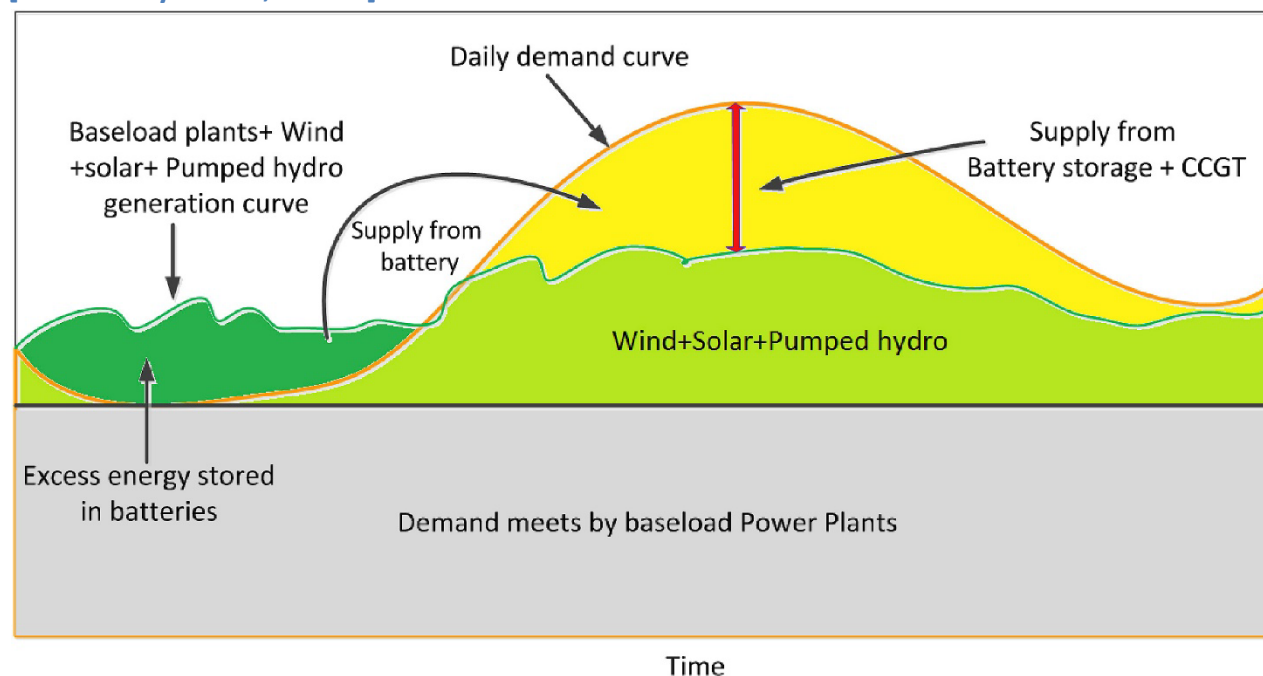
curtailment and maximise the value of the energy developers can sell to the market.

Firm Capacity or Peaking Capacity

System operators must ensure they have an adequate supply of generation capacity to reliably meet demand during the highest-demand periods in a given year, or the peak demand. This peak demand is typically met with higher-cost generators, such as gas power stations; however, depending on the shape of the load curve, BESS can also be used to ensure adequate peaking generation capacity.

While variable renewable energy resources can also be used to meet this requirement, these resources do not typically fully count toward firm capacity, as their generation relies on the availability of fluctuating resources and may not always coincide with peak demand. But system operators can improve their ability to contribute to firm capacity requirements through pairing with BESS. Pairing variable renewable energy resources with BESS can enable these resources to shift their generation to be coincident with peak demand, improving their capacity value and system reliability as shown in **Figure 4**.

Figure 4. Peak Shaving with Grid Scale BESS
[Chowdhury JI et al, 2020¹²]



Operating Reserves and Ancillary Services

To maintain reliable power system operations, generation must exactly match electricity demand at all times. There are various categories of operating reserves and ancillary services that function on different timescales, from sub-seconds to several hours, all of which are needed to ensure grid reliability.

BESS can rapidly charge or discharge in a fraction of a second, faster than conventional thermal plants, making them a suitable resource for short-term reliability services, such as Primary Frequency Response (PFR) and Regulation. Appropriately sized BESS can also provide longer-duration services, such as load-following and ramping services, to ensure supply meets demand.

¹² <https://www.sciencedirect.com/science/article/pii/S1364032120303099>

Transmission and Distribution Upgrade Deferrals

The electricity grid’s transmission and distribution infrastructure must be sized to meet peak demand, which may only occur over a few hours of the year. When anticipated growth in peak electricity demand exceeds the existing grid’s capacity, costly investments are needed to upgrade equipment and develop new infrastructure. Deploying BESS can help defer or circumvent the need for new grid investments by meeting peak demand with energy stored from lower-demand periods, thereby reducing congestion and improving overall transmission and distribution asset utilisation.

Also, unlike traditional transmission or distribution investments, mobile BESS installations can be relocated to new areas when no longer needed in the original location, increasing their overall value to the grid.

Black Start

When starting up, large generators need an external source of electricity to perform key functions before they can begin generating electricity for the grid. During normal system conditions, this external electricity can be provided by the grid. After a system failure, however, the grid can no longer provide this power, and generators must be started through an on-site source of electricity, such as a diesel

generator, a process known as black start. An on-site BESS can also provide this service, avoiding fuel costs and emissions from conventional black-start generators. As system-wide outages are rare, an on-site BESS can provide additional services when not performing black starts.

3.2.3 Value Stacking

BESS can maximise their value to the grid and project developers by providing multiple system services. As some services are rarely called for (i.e., black start) or used infrequently in a given hour (i.e., spinning reserves), designing a BESS to provide multiple services enables a higher overall battery utilisation. This multi-use approach to BESS is known as value-stacking. For example, a BESS project can help defer the need for new transmission by meeting a portion of the peak demand with stored energy during a select few hours in the year. When not meeting peak demand, the BESS can earn revenue by providing operating reserve services for the transmission system operator.

3.3 GHG Emissions Savings

Greenhouse gas (GHG) emissions savings that may be achieved by the proposed BESS providing peak shaving services can be estimated. There are no defined or agreed methods for quantifying these GHG savings and therefore the following approach has been taken.

The proposed 57 MW BESS facility has a 0.5 ‘C Rate’ (meaning it discharges its 57 MW capacity across two hours, and hence has an energy capacity of 114 MWh), 1 cycle per day (i.e. charged and discharged 365 times per year) and ‘round trip’ efficiency of 85% (i.e. 15% loss of energy from the inverter’s conversion of AC to DC power when charging, and conversion of DC to AC power when discharging).

Based on these figures, the proposed BESS has an annual energy capacity of 35,369 MWh as shown in **Table 1**. This annual discharge capacity takes account of round trip efficiency and is sufficient to provide electricity to approximately 20,000 homes for up to 2 hours.

Table 1. Estimated Annual Energy Capacity

Parameter	Value
Power capacity	57 MW
C Rate	0.5C (2 hours)
Energy capacity	114 MWh
Cycles per day	1
Annual capacity (charging)	41,610 MWh
Round trip efficiency	85%
Annual capacity (discharging)	35,369 MWh

The UK Government electricity grid carbon factor for 2023¹³ is assumed for BESS charging (207 kgCO₂e/MWh), likely to be an over-estimate given charging will typically take place at night when grid electricity typically has low carbon intensity (and low cost) compared to the annual average.

For discharging, the long-term marginal counterfactual for combined cycle gas turbine (CCGT) is assumed (360 kgCO₂e/MWh)¹⁴ given it is typically CCGT power that otherwise would have been required to meet peak demand. This may also be an under-estimate given peak electricity demand in the UK is also met through open cycle gas turbines (OCGT) which result in higher carbon electricity (460 kgCO₂e/MWh) due to lower efficiency than CCGT.

The GHG saving achieved by the BESS can then be calculated as the difference in carbon intensity between incoming low carbon power during charging and higher carbon power offset during peak demand as shown in **Table 2**.

Table 2. GHG Savings (Annual Grid Factors)

Parameter	Value
Charging carbon intensity	207 kgCO ₂ e/MWh
Annual capacity (charging)	41,610 MWh
Charging emissions	8,616 tCO ₂ e
Discharging carbon intensity counterfactual	360 kgCO ₂ e/MWh
Annual capacity (discharging)	35,369 MWh
Discharging emissions savings	12,733 tCO ₂ e
Year 1 GHG saving	4,116 tCO ₂ e

On these assumptions, the proposed BESS will save 4,116 tCO₂e in Year 1. Based on the average UK car mileage in 2020 of 6,800 miles and the UK Government carbon factor for an average car and fuel (0.26833 kgCO₂e/mile), this GHG saving is equivalent to taking 2,255 cars off the road.

It is difficult to forecast GHG savings from BESS beyond Year 1 given the large number of variables and the complex way in which these variables will interact and change over time as the UK moves towards its net zero by 2050 targets, for example the continued update of renewables and phase out of fossil fuel generation such as CCGT.

UK Government publishes electricity grid carbon intensity factors¹⁵ which include grid average

consumption-based factors for the commercial sector (which equate to BESS charging), and also long-run generation-based factors (which equate to BESS discharging).

Using these projected charging and discharging factors in place of those shown in **Table 2** suggests total GHG savings up to 2038 (i.e. 15 years) of 21,088 tCO₂e.

However this takes no account of further GHG benefits that will result from the proposed BESS, such as from reducing renewable energy curtailment, and the actual GHG savings that will be achieved will depend on the specifics of its operation and value stacking.

3.4 Climate Resilience

3.4.1 Drainage

A Design and Access Statement including Drainage Statement has been prepared by PyeDesign Architects.

The site is located in Flood Zone 1 and is therefore at the lowest risk of flooding, and there are no recorded issues with flooding on this site. Currently the site is naturally drained and the proposals seek to continue this approach, with no

¹³ <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023>

¹⁴ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48375/5350-emr-annex-d--update-on-the-emissions-performance-s.pdf

¹⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1150890/data-tables-1-19.xlsx

new connections into the mains surface water system proposed.

All new roadways and stone surfaces within the site are to be fully permeable. Any rainwater collected on the new pitched roof barn structures is to be directed to the ground level via rainwater pipes and will then naturally soak away. The floor within the barn structures is to be permeable stone rather than concrete slab.

Any rainwater hitting the top of the battery units, inverters, substation or ancillary unit will fall to the ground and soak away naturally through the permeable surfaces.

The proposals will not generate any foul waste and as such, foul drainage connections to the site will not need to be considered.

If required, a detailed ground drainage system design can be produced in due course and approved by the local authority and United Utilities before commencement of works. Therefore, it is anticipated that if a detailed drainage design is required, it would be a planning condition at this stage.

Any new ground drainage installed will be compliant with United Utilities guidelines and Building Regulations Approved Document H.

3.4.2 Thermal Management

Lithium-ion, the battery technology proposed for the Development, accounts for more than 90% of large-scale battery energy storage systems around the globe. In general, it is best to keep batteries at a moderate, consistent temperature to ensure their optimal performance and longevity. Exposure to extreme temperatures, either hot or cold, can damage batteries and potentially cause hazardous events.

The specific temperature range that batteries require to operate safely varies depending on the type of battery and its design. The safe operating temperature range for lithium-ion batteries is typically between -20°C and 60°C, with an optimal temperature range of between 15°C and 35°C¹⁶.

Applications that require rapid charging / discharging, internal resistances to higher currents can result in the generation of heat. Operation of lithium-ion batteries in high ambient temperatures can also accelerate the aging process and lead to degradation of performance.

Low ambient temperatures can also cause problems with internal overheating due to increased viscosity in the electrolyte which leads to sluggish ion transport, resulting in higher resistance and heat generation.

3.5 Land Use & Biodiversity

3.5.1 Arboriculture

An *Arboricultural Impact Assessment* has been prepared for the application by ACS Consulting. The assessment notes that the development design is driven by prescriptive site width and depths which means the proposed development can only be accommodated on the application in the specific layout that is proposed.

Regarding trees, the proposals are considered to retain the site's principal arboreal features with a good spatial relationship. The tree specimen that is proposed for replacement cannot be considered a 'major constraint' given its lack of quality does not merit such a description.

Overall, the removal of a single tree to facilitate the development has only limited implications for the site's tree cover. The proposals are not considered to result in the unacceptable loss or harm to features of landscape important or amenity value.

A method statement is provided to protect retained trees during construction of the proposed development.

Refer to the *Arboricultural Impact Assessment* for further details.

¹⁶ <https://www.ien.com/operations/article/22820306/thermal-management-solutions-for-battery-energy-storage-systems>

3.5.2 Ecology

An *Ecological Survey and Assessment Statement* has been prepared for the application by ERAP. This presents the results of an updated desktop study and data search, an extended Phase 1 Habitat Survey and a protected species assessment carried in June 2023.

This report provides a comprehensive account of the ecological baseline and has informed the site layout and the Landscape and Planting Strategy Plan (Turley, 2023).

The proposals will have no adverse effect on statutory or non-statutory designated sites for nature conservation. None of the habitats within the survey area and site boundary are semi-natural or are irreplaceable habitat. The species and communities present are typical of the geographical area and the previously agriculturally managed conditions present.

The area of semi-improved grassland within the site is of 'local' importance as it supports a greater diversity of plant species than the surrounding agriculturally improved fields. Development over part of the semi-improved grassland is an identified impact of the proposals and a compensation / habitat creation mitigation strategy is proposed

Two hedgerows (1 and 2) within the site are Priority Habitat, and Hedgerow 1 meets the criteria to qualify as 'important' in accordance with The Hedgerows Regulations 1997. The two

hedgerows and the tree lines are of 'local' value as they add structural diversity and are suitable for use by breeding birds and foraging and commuting bats; these habitats will be retained by the proposals.

Indian Balsam, an invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is present at the eastern site margin. The proposals present an opportunity for the eradication of this species to prevent further local spread in the wild.

Appropriate survey and assessment has been completed to reasonably discount the presence of badger, roosting bats, great crested newt and reptile species. No further surveys for protected species are required to inform the planning application.

The hedgerow(s) and tree lines provide favourable foraging and nesting habitat for bird species. Recommendations for the retention and protection of these habitats, where feasible, as part of the proposed development are presented

It is considered that, once the construction period is completed, the proposals will have no adverse effect on the availability of opportunities for use by nesting birds at the site. Once established, the measures detailed on the *Landscape and Planting Strategy Plan* will enhance the opportunities at the site for nesting birds (and foraging bats).

In conclusion, the proposed battery storage development at Clay Lane / Furbarn Road is

feasible and acceptable in accordance with ecological considerations and the NPPF.

Adverse effects on protected species will be avoided and measures for Priority Species, particularly bird species, will be accommodated by the proposals and landscape planting.

The proposals will secure an opportunity to implement beneficial measures such as habitat creation that will conserve and enhance habitats for wildlife such as birds and bats, with the aim of providing gains for biodiversity in accordance with the principles of the NPPF.

3.5.3 Biodiversity Net Gain

An *Assessment of Biodiversity Net Gain report* has been prepared for the application by ERAP as an appendix to the *Ecological Survey and Assessment report*.

In accordance with paragraph 180(d) of the NPPF, "*opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate*".

This assessment of BNG has been prepared to provide an account of the biodiversity value of the baseline habitats at the site and an assessment of the value of post-development habitats based on the *Landscape Planting Strategy Plan* (Turley, 2023).

The report also provides guidance in relation to the requirements to be secured at the site to attain a net gain in accordance with *Biodiversity Net Gain: Good Practice Principles for Development* (CIEEM, 2016)

Based on the parameters assumed by the Indicative Masterplan, it is concluded that no net loss in biodiversity at area-based habitats and a significant net gain for biodiversity at hedgerow / linear-based can be demonstrated.

In addition, as outlined in the *Ecological Survey and Assessment* report, to maximise the opportunities for ecological enhancement and net gains within the urban environment to be secured by the proposals and to demonstrate compliance with CIEEM guidance, the following additional measures are proposed:

- a. Conservation (and enhancement by habitat creation and long-term management) of the semi-improved and improved grassland at the eastern end of the site. The retained grassland is enhanced by overseeding with a wildflower mix that contains Yellow Rattle (*Rhinanthus minor*). This species is semi-parasitic on grass species which can reduce the vigour of grasses allowing wildflowers to flourish;
- b. Maximised biodiversity value of the areas around the storage facility by reinstatement of areas to be disturbed during construction with wildflower grassland;

- c. Planting of native trees and shrubs to improved habitat structural diversity and provide additional opportunities for nesting birds and other wildlife;
- d. Construction of log and brash piles in appropriate areas to provide opportunities for sheltering invertebrates, small mammals and amphibians and an opportunity for colonisation by fungi; and
- e. Installation of retaining walls / vegetated wall system to enhance habitat connectivity around the built environment.

It is proposed that the secured long-term management of the habitats in accordance with nature conservation objectives can be achieved by preparation and implementation of a Landscape and Ecological Management Plan (LEMP).

Refer to the *Biodiversity Net Gain report* for further details.

3.6 Transport

A *Transport Statement* has been prepared for the application by Curtains.

The development itself will not generate any trips beyond the occasional maintenance vehicle once operational. However, construction activities will generate some movements for a period of time and this requires consideration.

The construction and installation of the Development will take approximately 12 months.

During construction, the site will be accessed via a temporary roadway from the Rake to the north (near the Rake / Furbarn Road junction). There will be a temporary turning head within the site to allow construction vehicles to turn and exit the way they came.

It will be necessary to dig up and close the road to install the cable, however several residential properties are accessed solely off the road. To minimise impacts the installation will be carried out in four phases so that residents have access to their properties throughout and minimise disruption.

A *Construction Traffic Management Plan* will be prepared to manage the construction traffic associated with the development. The construction and operational vehicular impact would be negligible on the surrounding area in terms of highways, traffic, and transportation.

Following completion of the construction works, the temporary access will be removed, and the ground reinstated along the internal route.

Accessed from Lower Jowkin Lane, there will be a short internal road, space for a 3.5t panel van to park and a turning area so vehicles can exit the way they came. Access is required on a monthly basis. As there will be no staff or users on site, no other parking will be necessary.

On the above basis, Curtins considers that the highway network would not experience any

significant adverse traffic impact resulting from the proposed development.

The assessment also concludes that the development will also provide the potential opportunity for the Local Authority to plan to implement their Electric Vehicle strategies and assist in improving air quality.

Refer to the *Transport Statement* for further details.

3.7 Noise

A *Noise Assessment* has been prepared for the application by Miller Goodall.

Environmental Health at Rochdale Borough Council have been consulted in respect of the methodology used in this assessment. It was agreed that Miller Goodall would undertake a noise assessment at the site of the proposed development, comprising unattended measurements of background and ambient sound levels to inform the assessment. Since the consultation response, Miller Goodall has been instructed by the Applicant to set plant noise limits which will advise the plant selection and potential mitigation.

As the plant will be operational 24 hours a day, it is necessary to base the noise rating limit on the periods where background noise levels are lowest, which occurs during the night-time periods. Cumulative operational plant noise rating limits have been set for operations associated with the

proposed development, based on the background sound level measured during an unattended survey.

A cumulative plant noise rating limit of 33 dB has been set at the first floor windows of the nearest noise sensitive receptors. It is recommended that should this application gain planning consent, a suitably worded planning condition be provided which ensures that cumulative operational noise resulting from the proposed development does not exceed a rating level of 33 dB at the nearest and worst affected noise sensitive receptors.

Refer to the *Noise Assessment* for further details.

4. Conclusions

The Committee on Climate Change report *Delivering a Reliable Decarbonised Power System (March 2022)*¹⁷ highlights the importance of developing storage solutions and capacity to provide storage services on an hours to days basis. Short term priorities include lithium ion BESS to provide increased grid flexibility and to grow the UK's current 2 GW of grid connected battery storage.

Regarding ecology, the proposed development is feasible and acceptable in accordance with ecological considerations and the NPPF. Adverse effects on protected species will be avoided and measures for Priority Species, particularly bird species, will be accommodated by the proposals and landscape planting. The proposals will also secure an opportunity to implement beneficial measures such as removal of invasive species and habitat creation to conserve and enhance habitats

for wildlife such as birds and bats, with the aim of providing gains for biodiversity in accordance with the principles of the NPPF.

Regarding Biodiversity Net Gain, that no net loss in biodiversity at area-based habitats and a significant net gain for biodiversity at hedgerow / linear-based can be demonstrated.

The site is located in Flood Zone 1 and hence at the lowest risk of flooding and there are no recorded flooding issues on site. The proposals maintain the current natural drainage through permeable surfaces with no new connections to the mains surface water system proposed, and no foul or wastewater will be generated.

Regarding other local impacts, a suitably worded planning condition be provided to ensure that operational noise resulting from the proposed development does not result in unacceptable

impacts at the nearest and worst affected noise sensitive receptor.

The proposed development will provide essential balancing services and decarbonisation to the National Grid. The proposed BESS will be sufficient to provide electricity to approximately 20,000 homes for up to 2 hours, with GHG savings in the first year of circa 4,116 tCO₂e forecast, equivalent to taking 2,225 cars off UK roads. Cumulative GHG savings over a 15 year period of 21,088 tCO₂e may be achieved.

The proposed development is demonstrated to comprise sustainable development in line with national and local policy objectives and Committee on Climate Change recommendations and as a result should be approved in accordance with Rochdale Core Strategy Policy SD1: Delivering Sustainable Development.

¹⁷ <https://www.theccc.org.uk/wp-content/uploads/2023/03/Delivering-a-reliable-decarbonised-power-system.pdf>

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