Design and Access Statement

Prepared by: Anesco Limited

The Green, Easter Park, Benyon Road, Reading, RG7 2PQ

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Rev A

Heywood grange Solar Farm Design and Access Statement for Energy Storage System (ESS).

Introduction

This statement is submitted as part of Full Planning Application for the installation of an Energy Storage System (ESS) comprising of a single container and associated electrical works located at Heywood Grange, Dilhorne, Staffordshire, ST10 2PL.

The Storage Technology

The ESS will be connected to the previously consented Heywood Grange Solar Farm (SMD/2015/0088). Solar photovoltaic (PV) technology collects and converts solar irradiation directly into electricity. PV panels silently convert sunlight to electrical energy. They generate direct current (DC) that is then converted to alternating current (AC) which in this case is used by the end consumer with any extra electricity being exported to the electricity grid. Due to the nature of solar panels they are only able to generate energy during daylight hours. Adding the ESS means that energy generated during daylight hours can be stored and released into the local grid when the demand is highest. The ability to store energy that is generated from a renewable source can be a valuable resource for any power system, making it an even more efficient way to use energy. This has many advantages including providing an independent and uninterrupted power supply that will remain even if the grid supply fails. It enables sites to maximise the savings from on-site generation by using 'free' electricity stored in the battery rather than from the grid.

The Site

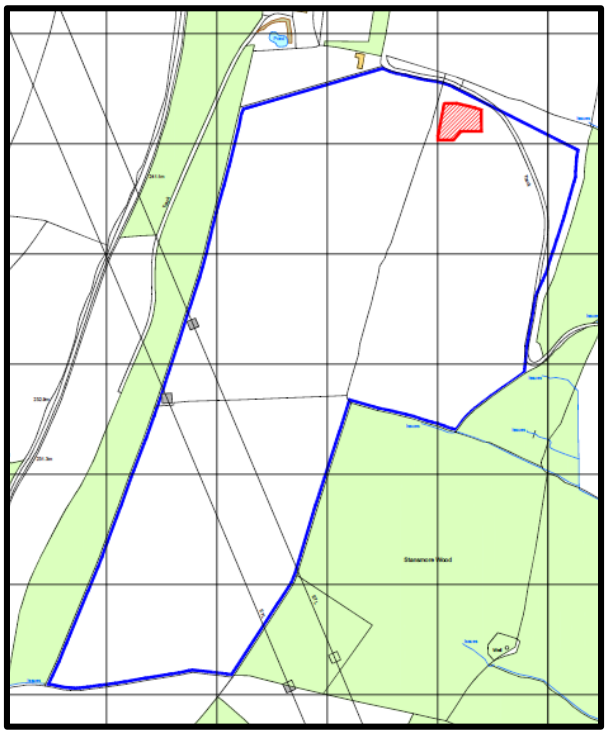

Fig. 1: Location of solar farm in blue, position of Battery and equipment in red

Site Description

The ESS is a standard 40 foot container which measures 2.43 m by 12.19 m and 2.89 m high. There is also 2 associated buildings required to connect the ESS to the solar farm, a LV Switch/Transformer and a metering substation. The ESS and associated infrastructure will be wholly within the existing red line boundary from application SMD/2015/0088.

The ESS has minimal visual impact. The ESS will be positioned close to the existing infrastructure on site such as the LV substation helping it to merge with the infrastructure already installed. The site is well screened from Main Road, public footpaths and properties. The ESS is small in scale to the size of the solar farm and as such the original landscape assessment on which the solar farm was based will still apply to the site with the installation of the ESS. Visibility of the ESS will be minimised due to the natural screening and additional screening proposed with the original solar farm application. Overall addition of the ESS will not affect the landscape or visual impact of the surrounding area.

The Proposal and Installation

The application comprises of the installation of a single ESS container (fig 2) and associated buildings all located towards the South East of the site (please see drawing 001906_04 Location Plan_RevA which accompanies this application and see fig 1). The system can be installed with minimal disruption to the existing development. As part of the original planning application (SMD/2015/0088) access into the site is already in place and safe for construction traffic. The same access route and construction guidelines will be used for the installation of the ESS as proposed in the traffic management plan submitted with the original planning application for the solar farm.

The system is based on a standard sized container which means it can be safely loaded and transported on a standard HGV lorry. Cranes will lower the system onto small concrete foundations, one on each corner and two in the middle for support. A short section of cable will be laid in the ground from the Energy Storage System to the transformer next to the LV substation in order to connect it to the solar farm system. Very few vehicle movements are required to install the system.

Fig 2: Example ESS container.

Planning Policy Guidance

This statement is submitted to accompany the full planning application for the Energy Storage System being installed on previously commissioned Heywood Grange Solar Farm. It takes account of the requirements of the Town and Country Planning (General Development Procedure) Order 1995 (as amended) and the National Planning Policy Framework (NPPF) 2012.

The Stern Review

The Stern Review was a government commissioned assessment of the financial impacts associated with global warming and was published in 2006. It concludes that: *"There is still time to avoid the worst impact of climate change, if we act now and act internationally*"

EU Policy

The European Union has played a particularly key role in setting targets for the reduction of CO2 following the signing of the Kyoto Protocol in 1997. At the Kyoto summit it was agreed that the European Union would aim to achieve an 8% reduction in CO2 emissions. The UK's contribution has been set at reducing greenhouse gases to 12.5% below the 1990 levels by 2008-2012 and we are currently well below the target.

National Guidance

National guidance is provided in the form of PPS1 and PPS22.

PPS1 states:

"Development plan policies should seek to minimise the need to consume new resources over the lifetime of the development by making more efficient use or reuse of existing resources, rather than making new demands on the environment; and should seek to promote and encourage, rather than restrict, the use of renewable resources (for example, by the development of renewable energy)" Planning Policy Statement 22 (PPS 22) Renewable Energy was released in 2004 and replaces Planning Policy Guidance note (PPG) 22. It sets out the government's land use planning objectives and planning policies for renewable energy, which planning authorities should take into account when preparing local development documents and when making planning decisions. This statement reiterates the government's desire to actively encourage renewable energy projects to reduce greenhouse gas emissions and to maintain security of energy supplies and also lays emphasis on the importance of early consultation with local communities on renewable energy developments.

The guidance translates into policy objectives of the Energy White Paper which announced the government's intention to supply 20% of our electricity from renewable sources by 2020 and put the UK on a path to delivering CO2 reductions of around 60% by 2050. The government's target is to ensure that 10% of electricity comes from renewable sources.

PPS22 (P6) "*Increased development of renewable energy resources is vital to facilitating the delivery of the government's commitments on both climate change and renewable energy*"

Site Analysis

Visibility & Landscaping

A full landscape and visual assessment of the site was conducted as part of SMD/2015/0088. This assessment concluded that the impacts of the solar farm are expected to be minor and would be contained within the site. Any concerns would be mitigated through the proposed landscape and enhancement strategy. The placement of the ESS and associated buildings adjacent to established screening help to minimise any further impact the ESS may have. Overall it is felt the original landscape and visual assessment for the site is still valid and the addition of the ESS will have a very minor impact on the site.

Ecology and Flooding

Ecological assessments and biodiversity management plans were generated up as part of application SMD/2015/0088. The ecological measures proposed in this report will not be effected by the installation of the ESS and will continue to be implemented in line with the original application.

A full flood risk assessment was also conducted for the site under SMD/2015/0088. The assessment and the associated mitigation measures will remain as approved and will not be impacted by the installation of the ESS.

The Installation of the ESS and its ongoing operation will have a very minimal impact on the site.

Noise Impact

The installation is not considered to result in any significant noise disturbance; however a summary of the proposal is detailed below.

Construction Phase: Potential noise from the construction works and traffic movements of the proposed scheme is not considered to be significant.

Operational Phase: The ESS is not predicted to make any noise during operation. The system is positioned close to other electrical equipment such as inverters and transformers which can emit low level noise. This is the same equipment installed on the approved solar farm SMD/2015/0088.

Heritage/Archaeology

A full Heritage Assessment was carried out as part of application SMD/2015/0088. The assessment concluded that there were no overriding heritage constraints and that further archaeological mitigation was unnecessary. Given the conclusion of the Heritage/Archaeological assessment already undertaken and the minor works associated with the proposed ESS, it is felt there will be no impact on Heritage/Archaeology from the installation of the ESS.

Planning Considerations

Location of the ESS is considered ideal as it utilises space on the existing site rather than requiring new land. Any disturbance would be negligible and only minor traffic movements would take place. The system is extremely low maintenance. Any maintenance would be completed at the same time as the rest of the solar array.

Furthermore, the provision of renewable energy apparatus appears to be strongly encouraged by planning policy at all levels.

Environmental Sustainability

The current site use as a solar farm feeds renewable energy into the national grid, helping to reduce demand from fossil fuel based generators such as coal or gas fired power stations. The site has also been returned to a more natural meadow state encouraging an increase in biodiversity in the area. This site already has a high level of environmental sustainability. The addition of the ESS helps to reinforce these credentials by smoothing the power flow into the national grid by being able to store the energy until it is needed, which in turn reduces stress on the local network. The proposed ESS is also fully recyclable at the end of the project lifecycle, adding to its sustainability.

Access

The main traffic movements are those associated with the construction stage including initial delivery vehicles and installation machinery. Access and traffic to site will follow the procedures and guidelines set out in the traffic management plan approved with the original application for SMD/2015/008.

It is considered the impact of construction traffic will be minimal and existing facilities on site will be adequate for the installation.

Summary

- The proposal incorporates an Energy Storage System and associated electrical equipment.
- The surrounding area will not be adversely impacted by the system.
- The effects of the Energy Storage System will be negligible and contained within the site.
- The proposal improves the efficiency of the existing solar farm and therefore continues to enhance the development.
- The proposal will continue to contribute towards meeting national targets.

Due to the nature of solar panels they are only able to generate energy during daylight hours. Adding the ESS means that energy generated during daylight hours can be stored and released into the local grid when the demand is highest. The ability to store energy that is generated from a renewable source can be a valuable resource for any power system, making it an even more efficient way to use energy. This has many advantages including providing an independent and uninterrupted power supply that will remain even if the grid supply fails. It enables sites to maximise the savings from on-site generation by using ‘free’ electricity stored in the battery rather than from the grid.

Based on the details submitted above, it is considered that this energy storage installation will be a key contribution to the renewable energy targets at a national and local level. The installation utilises an existing solar farm and helps to improve its efficiency in delivering clean, green energy to the grid when it is most needed.