

Design and Access Statement

Purpose

The purpose is to create a sustainable source of renewable energy in order to significantly reduce electricity consumption.

This proposed development will strictly be for commercial benefit and will facilitate the electricity required to operate grain storage and drying facilities.

Mr Hargreaves, the landowner recognises the environmental impact of the use of fossil fuels on the climate and most reverently wishes to reduce the carbon output of the farm whilst significantly reducing fossil fuel electricity consumption.

Access

Access during the construction period will be limited to one standard 30ft container and commercial vehicles, and after construction, access for maintenance activities will be limited to 1 scheduled visit per annum by our technicians.

All stages of the development are planned to be completed within one week from project commencement, whilst the generation of renewable energy is expected to exceed 25 years.

Recognising the overall financial value of the development, site access will be restricted. However, during normal operation, the surrounding array area can also be integrated with the keeping of current usage.

Volume

The proposed size of development is diminutive compared with the surrounding land. Given that the array is entirely passive during operation (zero emissions and zero noise levels) the proposed area will have no consequences to the surrounding areas other than appropriate allowances for maintenance requirements.

Layout

The PV array is a collection of separate panels / modules which needs to be of south facing orientation to optimise the sun's elevation. To minimise the visual impact, the PV arrays will be positioned where possible out of direct line of sight.

Scale

The PV array structure will be no higher than 2.3m on the high side and no lower than 200mm at the low side. The modules will each be fixed at 39 degrees to the horizontal and facing perpendicular to true south.

The PV array will be of the fixed type and as such will not rotate to align with the sun.

The grid connection equipment (inverters and electrical switch gear etc), will be housed in secure structures within central positions within the PV array; these will be less than 0.5m long, 0.5m wide, and less than 0.5m high, and will be placed centrally and directly behind the array.

Landscaping

The proposed development will utilise high quality materials and design. The foundations for the solar panel will be a screw auger fixed into the ground – no concrete will be used.

All the characteristic elements of the landscape would remain physically unaffected, as this will require minimal disturbance to segments of the topsoil.

No existing hedges or fences or existing footpaths that cross the fields will be altered or affected during construction or operational phases.

Flooding

The sites natural capacity to soak water away will remain unchanged from the pre-installation status. Rainfall run-off from the panels has a negligible impact on the natural capacity of the site to cope with water drainage. This is due to the open spacing of the panels and the none-invasive nature of the panel frame anchors. The development constitutes no significant scaled ground work that could act to change the flow of surface water across the site.

Noise

There is zero noise emitted from a solar panel installation of this capacity. In some instances, larger arrays i.e. greater than 200 panels, whereby a small sub-station is required, may produce a very low frequency level of noise.

Appearance

Within the context of the local landscape in which the solar array is proposed, there would be a slight effect upon the landscape character. The modules are dark blue and covered with non-reflective glass. Each module will have a thin aluminium frame and will be mounted upon galvanised steel and aluminium ground mounted framework.



The framework and support posts are made of very strong, hot-dip galvanized steel to guarantee optimum corrosion resistance and durability of the installation.

Installation Process - Method Description

The following constitutes an outline of the process for the installation of panels based on a sub-terrain ground mounted system.

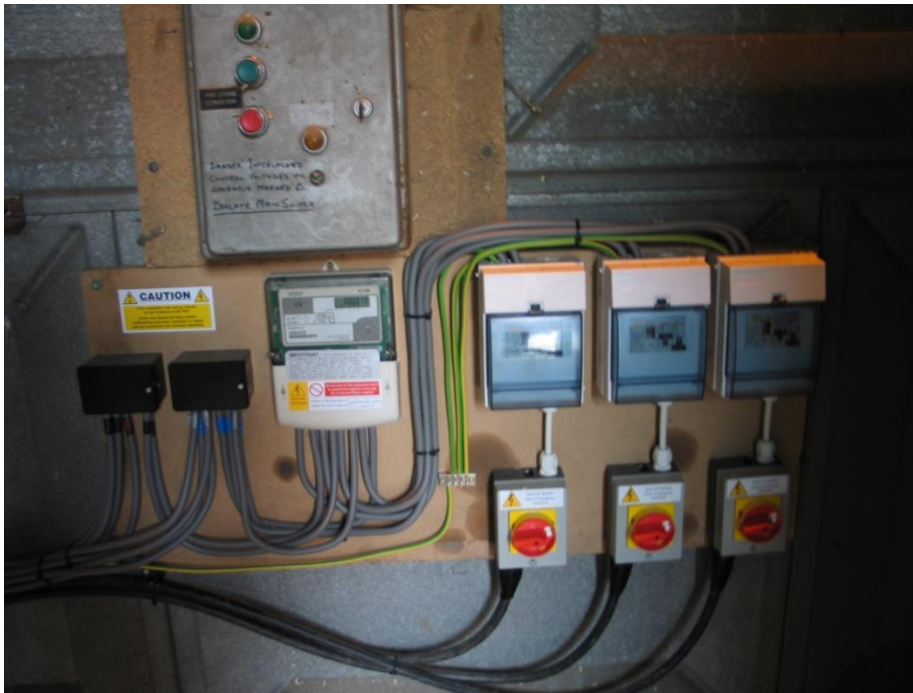
- Cut down grass and weed kill area
- Compress ground area
- Fix mounting rail system
- Secure panels to mounting rail system
- Connection of electrical wiring and inverters in accordance with regulations and design
- Excavate trench to depth of 600mm
- Lay AC armoured cable within 3 inch duct and on a shingle bed to the three consumer board area; covered by electrical warning tape
- Refill and compress trench including reinstatement of shingle crossing area
- Instate heavy duty permeable draining membrane
- Instate shingle to cover complete array area
- Security: In order to provide utmost security we will chemical set compound into the panel connectors meaning that any potential thief will only be able to remove the panels with a setaline torch

Connection from Array to Fuse Board – The Trench

The connection from the array to the customers Fuse Board will be via a subsurface 25mm cable. The trench will be excavated to a depth of circa 700mm whereby the SWA cable will be bedded.. The trench will be 75 meters in length.

The SWA Cable will be covered at 400mm deep an electrical yellow warning tape.

Below is an example of the connection to a three phase supply.



Below is an image of the inverter mounting and location behind the panel array



Date: 24th November 2020

Document Produced by: Sean Gilvey

Impact Renewable Energy Limited.

