SOLAR FARM
DECOMMISSIONING PLAN

[XXXXXX] Solar

April 2022

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**1. Introduction**

[XXXX] (the “Applicant”), a [XXXX] company, hereby submits this plan for the eventual decommissioning of the proposed [XX] MWAC/[XX] MWDC solar photovoltaic generation facility located at [PROJECT ADDRESS] (the “Project”) [and the establishment of a decommissioning fund (the “Decommissioning Fund”).

A site location plan is provided at Appendix 1 for reference.

**2. Decommissioning Plan**

The Project is anticipated to operate for 40 years. At the time the Project ceases to operate, Applicant will perform decommissioning which shall include removal of all energy facilities, structures and equipment including any subsurface wires and footings from the parcel up to a depth of [1m]. Any access roads created for building or maintaining the system shall also be removed and re-planted with vegetation or grassland species as appropriate. The solar panels and all other equipment removed from the project site, unless being reused or repurposed for another project, shall be recycled in accordance with all applicable policies and procedures in effect at the time of decommissioning.

Further, decommissioning will include restoring the property to its pre-installed condition, including grading where required and vegetative stabilisation to eliminate any negative impacts to surrounding properties.

**3. Cost of Decommissioning**

The fully inclusive cost to decommission the Project, as defined in Section 2 herein, is estimated at £[XXX,XXX] (the "Estimated Decommissioning Cost''), as detailed in Appendix 2.

The Estimated Decommissioning Cost shall be reviewed [annually / every five years] to account for adjustments in scrap/re-sale values and changing deconstruction costs.

**4. Establishment of Decommissioning Fund**

The Decommissioning Fund will be funded with either (i) a surety bond (the "Bond”) or (ii) an irrevocable standby Letter of Credit (the "LC") or (iii) another appropriate financial security that is solely for the benefit of the Landlord (as defined in the lease for the Project). The LC or other pre-approved financial security, shall be in place from year [10] and filed with the Landlord.

No other entity, including Applicant, shall have the ability to demand payment under the Bond (or other appropriate financial security).

At the end of the Project's useful life, and in the event Applicant does not seek Local Planning Authority (LPA) approval to repower the Project, Applicant will decommission the Project. Upon completion of decommissioning, Applicant shall seek a certification of completion from the Landlord. The certification will be provided to the issuing bank with instructions to terminate the Bond (or another appropriate financial security).

The Landlord shall have the right to draw on the Bond (or other appropriate financial security) to pay the costs of decommissioning in the event that Applicant (or its successor) is unable or unwilling to commence decommissioning due to dissolution, bankruptcy, or otherwise. Prior to the Landlord drawing on the Bond (or other appropriate financial security), Applicant shall have a reasonable period of time to commence decommissioning, not to exceed [180] days following issuance of an order requiring decommissioning of the Project.

**5. Pre-Commencement Activities**

Prior to the decommissioning process the Applicant should seek guidance from an Ecological Clerk of Works (ECoW) to provide advice on how to manage any ecological or environment issues that may come up through the decommissioning process.

A full ecological survey of the site will be required prior to removal of any infrastructure, which may include more detailed surveys (eg. Soil health, nesting birds, reptiles, great crested newts etc). Sufficient lead in time will be required to ensure that these surveys can be undertaken, particularly as they may be seasonally constrained.

Subsequent to the surveys being completed, a Decommissioning Environmental Management Plan (DEMP) will be required, which may include measures such as translocation of animals, manipulation of vegetation to disperse animals present or careful timing of works.

A Decommissioning Transport Management Plan will also be prepared and agreed with the LPA, if necessary, to accompany the Decommissioning Plan. This will likely be similar to the CTMP prepared for the construction of the project, and inline with best practice at the time of the works.

The electrical supply to the solar farm will need to be disconnected / made safe and future arrangements, if any, for the DNO substation agreed with the network operator, the landlord and the LPA.

**6. Decommissioning Instructions**

The following list is the sequential procedure that should be followed by the Applicant for removal of the system pursuant to this plan:

**5.1. Project Component Removal**

All control cabinets, substations, inverter stations, transformer stations, other electronic components and internal cables will be removed along with the panels, racks, and inverters. These components will be transported whole for reconditioning and reuse where possible, or if not disassembled/cut into more easily transportable sections for salvageable, recyclable, or disposable components (primarily the mounting frame and electrical cables).

**5.2. PV Module Removal**

The Project’s solar photovoltaic panels are manufactured according to the regulatory toxicity requirements based on the Toxicity Characteristic Leaching Procedure (TCLP). Under these regulations, solar panels are not considered hazardous waste. The panels used in the Project will contain:

Glass 75%

Polymers 10%

Aluminum 8%

Silicon 5%

Copper 1%

Silver 1%

All which have recycling or resale value. Modules will be dismantled and packaged per manufacturer, approved recyclers or resellers specifications and shipped to an approved off-site solar panel recycler.

It is important to recognise that solar panels have a minimum 10 year product warranty and a minimum 25 year performance guarantee. Those warranties have a direct impact on the panels’ salvage value. The earlier the decommissioning event the higher salvage value.

International Renewable Energy Agency (IRENA) and the International Energy Agency’s Photovoltaic Power Systems Programme (IEA-PVPS) published a detailed report titled, “The End-of-Life Management: Solar Photovoltaic Panels” that projects the PV panel waste volumes to 2050 and highlights that recycling or repurposing of solar PV panels at the end of a 30-year lifetime will unlock a large stock of raw materials and valuable components. The report estimates that PV panel waste, comprised could total 78 million tonnes globally by 2050. The value of the recovered material could exceed $15 billion by 2050. This potential material influx could produce 2 billion new panels or be sold into global commodity markets.

**5.3. Electric Wire Removal**

The copper and aluminium electric wires have a value for recycling. The DC wiring can be removed manually from the panels to the inverter. Underground wire in the project will be excavated to a depth of [1m] and below that where it is economically feasible to do so. When excavating the electrical trenches, the topsoil must be separated from the subsoil. The cables and any warning tape should be removed from the ground. Additional subsoil will be required to ensure the trenches do not sink. The separated topsoil should be reinstated once the trench backfilled. Any overhead cabling belonging to the Project for the interconnection will be removed from poles. All wire will be sent to an approved recycling facility.

**5.4. Racking and Fencing Removal**

All racking and fencing material like posts that were driven into the ground will be pulled, broken down into manageable units, removed from the facility and sent to an approved recycler.

**5.5. Concrete Slab Removal**

Concrete slabs used as equipment pads will be broken and removed to a depth of [1m] below ground level. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site. The excavation will be filled with subgrade material of quality and compacted density comparable to the surrounding area, before covering it with topsoil consistent with that across the site as a whole.

**5.6. Access tracks**

The last structure to be removed is the access roads. They will be stripped exposing the geotextile beneath. The geotextile will then be removed and disposed of revealing the original subsoil surface below. The compacted soil beneath the road fill might require ripping with a subsoiler plough to loosen it before it can be returned to crop production. The access track areas will then need to be topped with topsoil consistent with that across the rest of the site. Some of the access tracks might be retained by the landowner as it will be an improvement for their farm access.

**5.6. Site Restoration Process**

The site consists of c.[XX] acres of [agricultural] land. Following the decommissioning activities, the sub-grade material, and topsoil from affected areas will be de-compacted and restored to a density and depth consistent with the surrounding areas. All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area.

If the subsequent use for the Project site will involve agriculture, a deep till of the project site will be undertaken. The affected areas will be inspected, thoroughly cleaned, and all construction-related debris removed. Disturbed areas will be reseeded to promote the re-vegetation of the area unless the area is to be immediately redeveloped. In all areas restoration shall include, as reasonably required, levelling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure the establishment of suitable grasses and forbs, and to control noxious weeds and pests. The future use of the land for agricultural purposes would not be prejudiced.

**Appendix 1**

**Site Location Plan**

**Appendix 2**

**Breakdown of Decommissioning Costs**

Applicant submits this breakdown of the Estimated Decommissioning Cost to support the proposed decommissioning fund of £[XXX,XXX for the project based on [2022] cost of work estimates.

It should be further noted that while the Decommissioning Fund is established in the amount equal to the gross decommissioning costs of £[XXX,XXX], there will likely be significant salvage value that would make the net system decommissioning cost lower than the proposed Decommissioning Fund amount.

To better explain the potential salvage value for this project we have completed a more detailed analysis of the current value of the main project components:

solar panels, racking system aluminium/steel content and the electric cabling copper/aluminium content. The current published values for these materials can have a fairly large spread. For each item we choose to use the most conservative pricing available to assume the current worst case scenario. As you can see from the summary analysis the current salvage value is 3 times higher than the proposed decommissioning cost.

[INSERT TABLE OF SALVAGE VALUES FOR EACH COMPONENT OF THE SOLAR FARM]