

Tween Bridge Solar Farm

7.2 Outline Operational Environmental Management Plan

Planning Act 2008 Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

APFP Regulation 5(2)(q)

Document Reference: 7.2

August 2025

Revision 1

OUTLINE OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

Table of Contents:

1	Introd	Introduction		
	1.1.	Introduction	2	
	1.2.	Purpose of this Document		
2	Schen	ne	4	
	2.1.	Operational programme		
	2.2.	Operational activities	5	
3	Roles	and Responsibilities	7	
4	Opera	tional Environmental Management and Mitigation	8	
	4.1.	Working hours	8	
	4.2.	Operational Security	8	
	4.3.	Control of light	9	
	4.4.	Operational traffic management and access	9	
	4.5.	Parking provisions	9	
	4.6.	Footpaths	10	
	4.7.	Operational waste management	10	
	4.8.	Environmental incidents and emergencies	11	
	4.9.	Management of landscaping, vegetation planting and biodiversity	12	
5	Opera	tional Environmental Management and Mitigation Procedures	13	
	5.1.	Topic specific mitigation	13	
6	Impler	nentation	22	
7	-	oring and Reporting		
	7.1.	Process for monitoring and inspections	23	
	7.2.	Records	23	
8	Refere	nces	25	
Lis	st of Ta	ables:		
Ta	ble 5-1: (Operational (including maintenance) phase environmental management and monitoring mea	asures	
			14	

1

1 Introduction

1.1. Introduction

- 1.1.1. RWE Renewables UK Solar and Storage Ltd (hereafter referred to as the 'Applicant') has prepared this Outline Operational Environmental Management Plan ('Outline OEMP') in relation to an application for Development Consent Order (DCO) for Tween Bridge Solar Farm (the Scheme).
- 1.1.2. The main element of the Scheme is the construction, operation, maintenance and decommissioning of a ground mounted solar farm with an intended design capacity of over 50MW, and battery energy storage system (BESS). Once fully operational, the Scheme will export approximately 800MW of electricity to the National Electricity Transmission System (NETS). Flexibility in panel layout design would be required to accommodate expected future technology developments as technology continues to evolve and become more efficient.

1.2. Purpose of this Document

- 1.2.1. The aim of this Outline OEMP is to provide a clear and consistent approach to the control of operational and maintenance activities in respect of the Scheme
- 1.2.2. A final Operational Environmental Management Plan will be produced for the Scheme in accordance with the requirements in **Schedule 2** of the **Draft DCO** [**Document Reference 3.1**] prior to commencing operation of any part of the Scheme. The Operational Environmental Management Plan must be substantially in accordance with this Outline OEMP.
- 1.2.3. An Operational Environmental Management Plan will be prepared for each phase of the Scheme, and this is secured by a requirement within the draft DCO [Document Reference 3.1] may be prepared, approved and implemented for individual phased parts of the Scheme. Each Operational Environmental Management Plan will be produced in accordance with this Outline OEMP following the making of the DCO and approved by City of Doncaster Council and North Lincolnshire Council for parts of the DCO that fall within their administrative boundaries in advance of the date of final commissioning for the relevant part of the Scheme.

- 1.2.4. Likely significant effects of the Scheme have been identified through the Environmental Impact Assessment (EIA) process and are reported in ES Volume 2, Chapters 6-15 [Document Reference 6.2]. A range of best practice mitigation and operational management measures are accounted for in the assessments, which will be implemented during operation of the Scheme. This Outline OEMP sets out how these measures will be implemented. It also sets out the monitoring activities designed to demonstrate that such mitigation measures are carried out, and that they are effective.
- 1.2.5. The Outline OEMP provides the structure of the Operational Environmental Management Plan(s) and relevant preliminary information. It also indicates any additional information or controls which might be included under each subsection within the Operational Environmental Management Plans(s).
- 1.2.6. The Applicant will be responsible for ensuring any works are undertaken in accordance with the environmental controls documented in this Outline OEMP and for the preparation and implementation of the Operational Environmental Management Plan(s).
- 1.2.7. This document does not address measures for the construction or decommissioning phases, which are provided in the sperate Outline Construction Environmental Management Plan [Document Reference 7.1], Outline Decommissioning Environmental Management Plan [Document Reference 7.3] and the Outline Soil Management Plan [Document Reference 7.8].

2 Scheme

2.1. Operational programme

- 2.1.1. The Environmental Statement assumes that construction of the Scheme is built out over up to, a 54 month-period (2028–2032) in either a single phased approach (development of Land Parcels completed one after another with the potential for breaks between development of Land Parcels) or through multiple phases (development of Land Parcels concurrently). For the multiple phase construction option, no more than two land parcels (within land parcels A-E) would be built out at the same time. ES Environmental Aspect Chapters determine in the methodology 'Assessment Approach' section which of the two options for the construction phasing approach would give rise to the 'worst-case scenario' for the purpose of their assessment. The current connection date for the Scheme, within the NESO Connection Agreement is 2029. As with all electricity generation projects, this date is under review by NESO as part of the ongoing connections reform process.
- 2.1.2. If the NESO Connection Agreement remains with the connection date of 2029, it would be possible to operate a phased start to operational generation. This phased approach would connect each Land Parcel to the RWE on-site 400kV substation when construction of that Land Parcel was completed. In this operational scenario there would be partial Scheme operation from 2029-2032 (3 years). From 2032 onwards the full Scheme would be generating at full operational capacity. The full Scheme would operate for 40 years until 2072. If the NESO Grid Connection date varies, which is not within the Applicants direct control, the timeframe where there could be partial operation of the Scheme could reduce or fail to materialise. In this situation the full operational Scheme would operate for 40 years from its new grid connection date. In either connection scenario there will be full operational generation for 40 years, which would be the worst-case scenario operational time period for the Scheme.
- 2.1.3. Following 40- years of a fully operational Scheme, it is proposed that the Scheme will be decommissioned. This decommissioning with take approximately 24 months and will be in a phased approach.
- 2.1.4. The Operational Environmental Management Plan(s) will be prepared following the appointment of a Principal Contractor. The Principal Contractor will be responsible

for working in accordance with the environmental controls documented in this Outline OEMP.

2.2. Operational activities

- 2.2.1. During the operational (including maintenance) phase of the Scheme, on-site activities would be limited to maintenance and management activities. Maintenance activities would include:
 - · Regular visual inspection of all infrastructure
 - Regular scheduled inspections and testing of equipment
 - Replacement of consumable items (e.g. invert filters)
 - Cleaning of solar PV modules, as and when required
 - Repair or replacement of solar modules or other components, if damaged
 - Delivery of spare parts, replacement equipment items and consumables
 - Water management (e.g. clearing of drainage ditches)
 - Vegetation Management (e.g. cutting back of grass, hedges, trees), and
 - Regular litter picking
- 2.2.2. Access to the Scheme from the local highway network would be required during the operational phase to allow for ongoing maintenance activities. As addressed in ES Volume 2 Chapter 12: Transport & Access [Document Reference 6.2.12], the operational phase is not anticipated to generate a significant number of trips.
- 2.2.3. It is anticipated that security staff and operational workers undertaking maintenance would be based in the region and would attend the Scheme periodically, making use of the staff welfare and office facilities within the substation compounds.
- 2.2.4. Land underneath and around the Solar PV modules could be managed during the operational phase through a combination of sheep grazing and mechanical cutting and will be undertaken in accordance with the Landscape and Ecological

Management Plan. An Outline Landscape and Ecological Management Plan [Document Reference 7.6] is submitted with the DCO Application.

3 Roles and Responsibilities

3.1.1. Key roles and responsibilities during the operational (including maintenance) phase will be identified and defined in the Operational Environmental Management Plan once these roles are designated.

4 Operational Environmental Management and Mitigation

4.1. Working hours

- 4.1.1. The normal hours of working on part of the Scheme during the operational period will be:
 - 07:00 hours to 19:00 hours Monday to Fridays;
 - 07:00 hours to 19:00 hours Saturdays.
- 4.1.2. It is anticipated that no general maintenance works, including deliveries and collections, will take place on Sundays or Public Holidays unless otherwise agreed with City of Doncaster Council and North Lincolnshire Council for parts of the DCO that fall within their administrative boundaries.
- 4.1.3. Where on-site works are to be conducted outside the core working hours, activities will be agreed with City of Doncaster Council and North Lincolnshire Council for parts of the DCO that fall within their administrative boundaries.
- 4.1.4. The seven on-site 132kV substations will typically be unmanned during normal operation. The RWE on-site 400kV substation will typically be unmanned during normal operation.

4.2. Operational Security

- 4.2.1. The Scheme will receive regular security risk management threat assessments during its operation. These security risk management threat assessments will be conducted by suitably qualified and experienced persons and will determine security risks.
- 4.2.2. The security arrangements will be conducted to the overall safety of all who will, or may, enter the Scheme area. The security arrangements will be reviewed by suitably qualified and experienced persons at intervals commensurate to the security risk rating and further assess any changes in the security risk management threat assessment.

- 4.2.3. The Panel Areas of the Scheme would be fenced using either a wire mesh or deer-proof fencing, which is formed of wooden or metal posts and wire mesh, up to 2m in height. Pole-mounted internal-facing CCTV systems will be installed at a height of up to 3m around the perimeter of the solar PV module fields. Access gates will be metal and of similar height to the perimeter fencing. Clearances above ground, or mammal gates, will be included to permit the passage of wildlife.
- 4.2.4. CCTV cameras would use infrared technology, monitored remotely and avoid the need for nighttime lighting. For security requirements, passive infra-red detector (PID) systems (or similar) will be installed around the solar PV module field perimeter to provide the CCTVs night vision functionality.
- 4.2.5. Should an intruder by identified through security measures, the police or relevant authorities will be notified. CCTVs will also be provided within the four BESS compounds, the seven on-site 132kV substations and the RWE on-site 400kV substation.

4.3. Control of light

4.3.1. External lighting for the RWE on-site 400kV substation and the seven on-site 132kV substations will be in accordance with health and safety requirements. Lighting sensors will be implemented for security purposes. Lighting will include features designed to reduce light spill beyond areas required to be lit. During operation (including maintenance), no part of the Scheme will be continuously lit; infra-red security lighting will be utilised for operational and security purposes.

4.4. Operational traffic management and access

4.4.1. Access for the operational stage will accord with Street Works, Access and Public Rights of Way Plan [Document Reference 2.4]. Traffic management measures will accord with ES Volume 2 Chapter 12: Transport & Access [Document Reference 6.2.12] and ES Appendix 12.1 Transport Statement [Document Reference 6.3.12.1]. Internal speed limit within the Panel Areas will be 10 miles per hour and signage displayed for internal tracks.

4.5. Parking provisions

4.5.1. During operation, parking for vehicles will be available for use by workers within the four BESS compounds, the seven on-site 132kV substations and the RWE on-site

400kV substation. Further details on parking provisions will be confirmed during detailed design and provided in the Operational Environmental Management Plan(s).

4.6. Footpaths

4.6.1. Access to footpaths, including permissive path to be provided as part of the Scheme, will be maintained throughout the operational (including maintenance) phase of the Scheme. Further details on parking provisions will be confirmed during detailed design and provided in the Operational Environmental Management Plan(s).

4.7. Operational waste management

- 4.7.1. Owing to the nature of the Scheme, waste generation during the operational (including maintenance) phase will be minimal and will not have a significant impact upon the local and regional waste management infrastructure.
- 4.7.2. To manage solar PV module waste that will arise from potential module replacements during the operational life of the Scheme, there will be a regular review of suitable outlets for reuse and recycling of the modules and associated infrastructure at the end of its viable life, to maximise recycling and minimise the need to landfill.
- 4.7.3. Any equipment that needs to be replaced during the operational (including maintenance) phase will be disposed of in accordance with the waste hierarchy described in ES Volume 2 Chapter 16: Other Environmental Topics [Document Reference 6.2.16] with materials being reused or recycled, wherever practicable.
- 4.7.4. Solar PV modules are made up of several materials, including a metal frame, of which approximately 99% can currently be recycled. For any solar PV modules that are replaced during operation, options to reuse or recycle materials available at the time will be explored to ensure as much of the materials as possible are recycled and diverted from landfill.
- 4.7.5. Waste solar PV modules replaced during operation will be classified as a Business to Consumer (B2C) waste. Waste batteries and solar PV modules will be taken to an approved authorised licensed waste treatment facility.

- 4.7.6. Electrical waste will be disposed of per The Waste Electrical and Electronic Equipment (WEE) regulations 2013 [Ref. 1], minimising environmental impact of replacing any elements of the Scheme. A record will be kept for the operational life of the Scheme of all WEE waste produced, the weight and the facility it has been disposed at.
- 4.7.7. Prior to the operational (including maintenance) phase commencing, the Operational Environmental Management Plan will include details on the management of site waste for the operational stage of the Scheme. The Operational Environmental Management Plan will provide waste estimates, and specify key responsibilities, reporting and auditing requirements and waste recovery targets.
- 4.7.8. All waste to be removed from the Scheme will be undertaken by licensed waste carriers, documented by appropriate waste transfer notes, and taken to licensed waste facilities for recycling or disposal and managed in line with the requirements applicable at the time. The waste hierarchy will be applied, in priority order: prevention, preparation for reuse, recycled, other recovery and disposal.
- 4.7.9. Self-contained independent welfare units which are not connected to the mains and which store foul/ wastewater for collection/emptying by specialist licensed contractors will be used.

4.8. Environmental incidents and emergencies

- 4.8.1. The following additional plans will be prepared as part of the Operational Environmental Management Plan prior to first operation of the Scheme:
 - Emergency Response Plan (including Flood Risk). This will be developed in consultation with City of Doncaster Council and North Lincolnshire Council for parts of the DCO that fall within their administrative boundaries, emergency services including local fire service, as well as the Environment Agency in relation to responding to flood warnings and events;
 - Emergency Spillage Action Plan. This will set out actions taken in an event of a spillage event on-site; and
 - Health and Safety Plan. This will set out the health and safety requirements
 of the Scheme and how they will be implemented.

4.8.2. An Outline Battery Safety Management Plan [Document Reference 7.9.4] has been prepared for the Scheme and outlines the approach to be taken to manage the safety of the BESS in accordance with regulatory requirements, guidance and good industry practice. The Outline Battery Safety Management Plan [Document Reference 7.4] addresses aspects such as safe design, construction, operation, and disposal and the strategy for firefighting and emergency planning.

4.9. Management of landscaping, vegetation planting and biodiversity

- 4.9.1. No part of the Scheme is to be commenced until a Landscape Ecological Management Plan for that part has been submitted to and approved by City of Doncaster Council and North Lincolnshire Council for parts of the DCO that fall within their administrative boundaries. The LEMP must be substantially in accordance with the **Outline Landscape Ecological Management Plan** [Document Reference 7.6] and any Landscape Ecological Management Plan must be implemented as approved and maintained through the operation. This will include provisions in respect of on-going maintenance, management and monitoring of the landscape, vegetation, habitats and species during the operational phase of the Scheme.
- 4.9.2. The Outline Landscape Ecological Management Plan [Document Reference 7.6], prepared and submitted as part of the DCO Application, provides a framework for delivering the landscape strategy and the successful establishment of future management of proposed landscape works associated with the Scheme. It sets out the short and long-term measures and practices that will be implemented to establish, monitor and manage landscape and ecology mitigation and enhancement (biodiversity net gain) measures embedded in the design.
- 4.9.3. The Outline Landscape Ecological Management Plan [Document Reference 7.6], sets out the measures proposed:
 - To mitigate the effects of the Scheme on landscape, biodiversity, and heritage features;
 - To enhance the biodiversity, landscape, and green infrastructure value of the Order Limits; and
 - To secure compliance with relevant national and local planning policies.

5 Operational Environmental Management and Mitigation Procedures

- 5.1. Topic specific mitigation
- 5.1.1. Table 5-1 below sets out a summary of the mitigation and management measures to be included as a minimum on the Operational Environmental Management Plan(s), using information presented in ES Volume 2 Chapters 6 to 15 [Document Reference 6.2.6 to 6.2.16].
- 5.1.2. To avoid any duplication, operational mitigation measures proposed for Biodiversity and Landscape and Visual are included in the **Outline Landscape Ecological Management Plan [Document Reference 7.6]**.

Table 5-1: Operational (including maintenance) phase environmental management and monitoring measures

Measure	Monitoring Requirements	Responsibility
General		
Utilise an automated clean agent fire suppression system rather than a water-based system.	If required, monitoring measures will be identified in the Operational Environmental Management Plan(s) and Battery Safety Management Plan.	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Air Quality		
Ensure all vehicles switch off engines when stationary within the Order Limits – No idling vehicles.	If required, monitoring measures will be identified in the Operational Environmental Management Plan(s).	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).

Impose and signpost a maximum speed limit of 10mph on internal tracks.	If required, monitoring measures will be identified in the Operational Environmental Management Plan(s).	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Biodiversity		
Any required management would be undertaken in accordance with legislative requirements to avoid harm to ground nesting birds. Where possible, livestock will be used to manage vegetation sward height. The use of livestock will reduce the potential risk of disturbance to species which may use the habitat underneath and adjacent to the solar PV modules.	If required, monitoring measures will be identified in the Operational Environmental Management Plan(s).	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).

Work within areas assessed as suitable for ground nesting birds will be avoided during the nesting bird season. However, if this is not possible, appropriate surveys will be undertaken prior to works to determine appropriate mitigation and precautionary working measures to prevent disturbance to ground nesting birds. Appropriate surveys may include nesting bird checks and supervision by a suitably qualified ecologist.		
Climate Change		
All structures will be designed to relevant standards and specifications. Cooling systems used on BESS systems will accommodate suitable peak ambient temperatures	Environmental Management Plan(s)	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).

AUGUST 2025

accounting for inter-year variability and future climate change.		
Contractors will monitor weather forecasts and plan works accordingly, protecting workers and resources from any extreme weather conditions including winds and storms, floods or extreme heat where possible.	If required, monitoring measures will be identified in the Operational Environmental Management Plan(s).	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Cultural Heritage – no specific measures are proposed for this environmental factor		
Land, Soil and Groundwater		
Water for firefighting purposes would be sourced from the nearest available supply. However, this water would be used only to cool areas adjacent to the BESS container to prevent fire spread, rather than being	be identified in the Operational Environmental Management Plan(s)	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).

used to attempt to directly fight fire within a BESS container. The water would therefore not contain any chemicals for fire- fighting compounds after use.		
Follow procedures set out in the Outline Battery Safety Management Plan [Document Reference 7.4] which outlines the regulatory guidance reviewed and the measures proposed to ensure that all safety concerns around the BESS elements of the Scheme are addressed in so far as is reasonably practicable.	be identified in the Operational	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Safety plans (Emergency Response Plan and Emergency Spillage Action Plan) will be prepared to ensure activities and on-site staff concerns relating to these matters are	If required, monitoring measures will be identified in the Operational Environmental Management Plan(s).	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).

addressed as far as reasonably practicable.		
Where soil, aggregates or fill materials needs to be brought on to the Order Limits for various reasons, it must be ensured that it is from a certified clean source and is suitable for use.	If required, monitoring measures will be identified in the Operational Environmental Management Plan(s) and the Soil Management Plan.	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Follow standard parameters (as set out in the Outline Soil Management Plan [Document Reference 7.8] to identify when soil conditions are suitable for handling or trafficking (qualities of the soil, for example when it is wet or after periods of heavy rainfall or high winds).	If required, monitoring measures will be identified in the Soil Management Plan.	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Follow principles, as set out in the Outline LEMP [Document Reference 7.6] , of how the land within the Order Limits would be	If required, monitoring measures will be identified in the Landscape and Ecological Management Plan.	The Applicant (responsibilities will be confirmed in the

managed during the operational (including maintenance) phase, such as the requirements for the management and remediation of vegetation to ensure the planting is stained.		Operational Environmental Management Plan(s)).
Landscape and Visual		
During the operational (including maintenance) phase of the Scheme, existing and newly established habitats and planting would be maintained in accordance with the principles established in the Outline LEMP [Document Reference 7.6].	-	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Noise and Vibrations		
Employ reduced fan speeds where applicable whilst		The Applicant (responsibilities will be confirmed in the

maintaining the required airflow for cooling requirements.		Operational Environmental Management Plan(s)).
Details of the complaints process with regard to potential noise levels will be made available and accessible to the public during the lifetime of the Scheme.	If required, monitoring measures will be identified in the Operational Environmental Management Plan(s).	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Population		
All existing public rights of way will be retained during the operation (including maintenance) phase of the Scheme.	If required, monitoring measures will be identified in the Rights of Way and Access Management Plan.	The Applicant (responsibilities will be confirmed in the Operational Environmental Management Plan(s)).
Transport and Access – no specific measures are proposed for this environmental factor		
Water – no specific measures are proposed for this environmental factor		

6 Implementation

- 6.1.1. The Operational Environmental Management Plan(s) will set out all roles, responsibilities and actions required in respect of implementation of measures described in the Outline OEMP including:
 - An organogram showing team roles, names and responsibilities
 - Training requirements for relevant personnel on environmental topics
 - Information of on-site briefings and Toolbox Talks that will be used to equip staff with the necessary level of knowledge to follow environmental control procedures
 - Measures to advise employees of changing circumstances
 - Communication methods
 - Document control
 - Monitoring, inspections and audits of operations
 - Environmental emergency procedures

7 Monitoring and Reporting

7.1. Process for monitoring and inspections

- 7.1.1. Monitoring and reporting will be undertaken for the duration of the operational (including maintenance) phase in order to demonstrate the effectiveness of the measures set out in the Operational Environmental Management Plan(s) which will allow for corrective action to be taken, where necessary.
- 7.1.2. As part of the monitoring process a suitably qualified person will observe Scheme activities and report any deviations from the Operational Environmental Management Plan(s), along with the corrective action taken and general conditions at the time. In addition, the suitably qualified person will conduct regular walkover surveys which will be documented and arrange regular formal inspections to ensure requirements of the Operational Environmental Management Plan(s) are being met.
- 7.1.3. The suitably qualified person would also act as day-to-day contact with relevant local authorities and other regulatory agencies such as the Environment Agency.

7.2. Records

AUGUST 2025

- 7.2.1. Records will be managed through the Quality and Safety Management Systems and the Environmental Management System of the Applicant which will be certified in accordance with the ISO 14001 Environmental management systems standards [Ref. 2].
- 7.2.2. The suitably qualified person will retain records of environmental monitoring and implementation of the Operational Environmental Management Plan(s). This will allow provision of evidence that the Operational Environmental Management Plan(s) are being implemented effectively. Documents shall be stored in a suitable manner and backups created to safeguard the records. These records will include:
 - Results of routine inspections by a suitably qualified person;
 - Environmental Action Schedule:
 - Environmental equipment test records;
 - Licenses and approvals; and

• Corrective actions taken in response to incidents, breaches of the approved Operational Environmental Management Plan(s) or complaints received from a third party.

8 References

[Ref. 1] The Waste Electrical and Electronic Equipment Regulations 2013. Available online: https://www.legislation.gov.uk/uksi/2013/3113/contents

[Ref. 2] ISO 14001:2015 Environmental Management Systems (Edition 3, 2015).