



Plan

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Stockyard Hill Wind Farm

Environmental Management Plan Framework

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1 Introduction

Stockyard Hill Wind Farm Pty Ltd (SHWFPL) (a subsidiary of Origin Energy) is developing a wind farm project in south-west Victoria, known as the Stockyard Hill Wind Farm (SHWF).

The purpose of this document is to provide a framework for the preparation of Environmental Management Plans (EMPs) for the SHWF Wind Energy Facility (WEF), including management tools, protection measures and monitoring regimes for the design, construction and operation phases.

1.1 Policy and Planning Guidelines of Wind Energy Facilities in Victoria

The *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria, November 2015* requires the preparation of an EMP.

The guidelines require an EMP to detail how the site will be managed through construction and set out future operational and maintenance requirements, including:

- *“principles of environmental management relevant to the site and nature and scale of the facility standards to be met*
- *environmental mitigation measures*
- *monitoring requirements*
- *post-construction adaptive management measures where monitoring shows the proposal may have significant impacts on species listed under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC) Act and Victorian Flora and Fauna Guarantee Act 1988 (FFG Act).*
- *noise complaints registration and response processes*
- *emergency management and response plan*
- *decommissioning and rehabilitation requirements”.*

1.2 SHWFPL’s Environmental Management Plan Principles and Objectives

SHWFPL maintains a strong commitment to avoid unforeseen impacts on the environment.

To give effect to the above stated environmental principle and to ensure that the SHWF WEF accords with regulatory requirements, the following objectives have been established:

- To contribute to State and Federal government policy objectives to maintain a secure, efficient and affordable supply of energy in Victoria while reducing the intensity of greenhouse gas emissions from the energy sector;
- To minimise the adverse impacts of the WEF on visual landscape values;
- To ensure that the construction and operation of the WEF does not unduly affect the amenity of nearby dwellings, or existing land uses on and around the site;
- To avoid or minimise impacts on species and communities listed under the FFG Act, to avoid or minimise impacts on other indigenous species and communities, and to comply with the relevant Victorian native vegetation clearing and offsetting policy to compensate for the removal of native vegetation for biodiversity outcomes;
- To avoid or minimise impacts on places with Aboriginal and non-Aboriginal cultural heritage values; and
- To minimise any physical impacts from the construction and operation of the facility, such as erosion, sedimentation, and impacts on natural water flows.

It is recognised that without environmental management measures being incorporated into the design, development and operation of the SHWF WEF, the potential exists for adverse environmental impacts to occur. Accordingly, and in addition to its corporate Environment Management Systems and the conditions of regulatory approvals, SHWFPL will develop EMPs for the project.

2 Environmental Management Plan Framework

An EMP is a procedural document which outlines the environmental goals of the project, the safeguard measures to be implemented, the timing of the implementation in relation to the progress of the project, responsibilities for implementation and management, and a review process.

The SHWFPL EMPs will be prepared to address the key stages of the project, e.g.:

- Site preparation and construction;
- Operation; and
- Decommissioning.

Further, standalone Construction Environmental Management Plans (CEMP) will be developed and form an integral part of the EMP. The preparation of standalone CEMPs are proposed to allow the construction contractor to tailor construction procedures and environmental management. The preparation of the CEMP will be a condition of a contractual agreement between the proponent and the nominated contractor.

The EMPs will be prepared following assessment and approval of the SHWF WEF, and will serve as working documents to be used throughout the detailed design, construction and operation phases.

General details regarding EMP objectives, contents, structure, reporting, monitoring and review are provided in the following sections.

2.1 EMP Objectives

The key objectives of the EMPs will include:

- Ensure that works are carried out in accordance with appropriate environmental statutory requirements and relevant non-statutory policy as detailed throughout this framework;
- Ensure that works are carried out in accordance with the objectives and requirements presented in this framework;
- Ensure that works are carried out in such a way as to minimise the likelihood of environmental degradation occurring;
- Ensure that works are carried out in such a way as to manage the impact of the works on neighbouring properties (e.g. noise, dust);
- Ensure that all employees engaged in the works comply with the terms and conditions of the EMP;
- Provide clear procedures for management of environmental impacts including corrective actions; and
- Identify management responsibilities and reporting requirements to demonstrate compliance with the EMP.

2.2 EMP Contents and Structure

The EMPs will include:

- Establishment of environmental objectives and targets;
- Comply with conditions of project approvals;
- List of actions, timing and responsibilities;
- Supervision protocols fully identifying areas of responsibility for environmental management of the project;

- Statutory requirements;
- A structured reporting system detailing all relevant matters on a regular basis;
- Procedures and forms for documentation and reporting of issues;
- Standard specifications incorporating environmental safeguards;
- Training of personnel in environmental awareness and Environmental Management Systems;
- Guidelines for emergencies, contact names and corrective actions for non-conformance and notifications to appropriate authorities and affected parties;
- Calibration and measuring of testing equipment;
- Process surveillance and auditing procedures;
- Review procedures and protocols for modification of the EMP;
- Complaint handling procedure;
- Site management and control procedures;
- Monitoring procedures; and
- Quality assurance procedures.

The SHWF EMPs will comprise both generic components and issue-specific management components, as described in Table 1. Additionally, as a guide, the EMPs will be structured as detailed in Table 2.

Table 1: EMP Contents

Item	Description
The generic procedural components will comprise:	<ul style="list-style-type: none"> • Overall policy and management approach; • Environmental objectives and strategies; • Responsible personnel and defined responsibilities; • Environmental training; • Monitoring and auditing requirements; and • Reporting procedures.
The issue-specific management components will relate to:	<ul style="list-style-type: none"> • Conclusion and Recommendations • Protect water quality, particularly near creek crossings; • Protect flora and fauna; • Protect cultural heritage; • Protect public infrastructure; • Control air emissions, including greenhouse emission and dust; • Control noise; • Minimise impacts to nearby dwellings and existing land uses; • Manage any risks to the safety of the local community; • Minimise socio-economic impacts; • Minimise impacts on agricultural production; and • Rehabilitate disturbed land.

Table 2: EMP Structure

Item	Description
Introduction and purpose	Details the objectives of the Plan. Chain of Command structure (including relevant environmental delegate). Responsibility and authority for implementation.
Statutory requirements and integration with other plans	Details the statutory requirements, if any, and other obligations required to be met as part of the WEF approvals.
Environmental management procedures	Describes the operational procedures for preventing environmental impacts, nominates responsibility to individuals, establishes reporting protocols and procedures, nominates corrective and preventative action procedures.
Monitoring requirements	Details the monitoring program for checking environmental performance of the project, nominates responsibilities to individuals, establishes reporting protocols and procedures, nominates corrective and preventative action procedures.
Emergency response	Contains emergency response plans.

2.3 EMP Reporting and Review

Environmental performance reporting is an integral part of ISO 14001 and further provides management with the information to make meaningful and positive changes. It is also to ensure that relevant authorities are appropriately informed of how the proponent is managing its environmental performance, periodic reports will be prepared by the contractor during the construction phase and the proponent during the operations phase, in accordance with each party’s Quality System.

If the reports identify any shortcomings in the way the construction activities or the operations are being conducted or in the performance of environmental control structures, the necessary changes would be made and the CEMP and the Operational Environmental Management Plan (OEMP), which will be prepared, would be updated to reflect these changes.

EMPs are not static documents. They must be responsive to change, such as changes in legislation, changes in environmental conditions and changes in project detail.

Accordingly, the EMPs will be reviewed by SHWFPL at a minimum every five (5) years.

2.4 EMP Responsibilities

The EMPs will be developed by SHWFPL with the SHWFPL manager having the ultimate responsibility for the implementation of the EMPs with the construction Project Manager responsible for the development and implementation of the CEMPs.

Notwithstanding this all personnel involved in the design, construction, operation and decommissioning of the SHWF WEF will be required to comply with the relevant EMP.

2.5 Environmental Safeguards

A number of safeguards will be incorporated into the EMPs to prevent or minimise potential environmental impacts that may be caused by the SHWF WEF. These have been detailed in the previous sections of the report and would be implemented throughout the duration of the different stages of the lifecycle of the project.

Table 3 summarises the main safeguarding measures. It is a summary of the scope of the EMP.

Table 3: Summary of Mitigation and Measurement Methods

Element	Objective	Scope
Land Capability	To minimise soil erosion and any changes in water quality or hydrology, particularly near wetlands.	The EMPs will incorporate measures to minimise soil disturbance, compaction, soil erosion, and the potential for contamination. It shall also incorporate drainage controls, access controls, rehabilitation strategies, monitoring programs and environmental training programs designed to protect soil and water. In doing so it will have regard to applicable EPA documents.
Ecology	To minimise the clearance of native vegetation and impacts on native flora and fauna including avifauna.	<p>The EMPs will incorporate a Conservation Management Plan. This will include criteria that identifies the need to fence off areas along with the required revegetation works, weed management works and any offset works.</p> <p>The Conservation Management Plan will address the environmental management hierarchy of avoid, minimise and offset, with all works undertaken in accordance with the <i>Permitted clearing of native vegetation - Biodiversity assessment guidelines</i> (the Guidelines). The plan will provide detail regarding the following measures to be undertaken as part of the development:</p> <ul style="list-style-type: none"> • Further micro-siting techniques, including fencing retained areas of native vegetation; • All contractors will be aware of ecologically sensitive areas to minimise the likelihood of inadvertent disturbance to areas marked for retention; • Tree Retention Zones (TRZs) will be implemented to prevent indirect losses of native vegetation during construction activities; • The development of a Pest Plant Management Plan; • Construction stockpiles, machinery, roads, and other infrastructure will be placed away from areas supporting native vegetation and/or other ecological sensitive areas; and • Sourcing of appropriate biodiversity offsets to compensate for any native vegetation removal following the implementation of avoidance and minimisation measures.
Heritage	To minimise impacts on Aboriginal archaeology sites, heritage sites and cultural values.	The EMPs will incorporate the outcomes of the CHMP. This will feature the protocols for parties to follow during the archaeological testing and subsequent construction phases of the development.
Public Infrastructure	To minimise any disturbance to public infrastructure, including electricity, gas, water, sewer and telecommunication services.	The EMPs will require SHWFPL to maintain ongoing liaison with key service providers (electricity, gas, water and telecommunications) to ensure that its construction activities do not impact on existing infrastructure services in the region.
Air and Greenhouse	To minimise greenhouse emission and the discharge of air borne pollutants, including dust, from the site.	The EMPs will incorporate measure to control greenhouse emissions, dust and wastes.
Noise	To minimise noise and vibration impacts to nearby residents.	The EMPs will include restrictions on blasting, the use of heavy equipment and other noisy activities.
Land Use	To minimise both on-site	The EMPs will require SHWFPL to consult with landholders to ensure that

Element	Objective	Scope
	and off-site land use impacts particularly the ongoing use of the site and its environs for grazing purposes.	the construction and operation of the wind farm is undertaken in a manner which causes minimal disturbance to the ongoing use of the area for grazing purposes, subject to the terms of the licence agreements.
Safety	To ensure that the SHWF is developed and operates in a manner that is safe to persons on-site and off-site.	The EMPs will require the ongoing monitoring of the wind farm's operations to detect any abnormal operations that may present a hazard.
Socio-Economic	To minimise the social, economic and tourism impacts of the SHWF and where possible enhance the local economy.	The EMPs will require the implementation of a stakeholder communication plan during the construction and early operation of the SHWFPL.
Waste Management	To develop and use the SHWF in an environmental responsible manner which avoids the generation of waste.	The EMPs will require the development and implementation of a Waste Management Plan and ensure all personnel are advised of the waste management and disposal procedures outlined, prior to commencement of works.

2.6 Specific Mitigation Measures to Minimise Impacts on Vegetation

The following mitigation measures, to reduce further potential impacts on vegetation, should be adopted where relevant:

- Development of a construction and operational environmental management plan which includes a Native Vegetation Management Plan.
- Development of an offset proposal in accordance with the relevant Victorian native vegetation clearing and offsetting policy to compensate for the removal of native vegetation.
- Retention and protection of indigenous trees in appropriately signed 'tree protection zones' incorporating the canopy drip lines in addition to a one metre buffer. All machinery and earthworks be excluded from the tree protection zones.
- Any tree pruning to be undertaken by an experienced arborist to prevent disease or unnecessary damage to the tree or disturbance to understorey vegetation during tree trimming.
- Stockpiling of soil outside areas of native vegetation, preferably on cropped land or introduced pasture, to minimise disturbance.
- Weed control, by an experienced bush regenerator, undertaken along disturbed areas after construction to control any weed outbreaks in bushland or wetland areas.
- All machinery to enter and exit works sites along defined routes that do not impact on native vegetation or cause soil disturbance and weed spread.
- All machinery brought on site to be weed and pathogen-free. This is important for environmental and agricultural protection. Soil borne pathogens such as Cinnamon Fungus and livestock diseases can be easily transported by machinery.
- All machinery wash down, lay down and personnel rest areas to be defined (fenced) and located in disturbed areas.
- Construction contractors to be inducted into an environmental management program for construction works.
- All environmental controls to be checked for compliance on a regular basis.

The following mitigation measures, to reduce further potential impacts on surface water, should be adopted:

- Implement methods to reduce sediment transportation to creeks including:
 - Swales;
 - Silt-fences; and / or
 - Sediment Ponds
- Minimising crossing and obstructing natural gullied and depressions;
- Locating access tracks along ridges to reduce the need for any side cuts and reduce erosion;
- Design adequate drainage along access tracks;
- Locate temporary earthworks away from flow paths and gullies; and
- Avoid significant river crossings. Should avoidance not be possible and new access tracks are required, these should be hardened to prevent erosion caused by heavy machinery.

2.7 Environmental Monitoring

Environmental monitoring will be a fundamental component of both the construction and operational EMPs for the SHWF WEF. Detailed monitoring programs would be developed during the preparation of the EMP. An outline of the proposed monitoring methods, locations, frequency, criteria and responsibilities will be detailed in the relevant EMP.

During site operation, site staff will conduct regular visual inspections of the site and its infrastructure to confirm status and operation. Where issues or problems are identified, they would be addressed as part of the inspection.