

22 ENVIRONMENTAL MANAGEMENT PLAN

22.1 BACKGROUND

This Section describes the framework for the preparation of an Environmental Management Plan (EMP) for Stockyard Hill Wind Farm, including management tools, protection measures and monitoring regime for the design, construction and operation phases.

22.1.1 *Policy and Planning Guidelines for the Development of Wind Energy Facilities in Victoria*

The *Wind Energy Guidelines (Annex B)* indicate that an EMP may be required. An EMP details how the site will be managed through construction and sets out future operational and maintenance requirements:

- *Principles of environmental management;*
- *Environmental mitigation measures;*
- *Standards to be met;*
- *Monitoring requirements;*
- *Decommissioning and rehabilitation requirements; and*
- *Post construction adaptive management measures where monitoring shows significant impacts of FFG and EPBC Act listed species.*

An EMP for the construction and operation of the Stockyard Hill Wind Farm will be developed. The following outlines the framework of the EMP.

22.1.2

Environmental Management Framework

SHWF maintains a strong policy on the environment. SHWF's environmental policy is stated below.

SHWF aims to provide leadership in managing the impacts of our activities and will continually strive to set an example of best practice environmental management. SHWF recognises the value of the environment to the community and future generations.

SHWF is continually committed to:-

- *Identifying all environmental aspects and impacts of our operations through regular reviewing and internal auditing;*
- *Continual improvement in environmental management practices and performance;*
- *Communicating openly and transparently with appropriate parties on environmental matters;*
- *Managing land under our care with sensitivity, having due regard for local environment and cultural sensitivities;*
- *The use of the latest or most appropriate technology in order to maximise power output whilst having due consideration for the environmental impact of our activities, products and services;*
- *Complying with all environmental legislation and other requirements which relate to its environmental aspects, including the Clean Energy Council Best Practice Guidelines;*
- *Educating employees and contractors (any persons performing a task for the organisation or on it's behalf) to conduct their activities in an environmentally responsible manner;*
- *Ensuring this policy is readily available to the public, maintained and communicated to all persons working for or on behalf of this organisation, and is periodically reviewed;*
- *Continuing to refine and continually improve our Environmental Policy and environmental objectives and targets.*

The SHWF Environmental Management System provides the framework for developing, implementing, monitoring and reviewing environmental objectives, actions and targets as set out in our environmental plans and programs. These objectives and targets drive our management programs and focus our commitment to continual improvement in environmental performance, as measured by our internal audits along with our environmental objectives and targets.

Source: www.wind-power.com.au/AboutUs/EnvironmentPolicy%20.asp

To give effect to the above stated environmental policy and to ensure that the Stockyard Hill Wind Farm 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 facility on visual landscape values;

- To ensure that the construction and operation of the facility 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 Flora and Fauna Guarantee Act 1988, to avoid or minimise impacts on other indigenous species and communities, and to comply with net gain requirements 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, road damage and traffic hazards.

It is recognised that without environmental management measures being incorporated into the design, development and operation of Stockyard Hill Wind Farm, the potential exists for adverse environmental impacts to occur. Accordingly and in addition to its corporate EMS and the conditions of regulatory approvals, SHWF will develop an EMP for the project.

22.2 ENVIRONMENTAL MANAGEMENT PLAN

The EMP will be 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 EMP will be prepared to address the four key stages of the project:

- Wind farm design;
- Site preparation and construction;
- Operation; and
- Decommissioning.

Further, a standalone Construction Environmental Management Plan (CEMP) will be developed for the second stage and form an integral part of the EMP. The preparation of a stand alone CEMP is 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 EMP will be prepared following assessment and approval of the proposed Stockyard Hill Wind Farm, 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.

22.2.1

EMP Objectives

The key objectives of the EMP will include:

- Ensure that works are carried out in accordance with appropriate environmental statutory requirements and relevant non-statutory policy as detailed throughout this report;
- Ensure that works are carried out in accordance with the goals and requirements presented in this report;
- 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, traffic);
- Ensure that all employees engaged in the works comply with the terms and conditions of the EMP;
- Provide clear procedures for management of environmental impact including corrective actions; and
- Identify management responsibilities and reporting requirements to demonstrate compliance with the EMP.

22.2.2

EMP Contents and Structure

The SHWF EMP will comprise both generic components and issue-specific management components.

The generic procedural components will comprise:

- 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:

- Protect water quality, particularly near creek crossings;
- Protect flora and fauna;
- Protect cultural heritage;
- Manage traffic and transport;

- Protect infrastructure;
- Minimise electromagnetic interference;
- Control air emissions, including greenhouse emission and dust;
- Control noise;
- Minimise the potential for shadow flicker;
- Minimise impacts to nearby dwellings and existing landuses;
- Manage any risks to the safety of the local community;
- Manage any risks to aircraft safety;
- Minimise socio-economic impacts;
- Minimise impacts on visual amenity and landscape;
- Minimise impacts on agricultural production; and
- Rehabilitate disturbed land.

The EMP will include:

- Establishment of environmental goals and objectives;
- Conditions of project approval;
- 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 Best Practice 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.

As a guide, the EMP will be structured as detailed in *Table 22.1*

Table 22.1 *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 licensing approval.
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.

22.2.3 *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 EMP will be reviewed by the proponent every year.

22.2.4 *EMP Responsibilities*

The EMP will be developed by SHWF with the SHWF manager having the ultimate responsibility for the implementation of the EMP with the construction Project Manager responsible for the development and implementation of the CEMP. Notwithstanding this all personnel involved in the design, construction, operation and decommissioning of the Stockyard Hill Wind Farm will be required to comply with the EMP.

22.2.5 *Environmental Safeguards*

A number of safeguards will be incorporated into the EMP to prevent or minimise potential environmental impacts that may be caused by the Stockyard Hill Wind Farm development. 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 22.2 summarises the main safeguarding measures. It is a summary of the scope of the EMP.

Table 22.2 *Proposed Wind Farm Development: - Summary of Mitigation and Measurement Methods*

<i>Element</i>	<i>Objective</i>	<i>Scope</i>
Land Capability	To minimise soil erosion and any changes in water quality or hydrology, particularly near wetlands.	The EMP will incorporate best practice 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.	The EMP 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. In doing so it will reflect the three step approach to Net Gain (DNRE 2002) for the proposed removal of native vegetation: <ul style="list-style-type: none"> • Avoid adverse impacts, particularly associated with vegetation clearance. This has been achieved by carrying out an investigation of the biological features of the site and relocating infrastructure away from known biological features/values (as far as practical). • Minimise impacts through appropriate consideration in planning processes and expert input into project design or management. The impacts of the development have been minimised as far as practical through the considerate design of the Wind Farm. • Identify appropriate offset options.

<i>Element</i>	<i>Objective</i>	<i>Scope</i>
Heritage	To minimise impacts on Aboriginal archaeology sites, heritage sites and cultural values.	The EMP will incorporate: <ul style="list-style-type: none"> 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; and the need for archaeological monitoring in the vicinity of the substation prior to the construction phase.
Transport	To minimise inconvenience to existing road users and any damage to public roads.	The EMP will incorporate a Traffic Management Plan that details access routes to the sites, intersection upgrades, transport controls and public notification requirements when large numbers of heavy vehicles will be accessing the site.
Infrastructure	To minimise any disturbance to public infrastructure, including electricity, gas, water, sewer and telecommunication services.	The EMP will require SHWF 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 service in the region.
EMI	To minimise electrical interference to television and communication services, including emergency services.	The EMP will require the proponent to: <ul style="list-style-type: none"> adhere to clearance requirements for point to point links; and consult with the CFA. Further any interference of television can be avoided with improvements to the receiving antenna system or alternatively through the use of a set top box.
Air and Greenhouse	To minimise greenhouse emission and the discharge of air borne pollutants, including dust, from the site.	The EMP will incorporate measure to control greenhouse emissions, dust and wastes.
Noise	To minimise noise and vibration impacts to nearby residents.	The EMP will include restrictions on blasting, the use of heavy equipment and other noisy activities.
Amenity	To minimise off-site amenity impacts that could be caused by blade glint and shadow flicker.	The EMP will require SHWF to consult with landholders post-commissioning to assess possible concerns about actual shadow flicker effects.
Land use	To minimise both on-site and off-site land use impacts particularly the ongoing use of the site and its environs for grazing purposes.	The EMP will require SHWF to consult with landholders to ensure that 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 EMP will require the ongoing monitoring of the wind farm's operations to detect any abnormal operations that may present a hazard.
Aircraft	To ensure that the SHWF does not prejudice aircraft safety.	The EMP will require details of the project to be provided to CASA, prior to completion of construction, for inclusion on navigation charts.

<i>Element</i>	<i>Objective</i>	<i>Scope</i>
Socio-economic	To minimise the social, economic and tourism impacts of the SHWF and where possible enhance the local economy.	The EMP will require the implementation of a stakeholder communication plan during the construction and early operation of the SHWF. Further the EMP will encourage the purchase of local goods and services where practicable.
Landscape and visual	To minimise the visual impacts of the SHWF through the careful siting and design of the project supported by appropriate mitigation measures and management measures.	The EMP will require SHWF to liaise with adjacent land owners to discuss the need or otherwise for screen planting along with the arrangement for the planting and maintenance of the trees.
Waste management	To develop and use the SHWF in an environmental responsible manner which avoids the generation of waste.	The EMP 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.

22.2.6 *Environmental Monitoring*

Environmental monitoring will be a fundamental component of both the construction and operational EMPs for the proposed wind farm. 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.

22.3 *CONCLUSION*

A number of environmental issues have been identified throughout this report. The development and implementation of a comprehensive EMP, supported by a CEMP will help to avoid and or minimise such impacts.