

# Chapter 9

## Project sustainability





# Contents

	Page number
<b>9. Project sustainability</b>	<b>9-1</b>
9.1 Principles of sustainability	9-1
9.2 Relevant sustainability policies and rating tools	9-3
9.3 Economic benefits of implementing ESD	9-7
9.4 ESD objectives and initiatives for the Project	9-7
9.5 Next steps	9-9

## List of tables

	Page number
Table 9.1 Relevant Commonwealth EIS Guidelines and NSW SEARs	9-1
Table 9.2 Relevant sustainability policies	9-4
Table 9.3 Relevant sustainability rating tools	9-6
Table 9.4 Key ESD objectives and initiatives for the Project	9-7



## 9. Project sustainability

This chapter provides an outline of the sustainability framework and principles that will guide development of the Moorebank Intermodal Terminal (IMT) Project (the Project), and a summary of key sustainability objectives and benefits. It also outlines what sustainability objectives and initiatives would need to be integrated into the Project's design by any future developer of the Project site.

The principles of sustainability have been incorporated into the Project, including the concept layout options and the assessment of alternatives, and will continue to be incorporated into future stages of the Project (i.e. detailed design, construction and operation).

This chapter addresses the Commonwealth Department of Environment (DoE)'s Environmental Impact Statement (EIS) Guidelines and the Secretary for the NSW Department of Planning and Environment (NSW DP&E)'s Environmental Assessment Requirements (NSW SEARs) for the Project, as listed in Table 9.1.

Table 9.1 Relevant Commonwealth EIS Guidelines and NSW SEARs

Requirement	Where addressed
<b>Commonwealth EIS Guidelines under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)</b>	
<ul style="list-style-type: none"> <li>Details of how the proposed action is consistent with the objectives of the EPBC Act and principles of ecologically sustainable development defined in Section 3A of the Act. Consideration should focus on The National Strategy for Ecologically Sustainable Development published by the Commonwealth Government (1992). Each principle should be discussed and conclusions drawn as to how the proposal conforms. A life-of-project perspective must be shown.</li> </ul>	Chapter 30 – <i>Justification and conclusions</i> (sections 30.1.1 to 30.1.4); and Chapter 9 – <i>Sustainability</i> (section 9.2 and 9.4)
<b>NSW SEARs under the NSW <i>Environmental Planning and Assessment Act 1979</i> (EP&amp;A Act)</b>	
<ul style="list-style-type: none"> <li>Detail how ESD principles (as defined in clause 7(4) of [Schedule 2 of] the [EP&amp;A Act] Regulation) will be incorporated in each stage of the development.</li> </ul>	Section 9.2 and section 9.3

### 9.1 Principles of sustainability

The concept of sustainability is embedded in the Commonwealth and NSW environmental and planning systems as ecologically sustainable development (ESD). ESD was incorporated into Australian environmental policy as part of the *National Strategy for Ecologically Sustainable Development* (Council of Australian Governments 1992), which was endorsed by all Australian jurisdictions in 1992. This strategy defines the goal of ESD as '... using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'. This definition has since been expanded and incorporated into environmental and planning legislation as a benchmark against which development applications are assessed.

The principles of ESD are defined in section 3A of the EPBC Act. The principles require proponents to integrate the following considerations into projects:

- Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- As per the principle of inter-generational equity, the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
- The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.
- Improved valuation, pricing and incentive mechanisms should be promoted.

The EPBC Act also contains requirements that Australian Government agencies report on how they are addressing the challenges of ESD. Section 516A of the EPBC Act requires Commonwealth organisations to include in their annual reports a section detailing the environmental performance of the organisation and how the organisation has addressed the ESD principles.

The NSW *Protection of the Environment Administration Act 1991* (s6(3)) also defines the principles of ESD, as follows:

‘(a) the precautionary principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

(b) inter-generational equity-namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity-namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms-namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays - that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.<sup>1</sup>

A discussion of how the Project addresses these ESD principles is included in Chapter 30 – *Justification and conclusions*. Chapter 9 (this chapter) focuses on the relevant national sustainability policies and how they are applicable to this Project (refer to section 9.2), including the key ESD initiatives and objectives that have been set for the Project to date (refer to section 9.3).

The Project would be developed in accordance with a holistic approach to sustainability. Each successive stage of the Project, including detailed design, construction and operation, would consider the potential sustainability initiatives that have been provided in this EIS (refer to section 9.4).

## 9.2 Relevant sustainability policies and rating tools

In order to integrate ESD principles into Commonwealth projects and comply with relevant legislation, the Australian Government has developed a number of sustainability policies applicable to its functions and projects. MIC is not defined as a government agency; the Project would be developed in accordance with these government policies as represents best practice. The policies of key relevance to construction and operation of the Project are outlined in Table 9.2.

In addition, a number of sustainability rating tools have been reviewed and their relevance considered in relation to the development and operation of the Project. Table 9.3 describes the objectives of these rating tools and their potential application to the assessment and management of sustainability for the Project.



Table 9.2 Relevant sustainability policies

Policy	Key requirements/objectives	How the policy applies to the Project
<p><i>Energy Efficiency in Government Operations Policy (EEGO)</i> (Australian Greenhouse Office 2007)</p>	<p>Government must incorporate energy efficiency, greenhouse gas reduction, water conservation, waste minimisation and the principles of ESD into the design and operation of projects.</p> <p>New government developments, including fixtures and fittings, must comply with minimum energy performance standards.</p> <p>Government agencies must drive continued improvement in energy efficiency through energy performance validation and independent auditing where necessary.</p> <p>Building owners and tenants should provide for ongoing energy management.</p> <p>Government agencies must report annually against energy consumption targets.</p>	<p>The EEGO provides a general framework for integrating ESD into the detailed design of the Project.</p> <p>Procurement of plant, fixtures and fittings would include consideration of compliance with minimum energy performance standards.</p> <p>Where practicable, internal energy performance validation or independent auditing would confirm that operations demonstrate energy efficiency performance.</p> <p>Ongoing energy management would be comprehensively documented in accordance with requirements under the EPBC Act.</p>
<p><i>Considerations for incorporating energy efficiency into requirements for Australian Government owned and leased buildings (Energy Efficiency Considerations)</i> (Department of Environment and Water 2006)</p>	<p>Government must develop site-specific ESD goals incorporating energy efficiency, greenhouse gas reduction, water conservation, waste minimisation and the principles of ESD.</p>	<p>The Energy Efficiency Considerations would be considered during the detailed design of the Project.</p>
<p><i>Sustainable Procurement Guide (SEWPaC 2013)</i></p>	<p>Environmental purchasing is to be based on the life cycle and is to consider the environmental, social and economic impacts of goods and services.</p>	<p>The principles and concepts outlined in the Sustainable Procurement Guide would be considered and incorporated where appropriate into the procurement process for the Project.</p>



Policy	Key requirements/objectives	How the policy applies to the Project
<p><i>ESD Design Guide – Office and Public Buildings (3rd Ed) (Department of the Environment and Water Resources 2007)</i></p>	<p>Proponents should pursue all practicable opportunities to:</p> <ul style="list-style-type: none"> <li>• integrate ESD into design;</li> <li>• consider social sustainability of buildings;</li> <li>• establish and monitor indoor air and environment quality criteria;</li> <li>• use renewable energy and energy efficiency tools;</li> <li>• minimise road use;</li> <li>• reduce use of ozone-depleting refrigerants;</li> <li>• choose materials with minimal embodied energy, resource and water use;</li> <li>• minimise waste generation;</li> <li>• reduce water use onsite; and</li> <li>• consider land use and ecological impacts of development.</li> </ul>	<p>The guiding principles of the ESD Design Guide have been considered in the formulation of the key ESD objectives for the Project (refer to section 9.3 below) (to be considered during detailed design).</p>
<p><i>Green lease schedule (Department of Climate Change and Energy Efficiency 2011)</i></p>	<p>Tenants and building owners must meet minimum operational building energy performance standards when the Green Lease Schedule is incorporated into Australian Government office building leases. (These standards are set under the National Australian Built Environment Rating System (NABERS) – see below).</p>	<p>The Green Lease Schedule would be incorporated into any lease agreements for buildings in the Project, where appropriate.</p>
<p><i>National Green Leasing Policy (Ministerial Council on Energy and the Australasian Procurement and Construction Council)</i></p>	<p>Building owners and government tenants must meet performance targets in relation to energy and water use in accordance with the NABERS rating tool.</p> <p>Sufficient energy metering within the base building and tenancy is required to ensure that a NABERS Energy base rating can be obtained.</p>	<p>The Green Lease Schedules and Templates would be considered and could be incorporated into the lease agreements and obligations of the building owner and government tenant.</p>

Table 9.3 Relevant sustainability rating tools

Rating tool	Key elements/objectives of the tool	How the rating tool would be applied to the Project
<p><i>Infrastructure Sustainability (IS) rating scheme for infrastructure (Infrastructure Sustainability Council of Australia)</i></p>	<p>This document provides a rating scheme and tool for assessment of the sustainability of infrastructure projects. It provides a comprehensive suite of aims for projects in design, as built and throughout operation in a number of categories including:</p> <ul style="list-style-type: none"> <li>• management and governance;</li> <li>• using resources;</li> <li>• emissions, pollution and waste;</li> <li>• ecology;</li> <li>• people and place; and</li> <li>• innovation.</li> </ul>	<p>Where practicable, the Project would be assessed in accordance with this rating tool.</p>
<p><i>Green Star (Green Building Council of Australia)</i></p>	<p>This is a sustainability rating system designed to evaluate the attributes of a building across different facets of environmental performance at the design stage.</p>	<p>No specific Green Star rating system applies for intermodal terminals, but relevant sustainability criteria could be derived where practicable from existing Green Star tools. Guidance in developing objectives for environmental performance for administration buildings is provided in a number of Green Star tools including Office v3 and Office Interiors v1.1. Objectives for the design of warehouses would be developed in accordance with the Industrial v1 tool.</p> <p>The detailed design for the Project could consider the applicable criteria presented in the various Green Star rating tools.</p>
<p><i>National Australian Built Environment Rating System (NABERS)</i></p>	<p>This performance based tool is used to assess the measured operational impacts of buildings against a comprehensive set of key impact categories. It provides sustainability criteria for a number of development types, including offices in the following areas:</p> <ul style="list-style-type: none"> <li>• energy;</li> <li>• water;</li> <li>• waste; and</li> <li>• indoor environment.</li> </ul>	<p>While NABERS does not directly provide targets for intermodal facilities, the detailed design for the Project would incorporate targets based on the energy criteria provided in NABERS. Building owners and tenants would need to meet the reporting requirements under the NABERS.</p> <p>These requirements could be incorporated into the lease agreements for buildings in the Project.</p>

### 9.3 Economic benefits of implementing ESD

The implementation of ESD principles during design and construction processes can have significant economic benefits for the Project as a whole. Economic benefits associated with ESD initiatives include those related to reductions in waste and more efficient use of resources (i.e. less energy, materials or water consumed), leading to reduced construction and operational costs. These benefits may be direct (such as reduced energy consumption) or indirect (such as reduced travel time as a result of ESD initiatives, e.g. onsite recycling).

Moorebank Intermodal Company (MIC) recognises these benefits and has identified a number of ESD initiatives to be adopted for the Project, as described below.

### 9.4 ESD objectives and initiatives for the Project

In order to promote ESD in design, construction and operation, a number of overarching ESD objectives have been adopted for the Project, as detailed in Table 9.4. These objectives will be integrated into the detailed design for the Project.

ESD objectives specific to the construction and operation of the Project would be developed by the contractor for the future construction and operation of the Project. The objectives would be based on the objectives identified in Table 9.4 and would include mandatory ESD requirements and opportunities to demonstrate ESD innovation.

Progress towards achieving these objectives would be assessed during the detailed design, construction and operation of the Project through the consideration of innovative and sustainable technologies, materials and designs.

In addition to the measures outlined in this chapter, Chapter 28 – *Environmental management framework* identifies environmental management and mitigation measures that would also contribute to the delivery of environmental sustainability.

Table 9.4 Key ESD objectives and initiatives for the Project

Key ESD objectives	Initiatives
Encourage material recycling and re-use	<ul style="list-style-type: none"> <li>• Opportunities would be explored to purchase and procure a large proportion of recycled building materials in the overall construction of the Project.</li> <li>• Consideration would be given to developing the specification of materials such as steel and concrete based on their recycled content.</li> <li>• Where possible, materials would be preferred where manufactured in accordance with sustainable criteria designated by recognised industry bodies (such as the Environmental Sustainability charter of the Australian Steel Institute).</li> <li>• Where possible, construction materials made with a post-consumer recycled content of 50% or greater would be preferred.</li> <li>• Where possible, the absolute quantity of Portland cement would be reduced through substitution with industrial waste products or oversized aggregate.</li> <li>• Materials used on site would be recycled where possible, including steel, batteries, electronics and paper.</li> <li>• Future recovery of waste would be encouraged through site design, including provision for storage areas and appropriate paths for waste containers.</li> </ul>

Key ESD objectives	Initiatives
	<ul style="list-style-type: none"> <li>• Opportunities would be explored where practicable to recycle or re-use materials arising from demolition works, with a preference for onsite re-use where possible.</li> </ul>
Minimise waste	<ul style="list-style-type: none"> <li>• The waste hierarchy would be investigated and implemented where possible with avoidance of waste, re-use and recycling incorporated into design, purchasing and procurement.</li> <li>• Where practicable, the Project would be designed to maximise opportunities for future waste recovery through re-use and recycling.</li> <li>• Consideration would be given to the selection of materials for use in construction and operation to minimise waste generated throughout their lifecycle.</li> </ul>
Minimise heat loads from solar gain	<ul style="list-style-type: none"> <li>• The use of sun shading would be considered and implemented where practicable to minimise heat loads and reduce the need for mechanical cooling of the Project site (this may be in the form of overhangs and mechanical sun shading devices).</li> <li>• The use of green (vegetated) roofs and walls would be investigated during detailed design and installed where practicable.</li> <li>• Window and window frame selection for office buildings would consider solar gain, with preference for double glazed windows and non-aluminium frames to increase insulation.</li> </ul>
Maximise natural light, transparency and access	<ul style="list-style-type: none"> <li>• Strategies for maximising natural light, transparency and access, and minimising use of artificial lighting for the Project, would be investigated and could be implemented where appropriate. For example: <ul style="list-style-type: none"> <li>&gt; the design of buildings could incorporate passive solar design principles, including north facing orientation, shading, insulation and provision for cross ventilation; and</li> <li>&gt; skylights could be used for natural lighting of warehouses and other structures onsite.</li> </ul> </li> </ul>
Minimise energy use	<ul style="list-style-type: none"> <li>• The design of the Project would consider a number of strategies to reduce overall energy use during construction and operation, and these implemented where practicable.</li> <li>• Procurement processes for building materials, plant and equipment for the Project would consider the lifecycle energy use, including embodied energy.</li> <li>• The use of insulated wall and roof panels, and natural ventilation to reduce the need for mechanical cooling and heating would be considered and could be incorporated into the design of site structures.</li> <li>• The Project has conservatively assumed that in-terminal vehicles (ITVs) could be powered by a fossil fuel source (liquid petroleum gas); however, where possible, the use of zero emission technologies would be considered further during the detailed design.</li> </ul>
Minimise use of potable water and promote use of recycled water	<ul style="list-style-type: none"> <li>• Consideration would be given to the use of efficient technologies and the monitoring and management of water use on site to minimise water use.</li> <li>• Principles of water sensitive urban design would be considered and incorporated into landscape design on site where practicable.</li> <li>• Where possible, rainwater harvesting and surface water runoff management would be utilised for watering of gardens and landscaping to minimise water impacts on the natural environment.</li> <li>• Where possible, rainwater could be captured from roofed areas, treated through adequate first-flush treatments, and directed to holding tanks for re-use in toilet flushing or process water.</li> </ul>

Key ESD objectives	Initiatives
Minimise greenhouse gas emissions	<ul style="list-style-type: none"> <li>Greenhouse gas targets set in accordance with the relevant sustainability policies and rating tools discussed above could be considered during the detailed design phase.</li> <li>The use of energy efficient materials, fixtures and fittings would be considered for the Project site and installed where appropriate.</li> <li>The potential for use of onsite renewable energy generation to cover a proportion of the Project site's energy requirements would be explored during detailed design, based on operational requirements. Potential options would include installation of photovoltaic (PV) cell panels and wind turbines.</li> <li>Solar streetlights, lit with light emitting diodes (LED), would be considered and utilised for external lighting and for internal lighting where applicable.</li> </ul>
Protect the biodiversity values of the Project site	<ul style="list-style-type: none"> <li>Riparian vegetation and vegetation within the Project site adjacent to the Georges River would be retained in a dedicated conservation zone.</li> <li>Degraded sections of the conservation zone would be revegetated and rehabilitated to restore biodiversity value.</li> </ul>
Protect the heritage values of the Project site and adjacent sites	<ul style="list-style-type: none"> <li>Heritage impacts have been avoided as much as possible through the proposed establishment of a conservation zone in the Georges River riparian zone.</li> </ul>
Provide opportunities to improve workforce and community welfare	<ul style="list-style-type: none"> <li>A number of initiatives have been considered in the Project design to create a workplace that is comfortable, safe and environmentally sustainable.</li> <li>Employment opportunities created through the Project would provide long-term benefits to the welfare of communities and individuals.</li> </ul>

## 9.5 Next steps

Chapter 28 – *Environmental management framework* of this EIS outlines the proposed environmental management framework for the Project's ongoing design, and future construction and operation. It includes a consolidated list of all management and mitigation measures proposed for the Project. General adherence to the sustainability policies and initiatives outlined above form part of that list of measures, including the further development and implementation of the measures by any future developer of the Project site. A monitoring framework would be developed prior to commencement of detailed design. This would identify sustainability indicators that would be subject to ongoing monitoring (auditing) and reporting. The detailed design would, as a minimum, provide for sustainability outcomes in accordance with the initiatives identified in Table 9.4.