

Stratford Extension Project Environmental Impact Statement

SECTION 6

PLANNING FRAMEWORK AND PROJECT JUSTIFICATION



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6 ENVIRONMENTAL PLANNING FRAMEWORK AND PROJECT JUSTIFICATION

6.1 EXISTING APPROVALS AND REGULATORY CONTROLS

A general description of the approvals history of the SCM and BRNOC is provided in Section 2.2.

Key approvals and documentation pertaining to the existing Stratford Mining Complex include:

- SCM Development Consent DA 23-98/99 issued under Part 4 of the EP&A Act and approved in February 1999, as modified by subsequent modifications (Section 2.2.1).
- BRNOC Development Consent DA 39-02-01 issued under Part 4 of the EP&A Act and approved in July 2001, as modified by subsequent modifications (Section 2.2.2).
- Seven MLs issued under the NSW *Mining Act, 1992* comprising ML 1577, ML 1528, ML 1409, ML 1447, ML 1360, ML 1538 and ML 1521 (Figure 2-1).
- EPL 5161 (SCM) and EPL 11745 (BRNOC) issued by the OEHL under the NSW *Protection of the Environment Operations Act, 1997* (PoEO Act).
- Various MOPs prepared for the Stratford Mining Complex and associated MOP approvals issued by the (now) DRE.
- Various licences for the extraction of groundwater issued under Part 5 of the NSW *Water Act, 1912* by the NOW (Attachment 5).
- Various groundwater licences for monitoring bores issued under Part 5 of the *Water Act, 1912* by the NOW.
- Various licenses issued under Part 2 of the *Water Act, 1912* for surface drainage works such as clean water diversions.
- Mining and occupational health and safety related approvals granted by the DRE and WorkCover NSW.
- Communication Tower Development Consent (DA 2007/1448) issued by the GSC in May 2007.
- Bowens Road Diversion Development Consent (DA 2007/1573) issued by the GSC in February 2008.

Unregulated river access licences for surface water extractions issued under the *Water Management Act, 2000* by the NOW are also associated with some landholdings that SCPL has acquired (Attachment 5).

A register of current licences, permits and approvals is maintained on-site by SCPL, and a summary of current approvals is presented in the Annual Review that is available at the Yancoal website domain:

www.yancoal.com.au

Existing environmental management, monitoring and mitigation measures that are implemented in accordance with the existing Stratford Mining Complex approvals are described in Sections 2.1.9, 4 and 7, where relevant.

A summary of the Project key interactions with the AGL Gloucester Gas Project and the proposed Rocky Hill Coal Project are provided in Section 2.5 and, where relevant, potential cumulative environmental impacts are described in Section 4.

In addition to the above, Yancoal also operates exploration activities in the Gloucester Basin in accordance with relevant exploration tenements and associated approvals from the DRE.

6.2 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

The EP&A Act and EP&A Regulation set the framework for planning and environmental assessment in NSW. Approval for the Project will be sought under the State Significant Development provisions (Division 4.1) of Part 4 of the EP&A Act.

6.2.1 Permissibility and Requirement for Development Consent

The Project is wholly located within the Gloucester LGA within lands zoned under the Gloucester LEP as:

- Zone RU1 (Primary Production zone);
- Zone IN3 (Heavy Industrial zone); and
- Zone E3 (Environmental Management zone).

The Project may be carried out only with development consent within these Gloucester LEP zones (Attachment 6).

6.2.2 Application of State Significant Development (Division 4.1) of Part 4 of the *Environmental Planning and Assessment Act, 1979*

Section 89C of the EP&A Act outlines the nature of development that is State Significant Development:

- (1) *For the purposes of this Act, **State significant development** is development that is declared under this section to be State significant development.*
- (2) *A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.*

...

Clause 8 of the *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP) indicates:

- (1) *Development is declared to be State significant development for the purposes of the Act if:*
 - (a) *the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and*
 - (b) *the development is specified in Schedule 1 or 2.*

The Project would not be permissible without development consent (Section 6.2.1). Clause 5 of Schedule 1 of the State and Regional Development SEPP relevantly includes:

5 Mining

- (1) *Development for the purpose of mining that:*
 - (a) *is coal or mineral sands mining...*

The Project represents development for the purpose of coal mining (Section 2), and therefore is State Significant Development for the purposes of the EP&A Act.

In accordance with section 89D of the EP&A Act, the NSW Minister for Planning and Infrastructure (the Minister) is the consent authority for the Project. The Minister will determine a Development Application in accordance with section 89E(1) of the EP&A Act by granting consent to the application with such modifications of the proposed development or on such conditions as the Minister may determine, or refusing consent to the application.

6.2.3 Approvals and Authorisations that are not Required for State Significant Development

Section 89J(1) of the EP&A Act outlines the authorisations that are not required for a State Significant Development consented under Division 4.1 of Part 4. These authorisations are those ordinarily required under the following legislative provisions:

- The concurrence under Part 3 of the *Coastal Protection Act, 1979* of the Minister administering that Part of that Act.
- A permit under section 201, 205 or 219 of the *Fisheries Management Act, 1994*.
- Division 8 of Part 6, an approval under Part 4, or an excavation permit under section 139 of the *Heritage Act, 1977*.
- An Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act, 1974*.
- An authorisation referred to in section 12 of the *Native Vegetation Act, 2003* (or under any Act repealed by that Act) to clear native vegetation or State protected land.
- A bushfire safety authority under section 100B of the *Rural Fires Act, 1997*.
- A water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the *Water Management Act, 2000*.

6.2.4 Other Approvals and Legislation that must be Applied Consistently for State Significant Development

Section 89K of the EP&A Act outlines the authorisations that cannot be refused if they are necessary for the carrying out of an approved State Significant Development under Division 4.1, and provides that those authorisations are to be substantially consistent with the Division 4.1 development consent. These authorisations are of the following kind:

- An aquaculture permit under section 144 of the *Fisheries Management Act, 1994*.
- An approval under section 15 of the *Mine Subsidence Compensation Act, 1961*.
- A mining lease under the *Mining Act, 1992*.

- A production lease under the *Petroleum (Onshore) Act, 1991*.
- An EPL under Chapter 3 of the PoEO Act (for any of the purposes referred to in section 43 of that Act).
- A consent under section 138 of the *Roads Act, 1993*.
- A licence under the *Pipelines Act, 1967*.

6.2.5 Environmental Impact Statement Required for State Significant Development

Section 78A(8A) of the EP&A Act specifies that a Development Application for State Significant Development is to be accompanied by an EIS prepared by or on behalf of the applicant in the form prescribed by the regulations.

Clause 6 of Schedule 2 of the EP&A Regulation describes the required form of an EIS:

An environmental impact statement must contain the following information:

- (a) *the name, address and professional qualifications of the person by whom the statement is prepared,*
- (b) *the name and address of the responsible person,*
- (c) *the address of the land:*
 - (i) *in respect of which the development application is to be made, or*
 - (ii) *on which the activity or infrastructure to which the statement relates is to be carried out,*
- (d) *a description of the development, activity or infrastructure to which the statement relates,*
- (e) *an assessment by the person by whom the statement is prepared of the environmental impact of the development, activity or infrastructure to which the statement relates, dealing with the matters referred to in this Schedule,*
- (f) *a declaration by the person by whom the statement is prepared to the effect that:*
 - (i) *the statement has been prepared in accordance with this Schedule, and*
 - (ii) *the statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates, and*
 - (iii) *that the information contained in the statement is neither false nor misleading.*

This EIS contains the information outlined above, including the address of relevant lands (Attachment 2) and the name, address, professional qualifications and declaration of the person by whom the EIS has been prepared in consideration of the requirements of Schedule 2 of the EP&A Regulation (refer inside front cover of Volume 1).

Clause 7 of Schedule 2 of the EP&A Regulation describes the required content of an EIS. Table 1-3 provides a reconciliation of the each requirement in subclause (1) and the relevant section of this EIS where the information is provided.

Subclause (2) of Clause 7 of Schedule 2 of the EP&A Regulation indicates that the requirements set out in subclause (1) (Table 1-3) are subject to the environmental assessment requirements that relate to the EIS.

The Project DGRs setting out the environmental assessment requirements in accordance with Clause 3, Schedule 2 of the EP&A Regulation are provided in Attachment 1 and summarised in Table 1-2.

6.2.6 Documents to Accompany Development Application

Subclauses 2(1) to 2(3) of Schedule 1 of the EP&A Regulation describe documentation that is required to accompany a Development Application. This EIS satisfies relevant documentation requirements outlined by these subclauses.

6.2.7 Public Notification of the Development Application

In accordance with clause 49(1) of the EP&A Regulation a Development Application may be made by the owner of the land to which the Development Application relates, or by any other person, with the consent in writing of the owner of that land. Alternatively, clause 49(2) of the Regulation provides:

Subclause (1) (b) does not require the consent in writing of the owner of the land for a development application made by a public authority or for a development application for public notification development if the applicant instead gives notice of the application:

- (a) *by written notice to the owner of the land before the application is made, or*
- (b) *by advertisement published in a newspaper circulating in the area in which the development is to be carried out no later than 14 days after the application is made.*

The Project is public notification development as it falls within clause 5 of Schedule 1 of the State and Regional Development SEPP (Section 6.2.2), and therefore the Development Application will be notified in accordance with clause 49(2) of the EP&A Regulation.

6.2.8 Division 6 Development Contributions

Planning Agreements

Subdivision 2, section 93F of the EP&A Act describes voluntary planning agreements that may be entered into between a planning authority and a proponent/developer (including a proponent who has made, or proposes to make a Development Application) under which the developer is required to dedicate land free of cost, pay a monetary contribution, or provide any other material public benefit, or any combination of them, to be used for or applied towards a public purpose.

Section 93F(2) indicates that a public purpose includes any of the following:

- the provision of (or the recoupment of the cost of providing) public amenities or public services, affordable housing, transport or other infrastructure relating to land;
- the funding of recurrent expenditure relating to the provision of public amenities or public services, affordable housing or transport or other infrastructure;
- the monitoring of the planning impacts of development; and
- the conservation or enhancement of the natural environment.

Section 93F(3) indicates the required content of a voluntary planning agreement including:

- a description of the land to which the agreement applies;
- a description of the development to which the agreement applies;
- the nature and extent of the provision to be made, the time or times by which the provision is to be made and the manner by which the provision is to be made;
- whether the agreement excludes (wholly or in part) or does not exclude the application of section 94, 94A or 94EF to the development;

- if the agreement does not exclude the application of section 94 to the development, whether benefits under the agreement are or are not to be taken into consideration in determining a development contribution under section 94;
- a mechanism for the resolution of disputes under the agreement; and
- the enforcement of the agreement by a suitable means, such as the provision of a bond or guarantee, in the event of a breach of the agreement by the developer.

Section 93G indicates public notice requirements and the period for inspection by the public of not less than 28 days, and also indicates the regulations may provide further public notice requirements.

Clause 25D of the EP&A Regulation relevantly provides:

- (1) *If a planning authority proposes to enter into a planning agreement... in connection with a development application ... the planning authority is to ensure that public notice of the proposed agreement, amendment or revocation is given:*
 - (a) *in the case of an agreement in connection with a development application:*
 - (i) *if practicable, as part of and contemporaneously with, and in the same manner as, any notice of the development application that is required to be given by a consent authority for a development application by or under the Act, or*
 - (ii) *if it is not practicable for notice to be given contemporaneously, as soon as possible after any notice of the development application that is required to be given by a consent authority for a development application by or under the Act and in the manner determined by the planning authorities that are parties to the agreement, or*

...

Yancoal already makes community infrastructure contributions to the GSC and Great Lakes Council in accordance with Condition 15, Schedule 3 of the existing SCM Development Consent (DA 23-98/99) and Conditions 16 and 17, Schedule 2 of the DCM Project Approval (08_0203).

It is expected that as with other recent major coal mining projects in NSW, a voluntary planning agreement would either be negotiated prior to determination of the Project, or would be required by the Project Development Consent. Any such planning agreement would be negotiated between the DP&I, SCPL and GSC (and if relevant, another adjoining council).

Local Infrastructure Contributions

Subject to any exclusions or inclusions with respect to section 94 in any Project voluntary planning agreement (refer discussion above), the Minister may grant development consent to the Project subject to a condition requiring contributions under either section 94 or section 94A of the EP&A Act. Contributions under section 94 can only be required in circumstances where the development will or is likely to require the provision of, or increase the demand for, public amenities or services within the area.

Section 94B(2) provides that where the consent authority is not a council (as is the case for the Project), the consent authority may impose a condition under section 94 or section 94A that is not authorised by or determined in accordance with an applicable contributions plan, as long as the consent authority has regard to the contributions plan that applies to the whole or any part of the area in which the development is to be carried out.

The Project Development Application area is located wholly within the Gloucester LGA. The GSC has a *Gloucester Shire Council Section 94 Development Contributions For All Development Applications and Complying Developments Plan 2008, Revised November 2010* (GSC, 2010) and a *Gloucester Shire Council S94A Development Contributions Levy Plan 2006* (GSC, 2006) that may be of relevance to the consent authority's consideration of contributions.

In addition, in accordance with section 94C of the EP&A Act, a condition may be imposed under section 94 or 94A for the benefit (or partly for the benefit) of an area that adjoins the Gloucester LGA.

6.3 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT, 1999

The EPBC Act defines proposals that are likely to have an impact on a matter of national environmental significance as a "controlled action". Proposals that are, or may be, a controlled action are required to be referred to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities for a determination as to whether or not the action is a controlled action.

The proposed action to extend open cut coal mining and processing operations at the Stratford Mining Complex was referred to the Commonwealth Minister in October 2011.

A delegate of the Commonwealth Minister decided on 5 December 2011 that the proposed action is a "controlled action" for the purposes of the EPBC Act due to potential impacts on the following controlling provisions under Part 3 of Chapter 2 of the EPBC Act:

- listed threatened species and communities (sections 18 and 18A); and
- listed migratory species (sections 20 and 20A).

The delegate of the Commonwealth Minister also determined on 5 December 2011 that the proposed action is to be assessed by accredited assessment under the EP&A Act pursuant to section 87(4) of the EPBC Act.

The Commonwealth of Australia and the State of NSW governments have signed a bilateral agreement (Bilateral Agreement) which accredits the NSW assessment regime under Part 4 of the EP&A Act for assessment purposes under the EPBC Act. The Bilateral Agreement was signed in January 2007 and applies to actions that the Commonwealth Minister has determined are controlled actions under the EPBC Act.

Guideline 1 of Schedule 1 Part A of the Bilateral Agreement states:

1. *In addition to standard guidelines and directions, the New South Wales Minister, the Director-General or the consent authority must issue guidelines¹ to proponents of controlled actions to ensure that material prepared by the proponent as part of the assessment:*
 - (a) *contains an assessment of all relevant impacts that the controlled action has, will have or is likely to have;*

- (b) contains enough information about the controlled action and its relevant impacts to allow the Commonwealth Environment Minister to make an informed decision whether or not to approve the controlled action under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999; and
- (c) addresses the matters outlined in Schedule 4 of the Commonwealth Environment Protection and Biodiversity Conservation Regulations 2000.

¹ The New South Wales Minister, the Director-General or the consent authority may issue a generic set of guidelines or may issue guidelines on a case-by-case basis.

Attachment 3 of the DGRs requires information about the controlled action and its relevant impacts and matters outlined in Schedule 4 of the EPBC Regulations to be addressed in this EIS.

A copy of the requirements in Attachment 3 of the DGRs (including Schedule 4 of the EPBC Regulations) is provided in Appendix H, along with a reference list where the applicable content is provided in this EIS.

The Project will be assessed in accordance with the Bilateral Agreement and will require approval under both the EP&A Act and the EPBC Act.

6.4 OTHER APPLICABLE STATUTORY APPROVALS

6.4.1 NSW Approvals

The following NSW Acts may be applicable to the Project:

- *Coal Mine Health and Safety Act, 2002*;
- *Contaminated Land Management Act, 1997*;
- *Crown Lands Act, 1989*;
- *Dangerous Goods (Road and Rail Transport) Act, 2008*;
- *Electricity Supply Act, 1995*;
- EP&A Act;
- *Fisheries Management Act, 1994*;
- *Heritage Act, 1977*;
- *Mining Act, 1992*;
- *National Parks and Wildlife Act, 1974*;
- *Native Title (New South Wales) Act, 1994*;
- *Native Vegetation Act, 2003*;
- *Noxious Weeds Act, 1993*;
- *Petroleum (Onshore) Act, 1991*;
- *Pipelines Act, 1967*;
- PoEO Act;
- *Roads Act, 1993*;
- TSC Act;
- *Water Act, 1912*; and
- *Water Management Act, 2000*.

Relevant licences or approvals required under these Acts would be obtained for the Project as required.

For example, the Project would require additional mining leases under the *Mining Act, 1992* (and/or there may also be some rationalisation of the number of separate leases); revision and/or amalgamation of EPLs 5161 and 11745 under the PoEO Act; and water licences under the *Water Act, 1912* and *Water Management Act, 2000* for groundwater and surface water extraction, where applicable.

Additional detail on the likely Project requirements under the *Mining Act, 1992*, PoEO Act, *Roads Act, 1993*, *Water Management Act, 2000* and *Water Act, 1912* are provided in the sub-sections below.

Interactions with the approved AGL Gloucester Gas Project which will require a PPL under the *Petroleum Onshore Act, 1991* over Project lands are also discussed below and in Section 2.5.

Mining Act, 1992

Under the *Mining Act, 1992*, environmental protection and rehabilitation are regulated by conditions of mining leases, including requirements for the submission of a MOP prior to the commencement of operations, and subsequent AEMRs (or Annual Reviews).

All mining operations must be carried out in accordance with the MOP which has been prepared to the satisfaction of DRE. The MOP describes site activities and the progress toward environmental and rehabilitation outcomes required under mining lease conditions and Development Consent under the EP&A Act and other approvals (DoP, 2008).

The MOP, together with environmental conditions of other approvals, forms the basis for ongoing adaptive management of mining operations and their environmental impacts (DoP, 2008). The MOP must apply best available practice and technology to mine operations and include strategies to control identified environmental risks (DoP, 2008).

AEMRs must contain a review and forecast of performance for the preceding and ensuing 12 months in relation to the following (DoP, 2008):

- compliance with the accepted MOP;
- Development Consent under the EP&A Act requirements and conditions;
- licences and approvals from the OEH and the NOW;
- any other statutory environmental requirements;
- details of any variations to environmental approvals applicable to the lease area; and
- where relevant, progress towards final rehabilitation objectives.

Collectively, the MOP and AEMR constitute the MREMP (NSW Department of Primary Industries-Mineral Resources [DPI-MR], 2006) which has been developed by DRE. The MREMP is a framework that aims to facilitate the development of mining in NSW in a manner such that operations are safe, the environment is protected, the resources are efficiently extracted and rehabilitation achieves a stable, satisfactory outcome (DPI-MR, 2006).

There are provisions of the NSW *Mining Amendment Act, 2008* which would amend the *Mining Act, 1992* to replace the MREMP with the requirement to submit a REMP. Until the commencement of REMP provisions, the structure and content of the Project MOP and AEMR would be developed in accordance with the *Guidelines to the Mining, Rehabilitation and Environmental Management Process* (DPI-MR, 2006) and through consultation with various regulatory and advisory agencies including the DRE, OEH, DP&I and GSC.

Mining Tenements

SCPL will apply to the DRE for MLs (MLA 1, MLA 2 and MLA 3) (Figure 2-1) for the mining of coal as required. SCPL may also apply to rationalise some existing MLs in consultation with DRE.

Petroleum (Onshore) Act, 1991

Stage 1 of the AGL Gloucester Gas Project was granted Project Approval (08_0154) under Part 3A of the EP&A Act by the Planning Assessment Commission in February 2011. The Project Application area for the approved AGL Gloucester Gas Project Stage 1 includes lands within the Project Development Application area, and hence AGL has relevant landholder rights over these lands in accordance with Project Approval 08_0154.

AGL currently holds a petroleum exploration licence issued under the *Petroleum (Onshore) Act, 1991*. It does not apply to the surface lands subject to MLs held by SCPL. At the time of writing AGL and SCPL are in the process of negotiating a co-operation agreement with respect to areas where the two operations are expected to interact, and this agreement is expected to be presented to the Minister for Resources and Energy in 2012/2013.

At the time of writing, the AGL Gloucester Gas Project is still awaiting EPBC Act approval. In addition, the project approval for the AGL Gloucester Gas Project is the subject of a challenge in the NSW Land and Environment Court for which, at the time of writing, judgement has not been handed down.

Protection of the Environment Operations Act, 1997

The SCM and BRNOC are currently licensed under two separate EPLs (5161 and 11745, respectively) to conduct “mining for coal” and “coal works” as defined in Schedule 1 of the PoEO Act. As a component of the Project it is anticipated that the regulation of BRNOC would be integrated with the remainder of the Stratford Mining Complex and one of the existing EPLs would be relinquished, and the other licence varied in accordance with section 58 of the PoEO Act.

The co-operation agreement between AGL and SCPL would outline any specific areas that are to be occupied by each party for the purposes of licensing under the PoEO Act.

Roads Act, 1993

Two sections of public roads would be realigned as a component of the Project (Section 2.6.1 and Figure 2-1).

If the Project is approved, SCPL would apply for necessary consents under section 138 of the *Roads Act, 1993* for these works. In accordance with section 89K(1)(f) of the EP&A Act, if the Project is approved, consent under section 138 of the *Roads Act, 1993* cannot be refused and is to be substantially consistent with the Development Consent (Section 6.2.4).

Water Management Act, 2000 and Water Act, 1912

Consideration of the Project against the water management principles and access licence dealing principles under the *Water Management Act, 2000*, and a discussion of the access licences required for each water source associated with the Project are provided in Attachment 5. Appropriate licences under the *Water Management Act, 2000* and *Water Act, 1912* would be sought and obtained for the Project in consultation with the NOW.

Approval requirements for water use and water management works are also discussed in Attachment 5.

6.4.2 Commonwealth Approvals

The relevance of the EPBC Act to the Project is described in Section 6.3.

In addition to the EPBC Act, the following Commonwealth Acts may be applicable to the Project:

- *Clean Energy Act, 2011*;
- *Energy Efficiency Opportunities Act, 2006* (EEO Act).
- *National Greenhouse and Energy Reporting Act, 2007* (NGER Act);
- *Native Title Act, 1993*; and
- *Minerals Resources Rent Tax Act, 2011*.

The relevance of these Acts is described in the sub-sections below.

Clean Energy Act, 2011

The *Clean Energy Act, 2011* establishes a mechanism where corporations must purchase carbon units for their direct greenhouse gas emissions (i.e. per tonne of CO₂-e emitted). The Act commenced on 2 April 2012.

The *Clean Energy Act, 2011* makes the purchase of carbon units mandatory for corporations controlling facilities with greenhouse gas emissions above specified thresholds. The thresholds would only apply to greenhouse gas emissions from sources covered under the *Clean Energy Act, 2011*.

The objects of the Act are outlined in section 3 of the *Clean Energy Act, 2011* as follows:

- (a) to give effect to Australia's obligations under:
 - (i) the *Climate Change Convention*; and
 - (ii) the *Kyoto Protocol*;
- (b) to support the development of an effective global response to climate change, consistent with Australia's national interest in ensuring that average global temperatures increase by not more than 2 degrees Celsius above pre-industrial levels;
- (c) to:
 - (i) take action directed towards meeting Australia's long-term target of reducing Australia's net greenhouse gas emissions to 80% below 2000 levels by 2050; and
 - (ii) take that action in a flexible and cost-effective way;
- (d) to put a price on greenhouse gas emissions in a way that:
 - (i) encourages investment in clean energy; and
 - (ii) supports jobs and competitiveness in the economy; and
 - (iii) supports Australia's economic growth while reducing pollution.

It is expected that the Project would trigger the facility threshold for the pricing mechanisms detailed in the *Clean Energy Act, 2011*, and as such, SCPL would participate in these mechanisms (Section 4.8.2).

Energy Efficiency Opportunities Act, 2006

The EEO Act requires large energy using corporations to assess and improve their energy efficiency, and publicly report the results of their energy efficiency assessments. Corporations that exceed mandatory participation thresholds must register and prepare assessment plans that meet the requirements specified in the Commonwealth *Energy Efficiency Opportunities Regulations, 2006*.

Section 3 of the EEO Act defines the object of the Act:

- (1) *The object of this Act is to improve the identification and evaluation of energy efficiency opportunities by large energy using businesses and, as a result, to encourage implementation of cost effective energy efficiency opportunities.*

- (2) *In order to achieve its object, this Act requires large energy using businesses:*
- (a) *to undertake an assessment of their energy efficiency opportunities to a minimum standard in order to improve the way in which those opportunities are identified and evaluated; and*
 - (b) *to report publicly on the outcomes of that assessment in order to demonstrate to the community that those businesses are effectively managing their energy.*

GCL and Yancoal are registered participants under the EEO Act. As such, Yancoal will continue to assess energy usage from all aspects of its operations, including the Stratford Mining Complex, and publicly report the results of energy efficiency assessments.

National Greenhouse and Energy Reporting Act, 2007

The NGER Act introduced a single national reporting framework for the reporting and dissemination of corporations' greenhouse gas emissions and energy use. The NGER Act makes registration and reporting mandatory for corporations whose energy production, energy use or greenhouse gas emissions meet specified thresholds.

Section 3 of the NGER Act defines the object of the Act:

The object of this Act is to introduce a single national reporting framework for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy consumption and energy production of corporations to:

- (a) *underpin the introduction of an emissions trading scheme in the future; and*
- (b) *inform government policy formulation and the Australian public; and*
- (c) *meet Australia's international reporting obligations; and*
- (d) *assist Commonwealth, State and Territory government programs and activities; and*
- (e) *avoid the duplication of similar reporting requirements in the States and Territories.*

Yancoal triggers the threshold for reporting under the NGER Act, and will report energy use and greenhouse gas emissions from its enterprises, including the Stratford Mining Complex.

Native Title Act, 1993

The Commonwealth *Native Title Act, 1993* provides for the recognition and protection of native title rights in Australia. The *Native Title Act, 1993* provides a mechanism to determine whether native title exists and what the rights and interests are that comprise that native title. The process is designed to ensure that indigenous people who claim to have an interest in a parcel of land have the opportunity to express this interest formally, and to negotiate with the Government and the applicant about the proposed grant or renewal, or consent to access native title land.

The NSW *Mining Act, 1992* must be administered in accordance with the *Native Title Act, 1993*.

The Commonwealth *Native Title Act, 1993*, where applicable, would be complied with in relation to the granting and renewal of any necessary mining tenements for the Project.

Minerals Resources Rent Tax Act, 2012

On 2 July 2010, the Commonwealth Government announced new taxation arrangements for the resources sector (The Treasury, 2011). As part of these arrangements, the *Minerals Resources Rent Tax Act, 2012* will apply a Minerals Resources Rent Tax (MRRT) on profits from mining 'taxable resources' (mainly coal and iron ore). The *Minerals Resources Rent Tax Act, 2012* commenced on 1 July 2012.

Yancoal would pay any MRRT liability associated with profits from the Project (if applicable).

6.5 ENVIRONMENTAL PLANNING INSTRUMENTS

6.5.1 State Environmental Planning Policies

The following State Environmental Planning Policies (SEPPs) are potentially relevant to the Project:

- State and Regional Development SEPP;
- SEPP 33;
- SEPP 44;
- *State Environmental Planning Policy No. 55 (Remediation of Land)* (SEPP 55);
- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP); and
- *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP).

A discussion of the relevant SEPPs is provided in Attachment 6.

6.5.2 Gloucester Local Environmental Plan 2010

Objectives

Clause 1.2 of the Gloucester LEP outlines the general aims of the LEP. Those aims relevant to the Project include:

- (2) *The particular aims of this Plan are as follows:*
- (a) *to manage the resources of Gloucester,*
 - (b) *to protect rural lands, natural resources and assets of heritage significance,*
 - (c) *to manage development to benefit the community,*
 - (d) *to embrace and promote the principles of ecologically sustainable development, conservation of biological diversity and sustainable water management, and to recognise the cumulative impacts of climate change,*
 - (e) *to protect, enhance and provide for biological diversity, including native threatened species, populations and ecological communities, by long term management and by identifying and protecting habitat corridors and links throughout Gloucester,*
 - ...
 - (g) *to provide a secure future for agriculture.*

The Project is generally consistent with the aims of the Gloucester LEP as:

- The Project would be developed in such a manner that would minimise and mitigate potential impacts on natural resources (including soil and water), rural lands and areas of Aboriginal and non-Aboriginal heritage significance (Sections 4 and 7).
- The Project would facilitate continued employment opportunities and expenditure in the region.
- The Project is to be developed in accordance with ESD principles, conservation of biological diversity and sustainable water management (Sections 2.12, 4.4, 4.5, 4.9, 4.10, 4.11 and 6.9.4).
- Potential impacts of the Project on native threatened species, populations and ecological communities have been considered, and biodiversity enhancement areas and a biodiversity offset for the Project have been developed (Sections 4.9, 4.10 and 4.11).
- The Project would be developed in a manner that would minimise and manage potential impacts on agricultural production and the soil stability of the lands in the vicinity of the Project. Residual impacts associated with the sterilisation of some agricultural land for the Project would be offset by the economic benefits of the Project (Section 6.9).

Further discussion on the Gloucester LEP, including permissibility and special provisions is provided in Attachment 6.

6.6 STRATEGIC PLANNING DOCUMENTS

Consideration of the applicability of development control plans and other strategic planning documents is provided in Attachment 6.

6.7 PROVISIONS FOR THE PREVENTION, MINIMISATION AND MANAGEMENT OF RELEVANT IMPACTS

In accordance with the Commonwealth requirements in the DGRs (Appendix H), this sub-section details how the NSW planning framework provides for the prevention, minimisation and management of relevant impacts.

This EIS includes consideration of the consistency of the Project with the objects of the EP&A Act (Section 6.9.5) and relevant Environmental Planning Instruments (Section 6.5).

If Development Consent is granted by the NSW Minister for Planning and Infrastructure, the Development Consent would include conditions and requirements for the operation of the Project to prevent, minimise and manage potential impacts of the Project. SCPL would also be required to operate the Project in accordance with the environmental management and monitoring commitments outlined in this EIS.

It is envisaged that the Development Consent would include conditions for the progressive development of environmental monitoring and management plans throughout the life of the Project. The development and approval of management plans would involve the review of Project operations by relevant government authorities.

It is anticipated that, consistent with contemporary major mining projects under the EP&A Act, the NSW Minister for Planning and Infrastructure may include a condition in the Development Consent (under section 89E of the EP&A Act) with a requirement for regular independent environmental audits of the Project, with the results of the audit being provided to the Director-General of the DP&I.

In addition, as described in Section 6.4.1, under the *Mining Act, 1992*, environmental protection and rehabilitation are regulated by conditions included in all mining leases, including requirements for the submission of a MOP and subsequent AEMR/Annual Review (or REMP following the commencement of relevant provisions of the *Mining Amendment Act, 2008*).

6.8 MONITORING, ENFORCEMENT AND REVIEW PROCEDURES

In accordance with the Commonwealth requirements in the DGRs (Appendix H), this sub-section provides a description of the monitoring, enforcement and review procedures that may apply to the Project.

At the time of the introduction of Part 3A of the EP&A Act, the monitoring, compliance and enforcement provisions of the EP&A Act were strengthened. This included additional powers to gather evidence, to issue orders or notices to remedy or restrain breaches of Project Approvals or the EP&A Act, and to require monitoring and environmental audits and the provision of evidence of compliance (NSW Department of Infrastructure, Planning and Natural Resources, 2005). While Part 3A of the EP&A Act has been repealed, where relevant these strengthened monitoring, compliance and enforcement provisions continue to be in force and now apply to approved State Significant Development projects.

The DP&I's compliance teams conduct inspections and audits of approved projects, respond to reports and complaints received from other NSW government agencies, local councils and members of the public, investigate potential breaches and carry out enforcement action where breaches are confirmed (DP&I, 2012c).

Enforcement action may include negotiated outcomes, warning letters, penalty notices and criminal prosecutions. The DP&I has published a compliance policy and associated Breach Management, Prosecution and Penalty Notice guidelines to assist authorised officers in exercising their powers (DP&I, 2012c).

It is anticipated that the NSW Minister for Planning and Infrastructure may include a condition in the Development Consent with a requirement for regular independent environmental audits of the Project (Section 6.7).

SCPL would prepare AEMRs/Annual Reviews for the Project in accordance with the conditions of the mining leases (Section 6.4.1), which would be provided for review by relevant government agencies. DRE also monitors mine sites through inspections and audits to ensure compliance with title conditions and MOPs (DoP, 2008). These inspections and audits may be conducted in conjunction and co-operation with other NSW government agencies (DoP, 2008).

The conditions of the SCM and BRNOC EPLs (5161 and 11745, respectively) require that an Annual Return be submitted to the OEHL, comprising a summary of any monitoring required by the EPL (including the recording of complaints) and a Statement of Compliance.

Licensees are required to submit details of the nature and extent of any non-compliance with their EPL conditions under section 66(3) of the PoEO Act, including:

- what action has been, or will be, taken to mitigate any adverse effects of the non-compliance; and
- what action has been, or will be, taken to prevent a recurrence of the non-compliance.

Chapter 5 of the PoEO Act provides details of offences and penalties under the PoEO Act.

The rehabilitation and decommissioning of the Project would be completed to the satisfaction of DRE in accordance with the MREMP framework under the *Mining Act, 1992* (Section 5).

Following mine closure, SCPL must continue to comply with the requirements of the EPL(s) until such time as formal relinquishment is achieved (i.e. until such time that the relevant authorities are satisfied that without ongoing intervention the potential downstream impacts are considered acceptable).

6.9 PROJECT JUSTIFICATION

In accordance with the DGRs (Attachment 1), a description of the need for and objectives of the Project and a justification of the carrying out of the Project in the manner proposed is provided below. This is provided having regard to biophysical, economic and social considerations, including consideration of alternatives, the principles of ESD and the consistency of the Project with the objects of the EP&A Act.

6.9.1 Need For and Objectives of the Project

The Project provides for the continuation and extension of open cut coal mining and processing activities at the Stratford Mining Complex to approximately 2024 as described in Sections 1 and 2.

At full development, the proposed Project operational workforce would be in the order of 250 on-site personnel. An additional construction workforce of up to approximately 30 people would also be required for short periods.

The Project would include the implementation of mitigation measures, and management (including performance monitoring), to minimise potential impacts on the environment and community (Section 4).

A summary of the Project environmental mitigation, management, monitoring and reporting measures is provided in Section 7.

The Project would involve the production of up to 2.6 Mtpa of ROM coal with 21.5 Mt of coal extracted over the life of the Project (Section 2.3). Based on the planned maximum production rate and processing of ROM coal mined from both the Project and DCM, the total product coal required for rail transport over the life of the Project would be up to 3.5 Mtpa (Section 2.9). The Project would produce a combination of saleable thermal and coking coal that would be sold domestically or exported for electricity generation, steel production and other manufacturing overseas.

Coal has met almost half of the increase in global energy demand over the last decade (International Energy Agency [IEA], 2011). In the World Energy Outlook 2011, IEA (2011) examined a number of future energy scenarios, including: maintaining current policies; implementing recent government policy commitments in a cautious manner; and the policies required to limit the long-term increase in the global mean temperature to 2°C above pre-industrial levels.

All of the energy scenarios involve an increase in coal consumption in the next decade (at least), with coal consumption in 2035 at least similar to total world coal demand in 2009 (IEA, 2011).

The NSW Government (2011) anticipates that over the coming decades coal exports from NSW could increase substantially, generating significant economic growth in regional areas of the State.

Project coal production would contribute to NSW export income, State royalties and State and Commonwealth tax revenue, as well as contributing to electricity supply and manufacturing in Australia and other countries that purchase Project coal.

The Socio-Economic Assessment (Appendix P) indicates that operation of the Project is likely to result in an average annual stimulus of up to approximately 250 direct and indirect jobs in the local region, and some 714 direct and indirect jobs in NSW. The Project would also make contributions to regional and NSW output or business turnover and household income (Section 4.16).

The benefit cost analysis in Appendix P indicates a net benefit of between \$145M and \$174M would be forgone if the Project is not implemented.

6.9.2 Consideration of Project Alternatives

A number of alternatives to the Project assessed in this EIS were considered by SCPL in the development of the Project description, including further consideration of alternatives following lodgement of the Project Description and Preliminary Assessment in October 2011.

In accordance with the DGRs (Attachment 1), a description of key alternatives considered by SCPL is provided below.

Project Location

The location for the Project is determined by the presence of coal seams that are amenable to be economically mined in the vicinity of the existing Stratford Mining Complex. The Project involves extensions to existing open cuts and the development of new open cuts for extraction of coal from the Craven and Avon Subgroups of the Gloucester Coal Measures and the Dewrang Group in the vicinity of the Stratford Mining Complex.

The continued development of coal resources in close proximity to SCPL's existing facilities maximises the use of existing infrastructure and associated returns on existing financial investments, and enables the continued beneficial use of SCPL's existing CHPP and rail loading infrastructure. It also provides opportunities to minimise the additional land disturbance area associated with the Project and this is described further below.

Mining Operations

The relative scale, rate and nature of a mining operation is determined by the optimum resource recovery and production rate that maximises value to the proponent and demonstrates ongoing viability in consideration of mine planning constraints.

Mine planning is a process that takes into account the range of key variables that may influence a potential mining operation and its viability. Aspects considered in the mine planning process include safety, resource recovery, potential environmental impacts (e.g. noise, air quality, water), community issues, risks to the operation, mining methods and rates, equipment requirements, infrastructure capacity, development timeframes and economics (i.e. capital and operating costs).

Key alternatives with respect to the proposed mining operations are provided below.

Mining Method

Coal reserves are typically mined in one of two ways:

- underground methods (whereby the coal is accessed via a small surface opening leading to sub-surface excavations which expose the coal); or
- open cut methods (whereby mining occurs from the surface downwards to progressively expose the coal).

Due to the proximity of the coal to the surface, the complex geology, the presence of faulting and the steeply dipping nature of the coal seams in the Project area (i.e. the seams are not flat or gently sloping and have dip angles of up to approximately 70 degrees), SCPL has not identified any economically viable underground mining method for extraction of coal in the Project area to date.

Based on the above, it was determined that the Project would use open cut mining methods to recover approximately 21.5 Mt of coal over the life of the Project (Section 2.3).

Minimising the Additional Project Surface Development Area

SCPL has evaluated the relative costs and environmental benefits of a number of alternative mechanisms to reduce the potential additional disturbance area associated with the Project.

The following refinements to the mine design have resulted in minimising additional land disturbance and associated impacts on flora, fauna and associated habitats (Section 4.9.3):

- optimising the backfilling of open cuts to minimise the overall mine footprint;
- extending the height and extent of the existing waste rock emplacements (i.e. dumping over and extending the existing mine landforms) rather than establishing new waste rock emplacement areas;
- continued use of existing open cut voids (e.g. for water and CHPP reject storage to avoid the need for additional specifically constructed storages); and
- adjusting the proposed general arrangement to specifically avoid clearance of three key areas of surrounding native bushland:
 - between the Stratford Main Pit, the Stratford Waste Emplacement Extension, the proposed Avon North Open Cut and the proposed Northern Waste Emplacement Extension;
 - west of the Roseville West Pit Extension; and
 - south of the Stratford Waste Emplacement and west of the proposed Stratford East Open Cut.

Further discussion on the sequencing of Project reject and waste rock emplacement is provided in Sections 2 and 4.9.3.

Project Scale

The scale of the Project was constrained by a number of factors including the coal resource extent and strip ratios, and further site specific constraints as follows (Section 2.7.2):

- Roseville West Pit Extension would not involve open cut mining within 40 m of Avondale Creek;
- Avon North Open Cut would not excavate any of the alluvium associated with Dog Trap Creek and is constrained in the south to retain a flow path for upslope catchment runoff from an eastern diversion; and

- Stratford East Open Cut would not excavate any alluvium associated with the upper reaches of Avondale Creek to the south of the open cut.

Hours of Operation

The selection of the open cut mining hours of operation for the Project has implications for return on capital investment (e.g. return on investment on new mining equipment), staffing and environmental consequences with respect to amenity at nearby receivers (e.g. operational noise and dust generation).

SCPL has evaluated various combinations of operational hours for the four Project open cut operations and associated waste rock emplacement activities. This analysis indicates that Project economic viability constraints require 24 hour open cut mining operations, however, Project viability can be maintained with some open cuts operating with limited hours to achieve environmental benefits (e.g. reduced noise emissions in the night-time period).

Project open cut mining operations would be conducted seven days per week and within the hours specified below (Section 2.7.1):

- **BRNOC** - 7.00 am to 7.00 pm.
- **Roseville West Pit Extension** - 7.00 am to 6.00 pm.
- **Stratford East Open Cut (Years 1 to 5)** - 24 hours per day, however, fleet associated with the removal of overburden would generally only operate between 7.00 am to 6.00 pm.
- **Stratford East Open Cut (Years 6 to 11)** - 24 hours.
- **Avon North Open Cut** - 24 hours.

In addition, recovery of CHPP rejects from the western co-disposal area for re-processing would be undertaken 7.00 am to 6.00 pm (Section 2.7.1).

The Stratford Mining Complex CHPP and associated rail operations would continue to operate 24 hours per day and seven days per week.

Production Rate

Based on SCPL's mine planning analysis (including consideration of the aspects outlined above) and corporate objectives, it was determined that the Project would have a maximum production rate of up to approximately 2.6 Mtpa of ROM coal.

The Project would produce a combination of saleable thermal and coking coal that would be sold domestically or exported for electricity generation, steel production and other manufacturing overseas.

Based on the Project maximum production rate and processing of ROM coal mined from both the Project and DCM, up to 3.5 Mtpa of product coal would be railed from the Stratford Mining Complex (Section 2.9).

Coal Processing

Given the existing Stratford CHPP is available to process ROM coal produced from the Project open cuts, no further consideration of coal processing alternatives is required. Some minor improvements to the CHPP would be undertaken as a component of the Project (Section 2.8).

Stratford East Dam

The Stratford East Dam and its post-mining interaction with the eastern up-catchment runoff control structures and the tributary of Avondale Creek was considered (i.e. whether upstream drainage should be modified to utilise the dam as a fill and spill facility, or if upstream catchment runoff should continue to be diverted around the dam to minimise capture of flows during smaller rainfall events).

To reduce the peak flow rates reporting to the downstream tributary of Avondale Creek, some of the up-catchment runoff reporting to the Stratford East Dam would be routed through the dam (Figure 5-1) rather than around it via diversions (as would occur during mining) (Appendix B). This would significantly reduce the risk of potential geomorphological changes in the tributary of Avondale Creek downstream of the dam (Appendix B).

Final Voids

Final voids are generally left at the conclusion of open cut mining with the size of these voids dictated by the depth of the open cut, the extent of backfilling that is undertaken and the mining sequence.

The Project would result in the backfilling of the Roseville West Pit, BRNOC and Stratford Main Pit voids that would otherwise have remained at the end of the SCM and BRNOC mine lives. At the cessation of the Project, final voids would remain in the Roseville West Pit Extension, Avon North Open Cut and Stratford East Open Cut (Figure 5-2).

SCPL has considered the option of altering the sequence of mining and waste rock backfilling to achieve only one final void, however, this was not found to be viable based on mine sequencing, CHPP reject emplacement requirements and economic considerations.

The surface catchment of the final voids would be reduced to a practicable minimum by maximising backfilling to the natural surface and the use of up-catchment diversions and contour drains around their perimeter.

Should SCPL propose further developments at the Stratford Mining Complex in the future, it is anticipated that the final voids that remain from this Project would be backfilled with CHPP reject and waste rock, as has been the case for this Project.

No Project

Consideration of the potential consequences of not proceeding with the development of the Project is provided in Section 6.9.6.

6.9.3 Consideration of Climate Change Projections for Australia and NSW

Consideration of the potential implications of climate change involves complex interactions between climatic, biophysical, social, economic, institutional and technological processes.

The weight of scientific opinion supports the proposition that the world is warming due to the release of emissions of carbon dioxide and other greenhouse gases from human activities including industrial processes, fossil fuel combustion, and changes in land use, such as deforestation (Pew Centre on Global Climate Change, undated).

Although understanding of climate change has improved markedly over the past several decades, climate change projections are still subject to uncertainties such as (CSIRO, 2007):

- *Socio-economic uncertainties associated with the current and future activities of humans, which affect the development of greenhouse gas and aerosol emission scenarios.*
 - *Uncertainties associated with our understanding of how the Earth's major biophysical systems behave and how they are represented in climate models.*
 - *Uncertainties regarding the assignment of probability distributions to regional climate change projections.*
- *Uncertainties associated with projecting climate change at small spatial scales, particularly for coastal and mountainous areas.*

Climate Change Projections for Australia

In Australia, the climate is projected to become warmer and drier. By 2030, warming (for mid-range global emission scenarios) is projected to be about 1°C over most of Australia, with slightly less warming in some coastal areas, and slightly more warming inland (CSIRO, 2007). By 2070, annual average temperatures are projected to increase by 1.8 to 3.4°C with spatial variations similar to those for 2030 (CSIRO, 2007) depending on the emission scenarios examined. Substantial increases in the frequency of days over 35°C, fewer frosts and increased evaporation are likely (CSIRO, 2007).

Sea level is projected to rise by 18 to 59 cm by 2100, or 2 to 7 cm per decade, as a result of global warming (CSIRO, 2007). Sea-level rise will have impacts on soft sediment shorelines and intertidal ecosystems, which will be especially vulnerable to change with additional impacts from extreme events.

The interaction of severe weather events, such as tropical cyclones, with the coastal ocean has the potential to generate severe waves and storm surge, which in turn can have significant impacts on the coast. Warmer ocean waters and sediment transport following heavy rainfall will affect fisheries and coastal ecosystems (CSIRO, 2007).

Climate change may result in changes to rainfall patterns, runoff patterns and river flow. High global emission scenario projections for annual average rainfall in Australia for around 2050 and 2070, relative to 1990 include (CSIRO, 2007):

- in southern areas (-20% to +0% by 2050 and -30% to +5% by 2070);
- in central, eastern and northern areas (-20% to +10% by 2050 and -30% to +20% by 2070);
- decreases are most pronounced in winter and spring;
- some inland and eastern coastal areas may become wetter in summer, and some inland areas may become wetter in autumn; and
- where average rainfall increases, there are predicted to be more extremely wet years and where average rainfall decreases there would be more dry spells.

Climate Change Projections for NSW

Current climate trends indicate an accelerating increase in average annual temperature in NSW, with an annual average temperature rise of approximately 0.1°C per decade during the 1950s to 1980s and an annual average temperature rise of approximately 0.5°C per decade from 1990 to 2010 (DECCW, 2010c).

Projections of climate change in NSW were undertaken by the DECCW (2010c) and are reported in the NSW Climate Impact Profile.

Based on a global emissions scenario that assumes a low uptake of carbon alternative fuels, NSW is projected to experience the following changes to its climate by 2050 (DECCW, 2010c):

- NSW is expected to become hotter, with higher maximum and minimum temperatures very likely (i.e. greater than 90% probability) to be experienced across the state in all seasons.
- The greatest increases in maximum temperatures are projected to occur in the north and west of the state, with winter and spring maximum temperatures expected to rise by around 2 to 3°C across much of northern NSW.
- A slight increase in summer rainfall is projected for NSW, however, this is likely to be accompanied by a significant decrease in winter rainfall in the south-western regions.
- Many parts of the state will experience a shift from winter dominated to summer-dominated rainfall, which may have implications for the duration and severity of drought in these areas.
- Evaporation is expected to significantly increase across much of NSW, due to increased temperatures.

Projected changes to NSW's climate would have associated impacts on land, settlements and ecosystems (DECCW, 2010c).

The projected increases in evaporation are likely to counteract the expected increases in summer rainfall across NSW, and as such, dry soil conditions would be expected to be even more prevalent in the west of the state. Erosion of soils is also expected to increase across the state, due to increased runoff associated with higher intensity rainfall events and lower rainfall comparative to evaporation, and decreased vegetation cover (DECCW, 2010c).

Projected changes in rainfall and evaporation in all regions will also likely affect the soil salinity. An increase or decrease in soil salinity in a particular area will depend on local factors for each catchment (DECCW, 2010c).

Settlements would likely be affected by increased sea levels and increased frequency and intensity of flood-producing rainfall events. Changes in rainfall, runoff and evaporation are also likely to affect NSW water supplies (DECCW, 2010c).

The potential implications of climate change on local groundwater and surface water resources are addressed in Appendices A and B, respectively.

6.9.4 Ecologically Sustainable Development Considerations

Background

The concept of sustainable development came to prominence at the World Commission on Environment and Development (1987), in the report titled *Our Common Future*, which defined sustainable development as:

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

In recognition of the importance of sustainable development, the Commonwealth Government developed a *National Strategy for Ecologically Sustainable Development* (NSES) (Commonwealth of Australia, 1992) that defines 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.

The NSES was developed with the following core objectives:

- enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- provide for equity within and between generations; and
- protect biological diversity and maintain essential processes and life support systems.

In addition, the NSESD contains the following goal:

Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.

In accordance with the core objectives and a view to achieving this goal, the NSESD presents private enterprise in Australia with the following role:

Private enterprise in Australia has a critical role to play in supporting the concept of ESD while taking decisions and actions which are aimed at helping to achieve the goal of this Strategy.

As described in Section 6.3, the Project will require approval under both the EP&A Act and the EPBC Act.

In deciding whether or not to approve the Project, the Commonwealth Minister must take into account the principles of ESD pursuant to section 136(2) of the EPBC Act. The relevant definition of the principles of ESD is provided in section 3A of the EPBC Act.

Clause 7(4) of Schedule 2 of the EP&A Regulation provides a definition of ESD relevant to the preparation of EISs. Section 6(2) of the NSW *Protection of the Environment Administration Act, 1991* also provides the same definition. The principles of ESD as outlined in section 3A of the EPBC Act and clause 7(4) of Schedule 2 of the EP&A Regulation are presented and compared in Table 6-1.

The design, planning and assessment of the Project has been carried out applying the principles of ESD, through:

- incorporation of risk assessment and analysis at various stages in the Project design, environmental assessment and decision-making;
- adoption of high standards for environmental and occupational health and safety performance;
- consultation with regulatory and community stakeholders;
- assessment of potential greenhouse gas emissions associated with the Project; and
- optimisation of the economic benefits to the community arising from the development of the Project.

The Project design takes into account biophysical considerations, including the principles of ESD as defined in section 3A of the EPBC Act and clause 7(4) of Schedule 2 of the EP&A Regulation.

In addition, it can be demonstrated that the Project can be undertaken in accordance with ESD principles through the application of measures to avoid, mitigate and offset the potential environmental impacts of the Project and where relevant adaptive management would be implemented (e.g. for the management of operational noise - Section 4.6.3).

The following sub-sections describe the consideration and application of the principles of ESD to the Project.

Precautionary Principle

Environmental assessment involves predicting what the environmental outcomes of a development are likely to be. The precautionary principle reinforces the need to take risk and uncertainty into account, especially in relation to threats of irreversible environmental damage.

A PHA (Appendix Q) and an ERA (Appendix R) were conducted to identify Project related risks and develop appropriate mitigation measures and strategies.

The PHA (Appendix Q) considers off-site risks to people, property and the environment (in the presence of controls) arising from atypical and abnormal hazardous events and conditions (i.e. equipment failure, operator error and external events) from fixed installations. The PHA does not consider those risks that are not atypical or abnormal, or risks associated with transportation by pipeline, road, rail or sea.

The ERA (Appendix R) considers potential environmental impacts associated with the Project, including long-term effects. In addition, long-term risks are considered by the specialist studies conducted in support of this EIS (Section 1.3). Findings of these specialist assessments are presented in Section 4 and relevant appendices. Measures designed to avoid, mitigate and offset potential environmental impacts arising from the Project are also described in Sections 4 and 7.

The specialist assessments, PHA and ERA have evaluated the potential for harm to the environment associated with development of the Project.

Table 6-1
Principles of Ecologically Sustainable Development – EPBC Act and EP&A Act

Section 3A of the EPBC Act	Clause 7(4) of Schedule 2 of the EP&A Regulation
<p>(a) <i>decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;</i></p> <p>(b) <i>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;</i></p> <p>(c) <i>the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;</i></p> <p>(d) <i>the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;</i></p> <p>(e) <i>improved valuation, pricing and incentive mechanisms should be promoted.</i></p>	<p>-</p> <p>(a) <i>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></p> <p>(i) <i>careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and</i></p> <p>(ii) <i>an assessment of the risk-weighted consequences of various options,</i></p> <p>(b) <i>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,</i></p> <p>(c) <i>conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,</i></p> <p>(d) <i>improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:</i></p> <p>(i) <i>polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,</i></p> <p>(ii) <i>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,</i></p> <p>(iii) <i>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.</i></p>

Assessment of potential short, medium and long-term impacts of the Project have been carried out during the preparation of this EIS on aspects of surface water and groundwater, transport movements, air quality emissions (including greenhouse gas emissions), noise and blasting, visual character, aquatic and terrestrial ecology, heritage, agricultural land uses and socio-economics.

A range of measures have been adopted as components of the Project design to minimise the potential for serious and/or irreversible damage to the environment, including operational controls (e.g. limiting mining in the Roseville West Pit Extension to daytime only) and physical controls (e.g. haul road bunding), the development of environmental management and monitoring programmes and biodiversity offsets (Section 4). Where residual risks are identified contingency controls have also been considered (Section 4).

The implementation of an adaptive management approach (e.g. use of trigger levels and operational noise controls to achieve Development Consent noise limits – Section 4.6.3) is consistent with the precautionary principle as described by Chief Justice Preston in *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council and Stoneco Pty Limited* [2010] NSWLEC 48 at [184]:

...In adaptive management the goal to be achieved is set, so there is no uncertainty as to the outcome and conditions requiring adaptive management do not lack certainty, but rather they establish a regime which would permit changes, within defined parameters, to the way the outcome is achieved.

In addition, for key Project environmental assessment studies (e.g. Groundwater Assessment [Appendix A]), peer review by recognised experts was undertaken (Attachment 3).

Social Equity

Social equity is defined by inter-generational and intra-generational equity. Inter-generational equity is the concept that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations, while intra-generational equity is applied within the same generation.

The principles of social equity are addressed through:

- assessment of the socio-economic impacts of the Project, including the distribution of impacts between stakeholders and consideration of the potential socio-economic costs of climate change (Appendix P);
- management measures to be implemented in relation to the potential impacts of the Project on water resources, heritage, land resources, agriculture, noise and blasting, air quality, ecology, transport, hazards and risks, greenhouse gas emissions, visual character and socio-economics (Section 4);
- implementation of environmental management and monitoring programmes (Section 4) to minimise potential environmental impacts (which include environmental management and monitoring programmes covering the Project life); and
- implementation of biodiversity offsets during the life of the Project to compensate for potential localised impacts that have been identified for the development (Sections 4.9.4, 4.10.4, 4.11.4 and 7).

The Project would benefit current and future generations through the maintenance and expansion of Stratford Mining Complex employment. It would also provide significant stimulus to local and regional economies and provide NSW export earnings and royalties, thus contributing to future generations through social welfare, amenity and infrastructure.

The Project incorporates a range of operational controls (e.g. limiting mining in the Roseville West Pit Extension to daytime only) and physical controls (e.g. haul road bunding), and environmental management and mitigation measures (e.g. biodiversity offsets, land acquisition) to minimise potential impacts on the environment and the costs of these measures would be met by SCPL. These costs have been included in the economic assessment, therefore, the potential benefits to current and future generations have been calculated in the context of the mitigated Project.

Conservation of Biological Diversity and Ecological Integrity

Biological diversity or 'biodiversity' is considered to be the number, relative abundance, and genetic diversity of organisms from all habitats (including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are a part) and includes diversity within species and between species as well as diversity of ecosystems (Lindenmayer and Burgman, 2005).

For the purposes of this EIS, ecological integrity has been considered in terms of ecological health and ecological values.

The Project area is located in a largely agricultural landscape. The majority of the vegetation has been extensively cleared for cattle grazing. Large areas of native vegetation within the landscape persist within reserved areas and National Parks and state forests (Figures 4-1 and 4-3).

In addition, patches of remnant native vegetation are located adjacent to the existing Stratford Mining Complex (Figures 4-3 and 4-21). The majority of this vegetation has been subject to previous clearing and/or disturbance and is in varying condition (Section 4.9.2).

Some 408 native flora species and 102 introduced flora species were found by the recent surveys conducted by FloraSearch and Ecobiological within the Project area and surrounds (Section 4.9.1). A total of 276 native vertebrate species have been located within the Project area and surrounds since 1994 (Appendix F). A total of 13 exotic fauna species are known to occur in the area (Section 4.10.1).

No threatened flora species listed under the TSC Act or EPBC Act have been recorded in the Project area or immediate surrounds (Appendix E). No threatened ecological communities listed under the TSC Act or EPBC Act have been recorded within the Project area (Appendix E).

Threatened fauna species listed under the TSC Act that have been recorded in the Project area and/or surrounds include nine threatened birds and seven threatened mammals, namely, Glossy Black-cockatoo, Little Lorikeet, Masked Owl, Scarlet Robin, Grey-crowned Babbler (eastern subspecies), Varied Sittella, Speckled Warbler, Comb-crested Jacana; Magpie Goose; Brush-tailed Phascogale, Squirrel Glider, Little Bentwing-bat, Eastern Freetail-bat, Eastern Bentwing-bat, Grey-headed Flying-fox and Long-nosed Potoroo (Appendix F).

The New Holland Mouse is listed as vulnerable under the EPBC Act and has been recorded in the additional Project surface development area. The Grey-headed Flying-fox and Long-nosed Potoroo are also listed as threatened under the EPBC Act and have been recorded in the vicinity of the Project. The NSW populations of Koala have been recently listed as threatened under the EPBC Act and the Koala has been recorded in the biodiversity offset areas.

No threatened aquatic biota listed in the schedules of the *Fisheries Management Act, 1994* or EPBC Act were identified by the aquatic surveys or monitoring, or are considered likely to occur in the Project area or surrounds (Appendix G).

The environmental assessments in Sections 4.9 to 4.11 (and Appendices E, F and G) describe the potential impacts of the Project on local and regional ecology.

In accordance with ESD principles, the Project addresses the conservation of biodiversity and ecological integrity by proposing an environmental management framework designed to conserve ecological values, where practicable, after consideration of potential Project impacts as described in the sub-sections below.

Greenhouse Gas Emissions and Biological Diversity and Ecological Integrity

Many natural ecosystems are considered to be vulnerable to climate change. Patterns of temperature and precipitation are key factors affecting the distribution and abundance of species (Preston and Jones, 2005). Projected changes in climate will have diverse ecological implications. Habitat for some species will expand, contract and/or shift with the changing climate, resulting in habitat losses or gains, which could prove challenging, particularly for species that are threatened.

Anthropogenic Climate Change is listed as a key threatening process under the TSC Act, and *Loss of terrestrial climatic habitat caused by anthropogenic emissions of greenhouse gases* is listed as a key threatening process under the EPBC Act.

In making its final determination to list anthropogenic climate change as a key threatening process, the NSW Scientific Committee (2000) found that:

1. The distribution of most species, populations and communities is determined, at least at some spatial scale, by climate.
2. Climate change has occurred throughout geological history and has been a major driving force for evolution.
3. There is evidence that modification of the environment by humans may result in future climate change. Such anthropogenic change to climate may occur at a faster rate than has previously occurred naturally. Climate change may involve both changes in average conditions and changes to the frequency of occurrence of extreme events.
4. Response of organisms to future climate change (however caused) is likely to differ from that in the past, because it will occur in a highly modified landscape in which the distribution of natural communities is highly modified. This may limit the ability of organisms to survive climate change through dispersal (Brasher and Pittock, 1998; Australian Greenhouse Office, 1998). Species at risk include those with long generations, poor mobility, narrow ranges, specific host relationships, isolated and specialised species and those with large home ranges (Hughes and Westoby, 1994). Pest species may also be advantaged by climate change.

A greenhouse gas assessment was undertaken by PAEHolmes for the Project (Appendix D). Section 4.8 provides a description of the potential greenhouse gas emissions of the Project in accordance with the DGRs (Attachment 1).

Valuation of potential impacts of greenhouse gas emissions has been incorporated in the Socio-Economic Assessment (Appendix P) for the Project.

The potential implications of climate change on local groundwater and surface water resources are addressed in Appendices A and B, respectively.

Measures to Maintain or Improve the Biodiversity Values of the Surrounding Region

A range of impact avoidance, mitigation and offset measures would be implemented for the Project to maintain or improve the biodiversity values of the surrounding region in the medium to long-term, as described below.

Sections 4.9, 4.10, 4.11 and 7 summarises a number of Project measures that would assist in maintaining the biodiversity of the region. These measures comprise a combination of securing the long-term viability of existing vegetation communities (i.e. the Project biodiversity offset areas), revegetation of mine landforms and existing agricultural lands within the biodiversity offset areas (Figure 4-4).

The biodiversity offset proposal for the Project involves conserving areas of land with existing conservation values and providing active management to maintain and enhance their values.

SCPL proposes four offset areas (Figure 4-4) (or equivalent) which contain rainforest, riparian forest, wet sclerophyll forest, grassy woodlands, dry sclerophyll forests, artificial wetlands and cleared land.

Section 5 presents SCPL's rehabilitation strategy for the Project. The disturbance areas associated with the Project would be progressively rehabilitated and revegetated with species characteristic of native woodland/open forest (350 ha) and pasture with scattered trees (300 ha) (Figure 4-4).

An objective of the rehabilitation programme is to restore ecosystem function to land affected by the mine development including maintaining or establishing self-sustaining ecosystems.

Biodiversity enhancement areas would also be developed for the Project in areas adjacent to, but outside of, Project disturbance areas (Figure 4-4).

Terrestrial flora, fauna and aquatic ecology management measures including the biodiversity offsets and the Biodiversity Management Plan are described in Sections 4.9.3, 4.9.4, 4.10.3 and 4.11.3.

Valuation

One of the common broad underlying goals or concepts of sustainability is economic efficiency, including improved valuation of the environment. Resources should be carefully managed to maximise the welfare of society, both now and for future generations.

In the past, some natural resources have been misconstrued as being free or underpriced, leading to their wasteful use and consequent degradation. Consideration of economic efficiency, with improved valuation of the environment, aims to overcome the underpricing of natural resources and has the effect of integrating economic and environment considerations in decision making, as required by ESD.

While historically, environmental costs have been considered to be external to Project development costs, improved valuation and pricing methods attempt to internalise environmental costs and include them within Project costing.

The Socio-Economic Assessment (Appendix P) undertakes an analysis of the Project and incorporates environmental values via direct valuation where practicable (e.g. greenhouse gas costs and Project impacts on agricultural values). Furthermore, wherever possible, direct environmental effects of the Project are internalised through the adoption and funding of mitigation measures by SCPL to mitigate potential environmental impacts (e.g. biodiversity offsets and affected land acquisitions).

The benefit cost analysis in Appendix P indicates a net benefit of between approximately \$145M and \$174M would be forgone if the Project is not implemented.

6.9.5 Consideration of the Project Against the Objects of the EP&A Act

Section 5 of the EP&A Act describes the objects of the EP&A Act as follows:

- (a) *to encourage:*
- (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iii) *the protection, provision and co-ordination of communication and utility services,*
 - (iv) *the provision of land for public purposes,*
 - (v) *the provision and co-ordination of community services and facilities, and*

- (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- (vii) *ecologically sustainable development, and*
- (viii) *the provision and maintenance of affordable housing, and*

- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

The Project is considered to be generally consistent with the objects of the EP&A Act, because it is a Project which:

- incorporates:
 - measures for the management and conservation of resources including water, agricultural land and natural areas (Section 4);
 - development of the State's mineral resources (i.e. coal resources) (Section 2);
 - measures to minimise potential amenity impacts associated with blasting, noise, air quality and visual impacts on surrounding land uses (Sections 4.6, 4.7 and 4.15);
 - significant continued employment and other socio-economic benefits to the community (Sections 4.16, 4.17 and 6.9);
- would extend the life of the Stratford Mining Complex and includes the economic use and development of land, while maintaining key existing land uses including grazing uses on surrounding Yancoal-owned lands;
- would support the ongoing provision of community services and facilities through significant contributions to State royalties, State taxes, Commonwealth tax revenue and any applicable contributions to local councils (Appendix P and Section 6.2.8);
- incorporates a range of measures for the protection of the environment, including the protection of native plants and animals, threatened species, and their habitats (Sections 4.9, 4.10, 4.11 and 7);

- incorporates relevant ESD considerations (Section 6.9.4);
- is a State Significant Development Project that would be determined by the Minister (or delegate) (Section 6.2.1), however consultation with other levels of government and a range of stakeholders has been undertaken and issues raised have been considered and addressed where relevant (Section 3.1); and
- includes public involvement and participation through the Project EIS consultation programme (Section 3.1), the public exhibition of the EIS document and DP&I assessment of the Project in accordance with the requirements of the EP&A Act.

6.9.6 Consideration of the Consequences of not Carrying out the Project

Were the Project not to proceed, the following consequences are inferred:

- approximately 125 existing employment opportunities would be discontinued following completion of currently approved mining at the Straford Mining Complex and the associated flow-on effects would be lost;
- a peak of up to 30 direct construction and an additional 125 direct operational phase employment opportunities and associated flow-on effects would not be created;
- a net benefit of between approximately \$145M and \$174M would be forgone (Appendix P);
- tax revenue from the Project would not be generated (Appendix P);
- royalties to the State of NSW would not be generated (Appendix P);
- the potential environmental and social impacts described in this EIS for the Project would not occur; and
- the Project biodiversity offsets and other revegetation areas would not be established.