

Vickery Coal Project

**Environmental
Impact
Statement**

SECTION 6

**PLANNING FRAMEWORK
AND PROJECT
JUSTIFICATION**

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6 PLANNING FRAMEWORK AND PROJECT JUSTIFICATION

6.1 EXISTING APPROVALS AND REGULATORY CONTROLS

A general description of the mining and approvals history of the Vickery Coal Mine is provided in Section 2.1.

Key approvals and documentation pertaining to the Project and relevant existing Whitehaven operations include:

- Applications for Development Consent (DA 23/86) to the Gunnedah Shire Council and (DA 18/86) to the Narrabri Shire Council and granted in 1986 by the Minister for Planning and Environment under section 101 of the EP&A Act for the Namoi Valley Coal Project (construction and operation of the original Vickery Coal Mine) (and subsequent modifications).
- Whitehaven acquisition of CL 316 and AUTH 406 from Rio Tinto Limited in January 2010.
- Development Consent (DA 0079/2002) issued by the Gunnedah Shire Council under delegation from the Minister for Urban Affairs and Planning on 2 October 2002 for the operation of the Whitehaven CHPP, as modified by the Gunnedah Shire Council in 2008 (Modification of Consent No. 305208) and the DP&I in 2011 (DA 0079/2002 Mod 2).
- ML 1471 issued under Part 5 of the *Mining Act, 1992* by the NSW Minister for Mineral Resources in September 2002.

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

A summary of key Project interactions with surrounding existing and proposed mining operations is provided in Attachment 4 and, where relevant, potential cumulative environmental impacts are discussed in Section 4.

In addition to the above, Whitehaven also operates exploration activities in the Gunnedah 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 provide the planning and environmental assessment framework for NSW. Approval for the Project is sought from the NSW Minister for Planning and Infrastructure (the Minister) 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 Development Application area is located within the Gunnedah and Narrabri LGAs.

The portion of the Development Application area within the Gunnedah LGA includes land zoned under the *Gunnedah Local Environmental Plan 2012* (Gunnedah LEP) as Zone RU1 (Primary Production) (Attachment 3).

The portion of the Development Application area within the Narrabri LGA includes land zoned under the Narrabri LEP as Zone RU1 (Primary Production) (Attachment 3).

The Project may be carried out in these zones with Development Consent (Attachment 3).

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 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 is State Significant Development for the purposes of the EP&A Act.

In accordance with section 89D of the EP&A Act, the Minister is the consent authority for the Project. The Minister will determine the Development Application under 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 approved under Division 4.1 of Part 4. These authorisations are those ordinarily required under the following 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 FM Act.
- 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 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 FM Act.
- 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 outlines the required content of an EIS. Table 1-2 provides a reconciliation of each requirement in subclause (1) and the relevant section of the EIS where the information is provided.

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

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

6.2.6 Documents to Accompany Development Application

Subclauses 2(1) to 2(3) of Schedule 1 of the EP&A Regulation describe the 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 (of Part 4) Development Contributions

Planning Agreements

Subdivision 2, Division 2, Part 4 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 combination of them, to be used to 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 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 sections 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 the public notice requirements and outlines that the period for inspection by the public of not less than 28 days. Section 93G further indicates that the regulations may provide further public notice requirements.

Clause 25D of the EP&A Regulation provides additional detail relating to the public notice of planning agreements as follows:

- (1) *If a planning authority proposes to enter into a planning agreement, or an agreement to amend or revoke a planning agreement, in connection with a development application or a project 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*

...

It is expected, 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 Development Consent. Any such planning agreement would be negotiated by the DP&I, Whitehaven, the Gunnedah Shire Council and the Narrabri Shire Council.

Local Infrastructure Contributions

Subject to any exclusions or inclusions with respect to sections 94 or 94a in any Project voluntary planning agreement (refer to above discussion), the Minister may grant Development Consent to the Project subject to a condition requiring contributions under either section 94 or 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) of the EP&A Act provides that where the consent authority is not a council (as is the case for the Project [Section 6.2.2]), the consent authority may impose a condition under sections 94 or 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 part of the area in which the development is to be carried out.

The Project Development Application area is located within the Gunnedah and Narrabri LGAs. The Gunnedah Shire Council has a *Section 94A Contributions Plan* (Gunnedah Shire Council, 2007) that may be potentially applicable to the Project if adopted by the Gunnedah Shire Council. In addition, the Narrabri Shire Council also has a *Section 94A Development Contributions Plan* (Narrabri Shire Council, 2011) that may be potentially applicable to the Project if adopted by the Narrabri Shire Council.

Whitehaven already implements road maintenance agreements with the Narrabri Shire Council and the Gunnedah Shire Council in accordance with Condition 39 of the existing Tarrawonga Coal Mine Development Consent (DA-88-4-2005), for the maintenance of roads used for the road transport for sized ROM coal from the Tarrawonga Coal Mine to the Whitehaven CHPP (including the section of Blue Vale Road on which the Project coal trucks would travel). Whitehaven would continue to implement these agreements for its existing operations and the Project (Appendix F).

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 Gunnedah or Narrabri LGAs.

6.3 OTHER APPLICABLE STATUTORY APPROVALS

6.3.1 NSW Approvals

The following NSW Acts may be applicable to the Project:

- *Coal Mine Health and Safety Act, 2002*;
- *Contaminated Lands Management Act, 1997*;
- *Crown Lands Act, 1989*;
- *Dangerous Goods (Road and Rail Transport) Act, 2008*;
- *Electricity Supply Act, 1995*;
- *Explosives Act, 2003*;
- *Fisheries Management Act 1994*;
- *Heritage Act, 1977*;
- *Mining Act, 1992*;
- *National Parks and Wildlife Act, 1974*;
- *Native Title (NSW) Act, 1994*;
- *Native Vegetation Act, 2003*;
- *Noxious Weeds Act, 1993*;
- *Petroleum (Onshore) Act, 1991*;
- *Protection of the Environment Operations Act, 1997*;
- *Roads Act, 1993*;
- *Threatened Species Conservation Act, 1995*;
- *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*, an EPL under the PoEO Act and water licences under the *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, *Water Management Act, 2000* and the *Roads Act, 1993* are provided in the sub-sections below.

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 the 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 the 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 the environment is protected, the resources are efficiently extracted, operations are safe and rehabilitation is designed to promote a satisfactory outcome (DPI-MR, 2006).

There are provisions of the *Mining Amendment Act, 2008* which would amend the *Mining Act, 1992* to replace the MREMP with the requirement to submit a Rehabilitation and Environmental Management Plan (REMP). Until the commencement of the 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, the OEH, the DP&I, the Gunnedah Shire Council and the Narrabri Shire Council.

Mining Tenements

If the Project is approved, Whitehaven would apply for MLAs 1, 2 and 3 (Figure 2-3a), for the mining of coal and the construction and operation of surface facilities for the development of the Project outside of the existing mining tenements (CL 316 and ML 1471) in consultation with the DRE.

Protection of the Environment Operations Act, 1997

Clause 10 of Schedule 1 of the PoEO Act applies to “coal works” which is defined as any activity (other than coke production) that involves storing, loading or handling coal (whether at any coal loader, conveyor, washery or reject dump or elsewhere) at an existing coal mine or on a separate coal industry site.

Clause 10(2) provides that the activity to which the clause applies is declared to be a scheduled activity if:

- (a) *it has a capacity to handle more than 500 tonnes per day of coal, or*
- (b) *it has a capacity to store more than 5,000 tonnes of coal (not including storage within a closed container or building).*

Clause 28 of Schedule 1 of the PoEO Act applies to “mining for coal” which is defined as the mining, processing or handling of coal (including tailings and chitter) at underground mines or open cut mines.

Clause 28(2) provides that the activity to which the clause applies is declared to be a scheduled activity if:

- (a) *it has a capacity to produce more than 500 tonnes of coal per day, or*
- (b) *it has disturbed, is disturbing or will disturb a total surface area of more than 4 hectares of land by:*
 - (i) *clearing or excavating, or*
 - (ii) *constructing dams, ponds, drains, roads, railways or conveyors, or*
 - (iii) *storing or depositing overburden or coal (including tailings and chitter).*

Clause 45 of the PoEO Act outlines matters to be taken into consideration by the relevant regulatory authority with respect to licensing functions.

As the Project is a scheduled activity under clauses 10 and 28 of Schedule 1 of the PoEO Act, Whitehaven would apply for an EPL. Under section 89K of the EP&A Act, if the Project is approved, an EPL cannot be refused and is to be substantially consistent with the Development Consent (Section 6.2.4).

Water Management Act, 2000

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 from each water source associated with the Project are provided in Attachment 5. Appropriate licences under the *Water Management Act, 2000* 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.

Roads Act, 1993

The Project would involve the realignment of sections of Blue Vale Road, Hoad Lane, Shannon Harbour Road and Braymont Road to the east and south of the open cut, and the construction of an approximately 1 km long section of private haul road (including an overpass over the Kamilaroi Highway) between Blue Vale Road and the Whitehaven CHPP (Section 2.4.1).

If the Project is approved, Whitehaven 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).

6.3.2 Commonwealth Approvals

The following Commonwealth Acts may be applicable to the Project:

- *Native Title Act, 1993*;
- *Minerals Resources Rent Tax Act, 2012* (MRRT Act); and
- *Water Act, 2007*.

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

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 a determination as to whether or not the action is a controlled action.

The proposed action to construct and operate an open cut coal mine and associated infrastructure (the Project) was referred to the Commonwealth Minister in January 2012.

A delegate of the Commonwealth Minister decided on 17 May 2012 that the Project *is not a controlled action if undertaken in a particular manner* (EPBC 2012/6263) for the purposes of sections 75 and 77A of the EPBC Act.

The decision stipulated the Project must provide for the protection of the Winged Peppercreep (*Lepidium monoplacoides*) (listed threatened species and community [sections 18 and 18A]) through fencing, signposting, plant translocation and the undertaking of a monitoring and maintenance program for the life of the Project (Section 4.9.3).

The Project therefore does not require further assessment and approval under the EPBC Act before it can proceed.

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 emissions above specific thresholds. The thresholds would only be applicable to greenhouse gas emissions from sources covered under the *Clean Energy Act, 2011*.

The objects of the *Clean Energy Act, 2011* are outlined in clause 3 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 anticipated that the Project would trigger the facility threshold for the pricing mechanisms detailed in the *Clean Energy Act, 2011*. The greenhouse gas emissions from the Project would be monitored and reported through the NGER Act. Accordingly, Whitehaven would participate in these mechanisms (Section 4.8).

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 *Energy Efficiency Opportunities Regulations, 2006*.

Section 3 of the EEO Act outlines the objects of the Act as follows:

- (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.*

Whitehaven is a registered participant under the EEO Act. Whitehaven would assess energy usage from all aspects of its operations, including the Project, and publicly report the results of energy efficiency assessments (Section 4.8.3).

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 objects 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.*

Whitehaven triggers the NGER Act reporting threshold, and accordingly, reports all energy use and greenhouse gas emissions from its activities. This would include any emissions from the Project.

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 the land (or any part thereof) 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 primary effect of the *Native Title Act, 1993* on mining authorisations is to provide native title parties with a 'Right to Negotiate' about the grant and some renewals by governments of mining titles.

The *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 MRRT Act applies a Minerals Resources Rent Tax (MRRT) on profits from mining 'taxable resources' (mainly coal and iron ore). The MRRT Act commenced on 1 July 2012.

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

Water Act, 2007

The NSW *Water (Commonwealth Powers) Act, 2008* referred a number of powers, functions and duties in relation to the management of water within the Murray-Darling Basin to the Commonwealth, amended the *Water Management Act, 2000* and repealed the NSW *Murray-Darling Basin Act, 1992*.

An object of the Commonwealth *Water Act, 2007* (among others) is to enable the Commonwealth, in conjunction with the Murray-Darling Basin States, to manage the Murray-Darling Basin water resources in the national interest. As provided in section 250B of the *Water Act, 2007*:

- (1) *The Commonwealth water legislation is not intended to exclude or limit the concurrent operation of any law of a State.*

Part 9 of the *Water Act, 2007* establishes the Murray-Darling Basin Authority. The role of the Murray-Darling Basin Authority includes (but is not limited to) (Murray-Darling Basin Authority, 2011):

- preparing the Basin Plan for adoption by the Commonwealth Minister for Water, including setting sustainable limits on water that can be taken from surface water and groundwater systems across the Murray-Darling Basin;
- advising the Minister on the accreditation of State water resource plans (including Water Sharing Plans developed under the *Water Management Act, 2000*); and
- managing water sharing between the States.

The proposed Basin Plan was released on 28 November 2011. Submissions on the Basin Plan closed 16 April 2012, and the final Basin Plan is being considered by Parliament (SEWPaC, 2012b).

Following implementation of the Basin Plan, water sharing plans under the NSW *Water Management Act, 2000* will be amended to be consistent with the Basin Plan.

In addition, the Commonwealth Minister may make water charge and water market rules pursuant to Part 4 of the *Water Act, 2007*.

As described in Attachment 5, the Project would be operated in accordance with the relevant provisions of applicable NSW water sharing plans.

6.4 ENVIRONMENTAL PLANNING INSTRUMENTS

Section 79C(1)(a) of the EP&A Act requires the Minister to take into consideration the provisions of any environmental planning instrument in determination of the Project.

6.4.1 State Environmental Planning Policies

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

- *State Environmental Planning Policy (State and Regional Development) 2011*;
- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*;
- *State Environmental Planning Policy No. 44 – (Koala Habitat Protection)*;
- *State Environmental Planning Policy No. 55 – (Remediation of Land)*;

- *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 relevant SEPPs is provided in Attachment 3.

6.4.2 Local Environmental Plans

The Development Application area falls within the Gunnedah and Narrabri LGAs (Figure 1-1), and therefore on lands covered by both the Gunnedah LEP and Narrabri LEP zonings.

The permissibility of the Project under the relevant Local Environmental Plans (LEPs) and consideration of relevant objectives and special provisions is provided in Attachment 3.

6.5 STRATEGIC PLANNING DOCUMENTS

Consideration of the applicability of development control plans and relevant strategic planning documents is provided in Attachment 3.

6.6 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. The discussion 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.

6.6.1 Need for and Objectives of the Project

The Project objective is the development and operation of an open cut coal mine and associated infrastructure, for a period of approximately 30 years (Sections 1 and 2).

At full development, the workforce would be in the order of 250 full time on-site operational personnel, plus additional contract personnel. An additional construction workforce of up to approximately 60 people would also be required.

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 4.5 Mtpa of ROM coal with up to 135 Mt of coal extracted over the life of the Project (Sections 2.3 and 2.5.5). The Project would produce a combination of saleable thermal and semi-soft 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 K) indicates that operation of the Project is likely to result in an average annual stimulus of up to approximately 423 direct and indirect jobs in the local region, and some 2,292 direct and indirect jobs in NSW. The Project would also make contributions to regional and NSW output or business turnover and household income (Sections 4.15 and 4.16).

The BCA in Appendix K indicates that a net benefit of between \$912M and \$1,056M would be forgone if the Project is not implemented.

6.6.2 Consideration of Project Alternatives

A number of alternatives to the Project assessed in this EIS were considered by Whitehaven in the development of the Project design. This included consideration of alternatives to the Project location, mining method, production rate and scale, hours of operation, coal processing, ROM coal transport and the location and size of final voids.

In accordance with the DGRs, a description of key alternatives considered by Whitehaven 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, and are located within Whitehaven's mining tenements.

In addition, the Project location has been selected based on its proximity to existing mining infrastructure (e.g. the Whitehaven CHPP and the Whitehaven haul route). The Project's location maximises the use of Whitehaven's existing facilities and enables the use of existing long-term arrangements with the ARTC for rail track access.

Mine Infrastructure Area

The Project's location also maximises the use of current infrastructure areas. An existing infrastructure area associated with historical mining activities at the Vickery Coal Mine including laydown areas, electricity substation, workshops and sheds is located within the southern portion of the proposed Western Emplacement area.

These facilities would be used until the new MIA is constructed. Once the new facilities are commissioned, the existing infrastructure area would be decommissioned.

The proposed MIA location was determined based on the following:

- the locality has no open cut potential;
- there would be minimal remnant vegetation disturbance associated with the development;
- proximity to Shannon Harbour Road allows for efficient and practical access; and
- the locality is largely outside floodplain areas.

Private Haul Road and Kamilaroi Highway Overpass

The proposed construction of the private haul road and Kamilaroi Highway overpass is considered to have considerable environmental and safety benefits when compared with the existing approved coal haulage route. In particular, it would remove the need for coal trucks to merge with, and turn across, traffic on the Kamilaroi Highway.

Notwithstanding, and in light of the occurrence of BSAL as well as several other environmental aspects and constraints, a comprehensive environmental impact assessment and design evaluation of the proposed private haul road and Kamilaroi Highway overpass has been conducted. The assessment is fully described in Section 4 of the EIS, and a summary is provided below.

Environmental constraints in the vicinity of the proposed private haul road and Kamilaroi Highway overpass include:

- Agricultural land that is currently used for grazing (north-east side of the Kamilaroi Highway) and cropping (south-west side of the Highway), and which is mapped at a regional scale as Agricultural Suitability Classes 2 and 3 land, and as being BSAL (Section 4.3.1).
- Land on the north-east side of the Kamilaroi Highway that is mapped as Box–Gum Woodland EEC, which is listed under the TSC Act (Section 4.9.1).
- Known Aboriginal artefact scatters within the floodplain and along the banks of the Namoi River, especially on the north-east side of the Kamilaroi Highway (Section 4.13).
- Two privately-owned properties (with residences) adjacent to the Kamilaroi Highway (i.e. approximately 200 to 300 m to the south-west of the proposed private haul road), and several privately owned properties (also with residences) 800 m or more to the east and south-east of the proposed alignment.
- Two blocks of Crown Land adjacent to Blue Vale Road and the Kamilaroi Highway that are nominated as TSRs under Part 5 of the NSW *Crown Lands Act, 1989*.
- Floodways that run parallel to the Namoi River on either side of the Kamilaroi Highway (i.e. main Namoi River floodplain to the north-east, and 'Deadmans Gully' to the south-west), and the Namoi River itself (Section 4.5.2).

Other constraints relevant to the design of the private haul road and Kamilaroi Highway overpass include:

- Need to satisfy the minimum design standards specified by the RMS (e.g. vertical clearance and number and nature of support columns on the overpass, works authorisation deed, construction traffic management) and other relevant Government agencies (e.g. Gunnedah Shire Council).
- Need for the overpass to be perpendicular to the Kamilaroi Highway at the point where it crosses (in order to minimise the span width and number and nature of support columns).
- Need to design an appropriate intersection with Blue Vale Road, and design the bends on the private haul road to have an appropriate radius and gradient to maintain efficiency and meet minimum safety requirements for coal haulage truck operation.
- Need to construct the private haul road and Kamilaroi Highway overpass on land that Whitehaven owns, or could be reasonably expected to acquire access to.
- Need for the new private haul road to access the north-east side of the Whitehaven CHPP.
- Need to minimise impacts and/or disruptions to the Kamilaroi Highway, Blue Vale Road and the Werris Creek Mungindi Railway.

Due to the multiple factors summarised above, a balanced design solution was required (i.e. one that satisfied the minimum design requirements, minimised the net environmental impact but acknowledged that some environmental affect would be unavoidable). The proposed alignment of the private haul road and Kamilaroi Highway overpass is believed to represent the best available solution.

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).

The Project would use open cut mining methods to recover approximately 135 Mt of ROM coal from the Maules Creek Formation (Section 2.2).

The multiple thin coal seams across the Project area can only be recovered through open cut methods, as underground extraction would not achieve optimal recovery of available resources. In addition, geological anomalies including faults and unconformities render underground extraction an unsafe and uneconomic method in the Project area.

Variations in coal quality across the coal seams would be managed through the preparation process to produce the required products.

Minimising Additional Project Surface Development Area

Whitehaven 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 impacts on flora, fauna and associated habitats (Sections 4.9.3 and 4.10.3):

- continued use of the existing Whitehaven CHPP negates the need to develop a new CHPP on-site and therefore reduces the level and extent of surface disturbance;
- continued use of the existing Whitehaven haul route negates the need to develop alternative ROM coal transport infrastructure therefore reduces the level and extent of surface disturbance;
- optimising the backfilling of open cuts to minimise the overall mine footprint;
- redesigning the Eastern Emplacement and MIA to avoid a high quality remnant patch of Box-Gum Woodland EEC located along South Creek;
- avoidance and conservation of 420 individuals of the endangered flora species Winged Peppercreese to the north-east of the Western Emplacement, adjacent to the Canyon Coal Mine rehabilitation area; and
- the private haul road and Kamilaroi Highway overpass have been designed and would be constructed to avoid disturbance to mature trees, where practicable, for a safe road design.

Production Rate and Scale

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

Mine planning is a structured process designed to take into account the range of variables that may influence a potential mining operation. Aspects considered in the mine planning process include mine 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).

Project Scale

The extent of the open cut was constrained by the following:

- uneconomic strip ratios to the east;
- the target coal seams sub-crop to the west;
- CL 316 limiting extraction to the north; and
- CL 316 and alluvium associated with the Namoi River floodplain limiting extraction to the south.

The floor of the Cranleigh Seam has been used as the depth design constraint for the Project.

Production Rate

Whitehaven has undertaken a mine planning analysis (including consideration of the aspects outlined above and coal handling and transportation constraints) to determine the optimum production rate for the Project.

Based on this analysis and Whitehaven's corporate objectives, it was determined the Project would have a maximum production rate of up to approximately 4.5 Mtpa of ROM coal. The Project indicative mine schedule is provided in Section 2.5.2.

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).

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

Coal Processing

The Whitehaven-owned Tarrawonga, Rocglen and the Sunnyside Coal Mines use the Whitehaven CHPP for ROM coal handling and processing.

ROM coal from the Tarrawonga Coal Mine is proposed to be processed through the Boggabri Coal Mine, while the Rocglen Coal Mine would reduce production as the Project reaches full development. Operations at the Sunnyside Coal Mine were suspended indefinitely in October 2012. These arrangements would provide sufficient capacity at the Whitehaven CHPP to process Project ROM coal.

Establishing a new CHPP at the Project is not a preferred option due to:

- high capital costs associated with construction of a CHPP;
- additional land disturbance and supporting infrastructure that would be required at the MIA;
- increased water demand that would be required to operate the CHPP; and
- potential for increased air quality and noise impacts.

Given that the sufficient capacity at the existing Whitehaven CHPP would be available to process ROM coal produced by the Project, no further consideration of coal processing alternatives is required.

ROM Coal Transport

The sized ROM coal would be transported from the MIA along the Blue Vale Road realignment to Blue Vale Road. The haulage trucks would then travel approximately 20 km along the Whitehaven haul route (including the private haul road and Kamilaroi Highway overpass, once constructed) to the Whitehaven CHPP (Section 2.6).

In accordance with the DGRs (Attachment 1), an assessment of the costs and benefits of alternative transport methods for ROM coal (including the use of conveyors to connect with proposed rail loading facilities to the south) has been conducted.

Whitehaven commissioned a study to investigate the feasibility of an overland conveyor system at the Project (Enginecom, 2011).

The study identified that the cost of constructing and operating the overland conveyor system was prohibitive, and identified a number of environmental impacts including additional surface disturbance, restricted landholder access, visual impacts and potential changes to surface water flow paths.

Given the existing infrastructure available (i.e. the Whitehaven haul route) and the costs and potential impacts associated with the overland conveyor system, transport of ROM coal by road is considered the preferred ROM coal transport option for the Project. In addition, the environmental benefits associated with the proposed private haul road and Kamilaroi Highway overpass are anticipated to significantly improve the existing traffic arrangements at the Blue Vale Road/Kamilaroi Highway intersection.

Final Voids and Waste Emplacements

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 of the voids that is undertaken and the mining sequence.

The mining sequence is guided by the open cut extent and waste rock emplacement constraints, and aims to achieve a workable pit layout while maintaining balanced strip ratios, therefore maximising backfilling of the open cut. The mining layout sequence for the Project may be adjusted during the mine life to take account of localised geological features, coal market volume and quality requirements, mining economics and Project detailed engineering design.

At the cessation of mining a final void would remain in the north-eastern corner of the open cut and a second final void would be located in the south-eastern corner (Section 5). The volume of the final voids (to the existing ground level) is estimated to be approximately 530 million cubic metres.

These final voids have been minimised within the constraints of the mining sequence. The surface catchment of the final voids would be designed to a suitable minimum by the use of upslope diversions/bunds and contour drains around the perimeter.

The final open cut highwall would be designed to have long-term geotechnical stability, with partial backfilling and/or adjustment to the wall batter angles to achieve suitable stability.

Whitehaven commissioned a study to investigate the feasibility of backfilling the final voids to existing ground levels, allowing runoff to drain to the natural environment (Enginecom, 2012). The study concluded that the cost associated with rehandling waste rock from the waste rock emplacements to fill the two final voids to existing ground level would cost in the order of \$1.5 billion, rendering the Project uneconomical.

The proposed location of the final voids would provide for access to additional open cut and/or underground coal resource adjacent to the current Project open cut extent. The size, characteristics and feasibility of mining this coal resource have not yet been fully determined (i.e. the volume of coal resource that would be sterilised by each void is not currently known). Any development beyond the Project extent would be subject to separate assessment and approval processes.

The location of the Western Emplacement was selected because it is a suitable haulage distance from the open cut, avoids economically viable coal resources, is located on an area that has been previously disturbed by agricultural and previous mining activities, and largely avoids disturbance to the alluvial floodplain and better quality agricultural land.

The location of the Eastern Emplacement was selected because it is within a suitable haulage distance from the open cut, is in an area that has been previously disturbed by agricultural activities, and it avoids the alluvial floodplain, South Creek and the Vickery State Forest. It is also located on an area where coal stripping ratios are significantly higher (i.e. up to 20:1), which make open cut mining in this area economically unviable. However, potential underground mining of coal beneath the emplacement in the future would not be precluded.

The final void backfilling study also considered the rehandling of the material contained within the Eastern Emplacement (i.e. approximately 58.8 million cubic metres) and its placement in the southern final void. It was found that rehandling this material would cost in the order of \$176 million, would fill less than 25% of the void, and would not result in a backfilled level above the pre-mining groundwater table. On this basis, rehandling the material contained within the Eastern Emplacement is not proposed.

Integration with Vickery South Exploration Project

Whitehaven acquired the Vickery South Exploration Project (within EL 7407, located immediately to the south of the Project), in July 2012. Whitehaven is currently reviewing the exploration data and conducting feasibility studies to determine the development potential of the coal resource within EL 7407. Therefore, there is no relevant project integration proposed for the current Project.

In the future, if the Vickery South Exploration Project was to be developed, options for integration (including final landforms and avoidance of barrier coal) with the Project would be considered as part of the development of a mine plan for the Vickery South Exploration Project.

Any development of the Vickery South Exploration Project areas would be subject to separate assessment and approval processes.

No Project

Consideration of the potential consequences of not proceeding with the development of the Project is provided in Section 6.6.6.

6.6.3 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, including to land, settlements and ecosystems (DECCW, 2010c).

The projected increases in evaporation are likely to counteract the expected increases in summer rainfall across the state, 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.

6.6.4 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* (NSED) (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 NSED 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 NSED 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 NSED 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.

Clause 7 of Schedule 2 of the EP&A Regulation requires justification for the Project having regard to biophysical, economic and social consideration, including the principles of ESD.

Clause 7(4) of Schedule 2 of the EP&A Regulation provides a definition of ESD relevant to the preparation of EIS documents:

- (4) *The principles of ecologically sustainable development are 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.*

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 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.

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 N) and ERA (Appendix M) were conducted to identify Project related risks and develop appropriate mitigation measures and strategies.

The PHA (Appendix N) 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 M) 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, 5 and 7.

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

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, heritage, visual character, terrestrial and aquatic 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, physical controls, the development of environmental management and monitoring programs and biodiversity offsets (Sections 4.9.4 and 4.10.4). Where residual risks are identified, contingency controls have also been considered (Section 4).

The implementation of an adaptive management approach is consistent with the precautionary principle as described by Chief Judge 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, peer review of the Groundwater Assessment (Appendix A) was undertaken by a recognised expert (Attachment 7).

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 K);

- management measures to be implemented in relation to the potential impacts of the Project on water resources, heritage, land resources, agriculture, noise, air quality, ecology, transport, hazards and risks, greenhouse gas emissions, visual character and socio-economics (Section 4);
- implementation of environmental management and monitoring programs (Sections 4 and 7) to minimise potential environmental impacts (which include environmental management and monitoring programs 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 and 7).

The Project would benefit current and future generations through the generation of employment and regional expenditure (Appendix K). The Project 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, physical controls 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 Whitehaven. These costs have been included in the Socio-Economic Assessment (Appendix K) and, 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, with grazing land to the north and south of the Project area where the majority of the vegetation has been extensively cleared for grazing.

Large areas of native vegetation within the landscape persist within reserved areas and state forests, including the Vickery State Forest (Appendix G). Approximately 405 ha of land within the Project disturbance area has been rehabilitated following historic mining activities, and is stabilised by improved pasture (Appendix G).

Some 307 flora species were found by the recent surveys conducted by Niche Environment and Heritage within the Project area and surrounds, of which 78 (25%) were introduced species (Section 4.9.1 and Appendix E).

A total of 132 native vertebrate species were recorded in the Project area including one fish, 10 frogs, six reptiles, 89 birds and 26 mammals. A total of 10 introduced species were observed including two birds and eight mammals (Appendix E).

Only one threatened flora species, the Winged Peppergrass listed under both the TSC Act and EPBC Act was recorded in the Project area during the field survey (Appendix E).

Two EECs listed under the TSC Act or EPBC Act have been recorded within the Project area, namely, Box-Gum Woodland EEC and Weeping Myall Woodland EEC (Appendix E).

Ten threatened fauna species listed under the TSC Act have been potentially recorded in the Project area and/or surrounds and include the Diamond Firetail (*Stagonopleura guttata*), the Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*), the Speckled Warbler (*Pyrrholaemus saggitatus*), the Little Eagle (*Hieraaetus morphnoides*), the Blue-billed Duck (*Oxyura australis*), the Hooded Robin (south-eastern form) (*Melanodryas cucullata cucullata*), the Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*), the Large-eared Pied Bat (*Chalinolobus dwyeri*) the Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*) and the Beccari's Freetail-bat (*Mormopterus beccarii*) (Appendix E).

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

The environmental assessments in Sections 4.9 to 4.10 and Appendix E 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

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.

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 K) 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.

A range of vegetation management measures would be implemented for the Project to minimise impacts on flora, fauna and their habitats (Sections 4.9.3 and 4.10.3).

High frequency fire has the potential to impact on biodiversity by reducing vegetation structure and resulting in a corresponding loss of animal species. High frequency fire is listed as a key threatening process under the TSC Act. Management measures would be implemented for the Project to minimise the risk of bushfire and in doing so, would maintain or improve the biodiversity values of the surrounding region (Section 4.3.3).

Section 5 presents Whitehaven'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 and pasture with scattered trees.

Sections 4.9.4, 4.10.4 and 7 summarise the biodiversity offset and compensatory measures that would be used to maintain the biodiversity of the region in the medium to long-term. The Project biodiversity offset and compensatory measures would comprise a combination of securing the long-term viability of existing woodland (i.e. Project biodiversity offset areas), revegetation of mine landforms and existing agricultural lands within the biodiversity offset area (Sections 4.9.4 and 4.10.4).

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

Terrestrial flora and fauna and aquatic ecology management measures including the biodiversity offset and the Biodiversity Management Plan are described in Sections 4.9.3, 4.9.4, 4.10.3 and 4.10.4.

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 K) undertakes an analysis of the Project and incorporates environmental values via direct valuation where practicable (e.g. greenhouse gas emissions of the Project and impacts of ROM coal transport on public roads). Furthermore, wherever possible, direct environmental effects of the Project are internalised through the adoption and funding of mitigation measures by Whitehaven to mitigate potential environmental impacts (e.g. biodiversity offsets).

The BCA in Appendix K indicates a net production benefit of approximately \$915M, and a net benefit of between \$912M and \$1,056M would be forgone if the Project is not implemented.

6.6.5 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 noise, air quality and visual impacts on surrounding land uses (Sections 4.6, 4.7 and 4.12); and
- significant employment and other socio-economic benefits to the community (Sections 4.15 and 4.16);
- would allow for the economic use and development of land, while maintaining key existing land uses including grazing uses on surrounding Whitehaven-owned lands;
- would support the 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 K 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. and 7);
- incorporates relevant ESD considerations (Section 6.6.4);
- is a State Significant Development Project that would be determined by the Minister (or delegate) (Section 6.2.2), 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); and
- includes public involvement and participation through the Project EIS consultation program (Section 3), the public exhibition of the EIS document and DP&I assessment of the Project in accordance with the requirements of the EP&A Act.
- tax revenue from the Project would not be generated (Appendix K);
- royalties to the State of NSW would not be generated (Appendix K);
- the potential environmental and social impacts described in this EIS for the Project would not occur; and
- the Project biodiversity offset and other revegetation areas would not be established.

6.6.6 Consideration of the Consequences of not Carrying out the Project

In accordance with clause 7 of Schedule 2 of the EP&A Regulation, an assessment of the consequences of not proceeding with the Project has been conducted. Were the Project not to proceed, the following consequences are inferred:

- approximately 60 direct construction and 250 direct operational employment opportunities and associated flow-on effects would not be created;
- a net benefit of between approximately \$912M and \$1,056M would be forgone (Appendix K);