Millennium Expansion Project
Environmental Impact Statement

CHAPTER 3:

PROJECT NEEDS AND ALTERNATIVES

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3.0 PROJECT NEEDS AND ALTERNATIVES

3.1 PROJECT JUSTIFICATION

Coal is a significant resource commodity for both Queensland and Australia. Australia is the fourth largest producer of black coal and the largest exporter of coal in the world (Department of Employment, Economic Development and Innovation, 2010). In 2008-2009 Queensland alone exported approximately 159 million tonnes (Mt) of coal to 33 countries with a gross sales value of approximately $49.9 billion (Department of Mines and Energy, 2009).

Queensland has a large resource of high-quality coal, with almost 33 billion tonnes (Bt) of raw coal *in situ* being mapped through drilling operations. Approximately 11 Bt of coking coal has been identified, with approximately 4 Bt suitable for open-cut mining. The Bowen Basin in the Central Queensland region is the most important source of export coal in Queensland, containing virtually all of the State's hard coking coal resource. The industry is also a mainstay of rail and port services, particularly along the central Queensland coast.

The State's high quality, low sulphur coals are attractive to overseas buyers conscious of minimising the environmental impact of their coal usage. A large proportion of Queensland's export coal is sold to a number of countries including Japan, Korea, India and China where it is used in steel making and electricity generation. The Millennium Expansion Project (MEP) seeks to further develop a known high quality coal resource and is strategically placed to service the expanding demands of Asia and the wider international metallurgical coal sectors. As an expansion project, the MEP will extend the life of the mine and largely utilise existing mining, rail and port infrastructure and services to provide an excellent opportunity for efficient resource recovery and export.

An initial capital investment of approximately $276 million will be required to bring the MEP to full production. Ongoing operational expenditure will be in the order of $225 million per annum for the 16 year extended mine life. This expenditure by Peabody will represent a significant boost to the local and regional economy and will contribute millions of dollars per annum to Queensland in royalties, freight and port charges. This contribution coupled with direct and indirect employment opportunities and associated spending, highlights the substantial social and economic benefits of the MEP to the region, Queensland and Australia.

The social, economic and environmental impacts of the MEP, both positive and negative, are discussed in the relevant sections within this Environmental Impact Statement (EIS). Consideration of the principles of Ecologically Sustainable Development (ESD) comprised an integral component of the feasibility and planning stages of the MEP and through this EIS, form the basis for the mitigation and management strategies proposed.

From an ecological perspective, the MEP will predominantly disturb relatively low quality agricultural land, however one small area of environmentally valuable vegetation resource will be impacted. Through Peabody's proposed Offset Strategy, vegetation offsets will be provided for against the loss of this small area and will facilitate the long term protection of the offset vegetation

for conservation purposes, resulting in a net benefit from a conservation perspective. Conservation of this offset area demonstrates one way in which the principles of ESD have been incorporated in the proposal for the MEP.

3.1.1 Economic Benefits

Economic impacts from the MEP are discussed in detail in **Chapter 17 - Economics**. The economic benefits associated with the MEP are significant and extend from localised economic support via increased employment and provision of custom to local businesses through to State and national benefits from resource royalties, export income and economic support for Australia's mining industry. A summary of the major economic benefits of the proposed MEP is provided below:

- at a maximum of 5.5 Mtpa ROM coal, the mine will generate direct employment income of around $38 million per annum, and total expenditure of around $225 million per annum;
- additional coal export revenue for the Federal Government balance of payment figures will be in the order of $525-700 million per annum;
- State Government revenue flowing from the MEP will be an estimated $95.5 million per annum including royalties, port charges and applicable taxes;
- revenue from rail freight and port charges are estimated at $34 million and $1.2 million per annum respectively; and
- using an income multiplier of 1.33 (refer to **Appendix F12- Economics** for further information) the flow-on effect to the regional economy will be approximately $27 million per annum, yielding a total MEP related employee income stream of approximately $50.5 million per annum.

3.1.2 Social Benefits

The MEP will benefit the local and regional areas with enhanced security of employment and an ongoing requirement for services and support. The coal industry in Queensland employs approximately 19,000 people directly with a further estimated 67,000 indirect jobs created through the industry's activities. The MEP will ensure continuity of employment for the existing Millennium Mine workforce of 220 people for an additional 12 years past the current predicted completion of mining. An additional 160 people are to be employed once full production is reached at the MEP with more people employed indirectly as a result of flow-on effects.

Last year's global financial crisis had significant impact on the Bowen Basin mining industry making the economic benefits of this expansion particularly relevant for the local area and Queensland.

In terms of social values, the MEP is anticipated to have little effect on the social sustainability of the surrounding area. The region is an established coal mining area with a number of existing mining operations surrounding the proposed project. The communities surrounding the MEP (primarily Moranbah and Coppabella) were created by the mining industry and have grown from that base. Other communities in the region have also benefited substantially from regional growth, economic development and employment opportunities presented by the mining industry. The MEP will provide further economic support to the businesses and services within these towns, including Mackay, and in turn will provide a further level of certainty for the future of these communities.

Housing availability and affordability is an issue facing the region. Although private accommodation within the communities surrounding the MEP will be an option for the workforce, the majority of personnel and contractors will be accommodated at the existing Coppabella MAC Village on a 'Bus In-Bus Out' (BIBO) basis from the Mackay region. As such, the proposed MEP is anticipated to have little effect on local housing prices and availability.

It is however recognised that the cumulative effect of mining projects in the area has affected housing availability for those employed in non-mining related supportive industries. The recently announced State Government initiative to declare an Urban Land Development Area (ULDA) in Moranbah to fast-track the construction of an additional 200-300 houses will reduce the cumulative, and also any potential MEP-related, impacts on housing availability and affordability. Peabody continues to encourage its employees to become members of the local communities in which they operate.

3.1.3 Project Alternatives

This section describes the MEP alternatives considered during the planning process for the MEP. As a mining project, the positional requirements of the MEP are governed by the quality and location of the targeted coal resource within the exploration and mining tenements controlled by Peabody. From Peabody's perspective, as the MEP proponent and with regard to the proximity of the proposed MEP to existing infrastructure and operations already managed by Peabody, there is limited scope for an alternative location for the MEP.

During the planning process, a number of project alternatives and options were considered by Peabody, including the development of alternative coal resources within Queensland. Alternatives and options were reviewed against the following principles:

- as part of both good business practice and corporate responsibility, Peabody regularly reviewed the MEP feasibility and EIS findings in comparison to their other available development resources to determine the social, economic and environmental risks and opportunities associated with the MEP. As part of Peabody's triple bottom line approach, if any of these indicators had been significantly negative, the MEP will not have proceeded;
- a range of mining methodologies to recover the resource were investigated, including improvements in current methods for energy consumption and efficiencies;
- mining schedules were regularly reviewed and modified to enable sustainable production in a controlled manner and as required to meet changing markets;
- mining plans were altered to reduce final void size whilst maximising resource recovery;
- mining plans were altered to limit land disturbance in relation to identified cultural heritage needs;
- mining plans were altered to limit land disturbance in relation to identified sensitive flora and fauna;
- rejects and tailings disposal were specifically targeted for review and investigation to ensure maximum recovery of water resources and long term, stable landforms;

- minimising the raw water supply required for operations was achieved through improved water storages and systems to capture and use mine impacted water;
- reviewing the ability for the alternatives to reduce energy usage and improve efficiencies in line with legislation requirements and leading practice;
- reviewing accommodation options in response to local government concerns and acknowledged accommodation shortages in the region;
- assessing alternative methods to transport the operations workforce; and
- comparing operational raw water supply pipeline routes.

The selection of the proposed development options for each component of the MEP was made taking into account leading industry practices for operational activities, and energy efficiency opportunities, as well as regulatory, environmental, social and economic assessment criteria.

The proposed MEP, in the context of the existing Peabody owned and managed infrastructure and operations, provides the best opportunity for efficient resource recovery.

Discussion of the alternatives considered as part of the MEP planning phase, including the 'no-development' scenario, are provided in the following sections.

3.1.4 Ecologically Sustainable Development Principles

The *National Strategy for Ecologically Sustainable Development* (Ecologically Sustainable Development Steering Committee, 1992) defines ESD as "development which aims to meet the needs of Australians today, while conserving our ecosystems for the benefit of future generations".

The major elements of ESD include:

- integrating the economic, social and environmental concerns and needs of the community;
- accounting properly for the economic costs of environmental degradation;
- accepting that each generation is responsible for the welfare of future generations;
- understanding environmental risk and uncertainty; and
- understanding the global scale of environmental impacts.

Peabody has adhered to the principles of ESD through all planning and approval stages of the MEP. These principles are built into the standard operating processes and procedures for all Peabody operations in Australia. The social and economic impacts of the MEP, both positive and negative, have been identified and quantified in **Chapter 15 – Social** and **Chapter 17 – Economics** respectively. Environmental impacts have been identified and appropriate management and mitigation measures have been committed to throughout this document, including an offset package for impacts on threatened ecological communities.

3.1.5 Viability of the MEP

The MEP will be a continuation of the current open-cut mining operations at the existing Millennium Mine and will utilise existing infrastructure and plant. Available technologies and environmental management and safety systems

currently in operation at the existing Peabody mine will also be adapted and utilised at the MEP.

There is a requirement for additional or modified infrastructure associated with the MEP involving water management, tailings management, road access and power supply and approval for these components is sought as part of the MEP. There is also a potential requirement for a Coal Handling and Preparation Plant (CHPP) upgrade resulting from the increased production at the MEP, however this will only be necessary, if and when, full production is achieved. It also depends on existing utilisation of the CHPP. The CHPP is on a separate Mining Lease (ML), managed by the Red Mountain Joint Venture (RMJV) and will therefore be subject to a separate approval process.

The MEP has undergone rigorous risk management assessments and decision making processes. Peabody believes the MEP is commercially viable and will be a significant benefit to the future investment of its operations in Queensland.

3.1.6 Alternative Mining Methods

Modelling of mining options was undertaken to select the preferred methods and mine plans. The following considerations were taken into account during the modelling process:

- site geology;
- coal quality;
- topographical considerations (i.e. creeks, surface features and existing infrastructure);
- production rates of various coal types;
- existing mining methods and extent of existing operations; and
- environmental considerations.

The proposed mining method is influenced predominantly by the geology of the coal deposit. As a result, open-cut mining methodologies will be utilised to mine the MEP resource. The proposed open-cut methodology will incorporate a typical truck and excavator, bench terraced system currently used at a number of mines in the Bowen Basin for extraction of overburden and ROM coal. Alternative waste management options were also considered, including a conveyor waste placement system, but were limited by the existing infrastructure, topography and surface water management requirements.

Existing water, power and transport (road and rail) routes will be utilised for the MEP and therefore the requirement to consider alternatives has been limited to a review of capacities along these existing routes. It is possible that small sections of the access road into the site and the current power transmission line will be realigned to allow for the most effective use of land for out-of-pit waste rock emplacements, thereby reducing overall footprint and impact.

The existing raw water supply arrangements for the Millennium Mine will continue to be used for the proposed MEP. Alterations to the surface water management system have been proposed in **Chapter 10–Water Resources** to facilitate the increase in production and the associated processing requirements. The proposed surface water management system for the MEP does not require additional raw water allocation. Investigations of options to make better use of process water through recycling and more water efficient coal processing methodologies is ongoing at the site.

3.1.7 Alternative Workforce Accommodation

Provision of accommodation for construction and operational mine staff has been analysed with respect to existing facilities. The MEP will continue to provide a BIBO service from Mackay for employees as is currently used at Millennium Mine. During rosters, accommodation will be provided at the existing MAC Coppabella Accommodation Village or if numbers dictate, at the MAC Moranbah Accommodation Village.

Direct communications received from both MAC Accommodation Village operators indicate they expect to cope with the potential increase in accommodation needs resulting from growing mining projects in the area and will expand their site depending on demand.

MEP employees and contractors are able to seek their own accommodation in townships surrounding the MEP and provide their own transport to the site. It is considered that only a small percentage of the proposed MEP workforce will utilise this option. Employees who work a 5-day week roster and who will prefer to reside at home every night may consider this option.

3.1.8 Alternative Tailings Disposal Options

Alternative tailings disposal options have been considered as part of the mine planning process. These options include the utilisation of a final void for tailing disposal and the use of alternative processing methodologies producing a dry waste material which could be managed in-pit with the overburden.

The existing approved tailings management for Millennium Mine has operational capacity at the proposed mining rates. Peabody will select the preferred tailings management method from two options:

- optimise the existing filter press system at the CHPP to dewater the tailings slurry and leave a dry, compacted end product; or
- direct tailings to industry proven co-disposal cells for drying.

These options utilise existing technology and will allow the tailings to be disposed of in the waste rock emplacements along with the coarse coal reject material.

3.1.9 Consquences of Not Proceeding with the MEP

The consequences of the MEP not proceeding will be that a major resource will remain undeveloped, the social and environmental impacts resulting from the proposed expansion outlined in this EIS will not eventuate and the socio-economic benefits associated with the development of the MEP will not be realised.

The socio-economic benefits associated with the MEP are considerable and are summarised as:

- maintaining the existing 220 employees for an additional 12 years beyond currently expected mine life at the Millennium Mine;
- additional long-term employment opportunities for approximately 160 people directly and over 625 people indirectly during the mine operations phase;
- expected employee wages and salaries of up to $38 million per annum injected into the local and regional economies;

- expected wages flow-on effect to the regional economy of around $180 million per annum;
- significant export income of between $525-700 million per annum;
- significant state and federal government taxes and royalties;
- the economic opportunity of developing a coal resource that is viable and in demand;
- local and regional community employment opportunities; and
- financial contributions to assist with local infrastructure, philanthropic and sponsorship activities throughout the region.

3.2 REFERENCES

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