Planning & Environment
Resources & Geoscience

Attachment A

Unit:	**Strategic Resource Assessment & Advice**
Branch/Division:	**Geological Survey of NSW - Division of Resources & Geoscience**
Subject:	**Resource and Economic Assessment – Mount Pleasant Modification 3**

Introduction

State Significant Development is regulated under the Environmental Planning and Assessment Act 1979, which requires a proponent to apply to the Department of Planning and Environment for development consent, supported by an Environmental Assessment (EA).

The objects of the Mining Act 1992 are to encourage and facilitate the discovery and efficient development of coal resources in NSW. Of particular relevance to this resource assessment is Section 3A.

The relevant section of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 is Part 3, Clause 15: Resource Recovery. Cl. 15 requires that resource recovery is efficient, optimised and minimises waste.

This Resource and Economic Assessment conducted for the Mount Pleasant Mine Optimisation Modification - Modification 3 (the Modification or Project) by the Division of Resources and Geoscience (DRG) is intended to review the resource/reserve estimates stated in a proponent's Environmental Assessment.

DRG has assessed whether the Modification will deliver significant social and economic benefits to NSW from the efficient development of the resource and that resource recovery is optimised and waste minimised.

DRG has also conducted an independent calculation of the royalty and export revenue to be generated over the period of the Modification to ensure an appropriate return to the State from developing the resource.

Background

The Hunter Coalfield is the largest of the Sydney-Gunnedah Basin's five major coalfields and has a long history of successful mining in both open-cut and underground methods, with 15 coal mines currently in operation and total saleable production of over 100 million tonnes per year. In 2015-16 the Hunter Valley produced around 54% of total NSW saleable production.

Project overview

The Mount Pleasant Mine is owned and operated by MACH Energy Australia Pty Ltd (MACH Energy). MACH Energy acquired the project from Coal and Allied Operations

Pty Ltd on 4 August 2016. The Mount Pleasant Operation is currently under construction and it will operate under the Development Consent granted in December 1999 (DA 92/97).

The Project will be an open-cut coal mine and will utilise surface facilities and mine infrastructure currently under construction, 5km to the west of the town of Muswellbrook. The approved maximum Run-of-Mine (ROM) production rate of 10.5 million tonnes per annum (mtpa) and saleable production of around 8 mtpa) will result in Mount Pleasant being the seventh largest mine in the Hunter Valley. The Bengalla Mine is the closest operational mine which lies adjacent and to the south of the project area.

This Modification, sought in 2 parts, is to extend the approved life of Mount Pleasant by six years to December 2026 beyond its current finish date and increase the waste rock emplacement area to further improve the final landform more aligned to natural topography.

There is no proposed change to the approved maximum production rate of up to 10.5Mtpa ROM coal. Minor changes have been made to the mine design, particularly dump design, which will facilitate improved visual amenity and increased dump space.

Size and quality of the resource

MACH Energy has completed coal resource and reserve estimation for the Project in accordance with the Australasian Code for Reporting Exploration results, Mineral Resources and Ore Reserves (the JORC Code). DRG has verified that over the Modification period the project will deliver approximately 63 million tonnes (mt) of ROM coal.

Coal resources at Mount Pleasant are sufficient to support a 21 year mine life approved in DA 92/97, the 6 year extension proposed within this Modification and significantly beyond (pending necessary approvals).

There is a long history of coal mining the Jerrys Plains and Vane Subgroups of the Whittingham Coal Measures in the Hunter Valley using open-cut extraction techniques. These Subgroups have low coal-to-interburden ratios (strip ratios) amenable to economic open-cut extraction throughout the Hunter Valley. Coal products are typically high energy with low-to-medium ash and low sulphur content.

Two coal products are proposed to be produced with approximate product split as shown below:

Energy content	Product split
~6200kcal/kg	20%
~5800kcal/kg	80%

MACH Energy forecasts 100% of Mount Pleasant product to be sold into the export market and maintains flexibility in their Coal Handling and Preparation Plant (CHPP) processing methodology to optimise coal product specifications to best meet export markets.

A review of available coal quality information indicates the proposed product quality, market split and yield is achievable. All ROM coal will be processed by the CHPP under construction to improve product characteristics for export markets. DRG considers that a total of around 46mt of product (saleable) coal from the Project is feasible and consistent with results seen from other operations in the area.

Resource Recovery

A number of factors constrain the mine plan, extraction methodology and therefore the resource recovery at the Project. These include geological features, lease extent, environmental features, mining conditions and equipment constraints. No changes to the resource recovery approved in DA92/97 are proposed.

MACH Energy has identified that initial methods will be limited to truck and excavator operation, particularly in relation to the Modifications proposed change to the emplacement area for improved dump design outcomes. Utilisation of approved Dragline methods will be a consideration in future where further life of mine analysis has been conducted.

The Edderton Seam forms the basal (economic) limit of the Project, which is in common with the adjacent Bengalla Mine. Deeper seams are not economically viable to extract via open-cut methods and the Project will not sterilise or limit long term potential viability of underground extraction of these deeper seams.

Economic benefits of the resource

Export income is vital for the health of both the NSW and Australian economies, export income contributes to the Nation's balance of trade which provides benefits for both the NSW and Australian credit rating. Coal exports are by far the largest value export from NSW, representing around 25% of total NSW exports (both goods and services combined).

Over the life of the Project, the value of coal production sold on the export thermal market would be nearly $4 billion in current dollars. The net present value of this revenue stream has been estimated by DRG at approximately $2.6 billion. Capital investment over the life of Mount Pleasant to end 2020 would be of the order of $365 million.

The Project would provide continuing employment for the 380 employees that will be employed at Mount Pleasant. The Modification does not provide any additional full time employment, but does provide an additional six years of employment at Mount Pleasant.

Coal royalty calculation

The Project is a proposed open-cut mine and as such a royalty rate of 8.2% applies to all saleable production. This rate is applicable to the net disposal value. Net disposal value is the price received per tonne minus any allowable deductions. The main allowable deduction is for coal beneficiation which is either; $3.50 per tonne for coal subjected to a full washing cycle, or $2.00 per tonne for coal subjected to a simple washing process, or $0.50 per tonne for coal that is washed and screened.

As all product coal from the Project will be subjected to a full washing cycle, a deduction of $3.50 per tonne from the value of coal produced applies. A deduction for levies also applies which would amount to no more than $1.00 per tonne. Hence allowable deductions for royalty for the Project would amount to $4.50 per tonne.

One of the most important assumptions in the calculation of future Royalty for a coal proposal is the estimate of a future coal price over the life of a project. Coal from the Project is expected to be sold into the export thermal market (100%). A review of coal quality information by DRG indicates this is achievable.

Coal price forecasting is inherently difficult and over the project life there will be variations in coal prices. Since this Modification has only a six year life, these variations would not be as great as with longer term projects. Average prices of between A$80 and A$100 per tonne for the thermal coal from the Project have been used by DRG.

Another important aspect of future royalty calculation for a proposed coal project is estimation of future annual production. DRG has estimated that if the Modification is approved, around 46 million tonnes of product coal would be able to be economically mined from the Project area from 2021 to 2026. The maximum rate of extraction would be around 8Mtpa of product coal.

Using the above parameters DRG has calculated that in a typical full production year the State will receive around $50 million per annum in royalty and $306 million over the life of the Modification. The net present value of this royalty stream would be $199 million using a 7% real discount rate.

Conclusion

Given the constraints outlined in the proponent's EA, DRG considers the Project mine plan for open-cut operations to adequately recover coal resources and provide an appropriate return to the State, within the mine footprint, giving due consideration to the particular constraints of the location.