

APPENDIX G

ECONOMIC IMPACT ASSESSMENT

Cooranbong Entry Site Stockpile Extension Modification

Economic Assessment

Prepared for

Centennial Northern Coal Services Pty Limited

By



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EXECUTIVE SUMMARY

Introduction

Northern Coal Services (NCS) operations are located on the western side of Lake Macquarie, approximately 25 kilometres (km) south-west of Newcastle and 140 km north of Sydney, in the local government area (LGA) of Lake Macquarie. NCS comprises surface coal handling and processing facilities at the Newstan Colliery surface site and the Cooranbong Entry Site (CES), as well as private haul roads connecting Newstan Colliery, Awaba Colliery, CES and Eraring Power Station.

Centennial Northern Coal Services Pty Ltd (Centennial) proposes to apply for the Modification (the Modification) of SSD-5145 under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* for:

- Development of the existing coal stockpile at CES to increase capacity from 100,000 tonnes to 400,000 tonnes.
- Construction of infrastructure associated with the modified stockpile footprint. This will include access tracks, lighting towers, water sprays, fencing and water management infrastructure.

The proposed upgrade to CES stockpile capacity will:

- Increase the ability for Mandalong Mine run-of-mine (ROM) coal to be processed at Newstan Colliery by providing stockpile buffer capacity to accommodate production troughs. This will provide greater flexibility in the marketing of coal extracted from Mandalong Mine and assist in the management of coal quality at NCS.
- Assist in the continuous, reliable supply of thermal coal to Eraring Power Station during periods of mining downtime (including during longwall changeouts or unplanned outages at Mandalong Mine). This in turn will increase the security of base load power generation in NSW.

Cost Benefit Analysis

A Cost Benefit Analysis (CBA) of the Modification found that it would have net production benefits to Australia and NSW of \$23M and \$18M, respectively. Provided the residual environmental, social, and cultural impacts of the Modification (after mitigation, offset and compensation) that accrue to Australia and NSW are valued at less than the level of net production benefits, the Modification can be considered to provide an improvement in economic efficiency and hence is justified on economic grounds.

Consideration of the environmental, cultural, and social impacts of the Modification identified that noise and biodiversity impacts would be mitigated and offset, with these costs included in the above estimates of net production benefits. All other potential impacts (including air quality impacts) were assessed as negligible.

Combining the estimate of net production benefit with the residual environmental, social and cultural costs, the Modification is estimated to have net social benefits to both Australia and NSW of \$23M and \$18M, respectively.

While the major environmental, cultural, and social impacts have been quantified and included in the Modification CBA, any other residual environmental, cultural, or social impacts that remain unquantified would need to be valued at greater than \$23M and \$18M for Australia and NSW, respectively, for the Modification to be questionable from an economic efficiency perspective.

Local Effects Analysis

The Modification will provide an additional four full time equivalent employment opportunities to the local area, increasing local wages. It will also result in increased non-wage operational expenditure in the local area. Wage and non-wage expenditure captured by the local area economy will provide flow-on economic activity to the local economy via production-induced and consumption-induced effects.

1 INTRODUCTION

1.1 Site Overview

Northern Coal Services (NCS) operations are located on the western side of Lake Macquarie, approximately 25 kilometres (km) south-west of Newcastle and 140 km north of Sydney, in the local government area (LGA) of Lake Macquarie. NCS comprises surface coal handling and processing facilities at the Newstan Colliery surface site and the Cooranbong Entry Site (CES), as well as private haul roads connecting Newstan Colliery, Awaba Colliery, CES and Eraring Power Station. NCS facilities are integral to the handling, processing and transport of coal from Newstan Colliery (via conveyor) and Mandalong Mine (via an underground conveyor to CES then NCS private haul roads).

CES was originally developed as part of the Cooranbong Colliery in 1981. It comprises a Coal Handling Plant (CHP), coal stockpiles, coal conveyors, mine entries to Mandalong Mine, workshop and administration buildings, car parking, water management structures and other associated infrastructure. Since 2015, CES has formed part of NCS coal handling and logistics activities authorised by SSD-5145 and is approved to operate 24 hours a day, seven days per week until 31 December 2045.

1.2 Modification Overview

Centennial Northern Coal Service Pty Ltd (Centennial) proposes to apply for the Modification of SSD-5145 under Section 4.55(2) of the Environmental Planning and Assessment Act for:

- Development of the existing coal stockpile at CES to increase capacity from 100,000 tonnes to 400,000 tonnes.
- Construction of infrastructure associated with the modified stockpile footprint. This will include access tracks, lighting towers, water sprays, fencing and water management infrastructure.

The proposed upgrade to CES stockpile capacity will:

- Increase the ability for Mandalong Mine ROM coal to be processed at Newstan Colliery by providing stockpile buffer capacity to accommodate production troughs. This will provide greater flexibility in the marketing of coal extracted from Mandalong Mine and assist in the management of coal quality at NCS.
- Assist in the continuous, reliable supply of thermal coal to Eraring Power Station during periods of mining downtime (including during longwall changeouts or unplanned outages at Mandalong Mine). This in turn will increase the security of base load power generation in NSW.

1.3 Economic Assessment Requirements

Consistent with the NSW Government (2015) *Guideline for the economic assessment of mining and coal seam gas proposals* (Economic Guidelines), two types of economic assessment of the Modification are required:

- A cost benefit analysis (CBA), which is the primary way that economists evaluate the net benefits of projects and policies, provide economic justification for a project, and address the public interest.
- A Local Effects Analysis (LEA) to assess the impacts of the Modification in the locality, specifically:
 - effects relating to local employment.
 - effects relating to non-labour project expenditure.
 - effects on other local industries.

- environmental and social impacts on the local community (externalities).

However, in keeping with the principle of proportionality, the assessments reflect the scale of the proposal.

Economic analysis tools such as CBA and LEA are not mechanised decision-making tools, but rather a means of analysis that provides useful information for decision-makers to consider alongside the performance of a project in meeting other government goals and objectives.

2 COST BENEFIT ANALYSIS

2.1 Introduction

CBA of the Modification involves the following key steps:

- Identification of the “with” and “without” Modification scenarios.
- Identification and valuation of the incremental benefits and costs.
- Consolidation of value estimates using discounting to account for temporal differences.
- Application of decision criteria.
- Sensitivity testing.
- Consideration of non-quantified benefits and costs.
- Consideration of the distribution of costs and benefits.

What follows is a CBA of the Modification based on advice provided by Centennial and its specialist consultants.

2.2 Identification of the “Without” Modification Scenario

The CES is an integral component of the integrated operations of the NCS and Mandalong Mine. It contains a Coal Handling Plant, coal stockpiles, coal haul roads, Mandalong Mine entries, office & workshop buildings and water management infrastructure. Coal handling infrastructure at CES receives, handles and processes up to 6 Million tonnes per annum (Mtpa) of ROM coal from Mandalong Mine. ROM coal from CES is then sent to either Eraring Power Station via conveyor or sent by truck to Newstan Colliery Surface Site using existing private haul roads where it is processed and transported by train to the Port of Newcastle, Port Kembla, Vales Point Power Station, Eraring Power Station or after processing by truck back to the CES for conveyance to Eraring Power Station.

Mandalong Mine is an underground coal mine using longwall mining methods with approval to operate until 2040 under SSD-5144. When moving longwall mining equipment from one panel to the next, Mandalong Mine production ceases and the CES stockpile is used to provide continuity of supply. The CES stockpile is also used to provide continuity of supply during unplanned production outages at Mandalong Mine. However, under the base case the size of the existing stockpile can constrain the ability for Mandalong Mine to transfer coal to CES, which can impact on the supply of coal to Eraring Power Station and/or the Newstan Colliery Surface Site for processing and export.

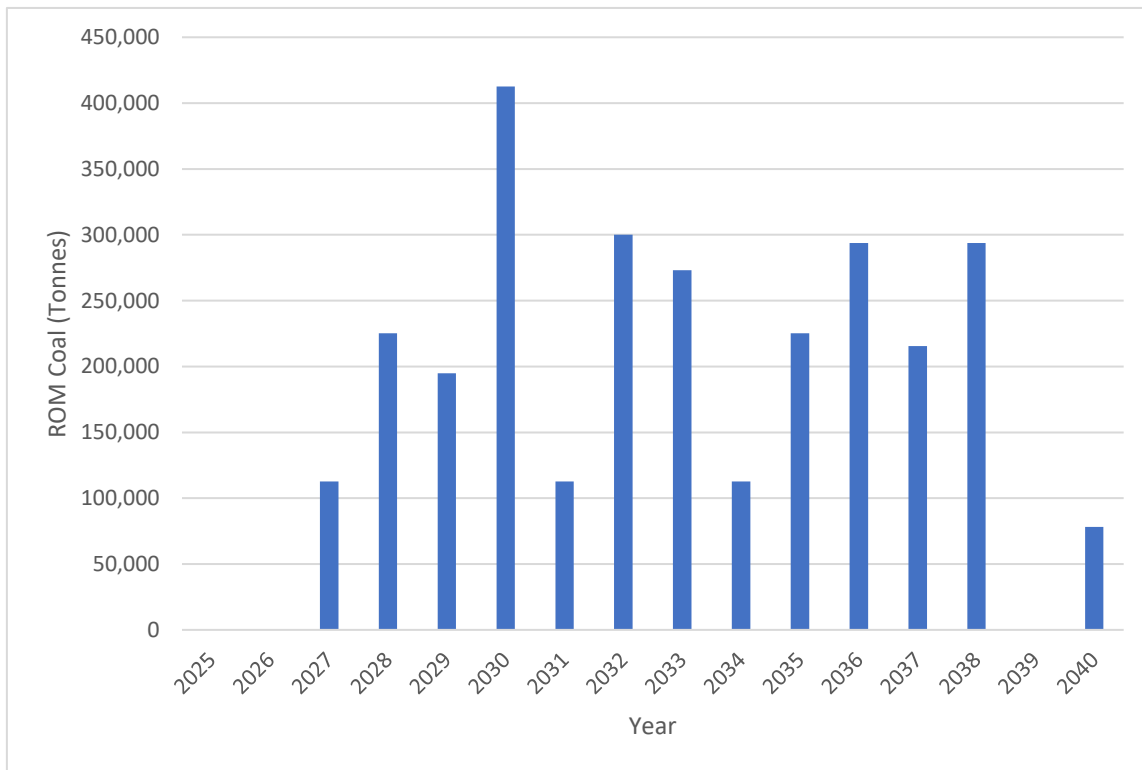
Under the base case, the land which would be used for the modified stockpile would continue as Crown Land zoned C2 - Environmental Conservation and provide unmanaged conservation values.

2.3 Identification of the “With” Modification Scenario

With the Modification, land to the west of the existing stockpile would be used to expand the stockpile. There would be a reduced frequency and duration of times when the supply of Mandalong Mine coal to CES is impacted. A larger stockpile allows more coal to be transferred from Mandalong Mine to CES during planned (and unplanned) production outages and peak underground production periods, effectively increasing the supply of coal each year from Mandalong Mine (within the existing production limits of SSD-5145). However, the supply increase will depend on, among other things, the effective days between Mandalong Mine longwall blocks and the maximum volume of coal that could have been hauled during this time. Based on current planning for Mandalong Mine operations, the benefit of the 400,000t stockpile in terms of supply is shown in Figure 2.1. This is the basis of the analysis. However, it is a minimum benefit since the modified stockpile would also provide benefits during unplanned production outages.

This minimum increase in coal handling at CES as a result of the Modification is given in Figure 2.1.

Figure 2.1 – Coal Throughput Per Annum at CES from the Modification Relative to the Base Case



Note: The graph only shows the additional annual clearance of coal from the modified stockpile during the period mining operations approved for Mandalong Mine under SSD-5144, not the quantity of coal in the stockpile.

2.4 Identification of Benefits and Costs

While the Modification would provide increased capacity and flexibility in the NCS integrated operations, with increased annual availability of coal for sale to Eraring, or for export, this Economic Assessment is based on the simplifying assumption of all sales exported, consistent with the assumptions in the environmental assessments, particularly noise and dust emissions.

On this basis, relative to the base case, the Modification has potential incremental economic benefits and costs as shown in Table 2.1.

Table 2.1 – Costs and Benefits of the Modification

Stakeholder	Costs	Benefits
Centennial Coal	Capital cost of developing the Modification	Additional coal revenue
	Incremental NCS operating costs, stockpile and transport costs	
Local and NSW Community	Modification environmental impacts – mainly biodiversity, air quality, noise and greenhouse gas emissions	

It should be noted that the potential environmental impacts only have economic costs to the extent that they affect individual and community wellbeing through direct use of resources by individuals or by non-

use. If the potential environmental impacts are mitigated, offset, or compensated to the extent where community wellbeing is insignificantly affected, then no economic costs arise, apart from the direct costs of mitigation, offset and compensation.

2.5 Quantification/Valuation of Benefits and Costs

Consistent with the Economic Guidelines (NSW Government, 2015), the CBA was undertaken in 2024 real values, with discounting at 7 percent (%) and sensitivity testing at 4% and 10%. Discounting of the costs and benefits is applied to account for differences in the timing of costs and benefits flowing from a project and reflects the fact that a dollar received in the future is worth less than a dollar today.

The analysis period is 16 years, coinciding with the approved period of mining operations for Mandalong Mine under SSD-5144 (i.e. 2025 to 2040). It is noted that SSD-5145 approves coal transportation and processing activities at NCS until 31 December 2045.

2.5.1 Centennial Production Costs and Benefits¹

Centennial is proposing to invest in the Modification and its due diligence has identified a net financial benefit to it from the proposed works. If this were not the case, then the Modification would not be pursued. Any financial benefit to Centennial arising from the ability to increase coal throughput (within existing consent limits) is also associated with royalties and company tax that accrue to Australia and NSW. Because Centennial is 100% foreign owned only royalties and company tax benefits accrue to Australia and NSW.

Based on forward price projections of Wood McKenzie and cost estimates from Centennial, the additional coal able to be processed associated with planned production outages only (as per Figure 2.1) is associated with royalties of in the order of \$16M and company tax in the order of \$8M to Australia and \$2M to NSW (based on a population apportionment) (net present value at 7%). The total net production benefit to Australian and NSW (net present value at 7%) is in the order of \$23M² and \$18M, respectively. This is a minimum net production benefit as it does not include any benefits of the modified stockpile that arise from unplanned production outages at Mandalong Mine.

¹ All values reported in this section are undiscounted unless specified.

² The total is less than the sum of the parts due to rounding.

Table 2.2 - Net Production Benefits of the Modification (\$M Present Values at 7% Discount Rate)

	Incremental \$M
Costs	
Capital costs	\$10
Operating cost ex royalties	\$108
Sub-total	\$118
Benefits	
Revenue	\$160
Sub-total	\$160
Global Net Production Benefits	\$41
Royalties	\$16
Company Tax	\$8
Residual Net Production Benefits	\$18
Global Net Production Benefits	\$41
Royalties	\$16
Company Tax	\$8
Residual Net Production Benefits	\$0
Australian Net Production Benefits	\$23
Royalties	\$16
Company Tax	\$2
Residual Net Production Benefits	\$0
NSW Net Production Benefits	\$18

*Differences in totals are due to rounding to the nearest \$M.

2.5.2 Environmental Costs

From the environmental impact assessments, the main potential impacts relate to biodiversity, noise, air quality and greenhouse gas generation. Each of these is considered below from an economic perspective.

Biodiversity Impacts

The Streamlined Biodiversity Development Assessment Report (EcoResolve, 2024) identified that the Modification will require clearing of 2.97 ha of Plant Community Type 3583, *Hunter Coast Lowland Scribbly Gum Forest* that will require offset. In addition, several fauna and flora species will be impacted and require offset.

From an economic perspective, the impacted vegetation, and associated fauna, is likely to have non-use values to the community that would be lost because of the Modification. These values could potentially be estimated using non-market valuation methods. However, it is government policy that biodiversity offsets are provided that improve or at least maintain biodiversity values on a 'no net loss' principle. The provision of offsets is therefore likely to have non-use values to the community that would be gained because of the Modification. On the basis that the NSW offset policy works on the principle of 'no net loss', no additional economic costs warrant inclusion in the CBA apart from the costs of providing offsets. An allowance of \$3.2M for biodiversity offset costs has been included in the capital costs of the Modification.

Noise

Noise impacts can potentially affect people's amenity and can be valued a range of nonmarket valuation methods including the property value method, the defensive expenditure method and choice modelling.

The Modification Noise and Vibration Impact Assessment (GHD Pty Ltd, 2024) identified that the main potential noise impact would arise during the construction period of the Modification. Construction noise is predicted to exceed the noise affected noise management levels at a number of nearby sensitive receptors. Centennial is implementing a number of mitigation strategies to minimise construction and operational noise impacts. An allowance of \$3.6M has been included in the capital costs of the Modification to implement these mitigation strategies. To the extent that these strategies mitigate noise impacts to negligible levels or offset impacts (e.g. through compensation), there are no residual noise impacts for inclusion in the CBA.

Air Quality

Changes in air quality can impact people's health and amenity. These impacts can potentially be valued using a range of nonmarket valuation methods including the cost of illness approach, defensive expenditure method and choice modelling. However, the Air Quality and Greenhouse Gas Assessment (SLR Consulting Pty Ltd, 2024) concluded that the Modification is not likely to pose a risk of air quality impacts at the neighbouring receptors. Consequently, air quality impacts are immaterial from an aggregate economic efficiency perspective and no economic costs are included in the CBA apart from the costs of proposed general mitigation and monitoring measures.

Greenhouse Gas Emissions

The Air Quality and Greenhouse Gas Assessment (SLR Consulting Pty Ltd, 2024) identified that Modification construction would be associated with 1,569 t Co2e Scope 1 and Scope 3 emissions. Operation would generate 2,196 t Co2e per annum. These emissions only relate to the construction and operation of the modified stockpile and do not include the incremental emissions from the effective increase in annual supply of coal each year from Mandalong Mine. This is because the effective increase in annual supply of coal from Mandalong Mine to CES is within the existing production limits of SSD-5145, and greenhouse gas (GHG) emissions from Mandalong Mine production were assessed and approved for that site under SSD-5144. Notwithstanding, from an economic perspective if there are incremental benefits of the Modification associated with an effective increase in annual coal supply to CES, there are also incremental GHG costs in addition to those from the construction and operation of the modified stockpile. However, in the absence of the requisite biophysical impacts, these emissions remain unquantified in this analysis.

To place an economic value on CO₂-e emissions, a shadow price of CO₂-e is required that reflects the social cost of carbon to the referent group community the subject of the CBA, in this case the residents of NSW (NSW Government, 2015).

The NSW Treasury (2023) *NSW Government Guide to Cost-Benefit Analysis* (the Guide) recommends using prices from the European Union Emissions Trading Scheme (EUETS). The Technical Note to the Guide (NSW Treasury 2023b) provides an Australian dollar value estimate for the year 2023 of \$123/t CO₂-e increasing in real terms by 2.5% per annum. Under this shadow price the present value of greenhouse gas emission costs over the life of the Modification is \$2.6M dollars, present value.

However, the EUETS permit price is an "exchange price" that reflects the regulations and rules of the trading scheme. It is also a financial price (cost) of abatement rather than an economic value of emission damages. This price is therefore far removed from the appropriate value for a NSW CBA, which is the value of emission impacts to the households and businesses of NSW. Even if the EUETS scheme were

designed efficiently, the price of a permit would reflect the global damage cost of carbon (i.e. the cost of carbon emissions to the population of the whole world), not the damage cost to NSW residents. The global damage cost of carbon is the sum of damage cost of carbon to each country (Ricke et al, 2018, p. 896). The national (and provincial) level damage costs of carbon are therefore much smaller than the global damage costs (Tol, 2019).

Consistent with the NSW Government (2015) Guidelines and NSW Government (2018) Technical Notes, the focus of CBA is on costs and benefits to the population of NSW. In the absence of any studies that have focused on the social damage cost of carbon emissions to NSW residents, some means of apportioning global damage costs borne by Australians is required. For the Economic Assessment, this has been undertaken using Australia's share of the global population (around 0.32%) and NSW's share of the Australian population (32%). NSW Department of Planning, Housing and Infrastructure (DPHI) has previously supported this approach (NSW DP&E, 2017).

On this basis, the present value of the cost of greenhouse gas emissions to Australia and NSW from the construction and operation of the Modification is estimated at \$7,331 and \$2,343 dollars, respectively.

2.6 Consolidation of Value Estimates and Application of Decision Criteria

The estimate of net production benefit of the Modification to Australian and NSW is \$23M and \$18M, respectively (present value at 7% discount rate) (refer to Table 2.2). This provides a threshold value against which to compare the economic value of any environmental impacts of the Modification after offset, mitigation and compensation (residual environmental impacts). That is, residual environmental impacts to Australian and NSW would need to be valued at greater than \$23M and \$18M, respectively, for the environment costs of the Modification to exceed the net production benefits. However, from Section 2.5.2 it is evident that noise and biodiversity impacts will be mitigated or offset and the cost of this has been included in the capital costs of the Modification and hence in the estimation of the net production benefit of the Modification. Air quality impacts were assessed as negligible and greenhouse gas impacts to NSW will also be negligible. All other potential environmental impacts were also assessed as negligible.

Combining the estimate of net production benefits with the consideration of residual environmental, social and cultural impacts (refer to Table 2.3), the Modification is estimated to have net social benefits to both Australia and NSW relative to the base case, and hence is desirable and justified from an economic efficiency perspective. Any unquantified residual environmental impacts would need to be assessed at greater than \$23M and \$18M, respectively (present value at 7% discount rate), for the Modification to be questionable from an Australian and NSW economic efficiency perspective.

Table 2.3 – Net Social Benefits of the Modification (\$M Present Values at 7% Discount Rate)

Benefits	Australia	NSW
Net Production Benefits		
Royalties to Government	\$16	\$16
Company Tax	\$8	\$2
Residual net production benefits	\$0	\$0
Sub-total	\$23	\$18
Costs		
Greenhouse gas emissions (Scope 1 and 2)	\$0.007	\$0.002
Biodiversity	Impact offset – cost included in capital costs	
Noise	Impacts are to be mitigated and/compensated - costs included in capital costs.	
Air quality	No material impact*	
Road transport	No material impact*	
Groundwater	No material impact*	
Surface water	No material impact*	
Aboriginal heritage	No material impact*	
Historic heritage	No material impact*	
Visual	No material impact*	
Net public infrastructure costs	No material impact*	
Sub-total	\$0.007	\$0.002
Net Social Benefits	\$23	\$18

* NSW regulations require many impacts to be borne by the proponent via mitigation, offset and compensation. Where these measures mitigate, offset or compensate then no material residual impacts occur, and all impacts are borne by the proponent.

**Differences in totals are due to rounding to the nearest \$M.

2.7 Distribution of NSW Costs and Benefits

CBA is primarily concerned with the single objective of economic efficiency. CBA and welfare economics provide no guidance on what is a fair, equitable or preferable distribution of costs and benefits. Nevertheless, CBA can provide qualitative and quantitative information for the decision-maker on how economic efficiency costs and benefits are distributed.

From Table 2.3 it is evident that the net production benefits that accrue to Australia and NSW primarily accrue to the NSW government via royalties and the Australian and NSW governments via company tax. These benefits subsequently accrue to Australian and NSW households through the provision of government supplied goods and services.

Any residual environmental impacts associated with noise would impact receptors in the vicinity of the Modification. GHG impacts are minor but would accrue to all Australian and NSW households. Any residual biodiversity impacts would accrue to the households of NSW.

2.8 Risk and Sensitivity Analysis

The main areas of environmental risks associated with mining projects relate to:

- The financial viability of a project from unexpected downturns in coal prices and any consequent environmental impacts from premature cessation of operations.
- Ecological risk associated with whether the biodiversity offsets will adequately compensate for the direct ecological impacts.
- Other environmental, social, and cultural impact estimations and required mitigation measures.

The NSW DPHI has previously identified that the financial viability of projects is a risk assumed by the project owners. Any risk that the Modification may commence and then cease operation for financial reasons leaving unmet rehabilitation liabilities is mitigated by the fact that Centennial is required to pay a rehabilitation security deposit to the NSW Department of Regional NSW – Resources Regulator (DRNSW-RR) as the holder of a mining authority under the *Mining Act 1992*. This security deposit is held by DRNSW-RR to ensure that the legal obligations in relation to rehabilitation and safety of the site can be met following mine closure and is regularly reviewed and updated in accordance with DRNSW-RR rehabilitation cost estimate requirements. If rehabilitation obligations are not met to the satisfaction of the Minister, then the security funds would be used by DRNSW-RR to meet the relevant requirements.

The provision of biodiversity offsets can be associated with several risks, including in relation to the biodiversity benefits of additional management of offsets, success in reconstruction of ecological communities, time-lags between impacts and provision of offsets as well as between management actions and achievement of ecological outcomes. These risks are mitigated through offset ratio requirements in the provision of/payment for offsets and commitment to the offset actions/payments prior to the impacts occurring.

In relation to the estimation of environmental, social, and cultural impacts of the Modification, these impacts have generally been assessed based on the maximum annual levels of construction and operational impacts and are likely to be overstated and very conservative. The relevant technical studies have not identified any material environmental, social, or cultural impacts, that will not be offset, mitigated or compensated.

The estimated net social benefit of the Modification to NSW (presented in Table 2.3) is based on a range of assumptions around which there is some level of uncertainty. Uncertainty in a CBA can be dealt with through changing the values of critical variables in the analysis (James and Gillespie, 2002) to determine the effect on the net social benefits.³

In this sensitivity analysis, the CBA results for NSW were tested for changes to the following variables at a 4%, 7% and 10% discount rate:

- Capital cost of modified stockpile development.
- Modified stockpile operating costs.
- Revenue.
- GHG costs.

Results are reported in Table 2.4.

³ Quantitative risk analysis could also potentially be undertaken. However, this requires information on the probability distributions for input variables in the analysis. This information is not available and so the sensitivity testing is limited to uncertainty analysis.

What this analysis indicates is that the result of the CBA is not particularly sensitive to sustained changes in cost and revenue assumptions. It is most sensitive to changes in revenue (reflecting production levels, the value of coal in USD and the USD/AUD exchange rate) because changes in revenue directly impact royalties which is the main component of net production benefits to NSW. Changes in revenue also impact company tax estimates, only a component of which accrues to NSW. Changes in operating costs do not impact royalties but do impact the estimates of company tax.

Since mitigation, offset and compensation costs are a small component of the capital and operating costs of the Modification, it is unlikely that large changes in these individual cost levels would have any significant impact on the CBA results. The results are also not sensitive to changes in assumed GHG costs, including accounting for the global abatement costs for GHG.

Under all scenarios examined, the Modification, has net social benefits to NSW.

Table 2.4 - NSW CBA Sensitivity Testing (\$M Present Value at Various Discount Rates)

	4% Discount Rate	7% Discount Rate	10% Discount Rate
CENTRAL ANALYSIS	\$23	\$18	\$14
INCREASE – 20%			
Capital cost of stockpile development	\$23	\$18	\$14
Stockpile operating costs	\$20	\$16	\$13
Revenue	\$30	\$24	\$19
Greenhouse gas costs	\$23	\$18	\$14
GLOBAL GREENHOUSE GAS COST	\$20	\$16	\$13

	4% Discount Rate	7% Discount Rate	10% Discount Rate
DECREASE – 20%			
Capital cost of stockpile development	\$23	\$18	\$15
Stockpile operating costs	\$26	\$20	\$16
Revenue	\$16	\$12	\$10
Greenhouse gas costs	\$23	\$18	\$14

3 LOCAL EFFECTS ANALYSIS

3.1 Introduction

The CBA in Section 2 is concerned with whether the incremental benefits of the Modification exceed the incremental costs and therefore whether the NSW community would, in aggregate, be better off 'with' the Modification compared to 'without' it. This section examines local effects only.

The Modification is located in the Lake Macquarie LGA. This is the local area for this analysis.

3.2 Direct Effects Related to Employment of Existing Residents Only

SSD-5145 approves a workforce of up to 60 full-time equivalent (FTE) employees at the CES. The Modification seeks approval for an additional four FTE employees at the CES.

In 2021, 55 per cent of workers employed in the coal mine sector in the Lake Macquarie LGA also lived in the Lake Macquarie LGA (ABS, 2021). Consequently, it is estimated that approximately two of the new jobs will be filled by existing residents.

The availability of additional employment in the region will increase the wages of existing residents (either directly and/or indirectly via job chain effects) and benefit the local economy via wage expenditure on goods and services demanded by households.

3.3 Direct Effects Related to Non-Labour Expenditure

There will be additional annual expenditure from the construction and operation of the modified stockpile, some of which will be captured by the local area economy.

3.4 Second Round and Flow-On Effects

The expenditure by employees who reside in the region, and non-labour expenditure that is captured by the local area, will also provide flow-on economic activity to the local economy via production-induced and consumption-induced effects.

3.5 Effects on Other Industries

3.5.1 Other Wage Impacts

In the short term, increased regional demand for labour can result in some upward pressure on wages in other sectors of the economy. However, given the scale of employment impacts and the availability of labour inside and outside the local area (e.g. nearby Newcastle LGA), no wage impacts will occur.

3.5.2 Housing Impacts

In-migration of labour to fill employment opportunities can potentially place upward pressure on house prices and rents. However, given the scale of employment impacts and that employment opportunities are most likely to be filled by existing residents of the local area or people commuting from nearby population centres (e.g. Newcastle and Cessnock LGAs), no housing impacts will occur.

3.5.3 Price Impacts on Food and Other Services

No price impacts on food and other services will occur.

3.5.4 Displacement of Other Land Use

The only land use that will be displaced is unmanaged conservation of Crown Land that is proposed to be used for the modified stockpile. The conservation values of this land will be offset.

3.5.5 Tourism Impacts

The Modification will not impact any tourism activities or infrastructure.

3.6 Environmental and Social Impacts on the Local Community (Externalities)

As identified in Section 2.5.2, noise and biodiversity impacts will be mitigated or offset, GHG impacts will be negligible, and all other potential impacts (including air quality impacts) were assessed as negligible.

4 CONCLUSION

A CBA of the Modification found that it would have net production benefits to Australia and NSW of \$23M and \$18M, respectively. Provided the residual environmental, social, and cultural impacts of the Modification (after mitigation, offset and compensation) that accrue to Australia and NSW are valued at less than the level of net production benefits, the Modification can be considered to provide an improvement in economic efficiency and hence is justified on economic grounds.

Consideration of the environmental, social, and cultural impacts of the Modification identified that noise and biodiversity impacts would be mitigated and offset, with the costs included in the above estimates of net production benefits. All other potential impacts (including air quality impacts) were assessed as negligible.

Combining the estimate of net production benefit with the residual environmental, social and cultural costs, the Modification is estimated to have net social benefits to both Australia and NSW of \$23M and \$18M, respectively.

While the major environmental, cultural, and social impacts have been quantified and included in the Modification CBA, any other residual environmental, cultural, or social impacts that remain unquantified would need to be valued at greater than \$23M and \$18M for Australia and NSW, respectively, for the Modification to be questionable from an economic efficiency perspective.

The Modification will provide an additional four FTE employment opportunities to the local area, increasing local wages. It will also result in increased non-wage operational expenditure in the local area. Wage and non-wage expenditure captured by the local area economy will provide flow-on economic activity to the local economy via production-induced and consumption-induced effects.

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