Appendix F
Economic impact assessment

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Economic impact of the Hunter Valley Operations continuation project

HV Operations Pty Ltd

04 August 2025

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The results of Ernst & Young's work, including the assumptions and qualifications made in preparing the report, are set out in Ernst & Young's Draft report dated 31 July 2025 ("Report"). The Report should be read in its entirety including the transmittal letter, the applicable scope of the work and any limitations. A reference to the Report includes any part of the Report. No further work has been undertaken by Ernst & Young since the date of the Report to update it.

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Executive Summary

Hunter Valley Operations (HVO) is a multi-pit open cut mining complex (the "HVO Complex") situated approximately 24 kilometres (km) north-west of the town of Singleton in the Hunter Valley region of New South Wales (NSW). HVO is owned by subsidiary companies of Yancoal and Glencore as participants in the unincorporated HVO Joint Venture (JV). HV Operations Pty Ltd is the appointed manager of the JV. The HVO Complex consists of two mines, HVO North and HVO South.

HV Operations Pty Ltd is seeking approval for the HVO Continuation project (the Project) which comprises the continuation of HVO North and HVO South operations from 2027 to the end of 2045 and 2042 respectively. The Project is intended to support the extraction of approximately 429.3 million tonnes (Mt) of Run of Mine (ROM) coal from the operation.[1] This application differs from previous applications as the proposed amendments is expected to lead to lower greenhouse gas emissions than previously forecast through lowering production limits and shortening the operational life of the mine.

The existing operation of HVO North operates under development consent DA 450-10-2003 (as modified) and comprises the approved mining areas of West Pit, Mitchell Pit, Carrington Pit and North Pit. HVO South operates under Project Approval (PA) 06_0261 (as modified) and comprises the approved mining areas of Riverview Pit and Cheshunt Pit, where mining activities currently take place, and the Riverview South-East Extension and South Lemington Pits 1 and 2.

The continuation of mining across the HVO Complex (which entails the continued operations of both the HVO North and HVO South), according to HVO, is expected to optimise resource recovery from existing operations, predominately by mining across previously mined areas within the extent of existing mining tenements and extracting coal from deeper seams at HVO North. HVO South would cease coal extraction from Riverview South-East extension, South Lemington Pit 1 and South Lemington Pit 2 mining areas and increase the capacity in Lake James.

HVO has provided EY with the information required to complete an economic impact assessment of the Project, including environmental studies, project financial data, project physicals and operation requirements such as employment. Information from HVO is combined with our own research based on publicly available information such as data from the Australian Bureau of Statistics (ABS) and KPMG *Coal Price and FX Market Forecasts*.

The information underpinning this analysis, therefore, is a combination of publicly available information and commissioned expert studies assessing the Project financials and environmental impacts. EY has not verified the information in the studies provided as they have been prepared by relevant experts in the field. Where there is uncertainty around key assumptions, such as the coal price, sensitivity analysis has been conducted to test the robustness of the assessment to these key inputs.

The analysis

This Report provides an Economic Impact Assessment (EIA) for the Project and follows the economic assessment framework set out in the *Guidelines for the economic assessment of mining and coal seam gas proposals* (the Guidelines) released by the New South Wales (NSW) Government in December 2015 and the *State significant guidelines- preparing an amendment report (2022)*.

EY prepared an EIA (EY 2022) which accompanied the HVO Continuation Project Environmental Impact Statement (EIS) (EMM 2022). In March 2024, HVO received correspondence from the Department of Planning, Housing and Infrastructure (DPHI) requesting additional information to inform their assessment of the Project primarily in relation to consideration of the Commonwealth Safeguard Mechanism and the *Climate Change (Net Zero Future) Act 2023* (NZF Act). In response the

[1] EY does not provide any view or opinion on the Project, as to whether it should proceed or not. EY's role is limited to modelling the inputs and assumptions to prepare the EIA to present the outcome of the analysis undertaken, Therefore, analysis and outcome included in this report should not be construed as EY's view or opinion on whether the Project should proceed or not.

EIA (EY 2024) was prepared and represented a full update to the EIA dated 15 December 2022 (EY 2022).

During the subsequent assessment of the Project in July 2024 the DPHI requested further information including implications for the Project of avoiding all coal extraction from a mining area referred to as Domain 1 at HVO North. The request for information outlined that NSW is not on track to meet its 2030 and 2035 targets of the NZF Act without action by the NSW Government and private sector. In response to the request from DPHI, HVO has completed a detailed review of the Project and is subsequently seeking to amend the SSD applications (SSD-11826681 and SSD-11826621) for the Project. This report has been prepared to address this request, which represents a full update to the EIA dated 07 May 2024 (EY 2024).

This report has been prepared to support the HVO Continuation Project Amendment Report (EMM Consulting Pty Ltd 2025) completed for the Project and incorporates changes to the economic assessment landscape arising since the completion of the EIA (EY 2024) including:

- Updated forecasts for production, greenhouse gas emissions, operating expenses ('opex'), capital expenses ('capex'), and employment resulting from the proposed changes to the Project. These primary changes include:
    - Reduced project mine plan to avoid coal extraction with gas Domain 1 at HVO North and reduce the total Run-of-Mine (ROM)coal extraction by approximately 220 million tonnes over the extension period
    - Mine a total amount of 429 Mt ROM coal at HVOC, 122 Mt at HVO South and 307 Mt at HVO North
    - Up to a maximum annual ROM coal production rate of 13 Mtpa for HVO South and 26 Mtpa for HVO North
    - Extend the proposed life of mining operations for HVO North and HVO South to 2045 and 2042 respectively
    - Remove approval for the construction and operation of the Lemington Coal Preparation Plan (LCPP) and associated rail facilities
    - Updated environmental costs associated with the Project.
- Contemporary coal price and currency forecasts for Q2 2025 (KPMG Coal Price and FX Market Forecasts March/April 2025).

To estimate the direct environmental, social and transport-related costs generated by the Project as required by the Guidelines, the EIA uses the methods outlined in the *Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals* (the Technical Notes).[2] These are classified as mitigation costs which are outlined in the impact assessments conducted such as aboriginal heritage, noise, air quality, visual amenity, groundwater, biodiversity, greenhouse gas emissions, and traffic and transport. It is important to note the analysis does not include any of the costs associated with coal use in NSW, including the scope 3 greenhouse gas emissions that would be generated from coal combustion.

Consistent with these Guidelines, the EIA includes a Cost Benefit Analysis (CBA) and a Local Effects Analysis (LEA). The CBA provides an estimate of the net benefits of the proposed development to NSW the *Guidelines for the economic assessment of mining and coal seam gas proposals* (the Guidelines) released by the New South Wales (NSW) Government in December 2015.[3]. The LEA is

[2] Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals (2018)

[3] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015).

based on analysis for the Lower Hunter region (as defined by the Australian Bureau of Statistics SA3 10601 region).

As a result of these changes, the overall NPV of the Project has changed from the previous assessment which were based on HVO Mod 8. This is due to changes in the timeline of economic benefits, reductions the production profile of the Project, employment numbers and broader changes to coal price and exchange rate assumptions

Results of the CBA

HVO is seeking approval for State Significant Development Applications for the Project to enable the extraction of an additional incremental 429.3 million tonnes (Mt) Run-of-Mine (ROM) coal over the period of 2027-2045. The Project would produce around 316.3 Mt of product coal[4], comprised of approximately 33 Mt of metallurgical coal and 283 Mt of thermal coal.[5] The calculated net benefits for the individual mines HVO North and HVO South are $3,719.5 million and $2,023.5 million in Net Present Value (NPV) terms respectively.[6]

As a complex, HVO is estimated to produce a potential net benefit of $5,692.4 million in NPV terms. The potential indirect benefits of HVOC are $2,941.9 million, while the potential direct benefits of HVOC are $2,768.1 million. The direct benefits are $125.8 million higher than the combined direct benefits of the operation of the individual mines. This is due to the higher operation and capital expenditure costs when HVO North and HVO South are run as individual operations in comparison to a combined, more efficient approach wherein both projects continue to remain operational.

Table 1: Potential Net Benefits to NSW under central case assumptions for HVO North, HVO South and Combined Operations ($ millions)

	HVO Complex	HVO North	HVO South
Potential Direct Benefits ($ millions)	2,768.1	1,706.7	935.6
Potential Indirect Benefits ($ millions)	2,941.9	2,024.0	1,094.4
Incremental Indirect Costs ($ millions)	17.6	11.2	6.5
Potential **Net Benefits**	**5,692.4**	**3,719.5**	**2,023.5**

*Source: EY estimated based on information from various sources. *NPV in 2025 Australian dollars based on a 7 per cent real discount rate.[7] Totals for all tables may not sum due to rounding*

Incremental indirect costs are estimated at $17.6 million in NPV terms.

Sensitivity analysis

Consistent with the Guidelines, a systematic sensitivity analysis of the estimated net benefits is undertaken in this Report. This sensitivity analysis shows the estimated potential net economic benefit remains largely insensitive to the changes in all the key assumptions underpinning the analysis.

In isolation, the estimated net benefit of HVOC is most sensitive to the coal price assumptions underpinning the analysis. For example, assuming coal prices are 25 per cent lower[8] than the central case assumptions, the potential net benefits to NSW are estimated to be $4,785.7 million in NPV terms (a 15.9 per cent reduction in potential net benefit), as shown in Figure 1.

[4] Product coal is mined coal that has been cleared of impurities and are marketable.

[5] Incremental coal production figures have been provided by HVO.

[6] All NPV figures reported are in real 2025 Australian dollars based on a 7 per cent real discount rate (unless otherwise stated).

[7] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015) page 4.

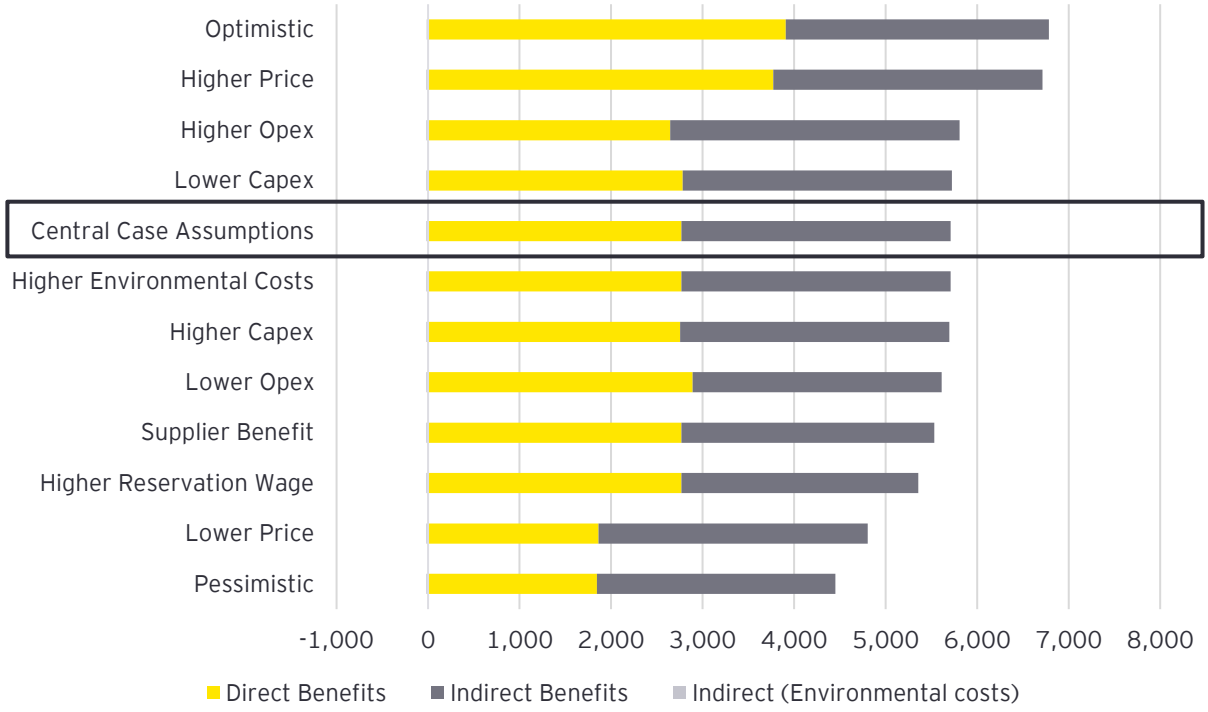
[8] The mechanical shifting of inputs upwards and downwards should not imply that broader climate scenario analysis has been undertaken. As such, it is likely that depending on longer term climate outcomes, the price of coal may vary to a greater extent than 25 per cent, and that the lower bound may not be reflective of a Net Zero scenario.

The lower bound estimate of net economic benefits, which takes pessimistic assumption[9] around coal prices, capital expenditure, operational expenditure, worker and supplier benefits as well as indirect costs, yields an estimated net benefit to NSW of $4,432.2 million in NPV terms. The upper bound estimate, based on the most optimistic assumptions[10], is $6,768.9 million in NPV terms.

The results are equally sensitive to the choice of discount rate chosen due to the relatively long timeframe of the proposed development. The NPV of the estimated net benefits to NSW range between $4,514.5 million and $7,378.0 million under real discount rates of 10 and 4 per cent, respectively.

Capital expenditure is conservatively not included as part of the benefits accruing to suppliers, despite such spending having the potential for increases in local supplier benefits arising from construction. This avoids the potential double-counting of benefits, as capital depreciation is used to reduce modelled company income tax outlays.

Figure 1: Systematic sensitivity analysis of the results of the CBA to key assumptions (NPV*, $ million)



Source: EY estimated based on information from various sources. NPV in real 2025 Australian dollars based on a 7 per cent real discount rate. Indirect costs of NPV $17.6 million have been included in the figure.*

Results of the LEA

The LEA considers the costs and benefits of the Project on residents of the Lower Hunter SA3 region of NSW. The analysis shows an estimated net benefit of $1,778.1 million to the Lower Hunter region in NPV terms (see Table 2 below).

Table 2: Net Benefits to the LEA under central case assumptions for HVO North, HVO South and the Combined Operations ($ millions)

	HVO Complex	HVO North	HVO South
Direct Benefits ($ millions)	72.1	54.5	16.3
Indirect Benefits ($ millions)	1,781.2	1,215.0	680.9

[9] Assumes a decrease in coal prices by 25%, increase in operational expenditures, capital expenditure, environmental costs by 10% respectively, decrease in supplier benefits by 10% and increase in reservation wage by 25%.

[10] Assumes an increase in coal prices by 25%, decrease in operational expenditures, capital expenditure, environmental costs by 10% respectively and increase in supplier benefits by 10%

	HVO Complex	HVO North	HVO South
Indirect Costs ($ millions)	75.2	61.8	14.0
Net Benefits	1,778.1	1,207.7	683.3

*Source: EY estimated based on information from various sources. *NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*

This is driven by:

- Potential benefits to local workers of $990.9 million in NPV terms for the HVO Complex, and $617.8 million and $378.6 million for HVO North and HVO South respectively. It is assumed that the proportion of workers sourced from the Lower Hunter region would remain consistent at the complex level, and between HVO North and HVO South. It is estimated that around 75 per cent of the workforce expected for the Project is sourced from the Lower Hunter region.[11]

- Potential benefits to local suppliers of $790.3 million in NPV terms for the HVO Complex, and $597.1 million and $302.4 million for HVO North and HVO South respectively. These estimates are based on the assumption that 37 per cent[12] of the inputs to production are from the region. It is also assumed that the proportion of inputs that are sourced from the local region would remain constant at the complex level and between HVO North and HVO South.

- Payment to local council of $72.1 million in NPV terms over the life of the Project, which is comprised of the estimated land tax, payments to the Singleton Council including VPA Agreements and road closures. For HVO North and HVO South, council payments are estimated to be $54.5 million and $16.3 million in NPV terms.

This sensitivity analysis shows the estimated potential net economic benefit remains largely insensitive to the changes in all the key assumptions underpinning the analysis as the pessimistic estimate of net benefits to the Lower Hunter region of $1,636.3 million and upper bound estimate of $1,810.0 million in NPV terms for the HVO Complex.

[11] Estimates derived from surveys conducted on current employees to determine the proportion of their SA2 geographical area.

[12] Estimates derived from a list of suppliers provided by HVO where companies are weighted based on size, using employee numbers.

1. Introduction

EY was commissioned by Hunter Valley Operations (HVO) to undertake an Economic Impact Assessment (EIA) for the Hunter Valley Operations Continuation Project (the Project).

The following terms are used throughout this assessment to describe the HVO Continuation Project:

- HVO Complex – Which comprises both HVO North and HVO South operations.
- The Project – Which comprises of the Project in its entirety, representing the continuation of the life of the complex for both HVO North (to the end of 2045) and HVO South (to the end of 2042), within their respective proposed development consent boundaries.

This EIA forms part of the HVO Continuation Project Amendment Report (EMM Consulting Pty Ltd 2025) EIS and provides an assessment of the potential impacts to NSW and the Lower Hunter region as a result of the Project; that is, of the whole complex. It also provides an assessment of the incremental impacts of the continuation of HVO North and HVO South given that separate development consents are being sought for each operation.

This EIA is based on a cost benefit analysis (CBA) and local effects analysis (LEA) prepared under the framework established in the *Guidelines for the economic assessment of mining and coal seam gas proposals* (the Guidelines) released by the New South Wales (NSW) Government in December 2015.[13] The CBA requires an assessment of the net benefits that accrue to the proponent, government, workers, and suppliers of the Project.

This Report considers state and federal climate policies including the Safeguard Mechanism and NSW Climate Policy. The Safeguard Mechanism is the Australian Government's policy to incentivise Australia's largest industrial facilities (emitters of over 100,000 tonnes of carbon dioxide equivalent (CO_2 e) per year, defined as designated large facilities) to reduce their Greenhouse Gas (GHG) emissions. Having commenced in July 2015, the mechanism sets baselines on the greenhouse gas emissions of these facilities. Reforms to the Safeguard Mechanism took effect from 1 July 2023. Under these reforms, new baseline emissions numbers ('baselines') for designated large facilities are set on a declining trajectory aligned with achieving Australia's emissions reduction targets in its Nationally Determined Contribution (NDC) under the Paris Agreement. Across the Safeguard Mechanism sector baselines will gradually decline to be consistent with the trajectory required for Australia to reach its emissions reductions target of 43% below 2005 levels by 2030, and net zero by 2050.

The modelling underpinning the Report accounts for the Safeguard Mechanism and the estimated impacts of the Safeguard Mechanism on the overall Project cost and benefits. The modelling also includes the incremental estimated impact of HVO's offer to voluntarily surrender additional net emissions than what is required by the Safeguard Mechanism, in order to reflect consideration of the NSW State's Climate Change (Net Zero Future) Act 2023 (NZF Act).

The inputs into the model have been updated to account for HVO's amendments to the project which will reduce greenhouse gas emissions compared to previous applications. These updates include forecasts for production, greenhouse gas emissions, operating expenses, capital expenses, and employment.

In addition, the Guidelines require an estimate of the potential costs generated by the Project. These costs may include residual public infrastructure costs and environmental, social and transport-related costs. To estimate the environmental, social and transport-related costs, we have incorporated into our analysis relevant requirements of the *Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals*.[14] These costs are classified as mitigation costs which are outlined in the impact assessments conducted for Aboriginal heritage, noise, air quality,

[13] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015).

[14] Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals (2018)

visual amenity, groundwater, biodiversity, agricultural land, greenhouse gas emissions[15] and traffic and transport in Section 2.7, where all the above listed were considered as operational costs exclusive of greenhouse gas emissions, and traffic and transport.

1.1 Description of existing operations

HVO is a multi-pit open cut mining complex approximately 24 kilometres (km) north-west of the town of Singleton in the Hunter Valley of New South Wales (NSW). HVO is owned by subsidiary companies of Yancoal and Glencore, as participants in the unincorporated HVO Joint Venture (JV). HV Operations Pty Ltd is the appointed manager of the JV.

The existing HVO North operation operates under development consent DA 450-10-2003 which allows extraction of up to 22 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal until 31 December 2026. HVO North comprises the approved mining areas of West Pit, Mitchell Pit, Carrington Pit and North Pit, as well as the Hunter Valley (HV) and Howick Coal Preparation Plants (CPP) and the HVO North mine infrastructure area (MIA). The Newdell Load Point (LP) and Hunter Valley (HVLP) train loading facilities are also at HVO North.

HVO South operates under Project Approval (PA) 06_0261 and comprises the approved mining areas of Riverview Pit and Cheshunt Pit, where mining activities currently take place, and the Riverview South-East Extension and South Lemington Pits 1 and 2. PA 06_0261 allows the extraction of up to 20 Mtpa of ROM coal until 24 March 2030.

1.2 Description of the Project

Significant coal resources remain across the HVO Complex beyond what is currently approved for extraction under the existing development consents. HVO is therefore seeking approval for the HVO Continuation Project (the Project) from the NSW Minister for Planning and Public Spaces, or delegate, under the provisions of Part 4 of EP&A Act. The Project broadly comprises the continuation of mining at HVO North and HVO South, beyond the current approved mining completion dates of 2026 and 2030 respectively. The Project will seek to maintain separate development consents for HVO North and South, as is currently the case.

Given that the two mine sites operate as one complex, one environmental impact statement (EIS, EMM 2022a) was prepared to support the two State significant development (SSD) applications for the Project, being:

- SSD-11826681 – HVO North Open Cut Coal Continuation Project
- SSD-11826621 – HVO South Open Cut Coal Continuation Project.

The EIS was subsequently placed on public exhibition from Monday 30 January 2023 through to Monday 27 February 2023. During the public exhibition of the EIS, a total of 1,060 submissions were received by the NSW Department of Planning, Housing and Infrastructure (DPHI) from individuals, organisations, public authorities, councils, and government agencies for the two development applications.

To respond to matters raised in submissions on the Project during the public exhibition period, a Submissions Report (EMM 2023a) was prepared, along with an Amendment Report (EMM 2023b) outlining proposed amendments to the HVO North Project.

During the subsequent assessment of the Project by the NSW Department of Planning, Housing and Infrastructure (DPHI), a number of requests for information (RFI) were issued to HVO, who provided responses as required. In response to an RFI received 5 July 2024, HVO completed a detailed review of the Project and is subsequently seeking to amend the SSD applications in the following ways:

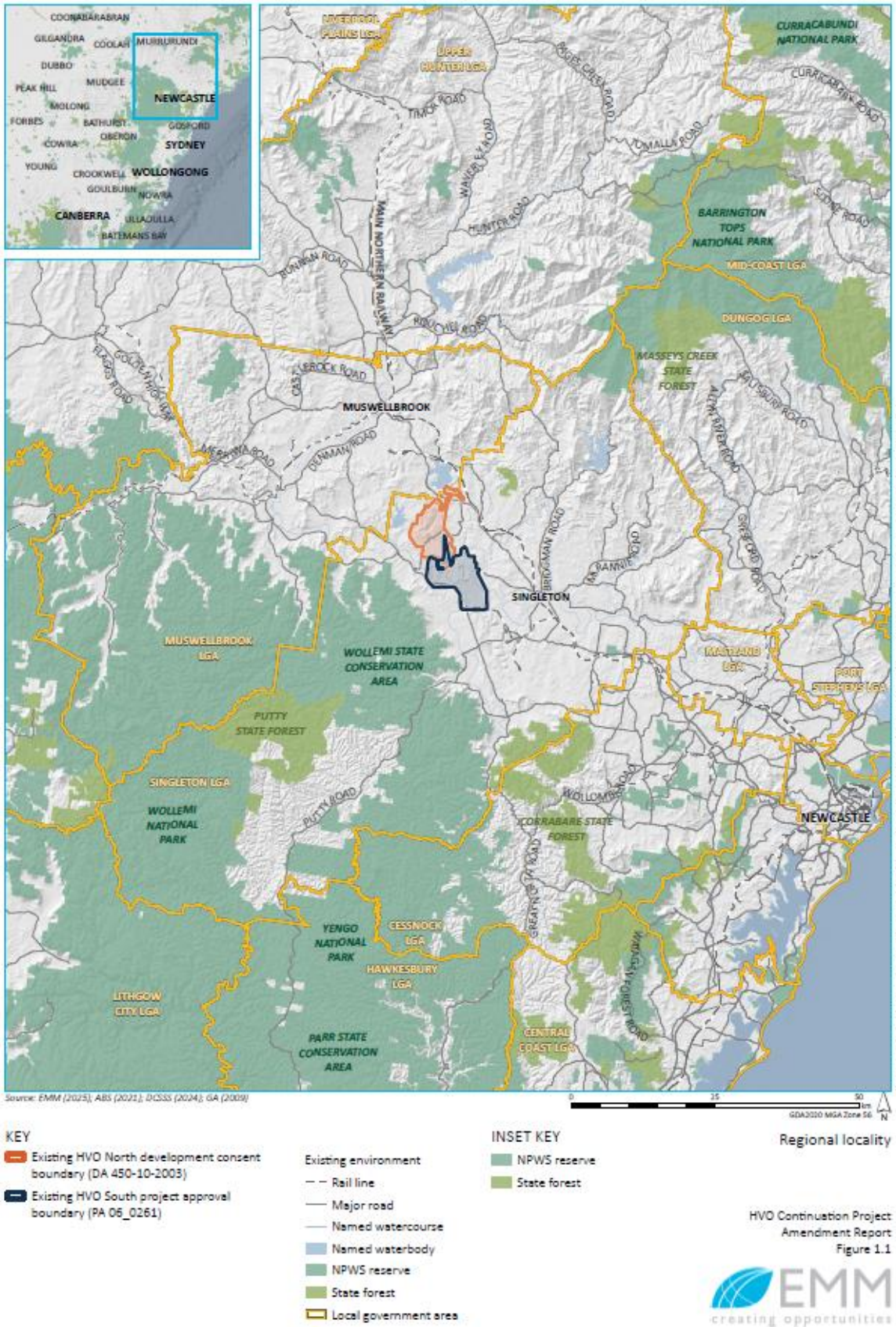
[15] Noting that the EIA Guidelines and Technical notes do not require consideration of Scope 3 emissions in the CBA. The impacts on climate change from Scope 3 emissions are therefore, excluded from this economic analysis.

- Reduce the project mine plan to avoid coal extraction within gas Domain 1 at HVO North and reduce the total ROM coal to be extracted by the Project by approximately 220 Mt.
- Maintain the current approved maximum annual ROM coal production from HVO North of 22 Mtpa but reduce the proposed maximum annual production limit at HVO South from 18 Mtpa to 13 Mtpa.
- Reduce the maximum annual production for the HVO Complex to 26 Mtpa from the current approved theoretical maximum production of 42 Mtpa, or 35 Mtpa with the proposed reduced production limit for HVO South.
- Reduce the proposed life of mining operations at HVO North by five years, from the end of 2050 to the end of 2045.
- Reduce the proposed life of mining operations at HVO South by three years from the end of 2045 to the end of 2042.
- Expand the HVO North ROM coal stockpile to improve coal management.
- Remove approval for the construction and operation of the Lemington Coal Preparation Plant (LCPP) and associated rail facilities, which is currently approved, but not constructed, under the HVO South Project Approval.
- Temporary transport of product coal by truck from the Howick Coal Preparation Plant (CPP) to the Liddell stockpile for transport to market via the Liddell coal handling and train loading facilities during upgrades of the Newdell Load Point (LP).
- Establish a new levee (Mitchell East Levee) to provide flood protection for the final void in Mitchell Pit.

Figure 2 shows the Project extent and the surrounding regional locality.

Detailed description of the Project is contained within the HVO Continuation Project Amendment Report. (EMM Consulting Pty Ltd 2025).

Figure 2: Regional Location of the Hunter Valley Operations Complex



Source: Figure provided by EMM consulting. A full Project description is provided in the HVO Continuation Project Amendment Report (EMM Consulting Pty Ltd 2025).

A summary of the key elements of the Project are presented in Table 3. The total mine capital expenditure for HVO Complex is $2,938.5 million in real undiscounted terms over the lifetime period to 2045. The Project is expected to produce approximately an additional 429.3 Mt of ROM output, yielding a total of 316.3 Mt of product coal. This product coal is comprised of approximately 33.1 Mt metallurgical coal and 283.2 Mt of thermal coal.

Table 3: Summary of operations under HVO Complex, HVO North and HVO South

	Description of operations		
	HVO Complex	HVO North	HVO South
ROM	429.3 Mt	307.0 Mt	122.2 Mt
Product Coal	316.3 Mt	226.1 Mt	90.1 Mt
Metallurgical Coal	33.1 Mt	15.7 Mt	17.3 Mt
Thermal Coal	283.2 Mt	210.4 Mt	72.8 Mt
Total mine capital expenditure (real)	$2,938.5 million	$2,117.0 million	$821.5 million
Mining Rate	Maximum incremental product coal of 19.8 Mt in (2039)	Maximum incremental product coal of 16.2 Mt in (2039)	Maximum incremental product coal of 9.2 Mt in (2029)
Life of Project	To 2045	To 2045	To 2042
Operational Workforce^	Average incremental 1311 FTE^^ over the life of the Project, 1407 FTE (in 2034)	Average incremental 876 FTE^^ over the life of the Project, 1223 FTE (in 2043)	Average incremental 456 FTE^^ over the life of the Project, 777 FTE (in 2027)

*Source: EY estimates based on information provided by HVO. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*[16] *^ Excluding on-site contractors, ^^ full time equivalent (or FTE).*

HVO has provided EY with the information required to complete an economic impact assessment of the Project, including environmental studies, project financial data, project physicals and operation requirements such as employment. Information from HVO is combined with our own research based on publicly available information such as data from the Australian Bureau of Statistics (ABS) and KPMG *Coal Price and FX Market Forecasts*.

The information underpinning this assessment therefore is a combination of publicly available information and expert studies assessing the Project financials and environmental impacts. EY has not verified but have relied on the information (as presented) in the studies provided as they have been prepared by relevant experts in the field. Where there is uncertainty around key assumptions, such as the coal price, sensitivity analysis has been conducted to test the robustness of the assessment to these key inputs.

The CBA is presented in Section 2 and measures the potential net benefits of the Project. The LEA in Section 3 focusses on the benefits accruing to the Lower Hunter (SA3) region is presented.

The list of Appendices is as follows:

- **Appendix A** details information underpinning this EIA, including a list of information provided by HVO and a list of publicly available information used by EY.
- **Appendix B** provides an account of the year-on-year production, output and prices for the Project scenario, and provides details on the sensitivity analysis to both the CBA and the LEA.
- **Appendix C** provides an analysis of the value of greenhouse gas externalities.

[16] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015), page 4.

2. Cost-Benefit Analysis

The Guidelines released by the NSW Government in December 2015 set out the CBA framework to measure the net benefits of a proposed mining project to the NSW community. This approach has been adopted in the economic analysis outlined in this report. Table 4 provides a summary of how these net benefits are measured.

Table 4: Cost Benefit Analysis framework as defined in the Guidelines

Direct Benefits	Indirect Benefits	Indirect Costs
The net benefits that accrue to NSW from the direct operations of the proposed Project	The net benefits that are generated for parties that economically interact with the proposed Project	Social costs generated by the proposed Project, borne by the NSW community
Includes: ► Net producer surplus attributable to NSW ► Royalties payable ► Company tax attributable to NSW	Includes: ► Net economic benefits to landowners ► Net economics benefits to NSW employees ► Net economic benefits to NSW suppliers	Includes: ► Net environmental, social and transport-related costs ► Net public infrastructure costs ► Loss of surplus to other industries

Source: NSW Government (2015).

The direct benefits are those that accrue to the Project proponent and payments made to government. The indirect benefits are those that accrue to economic agents that engage with the Project proponent. These include employees, suppliers, and landowners. The indirect costs are the costs borne by the community of NSW, through environmental and social impacts or public infrastructure costs provided by HVO.

A major emphasis of the Guidelines is on transparency of assumptions made. The remainder of this section describes in detail the assumptions underpinning the CBA.

The costs and benefits outlined in this report include the costs and benefits from the operation of the Project only. It does not include the costs and benefits of the use of coal output in NSW.

In addition, the analysis does not include any of the costs associated with coal use in NSW, including the scope 3 greenhouse gas emissions[17] that would be generated from coal combustion.

2.1 Baseline

The starting point for any CBA is the baseline, or counterfactual. This scenario considers all costs and benefits if the proposed development does not proceed. The HVO Complex currently has approved operations in HVO North and HVO South under separate developmental consents. HVO North consent expires in 31 December 2026 while HVO South's consent expires in March 2030. However, HVO South is dependent on HVO North for coal processing and railings, therefore, baseline considers both mines cease operations at the end of HVO North consent. As such, the economic benefits and costs associated with extraction of coal within these areas have been included in the baseline and therefore have been excluded for the purposes of assessing the incremental net benefits of the Project. The baseline includes closure costs[18] associated with decommissioning the currently approved site infrastructure and undertaking rehabilitation. If the Project[19] is approved, these costs would be delayed into the future, representing a saving in NPV terms.

[17] Noting that the EIA Guidelines and Technical notes do not require consideration of Scope 3 emissions in the CBA. The impacts on climate change from Scope 3 emissions are therefore, excluded from this economic analysis.

[18] As provided by HVO.

[19] EY does not provide any view or opinion on the Project, as to whether it should proceed or not. EY's role is limited to modelling the inputs and assumptions to prepare the EIA to present the outcome of the analysis undertaken, Therefore, analysis and outcome included in this report should not be construed as EY's view or opinion on whether the Project should proceed or not.

The modelling also includes the estimated impact of HVO's SGM obligations and with additional voluntary contribution towards the NSW emissions reduction targets including using carbon offsets to reduce the Project's net GHG emissions.

In order to estimate the potential impacts on the economic benefits of HVO, the analysis is predicated on the following assumptions:

- The HVOC will be required to reduce its net emissions intensity as a designated large facility, in accordance with the SGM and will make voluntary additional contributions towards the NSW emissions reduction targets including by using offsets to reduce the Project's net GHG emissions.

- The Project will have Scope 1 emissions as forecast, which are based on continuation of existing practices to minimise diesel consumption and unabated open-cut fugitive emissions and hence are considered conservative/higher estimate as they do not reflect emerging technologies which may be able to be utilised in the future.

- The forecast Scope 1 emission intensity results in the facility exceeding its declining baseline in each year, therefore the full cost of the required reduction in emissions will be incurred by HVO (roughly 5.6 Mt CO_2-e over the Project lifetime for the SGM along with a further ~1.5Mt CO_2-e of emissions reduction through the voluntary surrender of additional ACCUs and/or SMCs towards the NZF Act targets).

- The price of the required carbon offsets will be costed, in real terms, at $81 per tonne, and will escalate a further 2% per annum in real terms from 2027 onwards,[20] noting that this measure is inherently conservative and was adopted to examine the Project's cost and benefits through pessimistic assumptions.

2.2 Cost-Benefit Analysis results

2.2.1 HVO Complex CBA Results

Consistent with the Guidelines, the CBA is based on comparing the net direct and indirect benefits and subtracting the indirect costs of the proposed development compared against the baseline scenario where the proposed development does not occur. The results are summarised in Table 5.

Based on the CBA methodology outlined in the Guidelines, and information provided by HVO, the proposed development is estimated to provide a potential net benefit to NSW. This potential net benefit is estimated to be $5,692.4 million in NPV[21] terms. This is comprised of $2,768.1 million and $2,941.9 million in potential direct and indirect benefits respectively and estimated incremental indirect costs of $17.6 million in NPV terms.

Table 5: Central case - estimated net benefits for the HVO Complex ($ million^)- HVO Complex

Benefits	NPV*	Costs	NPV*
Direct benefits		Direct costs	
Net producer surplus attributed to NSW		Safeguard Mechanism and Voluntary additional ACCU purchases s[22]	$347.5
Royalties, payroll tax and payments to council	$2,395.2		

[20] The government has also flagged the establishment of a cost containment measure. The cost containment measure will provide for Australian Carbon Credit Units (ACCUs) delivered under ACCU contracts to the CER after 13 January 2023 to be sold to safeguard mechanism entities at a fixed price, initially at $81 per tonne of CO2-e in 2024–25, increasing with the CPI plus 2% each year. (https://cer.gov.au/markets/reports-and-data/quarterly-carbon-market-reports/quarterly-carbon-market-report-march-quarter-2023/australian-carbon-credit-units-accus)

[21] All NPV figures reported are in real 2025 Australian dollars based on a 7 per cent real discount rate (unless otherwise stated).

[22] See Appendix C for detailed information regarding the spending between the Safeguard Mechanism, and Additional Voluntary ACCU surrenders, and how the costs have been internalised by HVO.

Benefits	NPV*	Costs	NPV*
Company tax apportioned to NSW	$372.9		
Indirect benefits		Indirect costs	
Net economic benefit to landholders		Air quality	
Net economic benefit to NSW workers	$1,158.4	Greenhouse gas emissions^^	$3.8
Net economic benefit to NSW suppliers	$1,783.5	Noise impact^^	
		Transport impact	$0.7
		Net public infrastructure cost	
		Surface water impact^^	
		Groundwater^^	
		Biodiversity impact^^	$59.2
		Loss of surplus to other industries	$13.1
		Visual amenity	
		Aboriginal cultural heritage^^	
		Historical heritage^^	
Total indirect benefits	$2,941.9	Other	
Total economic benefit of Project	$5,710.0	Indirect Costs	$91.4
NPV of Project - ($m)	$5,692.4	Total incremental cost of project	$17.6

*Source: EY estimated based on information from various sources. ^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.[23] ^^ Management and mitigation costs are included in the operating and capital costs and types of impact are outlined in 2.7*

The potential ***direct benefits*** of the Project are a function of the profitability of the proposed development which, in turn, depends on the prevailing coal price. This is estimated to result in:

- An overall net producer surplus[24] of $1,819.9 million in NPV terms for Australia, of which 0 per cent, or $0 is attributed to NSW.
- Total corporate taxes of $1,165.4 million in NPV terms for Australia, of which $372.9 million is attributed to NSW[25] (a 30 per cent tax rate on operating profit was utilised in the estimation of this figure in reference to the Guidelines).
- Other government revenue for NSW of $2,395.2 million in NPV terms, the largest component of this being royalties of $2,185.9 million (based on a royalty rate of 10.8 per cent of projected revenue taking into account a discount of $3.5 per sales tonne applied for coal wash), plus payroll taxes of $140.5 million and council payments of $68.7 million.

The potential ***indirect benefits*** of the Project are related to the linkages that the proposed development has to the NSW economy through both the labour market and suppliers. The analysis shows that of the $2,941.9 million in NPV terms of potential indirect benefits:

- Potential worker benefits are estimated at $1,158.4 million in NPV terms attributable to an average direct employment of 1,311 FTE workers over the period of the Project and due to

[23] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015), page 4.

[24] Consistent with the Guidelines, the net producer surplus of the proposed development represents the private benefit, or operating surplus, generated that is attributable to NSW.

[25] Amount contributed is the total corporate taxes multiplied by the percentage contribution to NSW (32 per cent). 32 per cent is referenced from the guidelines located in *Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au)* where 32 per cent is derived from NSW population divided by Australian population. This measurement of 32 per cent is meant to apportion the Australian corporate tax benefits to only those in NSW.

higher average wages paid to Project employees than average wages paid to similar occupations outside the mining sector in NSW.

- Potential supplier benefits are estimated at $1,783.5 million in NPV terms, representing direct value add generated by NSW suppliers providing goods and services to the Project, based on NSW-based operational expenditure over the life of the Project of $10,529.3 million in NPV terms.

The ***indirect costs*** of the Project are related to the costs borne on the NSW community through the generation of externalities[26] by the Project which have not been offset by investments by HVO. These estimated costs include:

- Greenhouse gas emissions costs of $3.8 million in NPV terms.
- Traffic and Transport costs of $0.7 million in NPV terms.
- Biodiversity offset costs of $59.2 million in NPV terms internalised as operational expenditure.
- Loss of surplus to other industries costs of $13.1 million in NPV terms (Impact to agricultural lands).
- Mitigation offset costs of $73.8 million in NPV terms.

2.2.2 HVO North CBA Results

Consistent with the Guidelines, the CBA is based on comparing the net direct and indirect benefits and subtracting the indirect costs of the proposed development compared against the baseline scenario where the proposed development does not occur. The results are summarised in Table 6.

Based on the CBA methodology outlined in the Guidelines, and information provided by HVO, the proposed development is estimated to provide a net benefit to NSW. This net benefit is estimated to be $3,719.5 million in NPV[27] terms. This is comprised of $1,706.7 million and $2,024.0 million in potential direct and indirect benefits respectively and estimated incremental indirect costs of $11.2 million in NPV terms.

Table 6: Central case estimated net benefits of the proposed development ($ million^)-HVO North

Benefits	NPV*	Costs	NPV*
Direct benefits		Direct costs	
Net producer surplus attributed to NSW		Safeguard Mechanism and Voluntary additional ACCU purchases[28]	$80.3
Royalties, payroll tax and payments to council	$1,548.1		
Company income tax apportioned to NSW	$158.6		
Indirect benefits		Indirect costs	
Net economic benefit to landholders	-	Air quality	-
Net economic benefit to NSW workers	$676.4	Greenhouse gas emissions^^	$1.7
Net economic benefit to NSW suppliers	$1,347.5	Noise impact^^	-
		Transport impact	$0.7

[26] Cost estimates such as the biodiversity, mitigation offset costs and loss of surplus to other industry costs were provided by HVO. Total incremental amount of GHG emissions emitted and vehicles impacted by traffic and transport were provided, however, costs were estimated by EY.

[27] All NPV figures reported are in real 2025 Australian dollars based on a 7 per cent real discount rate (unless otherwise stated).

[28] See Table 24 and Section 2.5 for detailed information regarding the spending between the Safeguard Mechanism, and Additional Voluntary ACCU surrenders, and how the costs have been internalised by HVO.

Benefits	NPV*	Costs	NPV*
		Net public infrastructure cost	-
		Surface water impact^^	-
		Groundwater^^	-
		Biodiversity impact^^	$51.7
		Loss of surplus to other industries	$8.7
		Visual amenity	-
		Aboriginal cultural heritage^^	-
		Historical heritage^^	-
Total indirect benefits	$2,024.0	Indirect Costs	$70.2
Total Project economic benefit	$3,730.7	Total incremental cost of project	$11.2
NPV of project - ($m)	$3,719.5		

*Source: EY estimated based on information from various sources. ^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate. ^^ Management and mitigation costs are included in the operating and capital costs.*

The potential ***direct benefits*** of the Project are a function of the profitability of the proposed development which, in turn, depends on the prevailing coal price. This results in:

- An overall net producer surplus of $479.2 million in NPV terms for Australia, of which 0 per cent, or $0 is attributed to NSW.[29]

- Total corporate taxes of $495.7 million in NPV terms for Australia, of which $158.6 million is attributed to NSW (A 30 per cent tax rate on operating profit was utilised in the estimation of this figure in reference to the Guidelines).

- Other government revenue for NSW of $1,548.1 million in NPV terms, the largest component of this being royalties of $1,413.7 million (based on a royalty rate of 10.8 per cent of projected revenue taking into account a discount of $3.5 per sales tonne applied for coal wash, plus payroll taxes of $81.5 million and payments to council of $52.9 million).

The potential ***indirect benefits*** of the HVO North Project are related to the linkages that the proposed development has to the NSW economy through both the labour market and suppliers. The analysis shows that of the $2,024.0 million in NPV terms of indirect benefits:

- Potential worker benefits are estimated $676.4 million in NPV terms attributable to an average direct employment of 876 FTE workers over the period of the Project and due to higher average wages paid to Project employees than average wages paid to similar occupations outside the mining sector in NSW.

- Potential supplier benefits are estimated at $1,347.5 million in NPV terms, representing direct value add generated by NSW suppliers providing goods and services to the Project, based on NSW-based operational expenditure over the life of the Project of $7,955.4 million.

The ***indirect costs*** of the HVO North Project are related to the costs borne on the NSW community through the generation of externalities[30] by the Project which have not been offset by investments by HVO. These estimated costs include:

[29] The 0 per cent share is based on the estimated 0 per cent NSW ownership of the Project. This can be considered an inherently conservative assumption, given that Yancoal – part owner of the Project - is listed on the Australian Stock Exchange. Therefore, it is quite likely that there would be some proportion of net producer surplus that could be attributed NSW, however given the uncertainties around ascertaining this level of ownership, it is conservatively assumed that 0 per cent of the net producer surplus is attributed to NSW.

[30] Cost estimates such as the biodiversity, mitigation offset costs and loss of surplus to other industry inputs were provided by HVO, in addition to total incremental GHG emissions emitted and traffic and transport impacts.

- Greenhouse gas emissions costs of $1.7 million in NPV terms.
- Traffic and Transport costs of $0.7 million in NPV terms.
- Biodiversity offset costs of $51.7 million in NPV terms internalised as operational expenditure.
- Loss of surplus to other industries costs of $8.7 million in NPV terms (Impact to agricultural lands).
- Mitigation offset costs of $59.0 million in NPV terms are accounted for in operational expenditure consisting of blasting impacts, air quality, noise impacts, groundwater and surface water impacts, visual amenity impact, social impacts, pre-gas drainage testing and, historical and aboriginal heritage impacts.

2.2.3 HVO South CBA Results

The results for HVO South are summarised in Table 7. Based on the CBA methodology outlined in the Guidelines, and information provided by HVO, the proposed development is estimated to provide a net benefit to NSW. This net benefit is estimated to be $2,023.5 million in NPV[31] terms. This is comprised of $935.6 million and $1,094.4 million in potential direct and indirect benefits respectively and estimated incremental indirect costs of $6.5 million in NPV terms.

Table 7: Central case - estimated net benefits of the proposed development ($ million^)-HVO South

Benefits	NPV*	Costs	NPV*
Direct benefits		Direct costs	
Net producer surplus attributed to NSW		Safeguard Mechanism and Voluntary additional ACCU purchases[32]	$267.2
Royalties, payroll tax and payments to council	$837.3		
Company income tax apportioned to NSW	$98.3		
Indirect benefits		Indirect costs	
Net economic benefit to landholders		Air quality	-
Net economic benefit to NSW workers	$412.1	Greenhouse gas emissions^^	$2.1
Net economic benefit to NSW suppliers	$682.3	Noise impact^^	-
		Transport impact	-
		Net public infrastructure cost	-
		Surface water impact^^	-
		Groundwater^^	-
		Biodiversity impact^^	$7.5
		Loss of surplus to other industries	$4.4
		Visual amenity	-
		Aboriginal cultural heritage^^	-
		Historical heritage^^	-
		Other	-

[31] All NPV figures reported are in real 2025 Australian dollars based on a 7 per cent real discount rate (unless otherwise stated).
[32] See Table 24 and Section 2.5 for detailed information regarding the spending between the Safeguard Mechanism, and Additional Voluntary ACCU surrenders, and how the costs have been internalised by HVO.

Benefits	NPV*	Costs	NPV*
Total indirect benefits	$1,094.4	Indirect Costs	$21.3
Total Project economic benefit	$2,030.0	Total incremental cost of project	$6.5
NPV of project - ($m)	$2,023.5		

*Source: EY estimated based on information from various sources. ^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate. ^^ Management and mitigation costs are included in the operating and capital costs.*

The potential ***direct benefits*** of the Project are a function of the profitability of the proposed development which, in turn, depends on the prevailing coal price. This results in:

- An overall net producer surplus of $405.0 million in NPV terms for Australia, of which 0 per cent, or $0 is attributed to NSW.[33]

- Total corporate taxes of $307.1 million in NPV terms for Australia, of which $98.3 million is attributed to NSW (A 30 per cent tax rate on operating profit was utilised in the estimation of this figure in reference to the Guidelines).

- Other government revenue for NSW of $837.3 million in NPV terms, the largest component of this being royalties of $772.2 million (based on a royalty rate of 10.8 per cent of projected revenue taking into account a discount of $3.5 per sales tonne applied for coal wash), plus payroll taxes of $50.6 million and payments to council of $14.5 million.

The potential ***indirect benefits*** of the HVO South Project are related to the linkages that the proposed development has to the NSW economy through both the labour market and suppliers. The analysis shows that of the $1,094.4 million in NPV terms of potential indirect benefits:

- Potential worker benefits are estimated at $412.1 million in NPV terms attributable to an average direct employment of 456 FTE workers over the period of the Project and due to higher average wages paid to Project employees than average wages paid to similar occupations outside the mining sector in NSW.

- Potential supplier benefits are estimated at $682.3 million in NPV terms, representing direct value add generated by NSW suppliers providing goods and services to the Project, based on NSW-based operational expenditure over the life of the Project of $6,709.6 million.

The ***indirect costs*** of the HVO South Project are related to the costs borne on the NSW community through the generation of externalities[34] by the Project which have not been offset by investments by HVO. These costs include:

- Greenhouse gas emissions costs of $2.1 million in NPV terms.[35]

- Traffic and Transport costs of $0 million in NPV terms.

- Biodiversity offset costs of $7.5 million in NPV terms internalised as operational expenditure.

[33] The 0 per cent share is based on the estimated 0 per cent NSW ownership of the Project. This can be considered an inherently conservative assumption, given that Yancoal – part owner of the Project - is listed on the Australian Stock Exchange. Therefore, it is quite likely that there would be some proportion of net producer surplus that could be attributed NSW, however given the uncertainties around ascertaining this level of ownership, it is conservatively assumed that 0 per cent of the net producer surplus is attributed to NSW.

[34] Cost estimates such as the biodiversity, mitigation offset costs and loss of surplus to other industry inputs were provided by HVO, in addition to total incremental GHG emissions emitted and traffic and transport impacts.

[35] The EIA Guidelines and Technical notes do not require consideration of Scope 3 emissions. The impacts on climate change from Scope 3 emissions are therefore excluded from this analysis.

- Loss of surplus to other industries costs of $4.4 million in NPV terms (Impact to agricultural lands).

- Mitigation offset costs of $14.9 million in NPV terms which are accounted for in operational expenditure consisting of blasting impacts, air quality, noise impacts, groundwater and surface water impacts, visual amenity impact, social impacts, pre-gas drainage testing and, historical and aboriginal heritage impacts.

2.3 Proposed development – central case assumptions

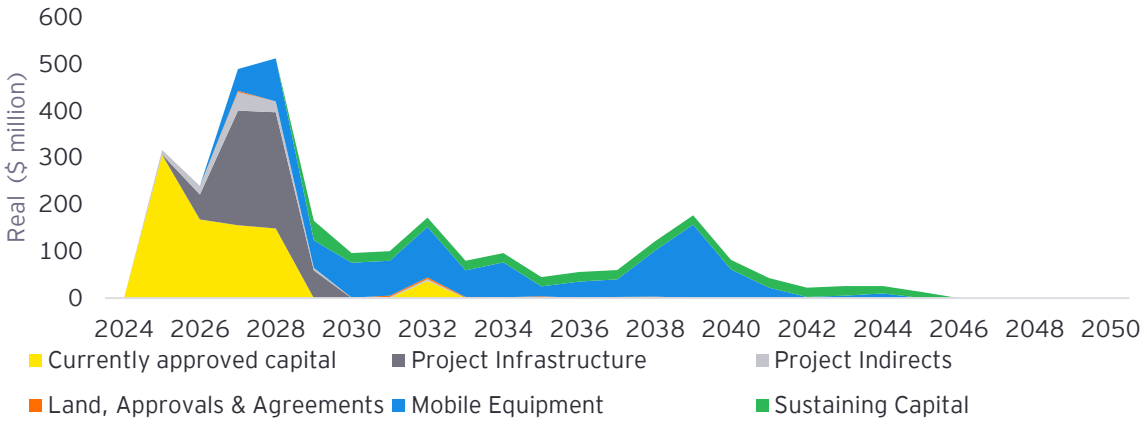
The following analysis sets out the financial assumptions underpinning the Project, including the capital expenditure, the output and price assumptions and the operating cost assumptions (which also includes labour input costs and intermediate inputs). These assumptions are used to estimate the direct and indirect benefits to NSW and form the basis of the LEA presented later in the report.

2.3.1 Capital costs

2.3.1.1 HVO Complex CBA Capital Costs

HVO has provided EY with the capital expenditure profile of the proposed development for the HVO Complex which is summarised in the figure shown below. Figure 3 shows, the continuation of HVO Complex capital expenditure that is planned to take place from 2025 to 2045.

Figure 3: Profile of capital expenditure HVO Complex Project Plan (real $ million^)



Source: HVO. ^ Real 2025 Australian dollars

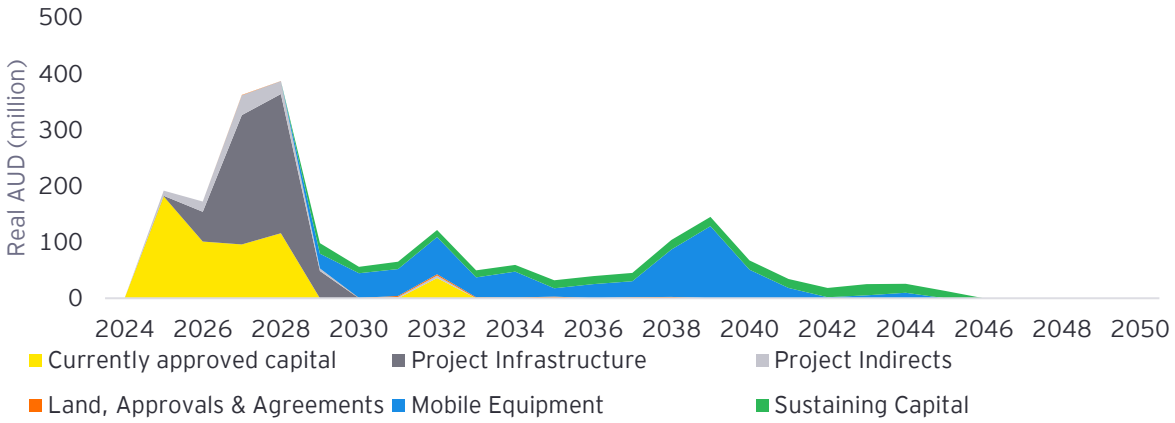
In total, the Project is estimated to incur $2,118.4 million in NPV terms of capital expenditure. This includes project infrastructure of $512.7 million in NPV terms, sustaining capital expenditure of $173.6 million in NPV terms and currently approved capital [36] of $743.4 million in NPV terms. Other components of capital expenditure include project indirects, land approvals & agreements and mobile equipment.

2.3.1.2 HVO North Capital Costs

Figure 4 shows the expected, capital expenditure that is planned to take place from 2025 to 2045 for HVO North.

Figure 4: Profile of capital expenditure under the Project (real $ million^)

[36] Capital that HVO does not need further approval to construct.



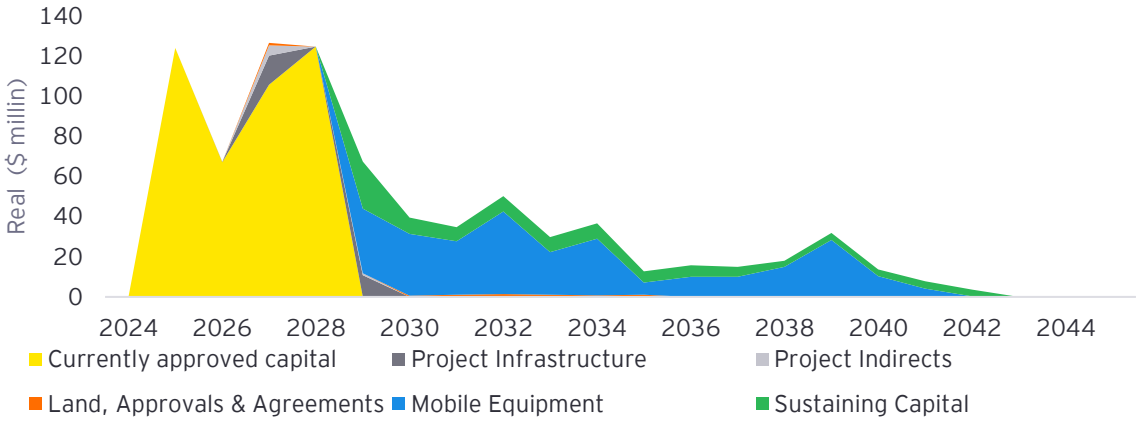
Source: HVO. ^ Real 2025 Australian dollars

In total the Project is estimated to incur $1,497.1 million in NPV terms of capital expenditure. This includes new project infrastructure of $491.5 million in NPV terms, sustaining capital expenditure of $117.9 million in NPV terms and currently approved capital[37] of $477.3 million in NPV terms. Other components of capital expenditure include project indirects, land approvals & agreements and mobile equipment.

2.3.1.3 HVO South Capital Costs

Figure 5 shows the expected capital expenditure profile for HVO South.

Figure 5: Profile of capital expenditure under the Project (real $ million^)



Source: HVO. ^ Real 2025 Australian dollars

In total the Project is estimated to incur $621.3 million in NPV terms of capital expenditure. This includes new project infrastructure of $21.2 million in NPV terms, sustaining capital expenditure of $55.7 million in NPV terms and current approved capital[38] of $381.8 million in NPV terms. Other components of capital expenditure include project indirects, land approvals & agreements and mobile equipment.

Production assumptions

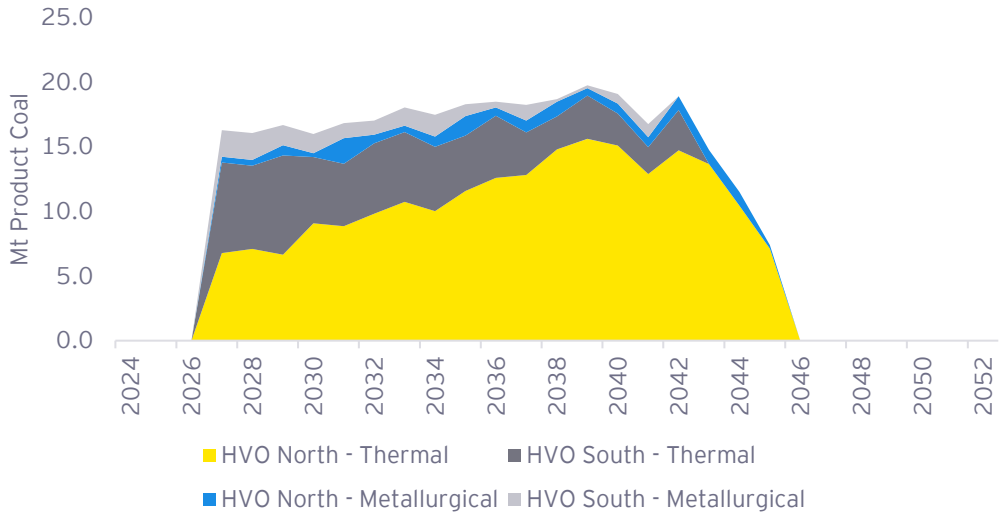
HVO provided EY with the projected production figures for the Project which are summarised in the figure below. The Project is expected to extract an additional 316.3 Mt of product coal over the lifetime of the mine, from June 2027 to 2045. Of this incremental production, the Project is expected to mostly produce thermal coal, representing around 89.5 per cent of the incremental coal produced.

[37] Capital that HVO does not need further approval to construct.

[38] Capital that HVO does not need further approval to construct.

HVO North is expected to produce around 72 per cent of the incremental coal production, resulting in producing around 226.1 Mt over the lifetime of the mine (210.4 Mt of thermal coal, and 15.7 Mt of metallurgical coal), until the end of 2045. Conversely, HVO South is expected to cease mining operating by 2042, and is expected to produce 90.1 Mt over its expected production profile (resulting in 72.8 Mt of thermal coal, and 17.3 Mt of metallurgical coal).

Figure 6: Key production figures (Mt) for the HVO Complex



Source: HVO

2.3.2 Price assumptions

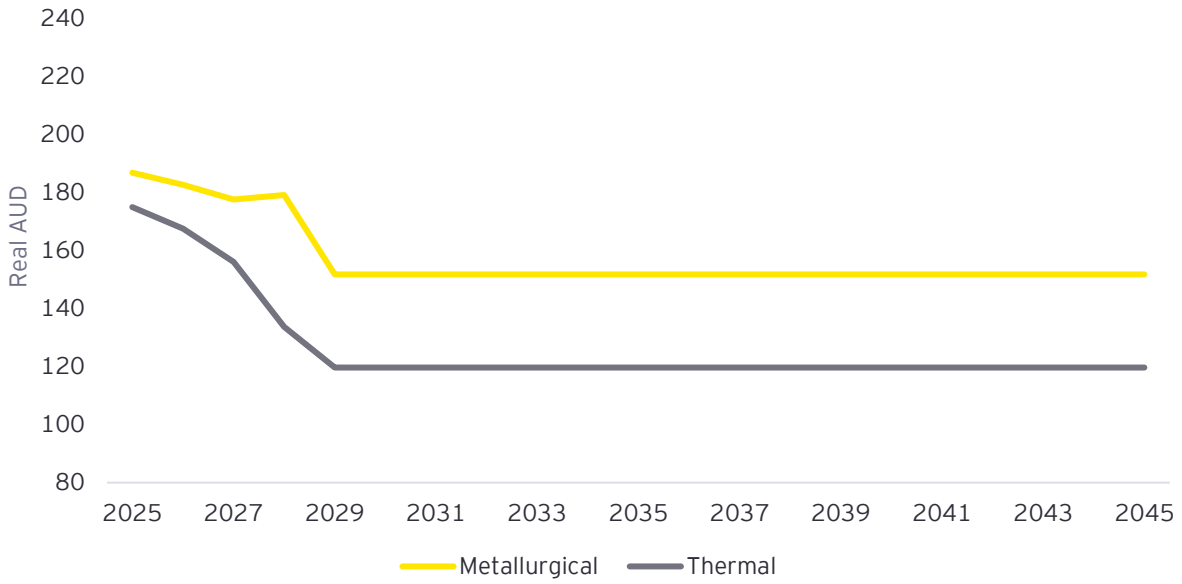
The price assumptions used for this analysis come from KPMG, the Office of Chief Economist and other information sources as outlined below.

Coal price assumptions are estimated based on information from KPMG published *Coal Price and FX consensus forecasts March/April 2025*. KPMG publishes metallurgical coal, thermal and PCI price forecasts in nominal US dollars from 2025 out to 2029. The price forecasts are converted to nominal Australian dollars using the exchange rate forecasts from the KPMG report.[39] The exchange rate forecasts varies between $0.65 in 2025 and $0.69 US dollars per AUD in 2029 and then is fixed long term at $0.75 US dollars per AUD. All nominal coal price forecasts are converted into real 2025 AUD using Office of the Chief Economist *Resources and Quarterly June 2025* inflation rate forecast.

The Project metallurgical coal price in real 2025 Australian dollars ranges from $186.9 per tonne in 2025 to $151.8 per tonne from 2029 onwards, as shown in Figure 6, below. For thermal coal, the analysis assumes in 2025 a price of $175.0 per tonne, which decreases to $119.7 per tonne over the long term. The coal price is applied to our analysis from start of operations (2027) onwards.

Figure 7: Metallurgical and thermal coal price assumptions (real 2025 Australian dollars)

[39] Coal Price and FX Market forecasts - KPMG Australia (2025)



Source: EY estimates based on KPMG published Coal Price and FX consensus forecasts March/April 2025.

2.4 Projected revenue and project financials

The combined operations are expected to generate revenues of approximately $39.7 billion over 19 years in real undiscounted 2025 Australian dollars. This is based on the production assumptions outlined in Figure 6, and the real price assumptions outlined in Figure 7. This equates to approximately $20.8 billion revenue in NPV terms based on 7 per cent real discount rate as shown in Table 8. When considering HVO North in isolation, the proposed extension is estimated to generate $27.9 billion revenue in real undiscounted terms, with a resulting $13.5 billion revenue in NPV terms. The balance of the revenue can be attributed to HVO South, which is estimated to generate $11.8 billion revenue in real undiscounted terms, and $7.3 billion revenue in NPV terms. In the context of this analysis, these are deemed to be central case assumptions, and subject to sensitivity analysis later in this report.

Table 8: Central case assumptions – coal production, real prices^, total revenue (real and NPV at a 7 per cent discount rate) in $ million for HVO Complex, HVO North and HVO South

		HVO Complex	HVO North	HVO South
Production (Mt)				
Metallurgical Coal (Mt)		33.0	15.7	17.3
Thermal coal (Mt)		283.2	210.4	72.8
Total (Mt)		316.3	226.1	90.1
Average Real Price^				
Metallurgical Coal ($/t)	150.7			
Thermal coal ($/t)	120.9			
Total Sales Revenue		39,746.4	27,944.8	11,801.7
Total Sales Revenue – NPV*		20,810.5	13,467.4	7,343.2

Source: HVO and EY estimates ^ Real 2025 Australian dollars.

Based on the information provided by HVO, the estimated operating costs for the proposed development are summarised in Table 9.

Operating costs (including closure costs) are provided by HVO and are estimated to be $25.4 billion over the lifetime of the Project (HVO Complex), while HVO North operation costs are estimated to be $19.7 billion and HVO South $8.1 billion. Mitigation and management costs are estimated to be $90.4 million for the HVO Complex which includes costs associated with reducing the environmental impacts of the Project operations, as discussed in the introduction.

In terms of other costs:

- Depreciation is calculated using the diminishing value method.
- Royalties are based on standard NSW Government royalty rates of 10.8 per cent *ad valorem* for open cut mines. A discount of $3.50 per sales tonne is applied for washing as is allowed by the NSW Government.

These are deemed to be ***central case assumptions***, and subject to sensitivity analysis later in this report.

Table 9: Central case assumptions – Project financials ($million*), for HVO Complex, HVO North and HVO South

	HVO Complex	HVO North	HVO South
Revenue			
Revenue from coal sales	39,746.4	27,944.8	11,801.7
Residual value of capital	-	-	-
Total Revenue	39,746.4	27,944.8	11,801.7
Costs			
Operating costs (incl. closure costs) ^	25,405.3	19,747.0	8,136.0
Safeguard Mechanism and Voluntary additional ACCU purchases[40]*	689.2	230.2	459.0
Mitigation and management costs	90.4	71.6	19.1
Depreciation	3,059.6	1,879.5	668.3
Royalties	4,173.1	2,932.6	1,240.5
Payments to Council	99.8	71.0	24.3
Total Costs	33,517.4	24,931.9	10,547.3
Operating Profit	6,229.0	3,012.9	1,254.5

Source: EY estimates based on information provided by HVO.
*^ Includes intermediate inputs, labour costs and payroll taxes paid *in real 2025 terms.*

2.5 Direct benefits

Based on the Guidelines, the potential direct benefits to NSW of the proposed development are derived from three sources:

- The net producer surplus (profits) generated by the Project that is attributable to NSW.
- The share of company tax payments that are attributable to NSW.
- Other tax payments such as royalties and payroll tax that are paid to the NSW and local government.

2.5.1 Summary of potential direct benefits to NSW

Based on the central case assumptions, the Project is estimated to generate $2,768.1 million in total estimated financial benefits to NSW in NPV terms, as outlined in Table 10.

Table 10: Central case - summary of direct benefits of the Project to NSW ($ million^)

Direct benefits to NSW	HVO Complex	HVO North	HVO South
Net producer surplus attributable to NSW	-	-	-
Company income tax attributable to NSW	372.9	158.6	98.3
Payments to the NSW and local Government	2,395.2	1,548.1	837.3

[40]See Table 24 for detailed information regarding the spending between the Safeguard Mechanism and Additional Voluntary ACCU surrenders.

Total financial benefit attributable to NSW	2,768.1	1,706.7	935.6

*Source: EY estimates based on information provided by HVO. ^Real 2025 Australian dollars. *NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*

The potential benefits produced by HVO Complex are comprised of HVO North and HVO South which creates $372.9 million in company tax attributable to NSW and $2,395.2 million in NPV terms paid to the NSW and local governments, in the way of coal royalties, payroll tax, council rates and land taxes. Attributable net producer surplus to NSW is $0 due to the assumption of 0 per cent share based on NSW ownership of the Project.

2.5.2 Net producer surplus attributable to NSW

Consistent with the Guidelines, the net producer surplus of the proposed development represents the private benefit, or operating surplus, generated that is attributable to NSW.

The Project is estimated to generate an operating surplus of $2,985.2 million in NPV terms, see Table 11. The operating surplus is estimated using cash earnings and cash costs (cash costs are made up of both capital expenditure and operating costs, excluding depreciation), $1,165.4 million in NPV terms is payable in the form of corporate taxes, levied on accrued Project profits.

In total, the Project generates a net producer surplus of $1,819.9 million in NPV terms. Of this, 0 per cent is attributable to NSW.

Table 11: Central case - estimate of net producer surplus attributable to NSW ($ million*)

Key Data	HVO Complex	HVO North	HVO South
Total Revenue	20,810.5	13,467.4	7,343.2
Cash Costs			
Operating costs (incl. closure costs)	13,033.5	9,392.0	4,941.0
Safeguard Mechanism and Voluntary additional ACCU purchases[41]	347.5	80.3	267.2
Mitigation and management costs	73.8	59.0	14.9
Capital	2,118.4	1,497.1	621.3
Royalties	2,185.9	1,413.7	772.2
Payments to Council	68.7	52.9	14.5
Total Costs	17,827.9	12,495.0	6,631.2
Net Producer Surplus before Tax	2,985.2	974.9	712.1
Company Tax^^	1,165.4	495.7	307.1
Net Producer Surplus	1,819.9	479.2	405.0
NSW share of Project ownership	0.0%	0.0%	0.0%
Value of net producer surplus attributable to NSW	-	-	-

Source: EY estimates based on information provided by HVO. ^ Real 2025 Australian dollars.
*^^ Based on a 30 per cent company tax rate. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*

2.5.3 Company tax attributable to NSW

Consistent with the Guidelines, the company tax payments made to the Australian Government are levied on the profits generated under the proposed development. A company tax rate of 30 per cent is used to estimate the tax payments made to the Australian Government under the assumption that all the profit generated by the Project is subject to company tax in Australia (for example, ignoring financing costs). Consistent with the Guidelines, company tax is attributable to NSW based on the State's share of population which is 32 per cent.

[41] See Appendix C for detailed information regarding the spending between the Safeguard Mechanism and Additional Voluntary ACCU surrenders.

As summarised in Table 11, it is estimated the HVO Complex will generate $3,582.6 million in taxable operating profit in NPV terms (this is an estimate of the accounting profit from which company taxes are calculated). At a company tax rate of 30 per cent, the company tax estimate is $1,165.4 million in NPV terms, of which $372.9 million is attributable to NSW.

Company taxes are estimated based on operating profits, which is on an accrued basis and recognises yearly depreciation costs rather than the full capital costs upfront. Operating profit is generally higher than operating surplus (the basis for estimating net producer surplus), which is on a cash basis and thus recognises the full capital costs upfront.

HVO North's net present value of company taxes exceed its profits due to the negative impact of the upfront capital expenditure requirements. These years in which loses are incurred do not result in tax loss offsets, resulting in higher modelled company taxes compared to operating profit.

Table 12: Central case - company income tax attributable to NSW ($ million^)*

Company tax attributable to NSW	HVO Complex	HVO North	HVO South
Total Revenue[42]	20,810.5	13,467.4	7,343.2
Total Costs	17,227.8	12,029.6	6,413.9
Operating Profit	3,582.6	1,437.8	929.3
Company Tax^^	1,165.4	495.7	307.1
NSW share^^^	372.9	158.6	98.3

Source: EY estimates based on information provided by HVO. ^ Real 2025 Australian dollars.
*^^ Based on a 30 per cent company tax rate. ^^^ Based on a 32 per cent population share. * . * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*

2.5.4 Payments to the State and the local Council

Under the proposed development, various payments will be made to NSW Government and the LGAs to extract and process coal in the State.

These are made up of three types of payments: coal mining royalties and payroll tax paid to the NSW Government, council payments including council rates, NSW land tax, VPA agreements and road closure costs. Over the life of the proposed developments, a total of $2,395.2 in payments are made in NPV terms (Table 13) for the HVO Complex operations – this is made up of $2,185.9 million in royalty payments, $140.5 million in payroll taxes and $68.7 million in payments to council. There is $1,548.1 million in payments when considering only HVO North, and $837.3 million in payments are made when considering HVO South, with royalties to the state representing the majority of the State Government payments.

Table 13: Central case - total payments to State Government and local Council ($ million^)*

Project payments to NSW	HVO Complex	HVO North	HVO South
Coal sales revenue	20,810.5	13,467.4	7,343.2
Total Royalties paid	2,185.9	1,413.7	772.2
Payroll taxes	140.5	81.5	50.6
Council payments	68.7	52.9	14.5
Total Payments	2,395.2	1,548.1	837.3

*Source: EY estimates based on information provided by HVO. ^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*

2.6 Potential Indirect Benefits to NSW

Based on the Guidelines, the potential indirect benefits to NSW of the proposed development are derived from three sources:

[42] Total Revenue includes the sale of product coal and any residual value of capital remaining at the end of life of the Project.

- The net economic benefit to workers in NSW.
- The net economic benefit to suppliers in NSW.
- Any landowner premiums attributable to the Project.

2.6.1 Summary of potential indirect benefits to NSW

Consistent with the Guidelines, the potential indirect benefits of the proposed development that accrue to workers and suppliers are summarised in

Table 14. When assessing HVO North in isolation, the total potential indirect benefits are estimated at $2,024.0 million, comprising of $676.4 million in economic benefits to workers and $1,347.5 million of benefits to suppliers. For HVO South, the net economic benefits to workers are estimated at $412.1 million, and $682.3 million in benefits to suppliers.

The total potential indirect benefits are estimated to be $2,941.9 million in NPV terms for the entire Project. The main source of these benefits is $1,158.4 million to workers and $1,783.5 million to suppliers in NPV terms. It is conservatively assumed that there are no anticipated benefits to landowners as a result of the Project.

Table 14: Central case - summary of potential indirect benefits of the Project to NSW ($ million^)

Indirect benefits to NSW	HVO Complex	HVO North	HVO South
Net economic benefit to workers	1,158.4	676.4	412.1
Net economic benefit to suppliers	1,783.5	1,347.5	682.3
Total indirect benefit	2,941.9	2,024.0	1,094.4

*Source: EY estimates based on information provided by HVO. ^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*

2.6.2 Benefit to workers

Consistent with the Guidelines, a key factor in determining the benefit to workers are defined as the:

- Wages earned in the HVO Complex.
- Minus the opportunity cost of labour for working in the mining sector, that is compared to working in non-mining sectors (or being unemployed).
- Minus the wage difference due to skills and the disutility to work in the mining industry.

HVO has provided EY with incremental FTE employment under the Project cases, as well as average wages paid per employee.

Over the period of 2027 to 2045 HVO advises that under the combined operations case, the Project would employ an average incremental 1,311 FTE workers. During this period, employment increases up to a maximum of 1,407 FTEs[43] in 2034, as outlined in Table 3.

HVO has advised EY of an average pre-tax wage (including leave entitlements and superannuation) for an FTE employee at the HVO Complex upon commencement of the Projects (and is assumed to remain fixed over the period). This was used to calculate estimated Total wages paid for the Project cases.

Total wages paid to employees is estimated at $2,578.0 million in NPV terms for the Combined Project case, $1,495.6 million for HVO North and $927.7 million for HVO South. To measure the opportunity cost compared to working in the non-mining sector, the average wage earned by workers

[43] Contractors are not included in the total number of FTE's.

at the HVO Complex is compared to the likely wages that would be earned by employees in other sections if the Project does not proceed.

The reservation wage is constructed as a weighted average of the wages paid to occupations not in the mining sector in NSW. The weights are given by the occupational distribution of those found working in the coal mining sector. Additionally, the reservation wage is adjusted upwards to account for the differential in hours worked between those in the coal mining sector and those employed in the wider economy. This implies that, should the proposed development not go ahead, those who would have been employed at the HVO Complex would instead find alternative work at the average wage afforded to their occupation in NSW. The weighted average reservation wage is estimated to be $110,191 per annum in real 2025 Australian dollars.

Table 15: Central case – estimated NSW potential worker benefits for HVO Complex, HVO North and HVO South

Potential Indirect benefits - workers	HVO Complex	HVO North	HVO South
Reservation wage	1,419.6	819.2	515.6
Mining wages at the HVO Complex	2,578.0	1,495.6	927.7
Estimated worker benefit ($ million^)	1,158.4	676.4	412.1

Source: HVO, ABS (Table W17) Census (2016) Occupational Total Personal Income (Weekly) by Hours Worked and EY estimates.
*^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*

As shown, there is a significant premium incorporated in mining wages compared with the average wage paid in NSW. There are a number of likely reasons for this premium that might be explained by relative skill and productivity levels. In relation to the latter, mining employees are more productive than workers in other industries as they operate with higher levels of capital (for example, based on capital stock figures produced by the ABS, miners work with over 10 times the amount of capital than average employees across Australia).

Based on these assumptions, estimated ***worker benefit*** is $1,158.4 million in the Combined Project case, $676.4 million for HVO North and $412.1 million for HVO South.

2.6.3 Potential Benefit to suppliers

Consistent with the Guidelines, the potential economic benefit to suppliers is estimated as a producer surplus generated for NSW firms that provide goods and services to the proposed development. As summarised in

Table 16, based on the input cost data provided by HVO, the Project is estimated to use $10,413.9 million in intermediate inputs supplied from NSW over its life-cycle in NPV terms. Currently, 84 per cent of the HVO Complex inputs used are supplied from NSW-based businesses and it is assumed this would also be the case with the Project.

The estimated economic benefit to suppliers (producer surplus) is based on the EY Regional Input-Output Model. This Model was customised to generate an NSW-specific Input-Output table and to not include benefits generated in other Australian states.

The producer surplus estimates are based on Type I multipliers which limit the benefit to direct value added generated by NSW suppliers. This methodology does not account for second round, nor induced consumption. Using this technique, the total supplier benefits are estimated to be $1,783.5 million in NPV terms for the Project case. When considering HVO North and HVO South in isolation, the total supplier benefits are estimated at $1,347.5 million and $682.3 million for HVO North and HVO South respectively.

Table 16: Central case – estimated supplier benefits

Potential Indirect benefits - suppliers	HVO Complex	HVO North	HVO South
Total intermediate inputs ($ million^)	10,413.9	7,856.1	4,011.6
Share from NSW (Per cent)	84%	84%	84%
Total intermediate inputs supplied from NSW ($ million^)	8,837.7	6,677.3	3,381.0

Gross operating surplus ratio	20%	20%	20%
Total benefits to suppliers (NPV*)	1,783.5	1,347.5	682.3

*Source: EY estimates based on information provided by HVO. ^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.*

2.7 Indirect costs to NSW

Consistent with the Guidelines, the Project's indirect costs cover a range of net environmental, social and transport-related costs as well as the net public infrastructure costs as well as the estimated loss of surplus to other industries (listed in Table 17).

Consideration of these costs are based on a range of assessments undertaken by specialised consultants for the Project such as an Air Quality, Greenhouse Gas Assessment and Groundwater Assessment.

This section outlines the calculation of both the total mitigation and management costs (a part of indirect costs), as well as the incremental indirect costs of the Project. It is the calculation of incremental indirect costs that are accounted for in the CBA.

The incremental indirect costs are those attributable by the Project that are not already included in the Project financials (and therefore already accounted for in the CBA). These costs include:

- Greenhouse Gas Emissions (GHG).
- Traffic and transport impacts.
- Loss of surplus to other industries (agricultural land).

In addition, there are several environmental costs that are internalised by HVO, these costs include:

- Noise mitigation.
- Historical and aboriginal cultural heritage mitigation.
- Social mitigation.
- Implementing a biodiversity offset strategy.
- Visual Amenity mitigation measures.
- Air quality mitigation.
- Groundwater mitigation.
- Other environmental management and mitigation costs such as blasting and social impacts.

These costs are classified as indirect costs of the Project, however, to avoid double counting, are excluded from the incremental costs as they are already included in the operational costs of the Project. HVO provided EY with the approximate cost estimates for each of the environmental mitigation and management measures. A detailed discussion on the methodology used in the estimation of the indirect costs to NSW is outlined in the revised Economic Impact Assessment report completed for the Hunter Valley Operations continuation project.[44]

Table 17: Summary of indirect costs impacts ($ million^)

Scope of environmental costs	Assessment type	HVO Complex	HVO North	HVO South
Incremental indirect costs				
Greenhouse gas emissions	Quantitative	3.8	1.7	2.1
Traffic and Transport	Quantitative	0.7	0.7	0

[44] EY (2024),Revised Economic Impact Assessment of the Hunter Valley Operations continuation project

Loss of surplus to other industries (agricultural land)	Quantitative	13.1	8.7	4.4
Mitigation and management cost^				
Air quality impacts^^	Quantitative	-	-	-
Visual amenity^^	Quantitative	-	-	-
Aboriginal cultural heritage and historical heritage^^	Quantitative	-	-	-
Ambient noise impacts^^	Quantitative	-	-	-
Biodiversity impacts	Quantitative	59.2	51.7	7.5
Water impact (mitigation) - including surface and ground water^^	Quantitative	-	-	-
Other (Blasting and Social) ^^	Quantitative	-	-	-
Total mitigation and management costs (NPV, includes costs as part of operational expenditure)		73.8	59.0	14.9
Total incremental Indirect costs		17.6	11.1	6.5

*Source: EY estimates based on information provided from HVO and relevant environmental assessments for the Project. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate. ^Some values are not shown as they may be subject to commercial negotiations, and have therefore been excluded from the table, however these costs have been accounted for in the cost benefit analysis. ^^Included in the total internalised costs.*

2.8 Potential Net benefits – sensitivity analysis

Consistent with the Guidelines, this section outlines a summary of the systematic sensitivity analysis undertaken for the proposed development. The sensitivity analysis considers all key areas of the CBA, particularly coal prices, key costs (both capital expenditure and operating costs) as well as worker benefits. Where there are considered to be higher levels of potential uncertainty with the figures, a range of plus/minus 25 per cent is used. In areas where the figures are deemed more certain, a range of plus/minus 10 per cent is used. The sensitivity analysis is comprised of the following:

- Revenue sensitivity.
    - Higher/lower price assumptions, where coal prices are increased/decreased by 25 per cent based on the central case assumptions over the life of the Project consistent with the guidelines.
- Cost-base sensitivity.
    - Higher/lower operational expenditure (increase/decrease by 10 per cent based on the central case).[45]
    - Higher/lower capital expenditure (increase/decrease by 10 per cent based on the central case).
- Worker and supplier assumptions.
    - Increased disutility of mining wage premium by 25 per cent on central case assumptions.
    - Reduced supplier benefits of 10 per cent from central case assumptions.
- Higher environmental costs (increased by 10 per cent).
- Discount rate sensitivity, using a 4 per cent and a 10 per cent real discount rate.

In addition, upper and lower bound estimates are undertaken which assume:

[45] Although coal prices have been more volatile recently we have included these high/low price assumptions as they align with the guidelines.

- ***'Pessimistic case' scenario***, the coal price is reduced by 25 per cent, operational and capital expenditure are increased by 10 per cent, the disutility of the mining wage premium is set to 25 per cent and supplier benefits are lowered by 10 per cent compared with central case assumptions..

- ***'Optimistic case' scenario***, the coal price is increased by 25 per cent, operational and capital expenditure are decreased by 10 per cent, the disutility of the mining wage premium is set to zero and supplier benefits are increased by 10 per cent compared with central case assumptions.

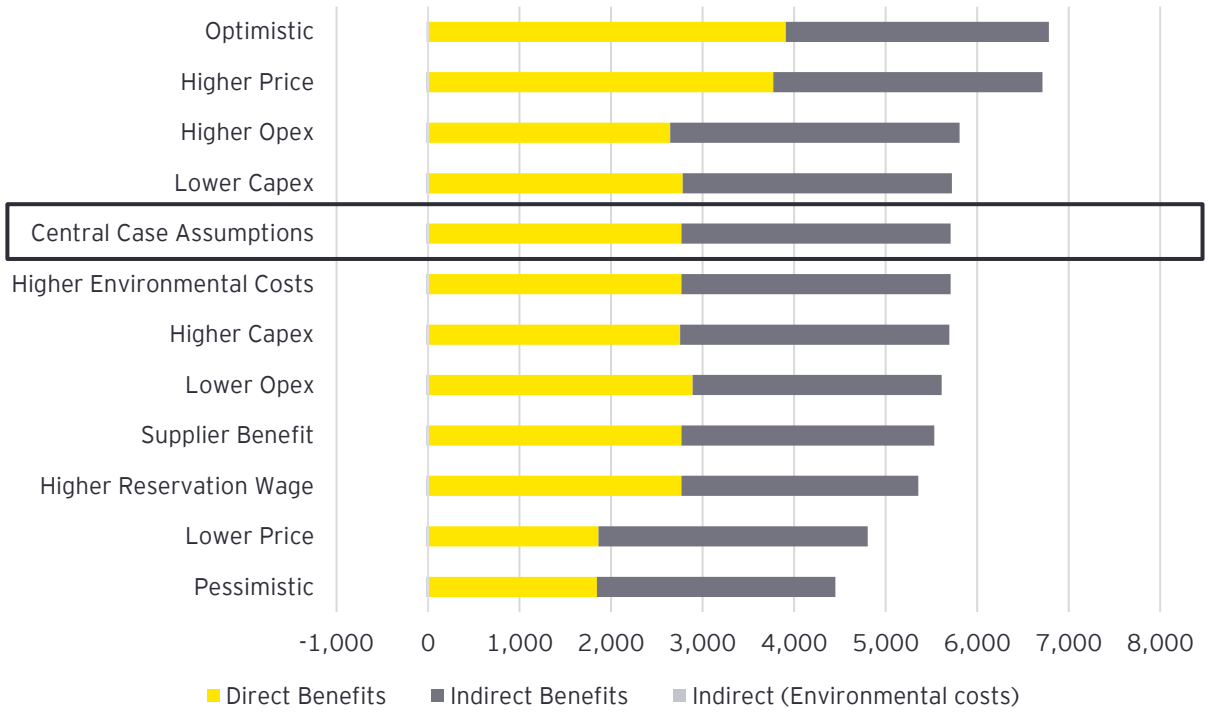
2.8.1 Results of sensitivity analysis

2.8.1.1 HVO Complex sensitivity analysis

This sensitivity analysis shows that the potential net economic benefit remains largely insensitive to the changes in all the key assumptions underpinning the analysis.

In isolation, the estimated net benefit of the proposed development is most sensitive to the coal price assumptions underpinning the analysis, but even assuming coal prices are 25 per cent lower than under the central case assumptions the net benefits are estimated to be $4,785.7 million in NPV terms, a reduction of 15.9 per cent from the central case assumptions. The lower bound, or pessimistic case, estimate of net benefits, which takes the combined assumptions around coal prices, capital expenditure, operational expenditure as well as worker, environmental impacts and supplier benefits, yields an estimated net benefit of $4,432.2 million in NPV terms. The upper bound, or optimistic case, estimate, based on the combined optimistic assumptions, is $6,768.9 million in NPV terms.

Figure 8: Systematic sensitivity analysis of the CBA to key assumptions (NPV*, $ million)



Source: EY estimated based on information from various sources. NPV in real 2025 Australian dollars based on a 7 per cent real discount rate. Indirect costs have been included in the figure.*

It can also be inferred from the sensitivity analysis how large the non-quantified negative externalities would need to be before the proposed development would no longer represent a net benefit to the NSW community. Using a more conservative estimate, the pessimistic case assumptions, these

externalities would need to be $4,432.2 million in NPV terms before the proposed development would represent a net negative return to NSW.

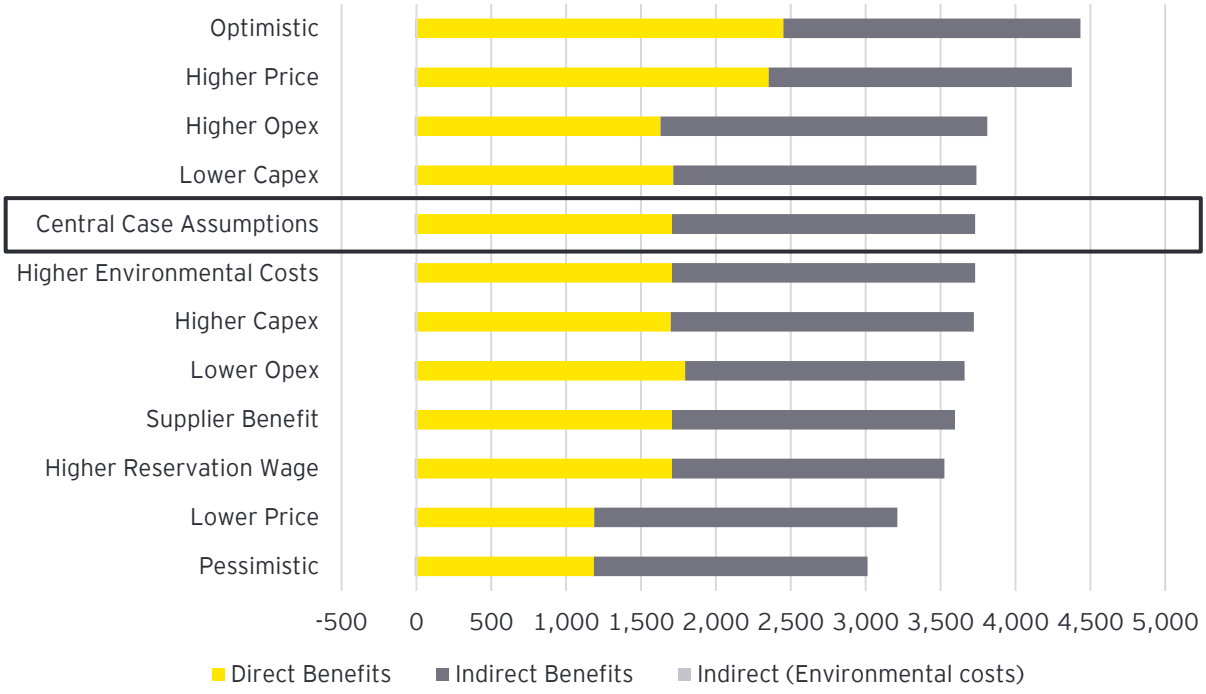
Given the timeframe of the Project mining (2027 to 2045) the potential net benefits are sensitive to the discount rate used for the analysis. Under central case assumptions, the proposed development is expected to generate $5,692.4 million of potential net benefit using a 7 per cent discount rate. Using a 4 per cent discount rate increases the potential net benefit to $7,378.0 million; conversely a 10 per cent discount decreases the potential net benefit to $4,514.5 million. Sensitivities based on a discount rate of 4 per cent and 10 per cent are required by the Guidelines.

2.8.1.2 HVO North sensitivity analysis

In isolation, the estimated net benefit of HVO North is most sensitive to the coal price assumptions underpinning the analysis. Assuming coal prices are 25 per cent lower than under the central case assumptions the net benefits are estimated to be $3,199.4 million in NPV terms, a reduction of 14.0 per cent from the central case assumptions.

The lower bound, or pessimistic case, estimate of net benefits, which takes the combined assumptions around coal prices, capital expenditure, operational expenditure as well as worker, environmental impacts and supplier benefits, yields an estimated net benefit of $3,000.0 million in NPV terms. The upper bound, or optimistic case, estimate, based on the combined optimistic assumptions, is $4,424.3 million in NPV terms.

Figure 9: Systematic sensitivity analysis of the CBA for HVO North to key assumptions (NPV*, $ million)



Source: EY estimated based on information from various sources. NPV in real 2025 Australian dollars based on a 7 per cent real discount rate. Indirect costs have been included in the figure.*

The sensitivity analysis illustrates how large the non-quantified negative externalities would need to be before the proposed development would no longer represent a net benefit to the NSW community. Using a more conservative estimate, the pessimistic case assumptions, these externalities would need to be $3,000 million in NPV terms before the proposed development would represent a net negative return to NSW.

Given the timeframe of the Project mining (2027 to 2045) the potential net benefits are sensitive to the discount rate used for the analysis. Under central case assumptions, the proposed development is expected to generate $3,719.5 million of net potential benefit using a 7 per cent discount rate. Using a 4 per cent discount rate increases the net benefit to $5,007.3 million; conversely a 10 per cent

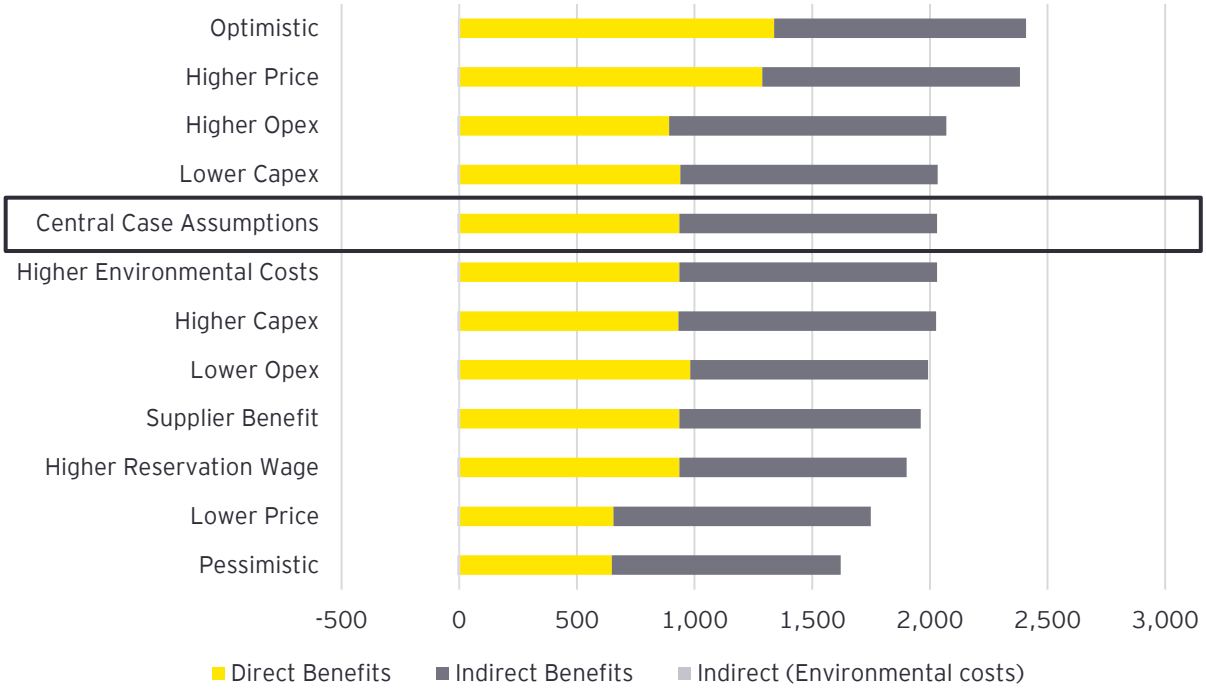
discount decreases the potential net benefit to $2,844.8 million. Sensitivities based on a discount rate of 4 per cent and 10 per cent are required by the Guidelines.

2.8.1.3 HVO South sensitivity analysis

In isolation, the estimated net benefit of the proposed development is most sensitive to the coal price assumptions underpinning the analysis. Assuming coal prices are 25 per cent lower than under the central case assumptions the net benefits are estimated to be $1,743.2 million in NPV terms, a reduction of 13.9 per cent from the central case assumptions.

The lower bound, or pessimistic case, estimate of net benefits, which takes the combined assumptions around coal prices, capital expenditure, operational expenditure as well as worker, environmental impacts and supplier benefits, yields an estimated net benefit of $1,614.0 million in NPV terms. The upper bound, or optimistic case, estimate, based on the combined optimistic assumptions, is $2,403.3 million in NPV terms.

Figure 10: Systematic sensitivity analysis of the CBA to key assumptions for HVO South (NPV*, $ million)



Source: EY estimated based on information from various sources. NPV in real 2025 Australian dollars based on a 7 per cent real discount rate. Indirect costs have been included in the figure.*

It can also be inferred from the sensitivity analysis how large the non-quantified negative externalities would need to be before the proposed development would no longer represent a net benefit to the NSW community. Using a more conservative estimate, the pessimistic case assumptions, these externalities would need to be $1,614.0 million in NPV terms before the proposed development would represent a net negative return to NSW.

Given the timeframe of the Project mining (2027 to 2042) the potential net benefits are sensitive to the discount rate used for the analysis. Under central case assumptions, the proposed development is expected to generate $2,023.5 million of potential net benefit using a 7 per cent discount rate. Using a 4 per cent discount rate increases the potential net benefit to $2,446.0 million; conversely a 10 per cent discount decreases the net benefit to $1,703.7 million. Sensitivities based on a discount rate of 4 per cent and 10 per cent are required by the Guidelines.

In addition, if conservatively the indirect benefits were all set to zero, that is suppliers were assumed to gain no benefit and workers reservation wages are equal to those earned in the HVO Complex, the net benefits to NSW would remain positive.

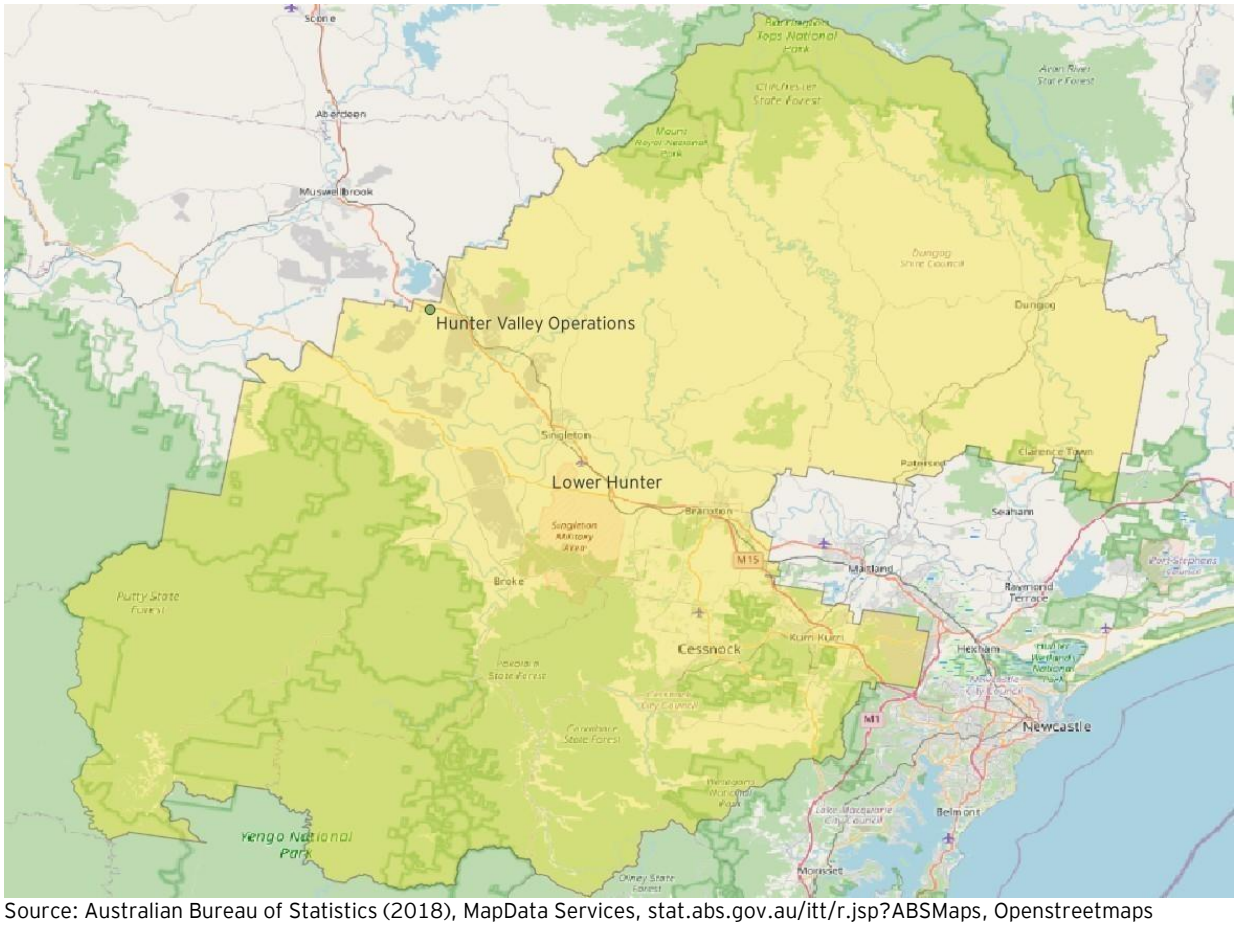
3. Local Effects Analysis

Consistent with the Guidelines, the LEA uses a similar framework to the CBA presented in the previous section but is focussed on the net economic impacts to the local community. The Guidelines refer to the local area as being consistent with the relevant SA3 as defined by the Australia Bureau of Statistics. In the case of this Project the Lower Hunter SA3 area is used for the LEA.

3.1 The Lower Hunter region

The Lower Hunter region is located to the north-west of Newcastle. In 2020 the Lower Hunter SA3 had a population of approximately 96,772 (ABS, 2021). The region is home to many coal mines.

Figure 11: Lower Hunter SA3 and Hunter Valley Operations Location



Source: Australian Bureau of Statistics (2018), MapData Services, stat.abs.gov.au/itt/r.jsp?ABSMaps, Openstreetmaps

The majority of the Project is located in northwest Lower Hunter, on the border between the Lower Hunter and Upper Hunter SA3. HVO South is situated completely in Lower Hunter, whereas a small portion of HVO North is situated in Upper Hunter. As a result, it is conservatively assumed that the majority of local effects of the Project are attributed to the Lower Hunter SA3 region. However, given the Project's central location between Muswellbrook and Singleton, it is not unreasonable to assume that many of the benefits that accrue to the Lower Hunter region, could also accrue to the neighbouring Upper Hunter region nearby. In consideration of the workforce, majority are employed from Singleton compared to Muswellbrook although the Project's central location.

3.2 Local Effects Analysis results

The LEA accounts for the economic benefits to the Lower Hunter region only. It does not include any economic benefits that may accrue to the major regional centres, such as Newcastle, which are located nearby.

Given the nature of coal and mining operations located in the Lower Hunter region, many of the inputs may be supplied from the NSW region. In addition, analysis from HVO indicates over the life of the proposed development, only a proportion of the inputs will be supplied from Lower Hunter region and some employees are sourced from the wider region. As a result, this Project would generate economic benefits to these regions; for example, those supplies that are sourced from the wider Upper Hunter region, Newcastle and some of the surrounding regional communities situated near the Project.

Underpinning the LEA are the assumptions that:

- Local rates, of $31.5 million in NPV terms are paid to the City of Singleton Local Government Area under the Project case.
- VPA Agreements and Road closure costs these are subject to commercial negotiation, and are therefore confidential.
- No net producer surplus accrues to the region (conservative assumptions).
- No company income tax accrues to the Lower Hunter SA3 region (conservative assumptions).
- Based on information provided by HVO, 75 per cent of the workforce requirement of the proposed development comes from the SA3 region.

As a result of these assumptions, it is expected that the proposed development for the HVO Complex may generate potential indirect benefits to local suppliers and employees of $790.3 million and $990.9 million respectively in NPV terms assuming no Project occurs[46]. The incremental estimated indirect costs associated with the Project are allocated to the SA3 region. The proposed development is estimated to confer a net benefit on the Lower Hunter SA3 region of $1,778.1 million in NPV terms.

Table 18: Estimated Local Effects Analysis of the proposed development ($ million^)

Benefits	HVO Complex	HVO North	HVO South
Direct benefits			
Net producer surplus attributed to Low Hunter	-	-	-
Royalties, payroll tax and Council rates	72.1	54.5	16.3
Company income tax apportioned to NSW	-	-	-
Total direct benefits	72.1	54.5	16.3
Indirect benefits			
Net economic benefit to landholders	-	-	-
Net economic benefit to NSW workers	990.9	617.8	378.6
Net economic benefit to NSW suppliers	790.3	597.1	302.4
Total indirect benefits	1,781.2	1,215.0	680.9
Total Project economic benefit	1,853.3	1,269.5	697.3
Indirect Costs	75.2	61.8	14.0
NPV of Project - ($m)	1,778.1	1,207.7	683.3

*Source: EY estimated based on information from various sources.^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate.[47] ^^ Incorporated in operational costs.*

3.3 Sensitivity analysis

As outlined above the LEA relies on a number of modelling assumptions. Consistent with the Guidelines, this assessment provides a summary of the systematic sensitivity analysis undertaken for the proposed development. The sensitivity analysis tests the same assumptions outlined in the CBA.

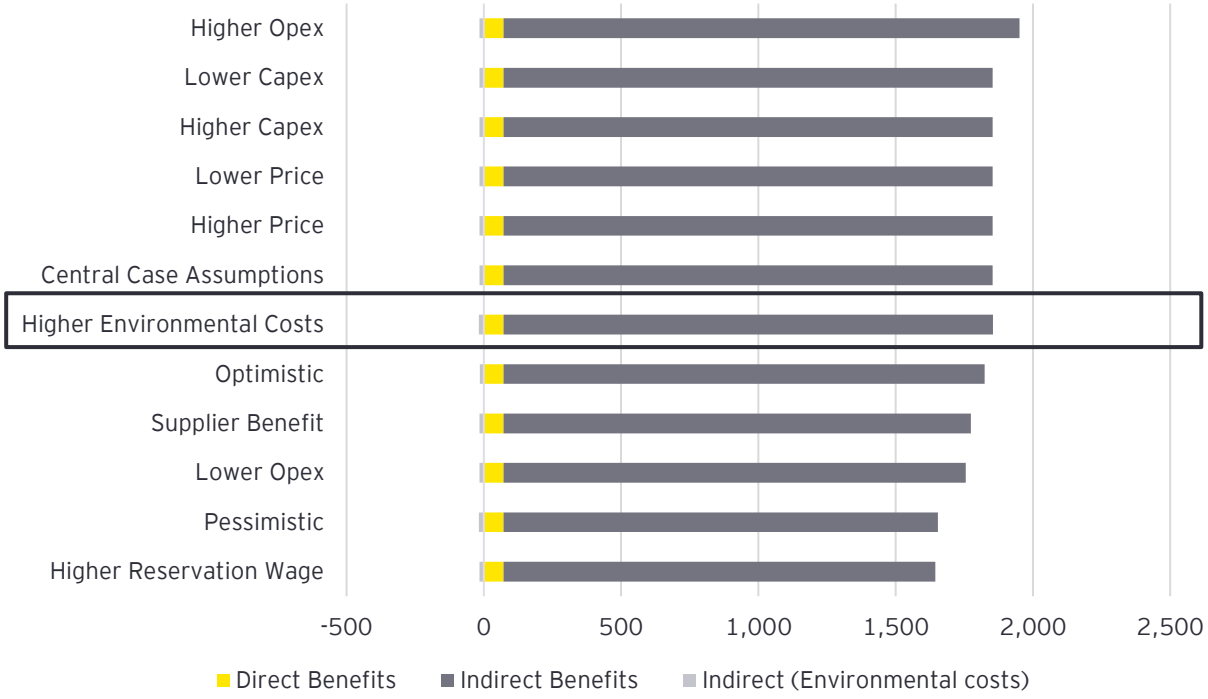
[46] Does not assume that land can be used for alternative purposes.

[47] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015), page 4.

The main drivers for the regional impact are the supplier and employee benefits. Those sensitivities that change the supplier benefits through lower operational costs, lower supplier benefit or employee benefit have the greatest impact on the regional net benefit.

This sensitivity analysis shows that the lower bound, or pessimistic case, estimate of net benefits, which takes more pessimistic assumptions around coal prices, capital expenditure, operational expenditure as well as worker and supplier benefits, yields an estimated net benefit of $1,636.3 million in NPV terms. The upper bound, or optimistic case, estimate, based on the most optimistic assumptions, is $1,810.0 million in NPV terms.

Figure 12: Systematic sensitivity analysis of the LEA to key assumptions (NPV*, $ million^)



*Source: EY estimated based on information from various sources.^ Real 2025 Australian dollars. * NPV in 2025 Australian dollars based on a 7 per cent real discount rate. Indirect costs have been included in the figure.*

Appendix A Information Received

The data inputs for the analysis presented in this report are derived primarily from:

- *Hunter Valley Operations Continuation Project Environmental Impact Statement* (EMM 2022).
- *Hunter Valley Operations Continuation Project Response to Submissions* (EMM 2023)
- *Hunter Valley Operations Continuation Project Amendment Report* (EMM 2023)
- Various social and environmental consultant reports for the *Hunter Valley Operations Continuation Project Amendment Report* (EMM 2025).
- *Coal Price and FX Markets Forecasts – March/April 2025*.
- Various data from the Australian Bureau of Statistics (ABS) including the most recent Census data.

In addition, EY was provided the financial model prepared by HVO, which includes Project capital expenditure, operational costs, output and employment for an optimised mine plan scenario for each year of the Project. All values in the financial model were in real 2024 Australian dollars.

The optimised mine plan scenario includes mining in HVO North and HVO South as sought by the Amended Project. EY was provided both the capital costs and the operational costs for each of these mining areas based on the optimised mine plan. The new mine development capital and the replacement and sustaining capital costs and operational costs for both HVO North and HVO South are included in the net benefit calculations for the Project. In addition, employment estimates for each of the areas was provided by HVO and the operational employment associated with both HVO North and HVO South are included in the net benefit estimations.

In addition to the operational costs, HVO has provided EY with several costings to meet required environmental mitigation and management costs of the Amended Project. Some of these costs are subject to commercial negotiation and are not therefore available to publish on an individual basis. The economic analysis therefore combines all the environmental costs into one item called "mitigation and management" to ensure commercial confidentiality and are included in the cost of the Amended Project. The costs included in mitigation and management are:

- Noise mitigation.
- Historical and aboriginal cultural heritage mitigation.
- Social mitigation.
- Implementing a biodiversity offset strategy.
- Visual Amenity mitigation measures.
- Air quality mitigation.
- Groundwater and surface water mitigation
- Other environmental management and mitigation costs such as blasting and social impacts.[48]

[48] EY has not reviewed or provided view on appropriateness of these cost estimates or assessments and by including these costs into our analysis it should not be implied that we consider them to be appropriate. We have included these costs as provided to us.

Consistent with the Guidelines, the Project's indirect costs cover a range of net environmental, social and transport-related costs as well as the net public infrastructure costs as well as the estimated loss of surplus to other industries (listed in Table 17).

Consideration of these costs are based on a range of assessments undertaken by specialised consultants for the original Project and as updated for the Amended Project. The list of social and environmental consultant reports includes:

- Air Quality and Greenhouse Gas Assessment undertaken by Jacobs Group (Australia) Pty Limited presented the report, *Air Quality and Greenhouse Gas Assessment (2022)*.
- Air Quality Assessment undertaken by Airen Consulting presented in the report *Air Quality Impact Assessment* (2025).
- Greenhouse Gas Assessment undertaken by EMM Consulting presented in the report *Greenhouse Gas Assessment* (2025)
- Blasting Impact Assessment undertaken by Enviro Strata Consulting Pty Ltd (EMM) presented in the report *Blasting Impact Assessment (2022)*.
- Aboriginal Cultural Heritage Assessment undertaken by EMM consulting presented in the report *Aboriginal Cultural Heritage (2022).* Aboriginal Cultural Heritage Assessment undertaken by EMM consulting presented in the report *Aboriginal Cultural Heritage Assessment Addendum (2023)*.
- Aboriginal Cultural Heritage Assessment undertaken by EMM consulting presented in the report *Aboriginal Cultural Heritage Assessment Addendum (2025)*.
- Groundwater Assessment undertaken by Australasian Groundwater & Environmental Consultants presented in the report *HVO Continuation Project – Groundwater impact assessment (2022)*
- Surface Water Assessment undertaken by Engeny Water management presented in the report, *HVO Continuation Project Surface Water Impact Assessment (2022)*.
- Surface Water Impact Assessment undertaken by Engeny Water management presented in the report, *HVO Continuation Project – Amendment Water Assessment (2025).* Water Assessment undertaken by EMM Consulting presented in the report, *HVO Continuation Project – Amendment Water Assessment (2025)*.
- Noise Assessment undertaken by EMM consulting presented in the report, *Hunter Valley Operations Continuation Project Noise Impact Assessment (2022)*.
- Noise Assessment undertaken by EMM consulting presented in the report, *Hunter Valley Operations Continuation Project Amendment Noise Impact Assessment (2025)*.
- Visual Amenity Assessment by EMM consulting presented in the report, *HVO Continuation Project Visual Amenity Assessment (2022)*.
- Submissions Report by EMM consulting presented in the *HVO Continuation Project Submissions Report (2023)*Traffic Assessment prepared by WSP presented in the *Hunter Valley Operations Continuation Project Traffic and Transport Impact Assessment* (2022)
- Biodiversity Assessment prepared by Umwelt (Australia) Pty Limited presented in the report *Hunter Valley Operations Continuation Project Biodiversity Development Assessment Report* (2025)
- Environmental Impact Statement by EMM consulting presented in the *HVO Continuation Project Environmental Impact Statement (2022)*

- Amendment Report EMM consulting presented in the *HVO North Continuation Project Amendment Report (2023)*
- Amendment Report EMM consulting presented in the *HVO Continuation Project Amendment Report (2025)*

Appendix B Full Results and Sensitivity Analysis

Full-year inputs

The following table provides a detailed schedule of selected year-on-year coal production and coal prices (after quality adjustment) as key inputs into total coal sales revenue generated by the Project between 2027 and 2045. The Project focuses on thermal coal, accounting for 283 Mt (or 89.5 per cent) of total product coal.

Extraction rates increase substantially from 2030, peaking at 25.9 Mt of ROM coal in 2040, resulting in a similar revenue schedule. In total, the Project is estimated to general 429.3 Mt of ROM coal and revenue of $20.8 billion in NPV terms.

Table 19: Central case assumptions – revenue projection (selected years)

	ROM Output			Met. Coal Output			Thermal Coal Output			Coal Prices^		
Year	HVO Complex	HVO North	HVO South	HVO Complex	HVO North	HVO South	HVO Complex	HVO North	HVO South	Met. Coal Price	Thermal Coal Price	Rev. ($bn)
2030	22.05	13.03	9.03	1.79	0.31	1.48	14.20	9.08	5.12	151.83	119.70	1.97
2035	24.61	17.55	7.06	2.42	1.52	0.90	15.86	11.59	4.28	151.83	119.70	2.27
2040	25.90	21.66	4.24	1.53	0.78	0.75	17.57	15.09	2.47	151.83	119.70	2.33
2045	9.84	9.84	-	0.28	0.28	-	7.11	7.11	-	151.83	119.70	0.89
Total	429.27	307.04	122.23	33.05	15.74	17.31	283.22	210.40	72.81			39.7
NPV*												20.8

*Source: EY estimates ^ Real 2025 Australian dollars. * NPV to 2025 based on a 7 per cent real discount rate.*[49]

[49] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015), page 4.

Sensitivity Analysis – CBA and LEA

HVO Complex sensitivity analysis

Table 20: CBA – sensitivity analysis of the net benefits of the HVO Complex (NPV*, $ million)

HVOC Sensitivity	Central Case Assumptions	Higher Price	Lower Price	Higher Opex	Lower Opex	Higher Capex	Lower Capex	Higher Reservation Wage	Supplier Benefit	Higher Environmental Costs	Pessimistic case	Optimistic case	Central Case Assumptions (4%)	Central Case Assumptions (10%)
Direct Benefits	**$2,768.1**	**$3,770.5**	**$1,861.4**	**$2,644.7**	**$2,891.5**	**$2,754.8**	**$2,781.4**	**$2,768.1**	**$2,768.1**	**$2,767.4**	**$1,843.6**	**$3,907.9**	**$3,569.0**	**$2,206.6**
1. Net producer surplus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Royalties, payroll tax and Council rates	$2,395.2	$2,957.0	$1,833.3	$2,395.2	$2,395.2	$2,395.2	$2,395.2	$2,395.2	$2,395.2	$2,395.2	$1,833.3	$2,957.0	$3,087.9	$1,908.8
3. Company income tax apportioned	$372.9	$813.5	$28.1	$249.5	$496.3	$359.6	$386.2	$372.9	$372.9	$372.2	$10.4	$950.9	$481.0	$297.8
Indirect Benefits	**$2,941.9**	**$2,941.9**	**$2,941.9**	**$3,162.0**	**$2,721.9**	**$2,941.9**	**$2,941.9**	**$2,587.0**	**$2,763.6**	**$2,943.2**	**$2,607.9**	**$2,876.8**	**$3,831.6**	**$2,322.0**
1. Net economic benefit to existing landholders	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Net economic benefit to Local workers	$1,158.4	$1,158.4	$1,158.4	$1,158.4	$1,158.4	$1,158.4	$1,158.4	$803.5	$1,158.4	$1,158.4	$803.5	$1,158.4	$1,507.6	$915.1
3. Net economic benefit to Local suppliers	$1,783.5	$1,783.5	$1,783.5	$2,003.6	$1,563.4	$1,783.5	$1,783.5	$1,783.5	$1,605.1	$1,784.7	$1,804.3	$1,718.4	$2,323.9	$1,407.0
Indirect (Environmental costs)	$17.6	$17.6	$17.6	$17.6	$17.6	$17.6	$17.6	$17.6	$17.6	$19.3	$19.3	$15.8	$22.6	$14.1
Net Benefits	**$5,692.4**	**$6,694.9**	**$4,785.7**	**$5,789.1**	**$5,595.8**	**$5,679.1**	**$5,705.7**	**$5,337.5**	**$5,514.1**	**$5,691.2**	**$4,432.2**	**$6,768.9**	**$7,378.0**	**$4,514.5**

*Source: EY estimates based on information from various sources. Estimated as the benefits of the Project case less the Baseline case. *NPV in real 2025 Australian dollars based on a 7 per cent real discount rate, except for "Central Case (4%)" which is based on a 4 per cent real discount rate and "Central Case (10%)" which is based on a 10 per cent real discount rate. See Section 2.8 for descriptions of each assumption tested*

Table 21: LEA – sensitivity analysis of the net regional benefits of the HVO Complex (NPV*, $ million)

LEA Sensitivity	Central Case Assumptions	Higher Price	Lower Price	Higher Opex	Lower Opex	Higher Capex	Lower Capex	Higher Reservation Wage	Supplier Benefit	Higher Environmental Costs	Pessimistic case	Optimistic case	Central Case Assumptions (4%)	Central Case Assumptions (10%)
Direct Benefits	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$72.1**	**$83.2**	**$63.9**
1. Net producer surplus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Royalties, payroll tax and Council rates	$72.1	$72.1	$72.1	$72.1	$72.1	$72.1	$72.1	$72.1	$72.1	$72.1	$72.1	$72.1	$83.2	$63.9
3. Company income tax apportioned	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Indirect Benefits	**$1,781.2**	**$1,781.2**	**$1,781.2**	**$1,878.7**	**$1,683.7**	**$1,781.2**	**$1,781.2**	**$1,572.6**	**$1,702.1**	**$1,781.7**	**$1,581.8**	**$1,752.3**	**$2,356.2**	**$1,385.0**
1. Net economic benefit to existing landholders	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Net economic benefit to Local workers	$990.9	$990.9	$990.9	$990.9	$990.9	$990.9	$990.9	$782.3	$990.9	$990.9	$782.3	$990.9	$1,326.3	$761.5
3. Net economic benefit to Local suppliers	$790.3	$790.3	$790.3	$887.8	$692.8	$790.3	$790.3	$790.3	$711.3	$790.9	$799.6	$761.5	$1,029.8	$623.5

Indirect (Environmental costs)	$16.1	$16.1	$16.1	$16.1	$16.1	$16.1	$16.1	$16.1	$16.1	$17.7	$17.7	$14.5	$20.6	$12.9
Net Benefits	**$1,837.2**	**$1,837.2**	**$1,837.2**	**$1,934.7**	**$1,739.7**	**$1,837.2**	**$1,837.2**	**$1,628.6**	**$1,758.2**	**$1,836.2**	**$1,636.3**	**$1,810.0**	**$2,418.8**	**$1,436.0**

*Source: EY estimated based on information from various sources. Estimated as the benefits of the Project case less the Baseline case. *NPV in real 2025 Australian dollars based on a 7 per cent real discount rate, except for "Central Case (4%)" which is based on a 4 per cent real discount rate and "Central Case (10%)" which is based on a 10 per cent real discount rate. See Section 2.8 for descriptions of each assumption tested.*

HVO North sensitivity analysis

Table 22: CBA – sensitivity analysis of the net benefits of HVO North (NPV*, $ million)

HVON Sensitivity	Central Case Assumptions	Higher Price	Lower Price	Higher Opex	Lower Opex	Higher Capex	Lower Capex	Higher Reservation Wage	Supplier Benefit	Higher Environmental Costs	Pessimistic case	Optimistic case	Central Case Assumptions (4%)	Central Case Assumptions (10%)
Direct Benefits	**$1,706.7**	**$2,352.9**	**$1,186.6**	**$1,629.6**	**$1,794.3**	**$1,698.7**	**$1,715.1**	**$1,706.7**	**$1,706.7**	**$1,706.2**	**$1,184.5**	**$2,451.0**	**$2,282.4**	**$1,314.4**
1. Net producer surplus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Royalties, payroll tax and Council rates	$1,548.1	$1,911.7	$1,184.5	$1,548.1	$1,548.1	$1,548.1	$1,548.1	$1,548.1	$1,548.1	$1,548.1	$1,184.5	$1,911.7	$2,065.0	$1,194.9
3. Company income tax apportioned	$158.6	$441.2	$2.1	$81.5	$246.2	$150.5	$167.0	$158.6	$158.6	$158.1	$0.0	$539.2	$217.4	$119.5
Indirect Benefits	**$2,024.0**	**$2,024.0**	**$2,024.0**	**$2,182.4**	**$1,865.6**	**$2,024.0**	**$2,024.0**	**$1,819.2**	**$1,889.2**	**$2,025.0**	**$1,827.9**	**$1,983.4**	**$2,739.3**	**$1,539.4**
1. Net economic benefit to existing landholders	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Net economic benefit to Local workers	$676.4	$676.4	$676.4	$676.4	$676.4	$676.4	$676.4	$471.7	$676.4	$676.4	$471.7	$676.4	$937.5	$502.3
3. Net economic benefit to	$1,347.5	$1,347.5	$1,347.5	$1,505.9	$1,189.1	$1,347.5	$1,347.5	$1,347.5	$1,212.8	$1,348.5	$1,356.2	$1,306.9	$1,801.8	$1,037.1

Local suppliers														
Indirect (Environmental costs)	$11.2	$11.2	$11.2	$11.2	$11.2	$11.2	$11.2	$11.2	$11.2	$12.3	$12.3	$10.1	$14.4	$9.0
Net Benefits	**$3,719.5**	**$4,365.7**	**$3,199.4**	**$3,800.8**	**$3,648.6**	**$3,711.4**	**$3,727.8**	**$3,514.7**	**$3,584.7**	**$3,718.8**	**$3,000.0**	**$4,424.3**	**$5,007.3**	**$2,844.8**

*Source: EY estimates based on information from various sources. Estimated as the benefits of the Project case less the Baseline case. *NPV in real 2025 Australian dollars based on a 7 per cent real discount rate, except for "Central Case (4%)" which is based on a 4 per cent real discount rate and "Central Case (10%)" which is based on a 10 per cent real discount rate. See Section 2.8 for descriptions of each assumption tested.*

Table 23: LEA – sensitivity analysis of the net regional benefits of HVO North (NPV*, $ million)

LEA Sensitivity	Central Case Assumptions	Higher Price	Lower Price	Higher Opex	Lower Opex	Higher Capex	Lower Capex	Higher Reservation Wage	Supplier Benefit	Higher Environmental Costs	Pessimistic case	Optimistic case	Central Case Assumptions (4%)	Central Case Assumptions (10%)
Direct Benefits	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$54.5**	**$61.1**	**$49.5**
1. Net producer surplus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Royalties, payroll tax and Council rates	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$61.1	$49.5
3. Company income tax apportioned	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Indirect Benefits	**$1,215.0**	**$1,215.0**	**$1,215.0**	**$1,285.2**	**$1,144.8**	**$1,215.0**	**$1,215.0**	**$1,086.2**	**$1,155.3**	**$1,215.4**	**$1,090.0**	**$1,197.0**	**$1,654.5**	**$918.4**
1. Net economic benefit to existing	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0

landholders														
2. Net economic benefit to Local workers	$617.8	$617.8	$617.8	$617.8	$617.8	$617.8	$617.8	$489.0	$617.8	$617.8	$489.0	$617.8	$856.1	$458.8
3. Net economic benefit to Local suppliers	$597.1	$597.1	$597.1	$667.3	$526.9	$597.1	$597.1	$597.1	$537.4	$597.6	$601.0	$579.1	$798.4	$459.6
Indirect (Environmental costs)	$10.2	$10.2	$10.2	$10.2	$10.2	$10.2	$10.2	$10.2	$10.2	$11.2	$11.2	$9.2	$13.1	$8.2
Net Benefits	**$1,259.3**	**$1,259.3**	**$1,259.3**	**$1,329.5**	**$1,189.1**	**$1,259.3**	**$1,259.3**	**$1,130.5**	**$1,199.6**	**$1,258.8**	**$1,133.4**	**$1,242.4**	**$1,702.6**	**$959.7**

*Source: EY estimated based on information from various sources. Estimated as the benefits of the Project case less the Baseline case. *NPV in real 2025 Australian dollars based on a 7 per cent real discount rate, except for "Central Case (4%)" which is based on a 4 per cent real discount rate and "Central Case (10%)" which is based on a 10 per cent real discount rate. See Section 2.8 for descriptions of each assumption tested*

HVO South sensitivity analysis

Table 24: CBA – sensitivity analysis of the net benefits of HVO South (NPV*, $ million)

HVOS Sensitivity	Central Case Assumptions	Higher Price	Lower Price	Higher Opex	Lower Opex	Higher Capex	Lower Capex	Higher Reservation Wage	Supplier Benefit	Higher Environmental Costs	Pessimistic case	Optimistic case	Central Case Assumptions (4%)	Central Case Assumptions (10%)
Direct Benefits	**$935.6**	**$1,288.5**	**$655.2**	**$891.8**	**$982.3**	**$932.1**	**$939.0**	**$935.6**	**$935.6**	**$935.4**	**$648.3**	**$1,338.8**	**$1,124.7**	**$792.0**
1. Net producer surplus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Royalties, payroll tax and Council rates	$837.3	$1,035.6	$639.0	$837.3	$837.3	$837.3	$837.3	$837.3	$837.3	$837.3	$639.0	$1,035.6	$1,011.4	$705.5
3. Company income tax apportioned	$98.3	$252.9	$16.2	$54.5	$145.0	$94.8	$101.7	$98.3	$98.3	$98.1	$9.2	$303.2	$113.3	$86.5

Indirect Benefits	**$1,094.4**	**$1,094.4**	**$1,094.4**	**$1,178.1**	**$1,010.8**	**$1,094.4**	**$1,094.4**	**$965.5**	**$1,026.2**	**$1,094.7**	**$972.8**	**$1,070.4**	**$1,329.5**	**$916.8**
1. Net economic benefit to existing landholders	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Net economic benefit to Local workers	$412.1	$412.1	$412.1	$412.1	$412.1	$412.1	$412.1	$283.2	$412.1	$412.1	$283.2	$412.1	$493.0	$349.5
3. Net economic benefit to Local suppliers	$682.3	$682.3	$682.3	$766.0	$598.6	$682.3	$682.3	$682.3	$614.1	$682.6	$689.6	$658.2	$836.5	$567.3
Indirect (Environmental costs)	$6.5	$6.5	$6.5	$6.5	$6.5	$6.5	$6.5	$6.5	$6.5	$7.1	$7.1	$5.8	$8.3	$5.2
Net Benefits	**$2,023.5**	**$2,376.5**	**$1,743.2**	**$2,063.4**	**$1,986.6**	**$2,020.1**	**$2,027.0**	**$1,894.6**	**$1,955.3**	**$2,023.0**	**$1,614.0**	**$2,403.3**	**$2,446.0**	**$1,703.7**

Source: EY estimates based on information from various sources. Estimated as the benefits of the Project case less the Baseline case. *NPV in real 2025 Australian dollars based on a 7 per cent real discount rate, except for "Central Case (4%)" which is based on a 4 per cent real discount rate and "Central Case (10%)" which is based on a 10 per cent real discount rate. See Section 2.8 for descriptions of each assumption tested.

Table 25: LEA – sensitivity analysis of the net regional benefits of HVO South (NPV*, $ million)

LEA Sensitivity	Central Case Assumptions	Higher Price	Lower Price	Higher Opex	Lower Opex	Higher Capex	Lower Capex	Higher Reservation Wage	Supplier Benefit	Higher Environmental Costs	Pessimistic case	Optimistic case	Central Case Assumptions (4%)	Central Case Assumptions (10%)
Direct Benefits	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$16.3**	**$20.0**	**$13.7**
1. Net producer surplus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Royalties, payroll tax and Council rates	$16.3	$16.3	$16.3	$16.3	$16.3	$16.3	$16.3	$16.3	$16.3	$16.3	$16.3	$16.3	$20.0	$13.7

3. Company income tax apportioned	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Indirect Benefits	**$680.9**	**$680.9**	**$680.9**	**$718.0**	**$643.8**	**$680.9**	**$680.9**	**$599.8**	**$650.7**	**$681.0**	**$603.1**	**$670.2**	**$823.5**	**$572.4**
1. Net economic benefit to existing landholders	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
2. Net economic benefit to Local workers	$378.6	$378.6	$378.6	$378.6	$378.6	$378.6	$378.6	$297.5	$378.6	$378.6	$297.5	$378.6	$452.8	$321.1
3. Net economic benefit to Local suppliers	$302.4	$302.4	$302.4	$339.4	$265.3	$302.4	$302.4	$302.4	$272.1	$302.5	$305.6	$291.7	$370.7	$251.4
Indirect (Environmental costs)	$6.5	$6.5	$6.5	$6.5	$6.5	$6.5	$6.5	$6.5	$6.5	$7.1	$7.1	$5.8	$8.3	$5.2
Net Benefits	**$690.8**	**$690.8**	**$690.8**	**$727.9**	**$653.7**	**$690.8**	**$690.8**	**$609.7**	**$660.6**	**$690.3**	**$612.3**	**$680.8**	**$835.2**	**$581.0**

*Source: EY estimated based on information from various sources. Estimated as the benefits of the Project case less the Baseline case. *NPV in real 2025 Australian dollars based on a 7 per cent real discount rate, except for "Central Case (4%)" which is based on a 4 per cent real discount rate and "Central Case (10%)" which is based on a 10 per cent real discount rate. See Section 2.8 for descriptions of each assumption tested.*

Appendix C Greenhouse Gas Sensitivity Analysis

As detailed in the following table, GHG emissions cost are estimated at $3.8 million in NPV terms for the Project, $1.7 million and $2.1 million for HVO North and HVO South, respectively (based on a ratio of NSW population and global population (on average 0.33%) multiplied by the GHG global emission cost). These costs were estimated based on the incremental expected Scope 1 and 2 emissions detailed in the Air Quality and Greenhouse Gas Assessment conducted by Jacobs as revised with the Submissions Report.

Greenhouse Gases associated with the burning of coal from this facility are excluded from this assessment. This is because the EIA Guidelines and Technical notes do not require consideration of Scope 3 emissions. The impacts on climate change from Scope 3 emissions are therefore excluded from this analysis.

Table 26: Greenhouse gas emissions not accounted for by the safeguard mechanism attributable to the Project as an externality

	HVO Complex	HVO North	HVO South
ROM Coal Output Mt	429.3	307.0	122.2
Tonnes of GHG (Mt)			
Gross Scope 1	15.1	7.4	7.7
Net Scope 1	8.0	5.2	2.8
Net Scope 2	0.2	0.1	0.1
Net Total	8.2	5.3	2.9
Global Impact (NPV*, $ million^)	3,445.9	1,528.5	1,920.3
NSW (NPV*, $ million^)	3.8	1.7	2.1

Source: EY estimates Submissions Report (EMM 2025)^ Real 2024 Australian dollars.
* NPV in 2024 Australian dollars based on a 7 per cent real discount rate.

The following paragraphs present some further analysis surrounding the estimation of greenhouse gas externalities for the Project, in addition to a justification for using the US EPA Social Cost of Carbon prices for the analysis of the externalities of the Project. The sensitivity analysis both increases the proportion of costs which are attributed to NSW and the Project, in addition to increasing the cost per tonne of carbon emissions. In this section, the total cost of greenhouse gas externalities is apportioned based on the ratio between the population of NSW and Australia, resulting in around 32 per cent of the total indirect costs attributed to the externality arising by greenhouse gas emissions being borne by NSW.

In addition to altering the method of apportionment, three additional price trajectories were assessed in our scenario analysis. The details on the price trajectory per tonne of carbon emissions are detailed below. The price assumptions are derived from recent estimates on the social cost of carbon by the United States Government, based on the social cost of one tonne of carbon at 5 per cent, 3 per cent and 2.5 per cent discount rates:[50]

- **Low-Price Trajectory.** The Low-Price Trajectory adopts a starting price of $352/t $CO_{2\text{-}e}$ was adopted in 2025, which grows at an average rate of 1.7 per cent pa to $334/t $CO_{2\text{-}e}$ by 2050.

- **Mid-Price Trajectory.** The Mid Price Trajectory scenario adopts a starting price of $344/t $CO_{2\text{-}e}$ was adopted in 2025, which grows at an average rate of 1.6 per cent pa to $518/t $CO_{2\text{-}e}$ by 2050..

- **High Price Trajectory.** The High Price Trajectory adopts a starting price of $603/t $CO_{2\text{-}e}$ was adopted in 2025, which grows at an average rate of 1.2% to $803/t $CO_{2\text{-}e}$ by 2050.

[50] EPA, EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances (2023)

Table 27 details the total Net Benefits of the Project under the adjusted apportionment method and additional price sensitivities.

Table 27: Net Benefits of the Project with adjusted method of apportionment and various price trajectories^($ million NPV @ 7 per cent real interest rate)[51]

HVO Complex	Low Price Trajectory	Mid Price Trajectory	High Price Trajectory
Direct Benefits^	$2,768.1	$2,768.1	$2,768.1
Indirect Benefits^	$2,941.9	$2,941.9	$2,941.9
Total Greenhouse Gas Costs (Costs to Australia)^	$2,129.9	$3,445.9	$5,637.7
Apportionment to NSW (%)	32.70%	32.70%	32.70%
Indirect (Environmental Costs)			
Greenhouse Gas Emissions^	$696.49	$1,126.82	$1,843.54
Other Indirect Incremental Costs*	$13.82	$13.82	$13.82
Net Benefit^	**$4,999.69**	**$4,569.36**	**$3,852.64**

*Source: HVO. *Other Indirect Incremental Costs include costs that are not operationalised or capitalised such as: Transport Impacts and Loss of Surplus to other industries*

Table 28 details the total Net Benefits for HVO North under the adjusted apportionment method and additional price sensitivities.

Table 28: Net Benefits of HVO North with adjusted method of apportionment and various price trajectories^($ million NPV @ 7 per cent real interest rate)[52]

HVO North	Low Price Trajectory	Mid Price Trajectory	High Price Trajectory
Direct Benefits^	$1,706.7	$1,706.7	$1,706.7
Indirect Benefits^	$2,024.0	$2,024.0	$2,024.0
Total Greenhouse Gas Costs (Costs to Australia)^	$949.0	$1,528.5	$2,481.2
Apportionment to NSW (%)	32.70%	32.70%	32.70%
Indirect (Environmental Costs)			
Greenhouse Gas Emissions^	$310.32	$499.81	$811.36
Other Indirect Incremental Costs*	$9.54	$9.54	$9.54
Net Benefit^	**$3,410.86**	**$3,221.37**	**$2,909.81**

*Source: HVO. *Other Indirect Incremental Costs include costs that are not operationalised or capitalised such as: Transport Impacts and Loss of Surplus to other industries*

[51] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015), page 4.

[52] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015), page 4.

Table 29: Potential Net Benefits of HVO South with adjusted method of apportionment and various price trajectories^($ million NPV @ 7 per cent real interest rate)[53]

HVO North	Low Price Trajectory	Mid Price Trajectory	High Price Trajectory
Potential Direct Benefits^	$935.6	$935.6	$935.6
Potential Indirect Benefits^	$1,094.4	$1,094.4	$1,094.4
Total Greenhouse Gas Costs (Costs to Australia)^	$1,182.7	$1,920.3	$3,161.1
Apportionment to NSW (%)	32.70%	32.70%	32.70%
Indirect (Environmental Costs)			
Greenhouse Gas Emissions^	$386.73	$627.92	$1,033.67
Other Indirect Incremental Costs*	$4.37	$4.37	$4.37
Net Benefit^	**$1,638.90**	**$1,397.71**	**$991.96**

*Source: HVO. *Other Indirect Incremental Costs include costs that are not operationalised or capitalised such as: Transport Impacts and Loss of Surplus to other industries*

Noting that treating the total global costs as total costs to Australia, and comparing the direct benefits of the Project will not result in a like-for-like comparison, as the direct benefits can only be attributed to NSW, which means many of the global and Australia-wide benefits of the Project are not included. As such, care should be taken when comparing these two figures broadly.

Safeguard Mechanism Analysis

The Safeguard Mechanism is the Australian Government's policy to incentivise Australia's largest industrial facilities (emitters of over 100,000 tonnes of carbon dioxide equivalent (CO_2 e) per year, defined as designated large facilities) to reduce their Greenhouse Gas (GHG) emissions. Having commenced in July 2015,[54] the mechanism sets baselines on the greenhouse gas emissions of these facilities. Reforms to the Safeguard Mechanism took effect from 1 July 2023.[55] Under these reforms, new baseline emissions numbers ('baselines') for designated large facilities are set on a declining trajectory aligned with achieving Australia's emissions reduction targets in its Nationally Determined Contribution (NDC) under the Paris Agreement. Across the Safeguard sector baselines will gradually decline to be consistent with the trajectory required for Australia to reach its emissions reductions target of 43% below 2005 levels by 2030, and net zero by 2050.

The Safeguard Mechanism is expected to gradually reduce the emissions intensity limits of these facilities, requiring that the net covered emissions of GHG from the operation of a designated large facility do not exceed the baseline applicable to the facility. Facilities that produce below the baseline are issued Safeguard Mechanism Credits (SMCs) that are purchasable.[56] The Hunter Valley Operations Complex is a designated large facility, meaning the Safeguard Mechanism will apply to HVO, and HVO will be subject to the emissions reduction requirements contained within it in the future. The modelling underpinning the Report has been updated to account for the Safeguard Mechanism and the estimated impacts of the Safeguard Mechanism on the overall Project cost and thus net benefits. Given the potential for increased operational costs, the Safeguard Mechanism may potentially reduce the direct benefits related to corporate taxes, as the profitability of the

[53] Guidelines for the economic assessment of mining and coal seam gas proposals (nsw.gov.au) (2015), page 4.

[54] Federal Register of Legislation - National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 (2015).

[55] Safeguard Mechanism | Clean Energy Regulator (cer.gov.au) (2024).

[56] Safeguard Mechanism | Clean Energy Regulator (cer.gov.au) (2024).

Project may be impacted. The modelling also includes the incremental estimated impact of HVO's offer to voluntarily surrender additional net emissions in order to reflect consideration of the NSW State's Climate Change (Net Zero Future) Act 2023 (NZF Act). As such, HVO will surrender additional net emission than required by Safeguard, in order to reflect consideration of the NSW State's Climate Change (Net Zero Future) Act 2023 (NZF Act).

The HVOC will be required to reduce its net emissions intensity as a designated large facility, in accordance with the SGM and will make voluntary additional contributions towards the NSW emissions reduction targets including by using offsets to reduce the Project's net GHG emissions. The Project will have Scope 1 emissions as forecast (Submissions Report EMM 2023), which are based on continuation of existing practices to minimise diesel consumption and unabated open-cut fugitive emissions and hence are considered conservative/higher estimate as they do not reflect emerging technologies which may be able to be utilised in the future.

- The forecast Scope 1 emission intensity results in the facility exceeding its declining baseline in each year, therefore the full cost of the required reduction in emissions will be incurred by HVOC (roughly 5.6 Mt CO2-e over the Project lifetime for the SGM along with a further ~1.5Mt CO2-e of emissions reduction through the voluntary surrender of additional ACCUs and/or SMCs towards the NZF Act targets).

- The price of the required carbon offsets will be costed, in real terms, at $81 per tonne, and will escalate a further 2% per annum in real terms[57] noting that this measure is inherently conservative and was adopted to examine the Project's cost and benefits through conservative (high cost) assumptions.

It is reasonable to expect that the actual emissions by HVO may be lower if it is able to adopt reasonable and feasible emissions reduction technologies over the Project life to 2045, and/or the cost of purchasing offsets will be lower than the cap of $81 per tonne over the operating life of the facility.

For example, the development of the Project incorporates commitments by HVO to review, monitor and assess opportunities to mitigate and reduce the GHG emissions produced by HVO. These measures are proposed to be undertaken every 3 years and include:

- Undertaking regular reviews of technologies and abatement measures to reduce GHG emissions from the Project, including whether these measures are reasonable and feasible to implement at HVO.

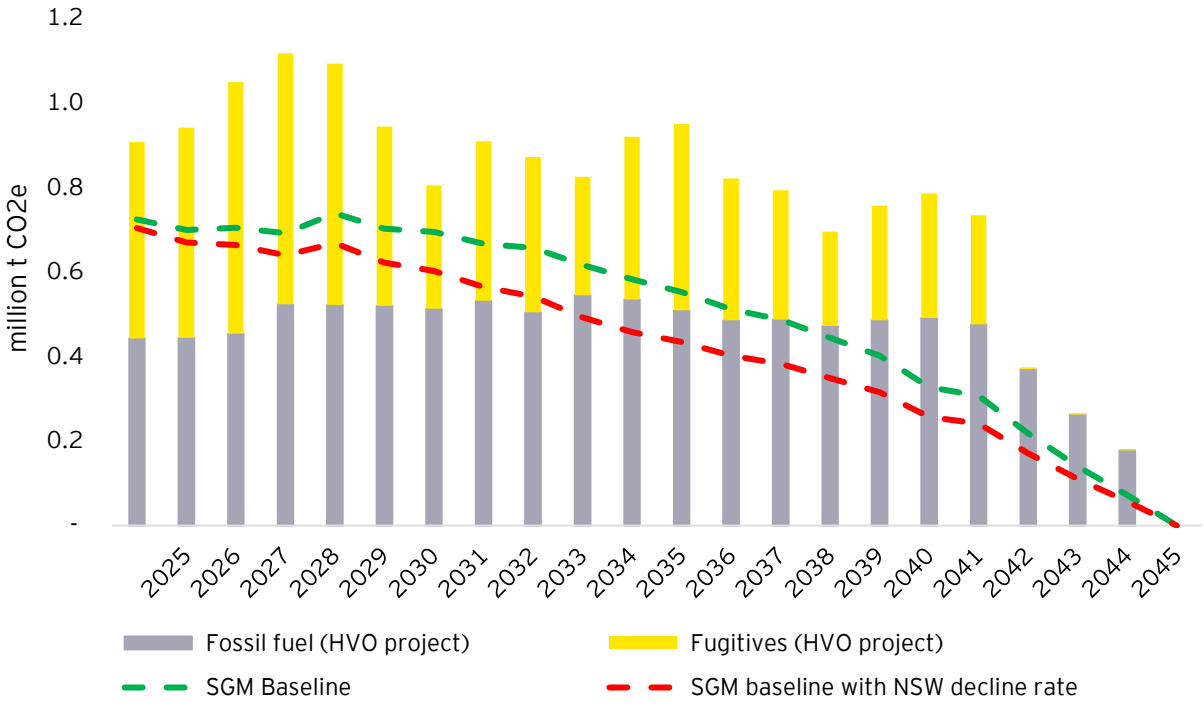
- The use of alternate fuels including biofuels and hydrogen, and the transition to an electric powered fleet, as these technologies advance and more information becomes available.

- Further, HVO will conduct a trial of gas pre-drainage in an area identified where pre-drainage has higher potential for effectiveness.

HVO has provided an updated emissions profile, and the extent of which the expected emissions will be costed over the Project lifetime, as highlighted in Figure 13 below.

[57] The government has also flagged the establishment of a cost containment measure. The cost containment measure will provide for Australian Carbon Credit Units (ACCUs) delivered under ACCU contracts to the CER after 13 January 2023 to be sold to safeguard mechanism entities at a fixed price, initially at $75 per tonne of CO2-e in 2023–24, increasing with the CPI plus 2% each year. (https://cer.gov.au/markets/reports-and-data/quarterly-carbon-market-reports/quarterly-carbon-market-report-march-quarter-2023/australian-carbon-credit-units-accus).

Figure 13: HVO Project Scope 1 Emissions Profile vs Indicative Baselines



The following table outlines the total spending that may be incurred by the Project, with respect to the implementation of the SGM baseline, in addition to the additional surrender of voluntary ACCUs, to reflect consideration of the NSW Net Zero Climate Change Act 2023. These emissions are apportioned between HVO North and HVO South by their respective ROM production per year. Note that this method of apportionment based on ROM tonnes is an approximation and does not reflect a first principles apportionment of emissions specific to each of HVON and HVOS.

Table 30: Key Figures from the implementation of the Safeguard Mechanism on the Project (2027-2045)

	Unit	HVOC	HVON	HVOS
Safeguard Baseline Exceedances	Mt C02-e	5.6	1.1	4.5
Additional Voluntary Surrender	Mt C02-e	1.5	1.1	0.5
Total Costed Emissions	Mt C02-e	7.1	2.2	5.0
Net Scope 1 Emissions After SGM and voluntary surrender	Mt C02-e	8.0	5.2	2.8
Gross Scope 1 Emissions	Mt C02-e	15.1	7.4	7.7
Total Scope 2 Emissions	Mt C02-e	0.2	0.1	0.1
Total Emissions	**Mt C02-e**	**15.3**	**7.5**	**7.8**
Total Safeguard Mechanism Costs	$ millions, Real	541	124	417
Additional Voluntary ACCU Surrenders	$ millions, Real	149	107	42
Total	**$ millions, Real**	**689**	**230**	**459**
Total Safeguard Mechanism Costs	$ millions, NPV	292	32	260
Additional Voluntary ACCU Surrenders	$ millions, NPV	80	54	26
Total	**$ millions, NPV**	**348**	**80**	**267**

The modelling underpinning this report has been updated to account for the Safeguard Mechanism reforms and the additional proposed voluntary contribution by HVO to reflect consideration of the

NSW NZF Act and estimates the impacts of these policies on the projects overall costs and benefits. As a result of the implementation of the Safeguard Mechanism, a portion of the Projects broader greenhouse gas emission costs have been internalised by HVO, at $348 million in NPV terms for the HVO Complex.

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