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The Stavely Project

Economic Impact Study

March 2021

Deloitte Access Economics

Disclaimer

Stavely Minerals Limited has engaged Deloitte Access Economics to prepare an Economic Impact Report for the purposes of communicating the potential employment and economic impacts of the Stavely Project to the local community. This report is based on hypothetical development and production scenarios, developed in consultation with Stavely Minerals Limited. These scenarios reflect the possible size of the Stavely Project, and associated impacts on the local region. Importantly, the assumptions used in the modelling herein should not be considered as novel information on the project's expected size or production levels. This report will be revised and modelling revisited upon completion of further Economic Studies that provide a higher degree of certainty regarding the likelihood of production and potential output volumes.

In order to highlight the extent of uncertainty that exists at each stage of mineral exploration, further information on the lifecycle of an exploration project is provided in Figure A below. The earlier stages of project generation and exploration are extremely high-risk with a very low probability of success. If, in the rare circumstance that a discovery is made, the Mineral Resource definition and technical studies stages[2] along with supporting studies[3] are all intended to progressively reduce the risk associated with a development proposal and financing. Beyond these initial stages, there remains a regulatory approvals risk[4].

1 in 1000

Odds that a greenfields mineral target ever becomes a profitable mine

Source: Minerals Council of Australia[1]

As an exploration project progresses, the degree of risk is incrementally reduced and the degree of accuracy and confidence increased. An initial Conceptual Study typically has a degree of accuracy of approximately ±50%, while a Scoping Study may have a degree of accuracy of ±30-35%, a Pre-Feasibility Study ±20-25% and a Feasibility Study ±10-15%. Stavely Minerals Limited considers that the hypothetical scenarios used herein are broadly consistent with a Conceptual Study. The degree of accuracy is based on observed exploration drilling grades, preliminary metallurgical recoveries and assumed parameters for annual throughput, grades, recoveries and metal prices.

This report intends to convey to stakeholders that the Stavely Project is at a relatively early, uncertain stage in the pathway to production and there is no certainty that a viable development will ever be established. Even so, it is informative to consider the impact of the project (in terms of scale, profitability, employment and contribution to the local economy) should all of the hurdles to reaching production be surmounted.

At the time of writing, Stavely Minerals Limited was in the post-discovery Mineral Resource definition phase. This phase involves intensive drilling of the mineralization to establish geologic continuity and dimensions with a sufficient number of data points allowing an estimate of the contained tonnes and grade to be determined with a certain level of confidence. Stavely Minerals has not yet estimated a Mineral Resource for the Stavely Project, and this is expected in the next few months.

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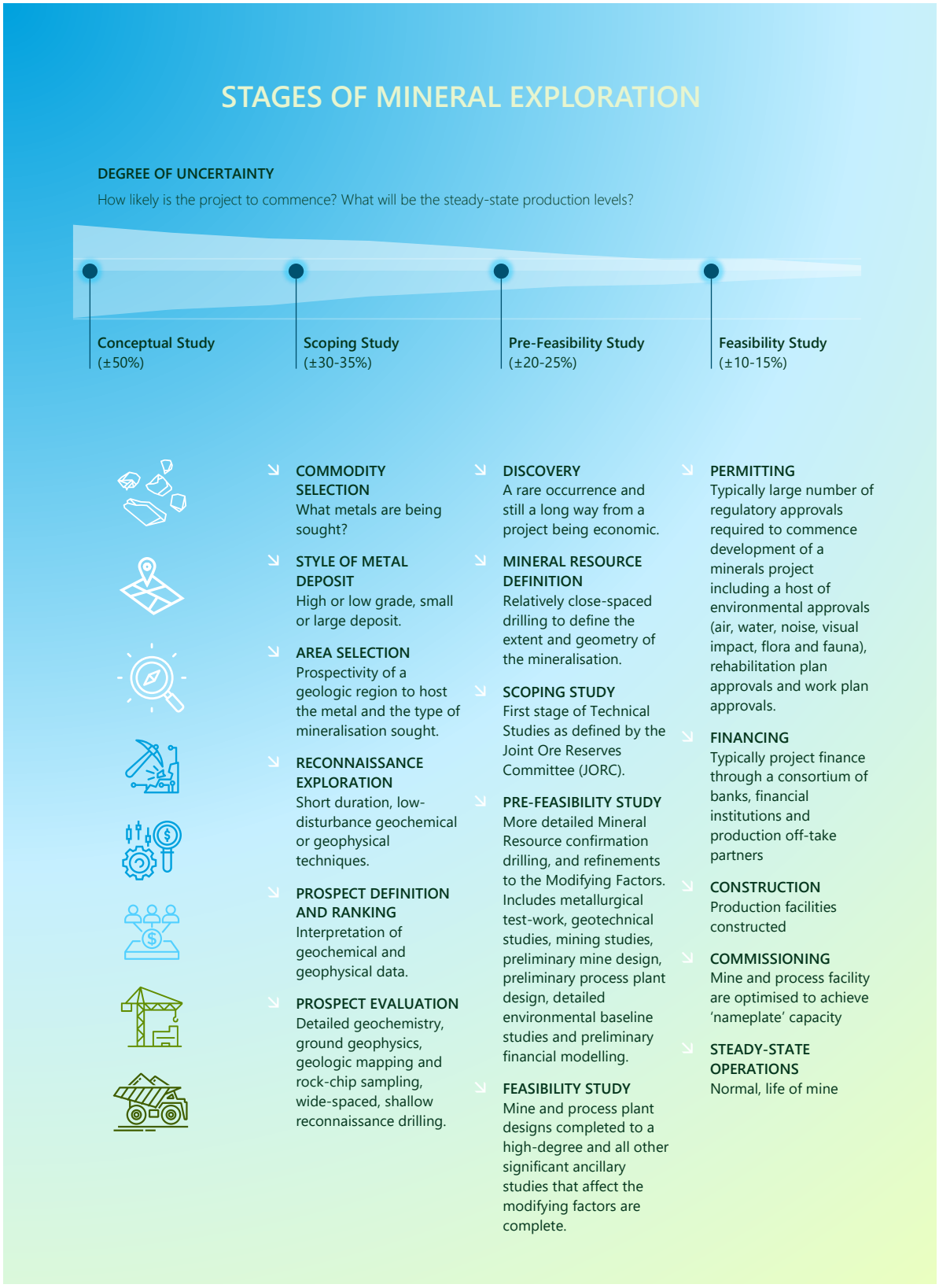
[1] Economic Development And Infrastructure Committee, 2012, Inquiry into greenfields mineral exploration and project development in Victoria

[2] E.g. Scoping Study, Pre-Feasibility and Feasibility Studies

[3] E.g. Metallurgical extraction, geotechnical evaluation, environmental studies

[4] These stages are well described in the Australian Institute of Mining and Metallurgy (AusIMM) publication Monograph 27 – Cost Estimation Handbook

Figure A: Stages of Mineral Exploration



Source: Deloitte, Stavely Minerals Limited

Contents

Executive summary

The Stavely Project (the Project) is located near the regional centre of Hamilton (in the Grampians region), approximately 250 kilometres west of Melbourne. Early geological studies suggest that there are potentially sufficient volumes and grade of copper, gold and silver in the local area that may support a commercial mining operation that services domestic and international markets.

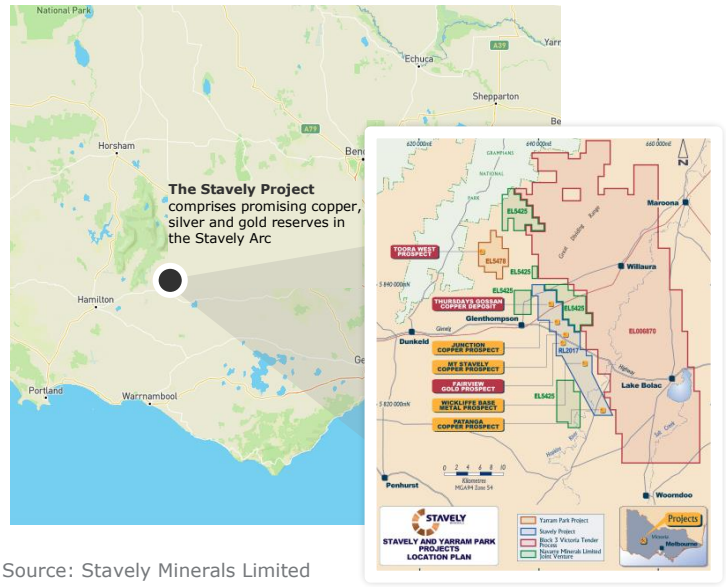
The Project has the potential to provide significant benefits to communities in the region (particularly Hamilton, Ararat and Ballarat), by providing additional jobs, stimulating local industries and increasing the working-age population over time.

Technical studies completed to date have shown an encouraging density of metals that have the potential to support the construction and operation of the Project for a possible 25 years. Further geological investigations are underway, including more detailed surveys and sampling, with the view to complete the studies necessary to underpin a development decision in 2024.

The Stavely Project will largely be targeted towards the extraction of copper, with ranges of expected annual production tonnes provided by Stavely Minerals.[5] Silver and gold will also be produced, as by-products to copper production.[6]

Each of these metals has wide applications, including in the production of consumer and industrial products. In recent years, copper is increasingly being used in the production of electric cars, windmills and solar panels while silver is also a critical ingredient in solar panels, and gold in consumer electronics devices.[7]

Figure i: The Stavely Project is located northeast of Hamilton, west of Melbourne



Source: Stavely Minerals Limited

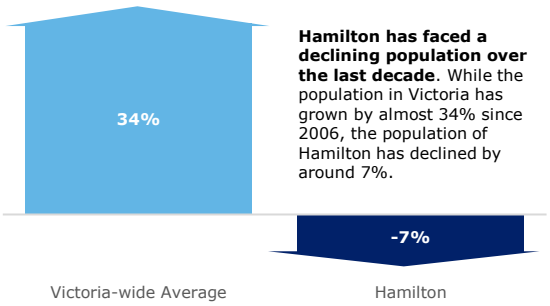
[5] Stavely Minerals Limited
[6] ibid
[7] InvestingNews

Hamilton, one of two regional centres close to the Project, is the self-proclaimed 'Wool Capital of the World'. The Greater Hamilton region contributes as much as 15 per cent of Australia's total wool production and has a long history of broadacre farming.[8] Other key industries in Hamilton include the retail industry which accounts for approximately 20 per cent of employment, and the health and community services sector which accounts for 14.5 per cent of employment.[9]

While Hamilton has a well-developed agricultural industry, it has in recent years lagged behind larger towns on key socio-economic indicators. For example, the total population of Hamilton has declined from 2006 to 2019 by 6.6 per cent. This compares to an average increase across Victoria of 33.7 per cent (Figure ii).

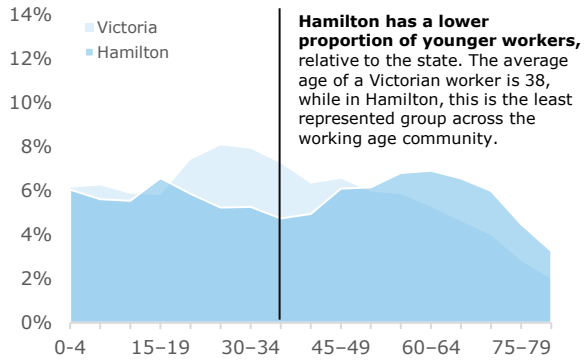
While unemployment in Hamilton is lower than the state average, there is a lack of younger workers and an ageing workforce. The proportion of the workforce aged less than 40 is around 45 per cent, compared to 55 per cent across the state (Figure iii). Similarly, the average age of a resident of Hamilton is 43, compared to 38 across the state.

Figure ii: Change in the population (Per cent growth between 2006 and 2019)



Source: Australian Bureau of Statistics, Regional Population

Figure iii: Age distribution in Hamilton (2019, per cent of the population)



Source: Australian Bureau of Statistics, Regional Population by Age and Sex

The Stavely Project has the potential to attract more workers and their families to Hamilton and the other proximal regional town of Ararat, activating local economic activity. To model the impact of the Stavely Project on the local area, Deloitte Access Economics has employed its in-house Computable General Equilibrium (CGE) model.

CGE modelling is the best-practice methodology for estimating the economic impacts of change in any one part of the economy. It is the preferred method for most major Commonwealth and State government agencies in estimating the economic impacts of a project or program (for more detail on CGE models and Deloitte Access Economics' in-house model see Appendix A).

The potential impact of the Stavely Project has been estimated for a defined project area that comprises Hamilton, Ararat and Ballarat. The results suggest that the Stavely Project, if developed as envisaged, is likely to deliver significant increases in economic activity and additional employment opportunities for residents of the Project Area.

[8] Southern Grampians Shire Council, Economic Profile and Statistics
[9] Australian Bureau of Statistics, Census (2016)

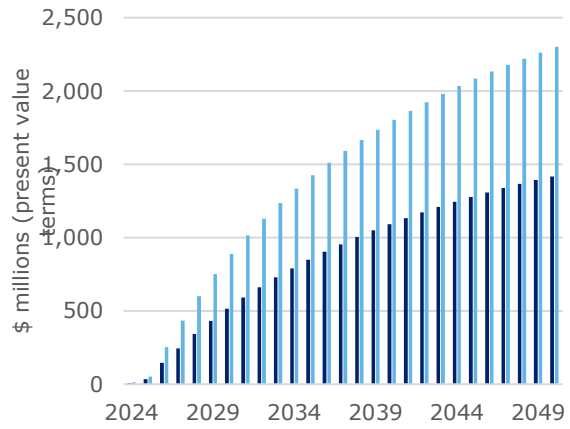
The estimated potential impacts of the Project include[10]:

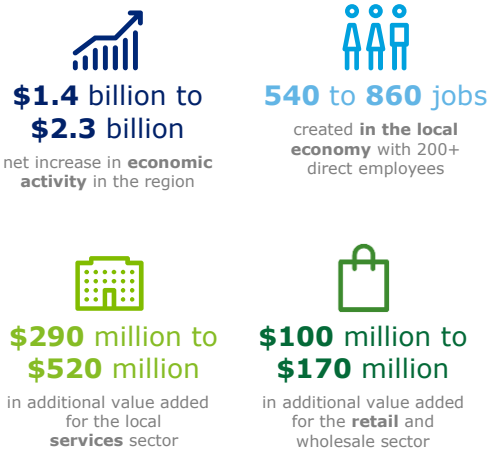
- A net increase in GDP of between $1.4 billion and $2.3 billion, in present value terms. This reflects the direct impact of the Project as well as positive economic spillovers to other industries. The total impact comprises the incremental uplift of output in each year of the construction phase (FY24 to FY25) and operations phase (to FY50), discounted at 7 per cent per annum.
- On average, between 240 and 360 additional full-time equivalent (FTE) jobs in each year of the Project, across all local industries, between 540 and 860 additional FTE jobs in FY50. The Project is expected to directly employ approximately 200 workers in the steady-state operations phase.[11]
- Between $430 million and $750 million of additional revenue, in present value terms, for the local services sector as a result of more jobs[12] and activity.[13] The net increase in economic activity is estimated to be between $290 million and $520 million, in present value terms.
- The retail and wholesale sector are also expected to benefit, with between $150 million and $260 million in additional revenue, and between $100 million and $170 million in economic activity, in present value terms, as a direct result of the Project.[14]

Commencement of the Stavely Project is subject to further technical and financial studies and regulatory approval. Stavely Minerals Limited is seeking to actively engage the local community and relevant stakeholders throughout the remaining planning and approvals processes.[15]

Economic impacts of the Stavely Project on the local Project Area

Figure iv: Cumulative increase in GDP





Source: Deloitte Access Economics' in-house model

[10] Estimates are rounded throughout this report, with original results noted in Appendix B.
[11] Stavely Minerals Limited
[12] Unless otherwise stated, all employment estimates are in Full Time Equivalent
[13] From FY24 to FY50, discounted at 7 per cent per annum
[14] From FY24 to FY50, discounted at 7 per cent per annum
[15] Stavely Minerals Limited

1 Background

1.1 Project overview

The Stavely Project is located in Western Victoria on the Stavely tablelands, between Hamilton and Ararat. Surveying and drilling completed to date have shown an encouraging volume and grade of copper-gold mineralisation that has potential to support a commercial mining operation.[16] Further geological investigations are underway, including more detailed drill definition and sampling, with the view to complete the studies necessary to underpin a development decision in the next few years.[17] The Project, if developed, has the potential to provide significant benefits to regional communities in the Grampians region, by providing additional jobs and expanding the size of local industry and value chains.

The Project site is approximately 2.5 kilometres east of the small town of Glenthompson (population of 234[18]) and intersects the Maroona-Glenthompson Road. As shown in Figure 1.1, the project tenure is approximately 5 kilometres wide and extends around 15 kilometres from the Maroona- Glenthompson Road towards Lake Bolac. The actual development site, if it proceeds, would be a much smaller area within the larger Victorian State Government granted mineral tenure. The site also neighbours several other promising prospects and deposits in the local area.

The Stavely Project, if it proceeds, would predominately produce copper as well as smaller amounts of gold and silver. Stavely Minerals Limited has provided broad ranges of potential annual metals production based on conceptual mining / milling volumes, grades and very preliminary metallurgical recoveries.[19]

Copper is utilised in the production of a wide variety of products associated with the renewable energy industry such as solar cells, wind turbines, electric vehicles (EVs), electronic devices, transportation equipment and industrial machinery.

Figure 1.1: Location of the Stavely Project in western Victoria

Source: Stavely Minerals Limited

[16] Stavely Minerals Limited
[17] ibid
[18] Australian Bureau of Statistics, Census (2016)
[19] Stavely Minerals Limited

1.2 Overview of the Project Area

The potential economic impact of the Stavely Project has been estimated as it relates to the local Project Area around the proposed production facility. For the purposes of the modelling, the Project Area is defined as the (ABS Statistical Area 3) regions of Hamilton, Ararat and Ballarat. Given their proximity, Hamilton and Ararat are likely to be the key source of labour for the Project, should it be developed, and will be the key beneficiaries of economic uplift in the Project Area. However, it is expected that Ballarat may also fill skills gaps in the Project's workforce, and benefit from the Project's positive economic spillovers. An overview of each of these three towns is provided below.

1.2.1 Hamilton

Located in south-western Victoria in the Southern Grampians area, Hamilton is a large town at the intersection of the Glenelg Highway and the Henty Highway with strong links to the sheep grazing and agriculture industries. Hamilton is located approximately 60 kilometres from the Project or around 40 minutes by car.

As the self-proclaimed 'Wool Capital of the World', the town provides up to 15 per cent of Australia's production.[20] Other key industries in Hamilton include the retail industry which accounts for approximately 20 per cent of employment, and the health and community services sector which accounts for 14.5 per cent of employment.[21]

Figure 1.2: Employed persons by industry, Hamilton and Regional Victoria (per cent of the workforce)

Source: Australian Bureau of Statistics, Census (2016)

According to the most recent regional population estimates, 10,125 people currently reside in Hamilton.[22] This reflects a 6.6 per cent decline in population from the 2006 Census when the town had 10,839 residents. The decline in population in Hamilton over the past decade stands in contrast to Victoria as a whole, which grew almost 34 per cent over the same period. This dynamic is not unique to Hamilton, with many other smaller rural centres in Victoria having seen young

[20] Southern Grampians Shire Council, Economic Profile and Statistics
[21] Census (2016)
[22] Australian Bureau of Statistics, QuickStats (2019)

residents leave for Melbourne and larger towns that provide greater employment opportunities.

Table 1.1: Estimated Resident Population, Hamilton and Victoria

Location	2006	2011	2016	2019	Change to 2019 (per cent)
Hamilton	10,839	10,104	9,974	10,125	-6.6
Victoria	4,932,422	5,354,042	5,926,624	6,596,039	33.7

Source: Australian Bureau of Statistics, Regional Population Growth, Australia, 2018-19, Cat.3218

Unemployment in Hamilton has been consistently below the state average for some years, but there is a relative shortage of younger workers. The proportion of the workforce aged less than 40 in Hamilton is around 45 per cent, compared to 55 per cent across the state. Similarly, the average age of a resident of Hamilton is 43, compared to 38 across the state.[23]

Employment projections for the five years to 2024 indicate that jobs growth in Hamilton is likely to be relatively slow in the absence of further investment. The Warrnambool and South West region, which contains Hamilton, is expected to see employment grow by 2.8 per cent over five years to 2024. By contrast, Regional Victoria is expected to see employment grow by 6.1 per cent over the period, and Victoria as a whole, by 9.7 per cent.

Table 1.2: Employment projections for five years to 2024 (per cent)

	Warrnambool and South West	Regional Victoria	Victoria
Total employment	**2.8**	**6.1**	**9.7**

Source: Labour Market Information Portal, 2019 Regional Projections – Five years to May 2024

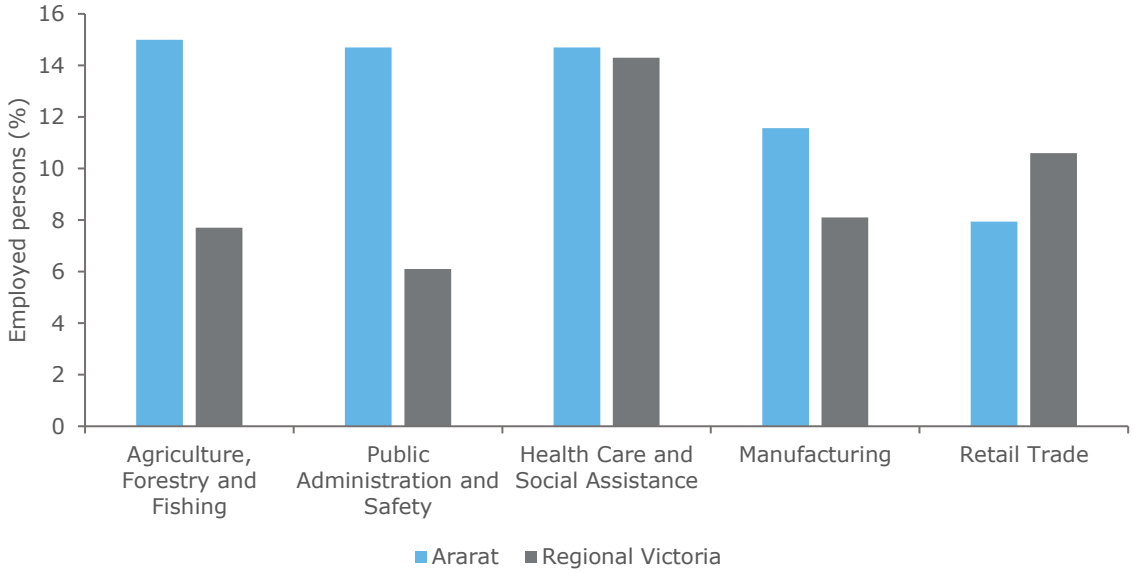
1.2.2 Ararat

Situated at the junction of the Western and Pyrenees highways, Ararat is a regional service centre in mid-western Victoria and the second closest regional centre to the Project. The largest single industry is Agriculture, which employs approximately 15 per cent of the workforce. Nonetheless, the city is also a regional commerce centre with a developed service economy. For example, the health services industry, as well as public administration each employ approximately 14 per cent of the workforce.

Ararat has attracted significant investments in infrastructure in recent years. This includes the Ararat Wind Farm which was opened in 2017 and produces large amounts of renewable energy for the National Electricity Market.

[23] Australian Bureau of Statistics, Regional Population by Age and Sex

Figure 1.3: Employed persons by industry, Ararat and Regional Victoria (per cent of the workforce)



Source: Australian Bureau of Statistics, Census (2016)

The population of Ararat has grown faster than Hamilton over the last decade, though has still expanded significantly slower than Victoria as a whole - and has also experienced periods of decline (e.g. from 2006 to 2011). From 2006 to 2019, the population grew 3.7 per cent, compared to the state average of almost 34 per cent (Table 1.3).

Table 1.3: Estimated Resident Population, Ararat and Victoria

	2006	2011	2016	2019	Change to 2019 (per cent)
Ararat	11,422	11,326	11,745	11,845	3.7
Victoria	4,932,422	5,537,817	6,173,172	6,596,039	33.7

Source: Australian Bureau of Statistics, Regional Population Growth, Australia, 2018-19, Cat.3218

Employment projections suggest that jobs growth across most industries in Ararat in the five years to 2024 will be lower than in Regional Victoria, and Victoria as a whole. Ararat lies in the 'North West' region, for which employment growth is expected to average 3.8 per cent over five years. In the region's Construction sector, employment is expected to grow 0.3 per cent over five years, compared to 6.6 per cent in regional Victoria.

Table 1.4: Employment growth Projections for five years to 2024 (per cent)

	North West	Regional Victoria	Victoria
Total (Industry)	**3.8**	**6.1**	**9.7**

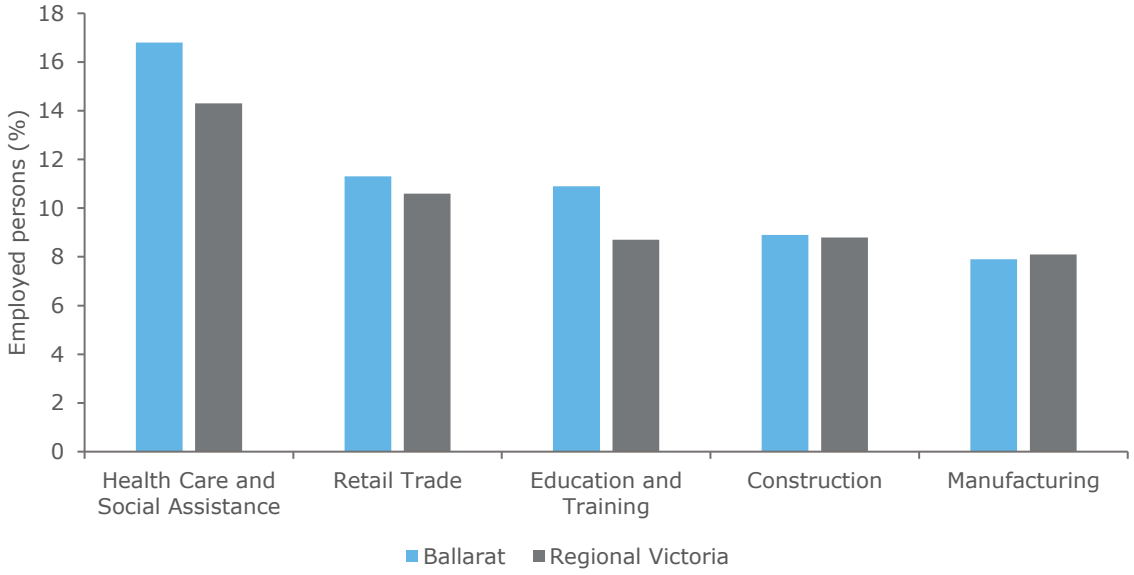
Source: Labour Market Information Portal, 2019 Regional Projections – Five years to May 2024

1.2.3 Ballarat

The largest inland city in Victoria, Ballarat is a commercial centre located at the intersection of four major highways that provide connections to Melbourne, Geelong, Adelaide, and Portland. It lies approximately 130 kilometres to the east of the Project.

Quite distinct from its roots as a gold mining town, Ballarat now has a relatively diversified economy. The Health sector is the town's largest employer, at approximately 17 per cent of the workforce, followed by Retail Trade (11 per cent) and Education (11 per cent).

Figure 1.4: Employed persons by industry, Ballarat and Regional Victoria (per cent of the workforce)



Source: Australian Bureau of Statistics, Census (2016)

In recent years, Ballarat has grown rapidly relative to other regional towns in Victoria. From 2006 to 2019, the population in Ballarat increased by more than 26 per cent. In 2019, it was estimated to have a total population of almost 110,000.

Table 1.5: Estimated Resident Population, Ballarat and Victoria

	2006	2011	2016	2019	Change to 2019 (per cent)
Ballarat	86,647	95,185	103,500	109,505	26.3
Victoria	4,932,422	5,537,817	5,354,042	5,926,624	33.7

Source: Australian Bureau of Statistics, Regional Population Growth, Australia, 2018-19, Cat.3218

2 Commodities overview

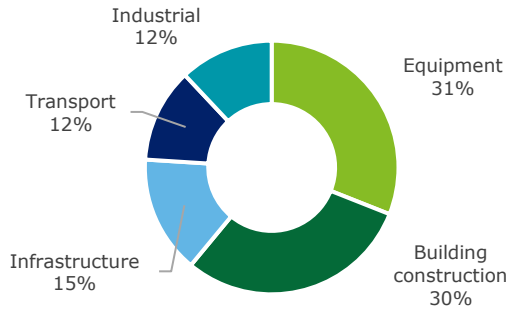
The Stavely Project is considered to have the potential to extract and process three metals: copper, gold and silver. Conceptual annual production rates have been provided by Stavely Minerals.[24]

Each of these metals has wide applications, including in renewable energy, the production of consumer devices and electric vehicles. An overview of the market for each commodity and its uses is provided below.

2.1 Copper

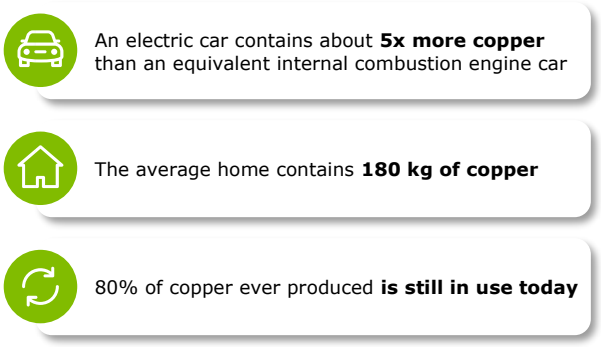
Copper has a wide variety of uses, though in recent years is increasingly being utilised for electrical equipment such as wiring and electric motors. Globally, 31 per cent of copper production is used in the manufacture of equipment, with another 30 per cent used in building construction (Figure 5).[25] Copper also has uses in transport, infrastructure and industrial applications.

Figure 5: World uses of copper (per cent)



Source: Department of Industry, Science, Energy and Resources

Figure 6: Key facts of copper use



Source: Department of Industry, Science, Energy and Resources

Australia is the world's seventh-largest copper producer, exporting more than 928 kilo-tonnes (worth around $10 billion) in FY20.[26] Australia's market share of global copper exports currently stands at five per cent with the top import locations in 2019 being China (37 per cent), Malaysia (28 per cent) and Thailand (7 per cent). [27]

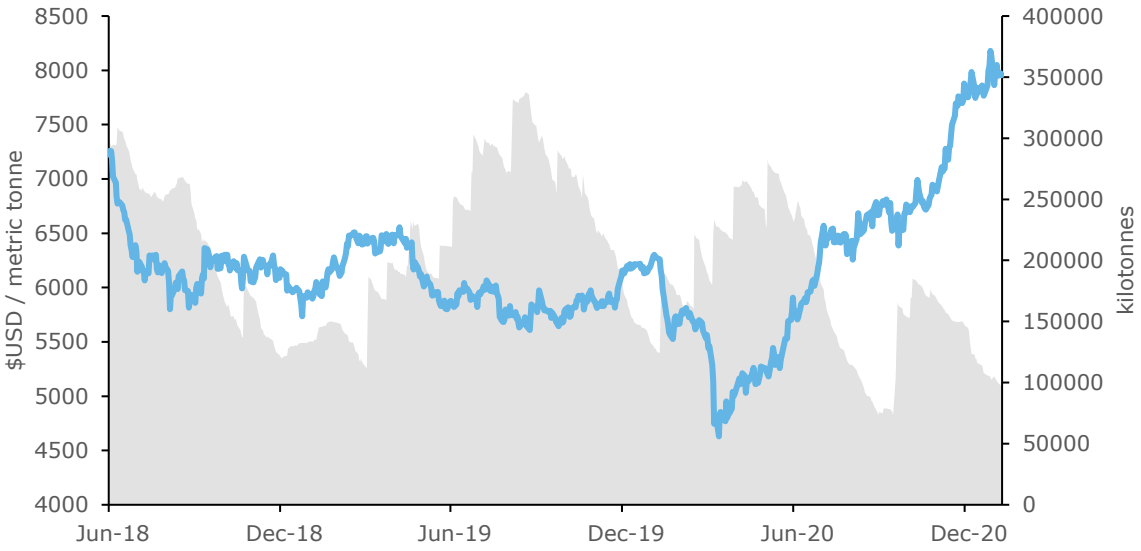
According to the latest Census, copper mining supported more than 6,800 jobs across the country in 2016. In Victoria, employment in the copper industry is lower than other states (e.g. Western Australia) but has steadily increased over time. In 2016, there were more than 330 jobs in copper mining in Victoria, a more than 2.1 times increase over 5 years.

[24] ibid
[25] Department of Industry, Science, Energy and Resources, Resources and Energy Quarterly
[26] ibid
[27] ibid

Since March 2020, global copper prices have increased by 48 per cent to US $7,836 per tonne.[28] The strong demand for copper has been driven, in part, by infrastructure-led economic recovery programs across Asia. Strong demand for copper is also evident in warehouse stockpiles, which declined from 282,000 tonnes in May, to just 73,000 tonnes by September 2020.[29]

Global recovery in economic activity over the coming years is expected to further support increased copper production. Over the medium term, copper usage is likely to benefit from higher structural demand for electric products. For example, a typical electric car contains approximately five times more copper than an equivalent internal combustion engine vehicle and an average wind turbine contains approximately 4 tonnes of copper.

Figure 2.7: Copper price and exchange warehouse stockpiles



Source: Bloomberg (2021)

2.2 Silver

Alongside copper production, the Stavely Project will also extract silver, though to a lesser degree. The global applications of silver include jewellery, currency, batteries and electrical equipment. In recent years, silver is increasingly used in the production of solar panels and passenger vehicles.[30]

Australia has the largest share of the world's economic silver resources, outstripping Mexico, Canada and the United States. Australia's silver production in 2019 was 1,400 metric tonnes, an increase from 1,222 metric tonnes in 2018.[31] At the average closing price in 2019, Australian silver output was valued at about $801 million (USD).

Approximately 25 per cent of Australia's silver output is refined to silver metal and predominantly exported to Japan.[32] Most of the remaining silver is exported in lead bullion to the United Kingdom where it is further refined.[33]

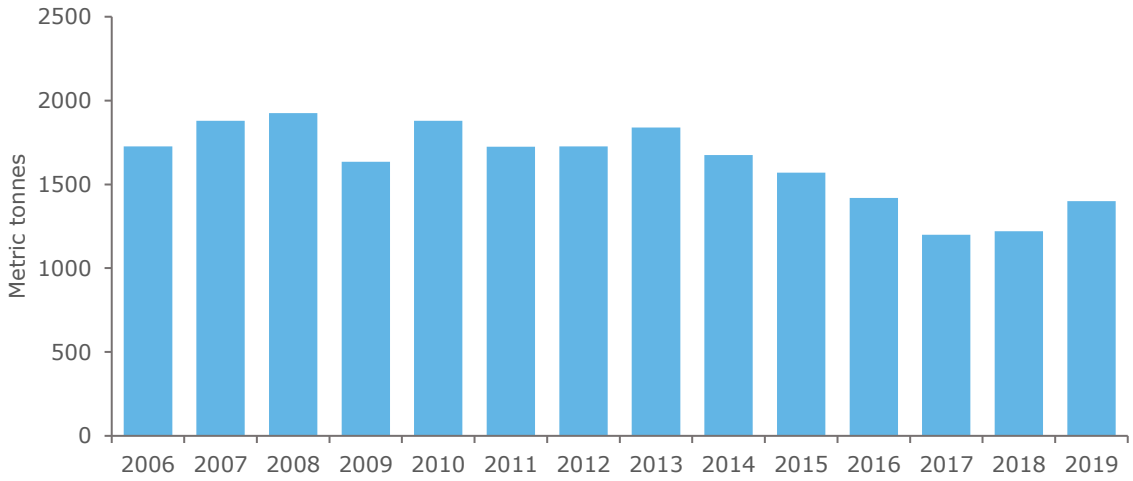
[28] Bloomberg, 16 December 2020
[29] ibid
[30] InvestingNews
[31] Statista
[32] Geoscience Australia
[33] ibid

The silver industry supports a significant number of jobs across Australia. Employment in the silver-lead-zinc industry totalled 3,150 in Australia in 2016, with 103 jobs in Victoria.

As with copper, silver prices have risen throughout 2020, albeit for different reasons. Silver (like gold) is often considered by investors as a 'safe-haven' asset, and during the pandemic, investors rebalanced portfolios to safer asset classes, which led to an increase in the demand for silver. At its peak in August 2020, silver had risen by 70 per cent year-on-year, reaching a record price of $29 per ounce (USD).[34]

Investors expect the price of silver to continue to rise in the coming years, as evidenced by futures prices which are currently 5 per cent higher than spot prices.[35] The post-pandemic economic recovery, combined with silver applications in high-demand products such as solar panels, could also provide tailwinds for the metal over the coming years.

Figure 2.8: Silver production volume, Australia (metric tonnes)



Source: Statista. 2020

2.3 Gold

The Stavely Project will also produce gold, though to a lesser degree than both copper and silver. The applications of gold include the backing of global exchange-traded funds (43 per cent), jewellery (25 per cent), coins and bars (16 per cent) and central bank reserves (11 per cent). It is also used in electronics and medical products.[36]

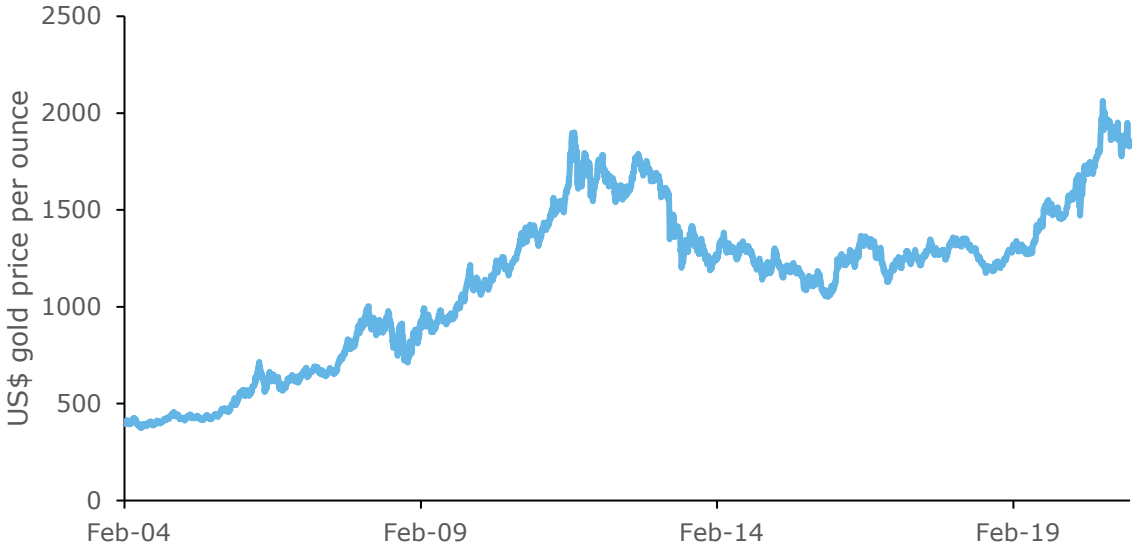
The value of Australia's gold exports increased by 29 per cent in FY20 to a record high of $24 billion (AUD) driven by high gold prices - making it one of the highest value exports in the country.[37] Australia accounts for 8 per cent of global gold exports with the top import locations being the UK (52 per cent), China and Hong Kong (17 per cent) and the United States (13 per cent).[38]

Gold mining is a major industry in Australia that supports more than 20,000 jobs. In 2016, gold mining in Victoria provided more than 1,600 jobs, a 25 per cent increase over five years.[39]

[34] Bloomberg
[35] Spread between 12-month futures contract and spot price, December 2020
[36] Department of Industry, Science, Energy and Resources, Resources and Energy Quarterly
[37] ibid
[38] ibid
[39] Census (2016)

In August 2020, gold reached a record price of $2,063 per ounce (USD), a 40 per cent year-on-year increase.[40] This was driven, in part, by its status as a safe-haven asset during the pandemic and the suppression of real interest rates in key industrial economies.

Figure 2.9: US dollar gold price



Source: Bloomberg (2021)

[40] Bloomberg

3 Potential Economic impacts

This chapter estimates the potential economic impacts of the Stavely Project using Deloitte Access Economics' in-house model.

The potential economic impacts of the Stavely Project have been estimated using the Deloitte Access Economics' in-house model. This modelling shows positive potential impacts on the regional economies of Hamilton, Ararat and Ballarat, including potential material increases in economic output and employment.

3.1 Deloitte Access Economics' in-house model

The Deloitte Access Economics Regional General Equilibrium Model (DAE-RGEM) is Deloitte's in-house Computable General Equilibrium (CGE) model that estimates the impact of significant changes to the Australian economy.

CGE modelling is the best-practice methodology for estimating the economic impacts of change in any one part of the economy. It is the preferred method for most major Commonwealth and State government agencies in estimating the economic impacts of a project or program (for more detail on CGE models and Deloitte Access Economics' in-house model see Appendix A).

3.2 Modelling the Stavely Project in Deloitte Access Economics' in-house model

To estimate the potential impact of the Stavely Project, Deloitte Access Economics' in-house model was utilised for several project case scenarios. To accurately estimate the potential impacts of the project, a bespoke Project Area was constructed in the model, and the economic shock was defined in terms of the Project's forecast capital and operating expenditure.

3.2.1 Base case

All estimates of the potential economic impact of the Project are measured by comparing the project cases (low and high) against a base case. The base case scenario is built from historical data with the economy growing as per 'business as usual'.

3.2.2 Low and High Scenarios

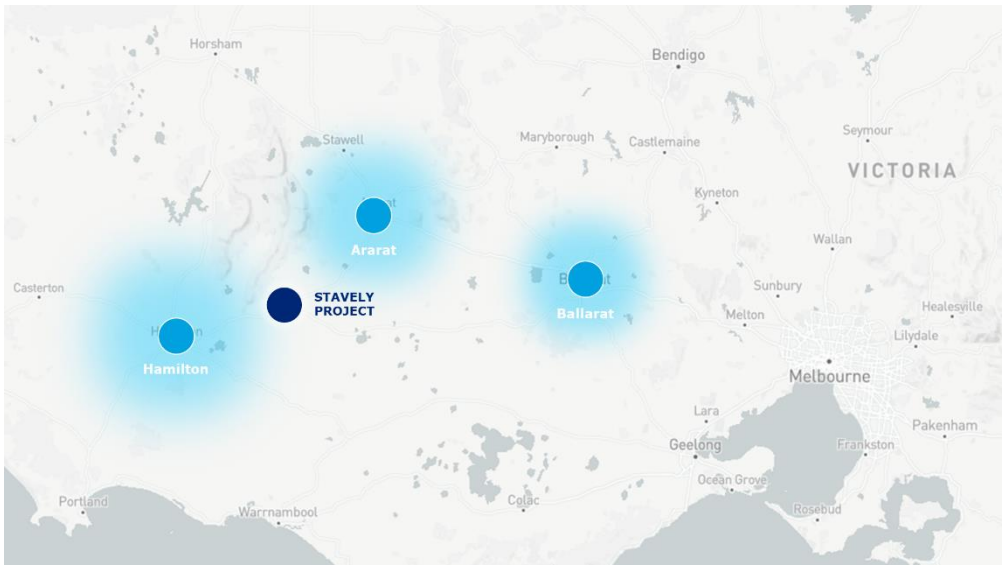
Several project case scenarios were constructed in Deloitte Access Economics' in-house model that reflect the potential size of the Project. Given the early stages of the Project and the significant level of uncertainty that remains around the size and output of the conceptual future facility (as technical studies are still ongoing), two scenarios - high and low - were developed. All estimates of the Project's potential economic impact are rounded, to reflect the degree of uncertainty, with key results in original form outlined in Appendix B.

3.2.3 Estimating the Project Area impacts

A key feature of the Stavely Project is its regional focus on the eastern Grampians region. It is expected that the vast majority of potential direct employees of the Project will be sourced locally from the towns of Hamilton, Ararat and Ballarat. There is expected to be very little, if any FIFO workforce required for the Project. To model the potential regional impacts of the Project

appropriately in Deloitte Access Economics' in-house model, a bespoke Project Area was constructed that comprises the SA3s of Hamilton, Ararat and Ballarat (see Figure 3.1).

Figure 3.1: Project Area modelled in Deloitte Access Economics' in-house model



Source: Deloitte Access Economics

3.2.4 Defining the economic shock

As a general equilibrium model, Deloitte Access Economics' in-house model requires the construction of a 'shock' on the economy which leads to the reallocation of capital and labour. This can, for example, take the form of a change in government policy, an increase in labour productivity or an increase in private sector investment. The Stavely Project was modelled according to the estimated capital expenditure in the construction phase, and operating expenditure in the production phase. Commodity prices were based on assumptions derived by Stavely Minerals. The size of these shocks was determined via consultation with Stavely Minerals Limited and are detailed in Table 3.1 below.

Table 3.1: Summary of economic impacts

	Low scenario case	High scenario case
Construction phase capital expenditure	$200 million in capital expenditure from FY24 to FY25. Followed by a further $50 million in capital expenditure to construct an underground infrastructure in FY28.	$300 million in capital expenditure from FY24 to FY25. Followed by a further $50 million in capital expenditure to construct an underground infrastructure in FY28.
Production phase operating expenditure	$100 million per year of operating expenditure commencing in FY26 to FY50.	$150 million per year of operating expenditure commencing in FY26 to FY50.

Source: DAE-RGEM

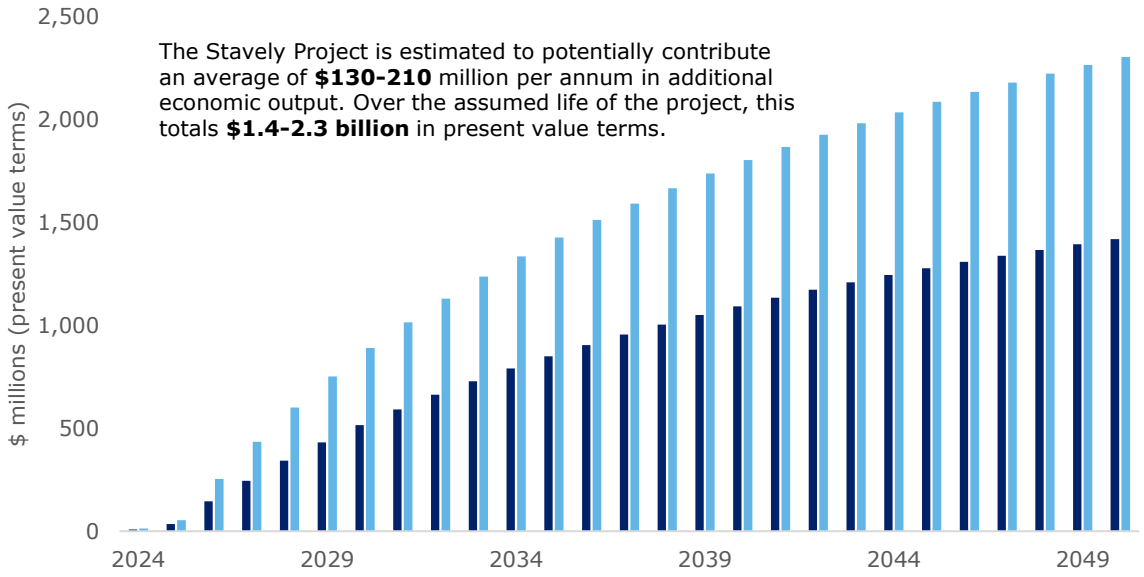
3.3 Economic impacts of the Stavely Project

Deloitte Access Economics' in-house modelling suggests that the Stavely Project has the potential to deliver a significant increase in economic activity for the Project Area and provide sustained positive economic spillovers to local industries. Between FY24 and FY50 Gross Regional Product (GRP) – the headline measure of regional economic output - is estimated to be between $1.4 billion and $2.3 billion higher (in present value terms) should the development proceed, relative to the base case (Figure 3.2).

Across the Project Area, potential growth in GRP relative to the base case is expected to accelerate with the construction phase of the Project, then steady as the Project enters the operations phase. At the beginning of the Stavely Project, capital investment drives the Project Area's GRP to between $130 million and $250 million above the base case in FY26. This figure represents the net potential impact of the Project on the local economy and includes the reallocation of capital and labour to and from other industries.

As the construction phase concludes, growth in GRP tapers as the Project ramps-ups to steady-state production levels. From FY33 onwards, the incremental difference in output (relative to the base case scenario) grows, as the economic adjustment to the end of the construction phase concludes. From FY33 onwards, the potential incremental difference in GRP (relative to the base case) continues to expand, reaching between $160 million and $240 million per annum by the end of the expected mine life (FY50).

Figure 3.2: Cumulative deviation in Gross Regional Product in the Project Area, (FY20 $m, present value terms)



Source: DAE-RGEM

3.4 Employment potential

The Stavely Project is also estimated to have a potential positive potential impact on employment in the Project Area, providing between 540 and 860 additional jobs[41] (FTE) in the operations phase. Direct employment in the operations phase of the Project is currently expected to be

[41] Unless otherwise stated, all employment estimates are in Full Time Equivalent

around 200 employees.[42] Jobs created outside the Project itself are a result of potential positive economic spillovers that stimulate local industries and lead to a generalised expansion of economic activity in the Project Area.

The potential net increase in jobs as a result of the Project, should development proceed, follows a similar profile to the increase in GRP. Capital expenditure at the beginning of the Project results in rapid employment growth between FY24 and FY25, predominantly in the Construction sector.

From the beginning of the operations phase until the end of the expected mine life, the Project potentially creates a significant uplift in jobs in the Services sector. This is largely a result of real incomes rising which leads to further spending in the local economy, which in turn, creates broader employment opportunities.

3.5 Potential sectoral impacts

Given the nature of the potential Project, a large share of the total economic impact is associated with the Mining sector.[43] In total, the potential Project is estimated to increase revenue in the Mining sector by between $1.2 billion and $1.8 billion, in present value terms. The increase in gross value added (the net impact after subtracting the cost of inputs) is estimated to be between $760 million and $1.1 billion, in present value terms.

The Project potentially also generates relatively large economic spillovers across a broader set of local industries (Figure 3 and Figure 4). The most significant of these is the Services industry, which includes finance, insurance, recreation, and government services. As with the employment impacts, the potential positive spillovers in the Services sector are a result of real incomes rising in the Mining sector, which leads to additional consumption of local services, which in turn, enables these sectors to grow faster than they otherwise would.

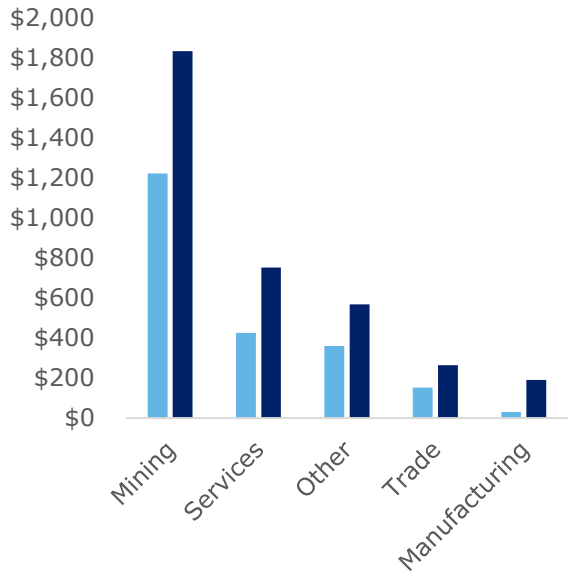
The retail and wholesale trade sector potentially also benefits from the Project, albeit to a lesser degree. It is estimated that revenue could rise by between $150 million and $260 million in this sector, with gross value-added increasing by between $100 million and $170 million.

In total, the potential economic spillovers of the Project into other sectors outside mining are more than 85 per cent of mining itself. Potential economic spillovers total between $970 million and $1.8 billion in additional revenue, and between $660 million and $1.2 billion in gross value added (both in present value terms).

[42] Stavely Minerals Limited

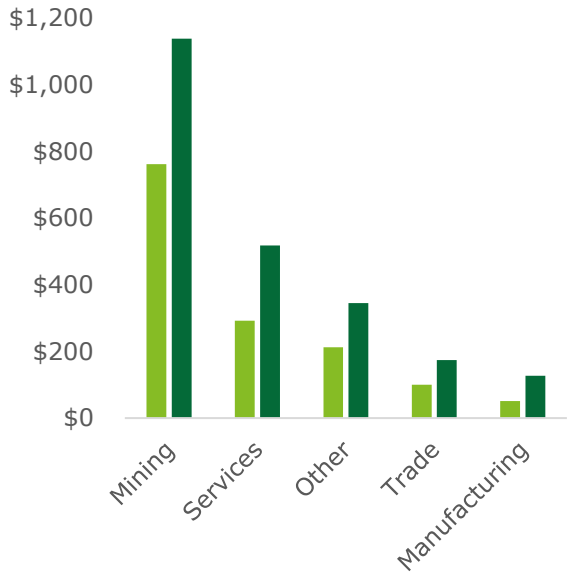
[43] For the purposes of this analysis, the Mining sector does not include Coal, Oil and Gas. These sectors are included under their own classification.

Figure 3: Increase in revenue, by industry, in the Project Area, (FY20, $m, present value terms)



Source: DAE-RGEM

Figure 4: Increase in value-add, by industry, in the Project Area, (FY20, $m, present value terms)



Source: DAE-RGEM

3.6 Conclusion

The potential impact of the Stavely Project on economic output in the Project Area, if a development proceeds, is estimated to fall within the range of approximately $1.4 to $2.3 billion, in present value terms. These estimates include any relocation of capital and labour from other regions and industries and therefore represent the net additional economy activity on the Project Area.

In total, the potential Project is expected to increase employment by between 540 and 860 FTE. Similarly, these estimates incorporate the movement of workers from neighbouring industries and thus reflect net job creation. The potential Project itself is expected to directly employ approximately 400 workers in the construction phase and around 200 workers in the operations phase.[44]

[44] Stavely Minerals Limited

Appendix A DAE-RGEM

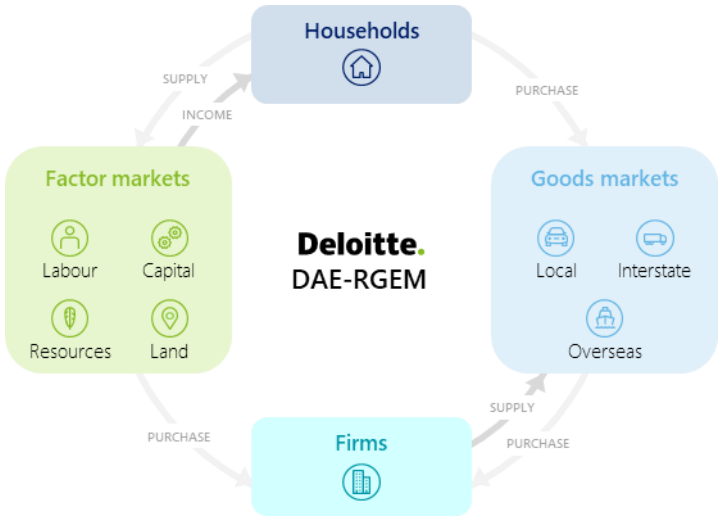
Deloitte Access Economics' in-house model (DAE-RGEM)

The Project utilises the Deloitte Access Economics Regional General Equilibrium Model (DAE RGEM). DAE-RGEM is a large scale, dynamic, multi-region, multi-commodity CGE model of the world economy with bottom up modelling of Australian regions. DAE-RGEM encompasses all economic activity in an economy – including production, consumption, employment, taxes and trade – and the inter linkages between them.

For this Project, the model has been customised to explicitly identify core sectors of the Australian and global economy and has split each jurisdiction into greater city and rest of jurisdiction regions.

Figure A.1 is a stylised diagram showing the circular flow of income and spending that occurs in DAE RGEM. To meet demand for products, firms purchase inputs from other producers and hire factors of production (labour and capital). Producers pay wages and rent (factor income) which accrue to households. Households spend their income on goods and services, pay taxes and put some away for savings. The government uses tax revenue to purchase goods and services, while savings are used by investors to buy capital goods to facilitate future consumption. As DAE-RGEM is an open economy model, it also includes trade flows with other regions, interstate and foreign countries.

Figure A.1: The components of DAE-RGEM and their relationships



Source: Deloitte Access Economics

DAE-RGEM is based on a substantial body of accepted microeconomic theory. Key assumptions underpinning the model are:

- The model contains a 'regional consumer' that receives all income from factor payments (labour, capital, land and natural resources), taxes and net foreign income from borrowing (lending).
- Income is allocated across household consumption, government consumption and savings so as to maximise a Cobb-Douglas (C-D) utility function.

- Household consumption for composite goods is determined by minimising expenditure via a CDE (Constant Differences of Elasticities) expenditure function. For most regions, households can source consumption goods only from domestic and imported sources. In the Australian regions, households can also source goods from interstate. In all cases, the choice of commodities by source is determined by a CRESH (Constant Ratios of Elasticities Substitution, Homothetic) utility function.
- Government consumption for composite goods, and goods from different sources (domestic, imported and interstate), is determined by maximising utility via a C-D utility function.
- All savings generated in each region are used to purchase bonds whose price movements reflect movements in the price of creating capital.
- Producers supply goods by combining aggregate intermediate inputs and primary factors in fixed proportions (the Leontief assumption). Composite intermediate inputs are also combined in fixed proportions, whereas individual primary factors are combined using a constant elasticity of substitution production function.
- Producers are cost minimisers, and in doing so, choose between domestic, imported and interstate intermediate inputs via a CRESH production function.
- The model contains a more detailed treatment of the electricity sector that is based on the 'technology bundle' approach for general equilibrium modelling developed by ABARE (1996).
- The supply of labour is positively influenced by movements in the real wage rate governed by an elasticity of supply.
- Investment takes place in a global market and allows for different regions to have different rates of return that reflect different risk profiles and policy impediments to investment. A global investor ranks countries as investment destinations based on two factors: global investment and rates of return in a given region compared with global rates of return. Once the aggregate investment has been determined for Australia, aggregate investment in each Australian sub-region is determined by an Australian investor based on: Australian investment and rates of return in a given sub-region compared with the national rate of return.
- Once aggregate investment is determined in each region, the regional investor constructs capital goods by combining composite investment goods in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these goods via a CRESH production function.
- Prices are determined via market-clearing conditions that require sectoral output (supply) to equal the amount sold (demand) to final users (households and government), intermediate users (firms and investors), foreigners (international exports), and other Australian regions (interstate exports).
- For internationally traded goods (imports and exports), the Armington assumption is applied whereby the same goods produced in different countries are treated as imperfect substitutes. But, in relative terms, imported goods from different regions are treated as closer substitutes than domestically produced goods and imported composites. Goods traded interstate within the Australian regions are assumed to be closer substitutes again.
- The model accounts for greenhouse gas emissions from fossil fuel combustion. Taxes can be applied to emissions, which are converted to good-specific sales taxes that impact on demand. Emission quotas can be set by region and these can be traded, at a value equal to the carbon tax avoided, where a region's emissions fall below or exceed their quota.

Appendix B Modelling Results

Table 3.2: Modelling results from DAE-RGEM

	High scenario	Low scenario
Potential Gross Regional Product ($m FY20, present value, up to FY50)	$2,302	$1,418
Potential Gross Regional Product ($m FY20, average per annum)	$206	$130
Potential Employment (increase in FTEs per annum, on average)	356	240
Potential Employment (increase in FTEs in FY50 versus base case)	863	543

Source: DAE-RGEM

Appendix C Additional Information

Limitation of our work

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Deloitte.

Deloitte Access Economics
Brookfield Place, Tower 2
123 St Georges Terrace
Perth, WA, 6000
Australia

Phone: +61 8 9365 7000
www.deloitte.com.au

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