

**Supplementary
Submission
No 114c**

**INQUIRY INTO CURRENT AND POTENTIAL IMPACTS OF
GOLD, SILVER, LEAD AND ZINC MINING ON HUMAN
HEALTH, LAND, AIR AND WATER QUALITY IN NEW
SOUTH WALES**

Name: Mrs Bronwyn Wannan

Date Received: 4 September 2023

Inquiry into current and potential impacts of gold, silver, lead and zinc mining on human health, land, air and water quality in New South Wales

Dear Committee Members

Thank you for the opportunity to make this written submission to the Parliamentary Inquiry regarding the Greenhouse Gas Emissions predicted for the Bowdens Silver Project at Lue, near Mudgee in NSW.

The World Health Organisation states climate change is the single biggest health threat facing humanity, and health professionals worldwide.

[Climate change and health \(who.int\)](#) [Climate change and health \(who.int\)](#)

What is the Bowdens Silver Project impact on Climate Change?

Bowdens have not calculated their impact on Climate Change and Global Warming and to what extent they will contribute to NSW, Australian and Global CO₂ emissions.

Bowdens have only partially calculated their total Greenhouse Gas Emissions for their lead, silver and zinc mine. In addition to incorrect and incomplete calculations, because the Bowdens Silver Project is located in NSW they are allowed to reduce the reported financial impact of their emissions calculated to only those generated in NSW.

Specifically Bowdens have not calculated the Scope 3 emissions generated by the processing and smelting of the silver / lead concentrate from their mine which will be processed at Port Pirie in South Australia.

The attached submission was made to the Independent Planning Commission chaired by Peter Duncan and was not responded to in any way, by either the Department of Planning or the Independent Planning Commission.

Bowdens must recalculate their impact on Climate Change or the project's contribution to global emissions.

Relevant Terms of Reference

The impacts on Climate Change of the Bowdens Silver Project relate to Terms of Reference 1(a), (b), (c) given that Climate Change is the most significant environmental and health problem in the world today.

The inaccurate calculation of Greenhouse Gas emissions by Bowdens Silver Project and those impacts should also be considered with reference to Terms of Reference 1(h) given that Clause 14 of the Mining SEPP states that:

“in determining a development application for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions”

The NSW DPE in their recommendation of the Bowdens Silver Project have not considered “any applicable national policies, programs or guidelines” concerning greenhouse gas emissions.

Recommendations

1. All gold, silver lead and zinc mining in NSW be required to properly account for all their Greenhouse Gas emissions including all Scope 1, Scope 2 and Scope 3 emissions in NSW and Australia and the impact of a mine’s GHG emissions in comparison with other activities and land uses in their location such as education, residential, service industries, tourism and agriculture.
2. The NSW Critical and High-tech Metals Strategy proposed by the previous Deputy Premier Paul Toole be reassessed to provide protection to existing businesses, tourism, homes and the environment in the Central West. Silver, lead and zinc are not listed in the Australian Government Critical Minerals list and silver is only briefly mentioned in the NSW strategy.

[Critical minerals and high-tech metals strategy \(nsw.gov.au\)](https://www.nsw.gov.au/critical-minerals-and-high-tech-metals-strategy)

3. Any biodiversity offsets or carbon credits for minerals mines be in the form of working with Landcare NSW to replant areas of trees that have been previously cleared. No offsets are available for mining if there is a net loss of trees or biodiversity.

Please find attached at Tab A

Submission

Bowdens Silver Project - Greenhouse Gas Emissions

Contact

B Wannan

5 September 2023

Tab A

Bowdens Silver Project - Greenhouse Gas Emissions

Executive Summary

Ramboll Australia Pty Ltd conducted a Greenhouse Gas assessment of the Bowdens Project.

In their assessment of the project, Ramboll identified Scope 1, Scope 2 and Scope 3 emission sources. Ramboll found 7 emission sources of Scope 3 emissions but neglected to include a major emission source, the silver / lead smelter at Port Pirie in South Australia.

GHG Emissions downstream emissions include

- Downstream emissions generated from transportation of silver / lead concentrate by road from Mine Site to Parkes (or Kelso),
- Downstream emissions generated from the transportation from Parkes (or Kelso) to Port Pirie,
- Employee travel
- **Nyrstar Smelter at Port Pirie is not included in emissions calculations**
- Downstream emissions generated from international transportation of product by ship

The exclusion of the Nyrstar smelter results in the calculations for greenhouse gas emissions for the project being incomplete and inaccurate.

The Department considers that the project's GHG emissions are reasonably low, and that the mine's products would assist in society's decarbonisation over the coming decades. The Department has recommended conditions requiring Bowdens Silver to take all reasonable steps to minimise the energy efficiency of the development and to describe the measures to be implemented to ensure the greenhouse gas emissions are minimised in an air quality and greenhouse gas management plan.

These comments provide evidence that there has not been any independent analysis by the NSW DPE.

The NSW Department of Planning Assessment of the Bowdens Silver Project referred to the Independent Planning Commission in December 2022 has not considered any policies or guidelines regarding greenhouse gas emissions as it should have.

In page 81 of the SSD Assessment the DPE states

"486. The Department has assessed other impacts of the project, including rehabilitation and final landform, agriculture impacts, hazards and risks, blast and vibration, greenhouse gas emissions, and historic heritage and considers that these and other impacts have been minimised to the greatest extent practicable and that residual impacts can be appropriately managed and/or offset and regulated".

The NSW DPE have not been able to assess the "other impacts" of the project in particular greenhouse gas emissions as they have only had access to incorrect and incomplete data and calculations and would therefore be unable to undertake a proper assessment.

The NSW DPE, in not requiring Bowdens to provide proper calculations of their emissions have shown a reckless disregard for the people of NSW.

Bowdens Silver Project - Greenhouse Gas Emissions

The Bowdens Project Environmental Impact Statement states in Paragraph 4.5

4.5 Greenhouse Gas

The greenhouse gas assessment of the Project was undertaken by Ramboll Australia Pty Ltd.

*The EIS states that the risk assessment undertaken for the project (Section 3.3.1 and Appendix 7) identifies Scope 1 (on site), Scope 2 (off site generation and Scope 3 (off site impacts) **greenhouse gas (GHG) emissions as a key risk source**. The assessed risk of impacts associated with GHG emissions after the adoption of standard mitigation measures was low.*

The EIS states “only major sources of Scope 3 emissions are accounted and reported by organisations.”

BOWDENS SILVER PTY LIMITED
Bowdens Silver Project
Report No. 429/25

SPECIALIST CONSULTANT STUDIES
Part 2: Air Quality Assessment

Table 8.1
Scope 1, 2 and 3 Emission Sources from the Bowdens Silver Project

Scope	Source
Scope 1	Direct emissions from fuel combustion (diesel) by on-site plant and equipment during mining and rehabilitation.
	Emissions from explosive usage.
	Emissions associated with vegetation stripping
Scope 2	Indirect emissions associated with the consumption of purchased electricity.
Scope 3	Indirect upstream emissions from the extraction, production and transport of diesel fuel.
	Indirect upstream emissions from electricity lost in delivery in the transmission and distribution network.
	Downstream emissions generated from transportation of silver / lead concentrate by road from Mine Site to Parkes.
	Downstream emissions generated from transportation of silver / lead concentrate by rail from Parkes to Port Pirie.
	Downstream emissions generated from transportation of zinc concentrate by road from Mine Site to Port of Newcastle or Port Botany.
	Employee travel
	Downstream emissions generated from international transportation of product by ship

Table 8.1 – Scope 1,2 and 3 Emission Sources from the Bowdens Silver Project

This table is found in the Ramboll Australia Pty Ltd Air Quality Assessment as part of the EIS. It is not the same table (Table 4.36) found on page 4-99 of the EIS. Transport to Kelso has been included in the EIS table without any changes to the emissions calculations in Table 4.37.

RW Corkery and Co have altered tables and other material in their report without explanation. See below Table 4.36 which states Source Ramboll (2020) Table 8.1 which it is not.

comparisons between organisations, for example in benchmarking GHG intensity of products or services. Typically, only major sources of Scope 3 emissions are accounted and reported by organisations.

The GHG emission sources for both direct and indirect emissions are summarised in Table 4.36 whilst the estimated annual GHG emissions for each source are presented in Table 4.37. These represent the most significant sources associated with the Project.

Table 4.36
Scope 1, 2 and 3 Emission Sources from the Bowdens Silver Project

Scope	Source
Scope 1	Direct emissions from fuel combustion (diesel) by on-site plant and equipment.
	Emissions from explosives usage.
	Emissions associated with vegetation stripping
Scope 2	Indirect emissions associated with the consumption of purchased electricity.



R. W. CORKERY & CO. PTY. LIMITED

4-99

BOWDENS SILVER PTY LIMITED
Bowdens Silver Project
Report No. 429/24

ENVIRONMENTAL IMPACT STATEMENT
Section 4 – Environmental Assessment and Management

Table 4.36 (Cont'd)
Scope 1, 2 and 3 Emission Sources from the Bowdens Silver Project

Scope	Source
Scope 3	Indirect upstream emissions from the extraction, production and transportation of diesel fuel.
	Indirect upstream emissions from electricity lost in delivery in the transmission and distribution network.
	Downstream emissions generated from transportation of silver / lead concentrate by road from the Mine Site to Parkes or Kelso.
	Downstream emissions generated from transportation of silver / lead concentrate by rail from Parkes or Kelso to Port Pirie.
	Downstream emissions generated from transportation of zinc concentrate by road from Mine Site to Port of Newcastle or Port Botany.
	Employee travel
	Downstream emissions generated from international transportation of product by ship

Source: Ramboll (2020) – Table 8.1

Table 4.37
Summary of GHG emission estimates (tonnes CO₂-e)

Project Year	Scope 1			Scope 2	Scope 3					
	Diesel – on site	Explosives	Vegetation clearing	Electricity	Diesel – on site (extraction, processing, distribution)	Electricity (T&D losses)	Product transport			Employee travel
							Road	Rail	Shipping	

Table 4.36 EIS (Source Ramboll (2020) Table 8.1)

There seems to be an error in table 8.1. in the Ramboll Australia Pty Ltd report and also in Table 4.36 in the EIS.

The Scope 3 Emission Sources that are of great concern. The downstream emissions note that 4 downstream emissions are generated from silver / lead concentrate, it is unclear whether employee travel relates to silver / lead concentrate but it may so it will be included

- Downstream emissions generated from transportation of silver / lead concentrate by road from Mine Site to Parkes (or Kelso),
- Downstream emissions generated from the transportation from Parkes (or Kelso) to Port Pirie,
- Employee travel
- Downstream emissions generated from international transportation of product by ship

Ramboll Australia Pty Ltd have neglected to include the activity that occurs at Port Pirie, the destination of the silver / lead concentrate. The EIS states that only major sources of Scope 3 emissions are accounted and reported by organisations.

Why is a major downstream activity like the extraction of silver and lead from the silver / lead concentrate excluded from the Emission Sources.

There is no reference in any material regarding Greenhouse Gas emissions as to what happens to the silver / lead concentrates in Port Pirie.

The Nyrstar Smelter is located at Port Pirie and is recognised as South Australia’s worst polluter.



Nyrstar Smelter in Port Pirie, South Australia (SA's worst polluter)

The EIS states GHG emissions is a key risk source. Why then has the applicant, RW Corkery and Co and Ramboll Australia Pty Ltd not assessed all the GHG Emission Sources. Even if the GHG emissions are minor, they must be included.

In the paragraph 4.5.3 Assessment of Impacts, the statement *"given Australia's contribution to global greenhouse gas emissions is approximately 1.3%, the contribution of the Project to global emissions is approximately 0.000052%."* This calculation does not include the emissions generated by the smelting of the silver / lead concentrate at Port Pirie so cannot be accurate. The report goes on to compare its Scope 3 emissions with coal mine emissions. How can that comparison be accurate or even approximate. In any event, an activity that adds to Australia's contribution to global greenhouse gas emissions is not acceptable, whatever the size of that contribution.

Clause 14 of the Mining SEPP states that:

"in determining a development application for development application for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions"

The consent authority, the Independent Planning Commission, at the direction of the NSW Department of Planning and Environment was not able to consider an assessment of the greenhouse gas emissions given that the greenhouse gas emissions from a major downstream activity of the project, being the processing of the silver / lead concentrate, have been excluded from greenhouse gas calculations and the DPE Assessment of this project.

Ramboll Australia Pty Ltd has no regard for any policies, programs or guidelines concerning greenhouse gas emissions other than the NGER scheme. I believe Ramboll Australia Pty Ltd and RW Corkery have provided the NSW DPE with false and misleading information.

The DPE makes the statement in its assessment on page vii *"The Department has considered other impacts of the project, including rehabilitation and final landform, hazards and risks, blast and vibration, greenhouse gas emissions and historic heritage. The Department considers that these impacts have been sufficiently minimised and that residual impacts can be appropriately managed and/or offset and regulated through the recommended conditions"*.

In the table on page 79 of the SSD Assessment under the heading *Other Issues* the DPE makes the following statements.

Greenhouse Gas Emissions

- *The project would produce over its life around:*

- *444,442 t CO₂-e of scope 1 greenhouse gas (GHG) emissions;*
- *812,319 t CO₂-e of scope 2 GHG emissions; and*
- *166,055 t CO₂-e of scope 3 GHG emissions.*

- *This is a conservative estimate as it accounts for vegetation clearing but not the return of vegetative biomass through rehabilitation, and it does not consider the use of silver in photovoltaic cells that produce green power generation (and displace fossil fuel generated power).*

- *The assessment also does not consider decarbonisation of the electricity network as part the NSW Government's commitment to net zero by 2050. In its response to submissions on the second amendment, Bowdens Silver noted that this decarbonisation is expected to reduce the project's scope 2 emissions by up to 54%.*

- *Bowdens Silver is also actively investigating options for further reducing the GHG emissions and has undertaken an initial feasibility study for the development of a 12.4 MW solar farm on a property owned by the company to supply power to the mine. Although not proposed as part of this application, if developed the solar farm could reduce scope 2 emissions by around 72%, roughly the equivalent of purchasing 35% of its power from a certified green power source.*

- *In comparison to other metal ore mining projects, the project's scope 1 emissions would be less than half the average and would be much lower than the average scope 1 emissions from a coal mining operation.*

- *The Department considers that the project's GHG emissions are reasonably low, and that the mine's products would assist in society's decarbonisation over the coming decades. The Department has recommended conditions requiring Bowdens Silver to take all reasonable steps to minimise the energy efficiency of the development and to describe the measures to be implemented to ensure the greenhouse gas emissions are minimised in an air quality and greenhouse gas management plan.*

These comments do not show any independent analysis by the DPE. They have simply repeated information given to them by Bowdens including the statement regarding a solar farm which is not costed, planned or approved.

The DPE have not considered any policies or guidelines regarding greenhouse gas emissions as they should have.

In page 81 of the SSD Assessment the DPE states

"486. The Department has assessed other impacts of the project, including rehabilitation and final landform, agriculture impacts, hazards and risks, blast and vibration, greenhouse gas emissions, and historic heritage and considers that these and other impacts have been minimised to the greatest extent practicable and that residual impacts can be appropriately managed and/or offset and regulated".

The DPE have not been able to assess the “*other impacts*” of the project in particular greenhouse gas emissions as they have only had access to incorrect data and calculations and would therefore be unable to undertake a proper assessment.

Other impacts

The DPE, inexplicably, includes other important impacts of the project together as “other impacts” of the project

- *rehabilitation and final landform,*
- *agriculture impacts,*
- *hazards and risks,*
- *blast and vibration,*
- *greenhouse gas emissions, and*
- *historic heritage*

These “other impacts” have also, like greenhouse gas emissions, been assessed improperly.

- **rehabilitation and final landform** – the Tailings Storage Facility, the Waste Rock Embankment and the mine pit will not be returned to their former state. But instead, will not only be visually abhorrent but will leak and seep acid mine drainage and saline water poisoning waterways and groundwater and will also enable lead dust to blow over and pollute surrounding land forever,
- **agriculture impacts** - these have not been assessed, no farmer in or near Lue has been consulted or their opinions considered regarding water availability, actual rainfall, actual high rainfall events, land use, current farming practices or any other impact to agriculture,
- **hazards and risks** – there are many risks and hazards including the risk of an earthquake and the failure of the single wall tailings storage facility, excessive traffic including wide loads, heavy vehicles, buses and earthmoving equipment on a narrow local country road, polluted and contaminated water, polluted and contaminated land and soil, lead poisoning and excessive noise at Lue School and in Lue and on surrounding land with no proper assessment or the distance lead dust can travel. Lead has been found in Antarctica so it is not unreasonable to accept that lead dust and pollution could reach Sydney and other large population centres. Any risk of lead poisoning to the health of the general population of NSW, or any member of that population, is unacceptable.
- **blast and vibration** – will generate excessive noise, dust and other harmful impacts to Lue residents and surrounding farms,
- **greenhouse gas emissions** – no correct data available to assess this impact and GHG is a high risk source,
- **historic heritage** – there are no assessments on the impacts to historic properties and homesteads near the mine site, and regarding Aboriginal Cultural Impacts the results of assessments are disputed and the treatment of Aboriginal Cultural sites within the mine site are not adequate to protect those sites.

The Bowdens Project is in the unenviable position of being likely to be NSW’s worst polluter. With expected pollutants being lead & acid mine drainage poisoning our waterways, depletion and contamination of the aquifer, spillage of hazardous materials in a traffic accident and dust containing lead and heavy metals and hazardous chemicals blowing all over the state and its extraordinary opportunity to make a huge contribution to Climate Change. The damage to people and land, the

environmental and social impacts, near the mine site and in the region cannot be measured, is unassessed and must be determined to be unacceptable.

There now seems to be a cluster of evidence that the DPE has not been able to assess this development independently, accurately or competently. Bowdens and RW Corkery and Co have provided dubious expert reports in favour of this Application and their consultants modelling and conclusions have been labelled by NSW DPE experts as inadequate, optimistic, biased and not consistent with best practice.

While the EIS was released during COVID lockdown and many people worked from home including DPE employees there is no reason for some of the conclusions that the DPE has reached. An unbiased onlooker might wonder why the DPE recommended such a risky project, with so many adverse environmental, social and economic impacts and no guaranteed benefits.

The NSW EPA in its advice has made no comments regarding Greenhouse gas emissions but has advised regarding Air Quality Impacts *“that failing to achieve in practice the assumed levels of control, including but not limited to surface watering and surface stabilisation, will increase the risk of adverse air quality impacts due to wind erosion from the proposed operations”*.

One young submitter noted *“its a little bit whiffy”*.

The DPE has clearly not assessed or confirmed the greenhouse gas emissions that will be produced by this project. Given that the SEARs flagged a high risk of greenhouse gas emissions it is most likely that the t CO₂-e produced by smelting a tonne of lead / silver ore concentrate could be significant. According to the project description 310,000 tonnes of mineral concentrates would be produced, 60% zinc concentrate and 40% silver / lead concentrate. That is equal to 124,000 tonnes of silver / lead concentrate that will be transported and processed at the Nyrstar smelter Port Pirie.

The US EPA has a default emission factors for Lead Production which can give an estimate of the metric ton CO₂ /metric ton product. For example, Direct Smelting has an emission factor of .25 domestic tons / metric ton of product. The Nyrstar smelter does not publish its CO₂ emissions per tonne of product so an accurate calculation of greenhouse gas emissions per tonne of processed Silver / lead concentrate cannot be provided at this time.

Table 1. Default Emission Factors for Lead Production

Production Type	Emission Factor (metric ton CO ₂ /metric ton product)
Imperial Smelt Furnace (ISF)	0.59
Direct Smelting (DS)	0.25
Treatment of Secondary Raw Materials	0.20

Source: 2006 IPCC Guidelines for National Greenhouse Gas Inventories

Conclusion

The Bowdens Silver Project has not carried out accurate assessments of its total contribution to Greenhouse Gas Emissions and will most likely produce significantly higher emissions than have been calculated by Ramboll and accepted, without question, by the NSW Department of Planning.

The Bowdens Project will after consideration be shown to have little merit with the environmental, social and economic impacts of this project having a lesser benefit than the environmental, social and economic benefits of not proceeding with the project.