6 October 2022

Mr Stephen O'Donoghue
Director Resource Assessments
Energy, Resources and Compliance
Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Email to: stephen.odonoghue@planning.nsw.gov.au
rose-anne.hawkeswood@planning.nsw.gov.au

Attention: Rose-Anne Hawkeswood

Dear Stephen

Re: Bowdens Silver Project (SSD 5765) – Greenhouse Gas Emissions and the Economic Assessment of the Bowdens Silver Project

Bowdens Silver Pty Ltd (Bowdens Silver) has undertaken a pre-feasibility study of the option to develop a 12.4MW solar farm on land owned by the Company, principally to supply a portion of the electricity supply necessary for the Project. It is estimated that the solar farm would supply in the order if 45% of the Project's electricity needs, with key periods of power draw associated with the start-up of processing equipment unable to be reliably supplied given current technology. Part of this investigation included consideration of the possible effect to greenhouse gas (GHG) emission generation that a dedicated renewable source would have.

I refer to Section 3.2.2 of the *Water Supply Submissions Report* for the Bowdens Silver Project (the Project). That document refers to an analysis completed by EMM Consulting Pty Ltd (EMM) that reviewed the Scope 2 (GHG) emission generation for the Project and provided updated GHG emission estimates for three future scenarios.

- Decarbonising of the NSW electricity grid in line with NSW plan to reach net zero emission by 2050. It is noted that the current expectations for decarbonisation of grid electricity would see sources of electricity for the Project becoming more reliant on renewable sources and therefore reduce the Scope 2 GHG emissions related to the Project. This change is projected to occur without any input by Bowdens Silver.
- Establishment of a 12.4MW solar farm to supply a proportion of the power demand of the Project. This scale of power generation would be most efficient given the power needs of the Project and the space available for the infrastructure. All electricity would be supplied directly to the Mine Site under this scenario with future grid connection to be considered at a later time.
- Purchase of green energy for the Project to supplement the net zero decarbonisation. This scenario has been included for comparison only.

Table A presents the outcomes of that analysis which is included in full as Appendix 3 of the *Water Supply Submissions Report*.

Table A
Scope 2 Greenhouse Gas Generation by Mitigation Scenario

Scenario	Scope 2 GHG Emission Generation (CO2-e)	Emission Reduction (%)
As presented in the EIS	812,319	0
Net zero 2050 pathway	372,926	54
12.4MW Solar farm option	227,673	72
Purchase of 35% green power	242,402	70

Based on the EMM analysis, the predicted Scope 2 GHG emission generation for the Project should be decreased based on the projected decarbonisation of the electricity grid. This is also consistent with anecdotal advice from power suppliers provided in discussions regarding future supply agreements. The addition of a solar farm indicates it would provide a substantial reduction in GHG emission generation and that this reduction would be equivalent to Bowdens Silver purchasing an additional dedicated 35% of its power requirements from green energy sources. This is currently done through the purchase of energy certificates that provide for a 12-month supply agreement with a renewable energy source. Again, this would be in addition to the projected market-driven decarbonisation of the grid. In addition to the reduced GHG emissions, the solar farm would deliver substantial cost benefits for the Project with power costs reducing by approximately 30% for power generated using the solar farm (i.e. 15.2c/kWh reducing to 10.0c/kWh). To be clear Bowdens Silver is not seeking approval for the solar farm as part of its State Significant Development application, with any application for a solar farm likely to be submitted to the relevant consent authority in a separate application.

It is noted that the cost of impact mitigation associated with GHG generation was considered in the Economic Assessment for the Project. Peer review of the Economic Assessment undertaken by the Centre for International Economics (the CIE) and commissioned by DPE has questioned the accuracy of the conclusions made by Gillespie Economics. Specifically, whether the cost of GHG abatement should be applied as a global cost or should be applied as a cost to NSW. **Table B** presents a summary of the outcomes of the Gillespie Economics assessment and the peer review estimates with a comparison of these outcomes based on assuming a net zero pathway or development of a solar farm.

On the basis of these outcomes, it is clear that the decarbonising of the NSW electricity grid would improve the economic assessment outcomes as presented by the CIE, noting that this is projected to occur without any input by Bowdens Silver. Should the Company proceed with the solar farm, an additional economic benefit would result. Regardless, the review further supports the economic benefits of the Project with or without mitigation action by Bowdens Silver.

It would be appreciated if you would consider this information when assessing the outcomes of the Economic Assessment for the Project and the peer review prepared by the CIE. Please don't hesitate to contact myself or Anthony McClure on this matter.

Yours sincerely

Nick Warren
Principal Environmental Consultant

Table B
Review of Economic Assessment Outcomes Under GHG Mitigation Scenarios

Benefits/Costs	Gillespie Economics Estimate (millions)	CIE Estimate (millions)	Comparison under GHG future scenarios (millions)	Comments
Production Benefits to NSW	$44	$42.4 to $48.3	No change	The CIE range is largely consistent with the GE prediction.
Public Benefits / Costs to NSW				
Wage and Non-Market Benefits	$103	$0	No change	Gillespie Economics has argued that wage and non-market benefits should be considered by a decision maker considering the outcomes of economic analysis. The CIE has noted these elements are not allowed for or are not strictly consistent with the December 2015 *NSW Guidelines for the economic assessment of mining and coal seam gas proposals*.
GHG Emission Costs	$0	$-10 to $-41	There would be only negligible change to the outcomes of the Gillespie Economic assessment. The GHG emission abatement costs estimated by the CIE would decrease to: • $-6.5 to $-26.7 for the decarbonisation pathway; and • $-4.7 to $-19.3 under the solar farm pathway.	Gillespie Economics apportioned costs for GHG emissions abatement to NSW by considering the NSW population as a percentage of global population. The CIE considers it appropriate that these costs are apportioned wholly to NSW.
Total Benefits / Costs	$147	$32.4 to $38.3 (based on the EU ETS Carbon Price as suggested by the CIE)	The total benefits would be in the order of: • $35.9 to $41.8 under the decarbonisation pathway; and • $37.1 to $43.0 under the solar farm pathway (which also includes decarbonisation).	There would be only negligible change to the outcomes of the Gillespie Economics assessment when considering the above. The economic benefits of the Project would substantially change based on either pathway when applied to the CIE outcomes.