Independent Expert Advisory Panel for Mining

24 October 2023

Advice No: IEAPM 202310-2L

Mr Stephen O'Donoghue
Director - Resource Assessments
Energy, Resources and Industry
NSW Department of Planning and Environment

Dear Steve

Re: Request for Advice – Boggabri Coal Mine Mod 8 – GHG Emissions

I refer to your request of 23 October 2023 for advice in relation to Boggabri Coal Mine Modification 8 – Greenhouse Gas Emissions. I have reviewed the attachments that accompanied that request and it is my understanding that the following table summaries the incremental increases in GHG emissions if the modification is approved.

The IEAPM was only recently requested to include GHG in its portfolio and is still building capability in this area. Currently, it has two specialists in this field, namely Professor Dianne Wiley and Dr Ray Williams. Professor Wiley's expertise is orientated more towards CO_2 mitigation and GHG policy, while Dr Williams is renowned for his knowledge and experience in coal seam gas. However, their availability to provide advice is currently restrained due to other commitments.

Nevertheless, based on two other reviews of coal mine GHG Mitigation Plans that the three of us are involved with, I expect that the advice of that three-person Panel would be consistent with my advice in this response. This advice is not materially different to that in the documentation that accompanied your request.

In respect of predicting coal seam gas emissions, Boggabri Coal Mine (BCM) relies on techniques employed by its consultant, GeoGas. These techniques are most likely founded in those developed by Dr Williams when he owned that company but, in any case, GeoGas is well respected in this field.

In respect of mitigating GH emissions from mining equipment, because of factors such as the rapid and ever-changing location of work areas associated with strip mining, significant variations in the thickness of seams and the wide range in densities of materials that need to be trucked, there is currently much less scope than in hard rock mining and open pit mining to utilised purely electrically powered mining equipment. This is particularly the case at BCM given the nature of the coal deposits. In general, there are serious challenges still to be overcome in mitigating GHG emissions in open cut mining.

Table 3 Estimated greenhouse gas emissions using revised electricity usage and the DCCEEW projections of electricity emission factors

Year	Calculated emissions (Mt CO_2-e)								
	BCM as approved (assumes no declining electricity emission factors over time)			BCM with MOD 8 Amendment (assumes no declining electricity emission factors over time)			BCM with MOD 8 Amendment and DCCEEW projections of electricity emission factors		
	Scope 1	Scope 2	Scope 3	Scope 1	Scope 2	Scope 3	Scope 1	Scope 2	Scope 3
2023	0.21	0.02	20.7	0.21	0.02	19.6	0.21	0.02	19.6
2024	0.19	0.02	20.8	0.19	0.02	20.2	0.19	0.01	20.2
2025	0.23	0.02	20.8	0.23	0.02	20.3	0.23	0.01	20.3
2026	0.24	0.02	20.8	0.24	0.02	21.1	0.24	0.01	21.1
2027	0.27	0.02	20.8	0.26	0.02	20.4	0.26	0.01	20.4
2028	0.21	0.02	18.8	0.23	0.02	19.5	0.23	0.01	19.5
2029	0.15	0.01	13.8	0.23	0.02	20.6	0.23	0.01	20.6
2030	0.11	0.01	10.5	0.23	0.02	20.3	0.23	0.00	20.2
2031	0.14	0.01	12.8	0.23	0.02	20.3	0.23	0.00	20.3
2032	0.11	0.01	9.6	0.22	0.02	17.1	0.22	0.00	17.1
2033	0.08	0.01	8.7	0.21	0.02	16.7	0.21	0.00	16.7
2034	-	-	-	0.19	0.02	15.0	0.19	0.00	15.0
2035	-	-	-	0.07	0.01	8.6	0.07	0.00	8.6
Av.	**0.18**	**0.01**	**16.2**	**0.21**	**0.02**	**18.4**	**0.21**	**0.01**	**18.4**
Total	**1.94**	**0.16**	**178.1**	**2.73**	**0.23**	**239.9**	**2.73**	**0.08**	**239.8**

The data from **Table 3** show that over the lifetime of the BCM with MOD 8 Amendment, from 2023 to 2036, the revised Scope 1 and 2 emissions with the DCCEEW projections applied are estimated to average 0.22 Mt CO_2-e per year.

The incremental increases in Scope 1 and Scope 2 GHG emissions associated with Mod 8 are small in both absolute and relative terms. In light of the preceding considerations, detailed advice from the Panel at this point in time is very unlikely to have a meaningful impact on these emission predictions and their mitigation.

If Modification 8 were to be approved, however, consideration should be given to drafting consent conditions that, going forward, require investigations, research and development for the purpose of more accurately determining GHG emissions in strip coal mining and for better mitigating these emissions, and for these activities to be subjected to regular external independent peer review. This type of approach has worked well over the years for better managing other mining-induced impacts (for example, mine subsidence and changes in groundwater regime)

If you have any queries in relation to this summary advice or wish to wait until all three relevant IEAPM members are available to convene a Panel, please do not hesitate to contact me.

Yours sincerely

Em. Prof. JM Galvin
Chair
Independent Expert Advisory Panel for Mining