

# HUME AND BERRIMA RAIL SSD PROJECTS

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IPC Public Hearing  
Video Public  
Presentation  
13<sup>th</sup> July 2021

**PLANNING  
DEPARTMENT:  
'REDETERMINED  
NARRATIVE'**

**Once DPIE 'locked  
in' its position the  
chance to do a  
proper merit  
assessment lost**

- **Planning Department has taken over a year to reinforce its narrative to fit a predetermined outcome.**

**Planning failed to:**

- **Provide the full report of Middlemis (Gov't expert) on water modelling to DPIEWater before its first assessment report to the IPC.**
- **Provide Hume's mining expert reports to gov't experts (See Hebblewhite and Frith concerns).**
- **Facilitate communication between Hume and gov't experts on mine design - In fact , prohibited any contact when a separate direct request was made to Galvin (2021)**
- **Act on an invitation to HeritageNSW for a site visit after erroneous findings - no on-ground 'truthing' was conducted.**

**NOT POSSIBLE FOR ANY AGENCY/DECISIONMAKER TO CONDUCT A PROPER ASSESSMENT WITHOUT PHYSICAL ON-GROUND TRUTHING - WOULD ENCOURAGE IPC SITE VISIT WHEN RULES ALLOW**

## PLANNING DEPARTMENT: 'REDETERMINED NARRATIVE'

- HeritageNSW lied in its Planning submission – stating it had conducted a heritage assessment of Mereworth House/Garden – Later admitted no assessment had been undertaken . Devalued the 'desktop' heritage study.
- DPIE Water declared its opposition prior to the EIS preparation – stating Hume would not get its approval as it wouldn't be able to purchase sufficient water licences.  
(93% purchased with offers of others if approval granted).
- Planning Department Executive (26 April 2017 Exeter public meeting) said the number of bores was 'unprecedented'. Language repeated in subsequent DPIEWater submissions – Planning and DPIEWater became part of the 'no mine' campaign.
- Planning Department failed to deliver to the IPC a copy of the Hume VPA for mandatory IPC consideration under the Mining SEPP - lodged with Minister/DPIE (6 Sept 2017) – WSC refused engagement (contrary to Minister's VPA Guidelines).

**PREJUDICIAL  
ASSESSMENT  
POTENTIALLY  
INVOKES ARTICLE 11  
OF THE KOREA-  
AUSTRALIA FREE  
TRADE AGREEMENT  
(KAFTA)**

- Article 11.3 KAFTA requires government to provide to investors *“treatment no less favourable than it accords , in like circumstances, to its own investors...”*
- Government agency modus operandi is littered with prejudicial conduct towards Hume. Prima facie breach of KAFTA Article 11 (too many examples to mention here)
- As an Australian resident, I am appalled that such ‘sloppy’ conduct exposes Australian and NSW taxpayers to a potential compensation claim through Investor-State Dispute Settlement (ISDS) – an international tribunal (not an Australian court).

## INDEPENDENT ADVISORY PANEL FOR UNDERGROUND MINING

(Est. by DPIE 1 Oct 2020)

- ***Role: To assist DPIE and IPC “with the assessment and management of underground coal mining proposals which may cause impacts on overlying natural and built environments”.***
- ***DPIE had 8 months to seek the advice of the Panel but didn’t.***
- ***It can be assumed DPIE either did not believe Hume had the impacts claimed in the TOR, were afraid of independent expert scrutiny, or that a referral would jeopardise its planned ‘ambush’ of Hume with the FAR.***

# WHAT HAS HAPPENED SINCE THE FIRST IPC HEARING (FEB 2019)

- Extraordinary and unexplained delays of over a year awaiting the Planning's Final Assessment Report – plenty of time to deal with residual issues - DPIE priority to other projects.
- Significant unnecessary expenditure/time to reaffirm the original findings of DPIE's water expert (Middlemis) – Reaffirmed by Lloyd Townley – 'Class 2 model with elements of Class 3'. Confirming Hume's EIS/RTS conclusions.
- Construction has started on a 60,000 sq metre masonry factory (approved by WSC). Supported by a 11 ha open cut quarry 1.5 km from Berrima (previously approved by Planning 2012 (Modified 2014))
  - Planning overrode zoning prohibition using Mining SEPP.
  - Landscape, heritage, land use compatibility or other assertions levelled at Hume obviously not relevant assessment matters.
- Dendrobium Extension refused resulting in a shortfall of critical coal supply from the Southern Coalfields to the Australian steel industry.
- Tahmoor South Extension recommended for approval by Planning Department and approved by IPC.

**HUME IS THE ONLY VIABLE SUPPLIER OF  
WONGAWILLI SEAM COAL FOR STEEL  
PRODUCTION FOR THE NEXT 20 YEARS**

# CRITICAL COAL SUPPLY: SOUTHERN COALFIELDS

**Contracted Australian Domestic Coal Supply by Mine (Southern Coalfield)  
(Mt/annum)**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2035	2040
Appin	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Metropolitan	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.3			
Tahmoor South	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Dendrobium	0.9	0.2									
Others	0.7	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
<b>Total</b>	<b>4.1</b>	<b>3.1</b>	<b>2.9</b>	<b>2.7</b>	<b>2.7</b>	<b>2.7</b>	<b>2.7</b>	<b>2.2</b>	<b>1.9</b>	<b>1.9</b>	<b>0.1</b>
Demand	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.3
Supply Shortfall/Surplus	<b>1.0</b>	<b>0.0</b>	<b>0.2</b>	<b>0.4</b>	<b>0.4</b>	<b>0.4</b>	<b>0.4</b>	<b>0.9</b>	<b>1.2</b>	<b>1.3</b>	<b>3.2</b>

Source: Wood MacKenzie (Hume IPC Response)

Notes:

1. Contracted coal is supplied to the Australian steel industry
2. If Dendrobium Extension approved it would not supply Wongawilli seam from 2024.
3. Supply timeframe based on current approval timetables

# WHAT BLUESCOPE SAYS ABOUT LOCAL COAL SUPPLY

Source: BlueScope submission to IPC  
Dendrobium Mine Extension Project (SSD  
8194) 15 December 2020

- **“Local supplies of metallurgical coal are vital for the continuing economic wealth of the Illawarra region”**
- **“Production of iron and steel from the Port Kembla Steelworks .....implies continued access to coking coal from the Southern Coalfields”.**
- **To increase seaborne imports through Port Kembla will cost “at least \$150 million”.**
- **Replacing local coal supply from interstate or overseas “would increase steel production costs by between \$50 million and \$100 million per annum”.**
- **“There is no economically viable, commercial-scale alternative to the use of metallurgical coal in blast furnace method of steelmaking”.**
- **ACCC recognised the importance of Southern Coalfield in providing local supply to steel industry in its 2016/17 analysis.**

**POSCO gave an undertaking to the ACCC to supply domestic customers to maintain competitive coal supply.**



# A TALE OF TWO MINES

TWO DIFFERENT DPIE  
RECOMMENDATIONS

DOUBLE STANDARD?

	HUME COAL	TAHMOOR STH EXTENSION
<b>ANNUAL PRODUCT COAL</b> (allowing for ramp up and down)	~3Mtpa	~4 Mtpa
<b>TOTAL PRODUCT COAL</b>	39 Mt	33 Mt
<b>MINE LIFE</b>	~19 years	~10 years
<b>CAPTIAL INVESTMENT VALUE</b>	\$640million (mine alone - rail excl.)	\$342 million (existing infrastructure used)
<b>ROYALTIES TO NSW</b>	\$148 million NPV	\$131.5 million NPV
<b>OPERATIONAL JOBS</b>	300 FTE (New Jobs)	245 FTE (Existing Jobs)
<b>REJECT EMPLACEMENT</b>	11 Mt (All replaced underground)	11.6 Mt (Above ground emplacement)
<b>VEGETATION IMPACTS</b>	63 individual trees only  <ul style="list-style-type: none"> <li>➤ 4,000 new trees planted to date</li> <li>➤ Additional trees to account for Scope 1 emissions (1-2 ha planted per annum)</li> </ul>	43 ha (Tree No. unknown)  <ul style="list-style-type: none"> <li>➤ 11ha within existing emplacement footprint</li> <li>➤ 24.32ha of native vegetation</li> <li>➤ 10.10 ha Shale Sandstone Transition Forest</li> </ul>
<b>SUBSIDENCE</b>	20mm (Within general ground movement)	1450mm av
<b>NUMBER OF HOUSE REQUIRING REPAIR</b>	None	>100
<b>WATER BORES IMPACTED (CUMULATIVE)</b>	Cumulative 94 (67 <sup>th</sup> percentile)  <ul style="list-style-type: none"> <li>➤</li> </ul>	Cumulative 228 (median)  <ul style="list-style-type: none"> <li>➤ Tahmoor St Effect 46@ average model results + further 6 affected by Tahmoor Nth – Total 52</li> <li>➤ Actual number of bores subject to post-approval census</li> </ul>

# A TALE OF TWO MINES

## TWO DIFFERING RECOMMENDATIONS

### DOUBLE STANDARD?

<b>HERITAGE</b>	<ul style="list-style-type: none"> <li>➤ Local Heritage Items 1</li> <li>➤ State Significant Heritage 0</li> </ul>	<ul style="list-style-type: none"> <li>➤ Local Heritage Items &gt;20</li> <li>➤ State Significant Heritage &gt;1 (excluding bushfire damage)</li> </ul>
<b>HUME HIGHWAY IMPACTED</b>	No	Yes
<b>GAS PIPELINE IMPACTED</b>	No	Yes
<b>MAIN SOUTHERN RAILWAY LINE IMPACTED</b>	No	Yes
<b>AIR QUALITY</b>	<ul style="list-style-type: none"> <li>➤ Covered Rail Wagons</li> <li>➤ Underground reject emplacement</li> </ul>	<ul style="list-style-type: none"> <li>➤ Open Rail Wagons</li> <li>➤ Dozers for above ground emplacement</li> </ul>

# WHAT ABOUT WATER MODELS?



- Water modelling is overly conservative and generally overestimates ‘real world’ impacts on water take and bores – Cadia/Ridgeway, Tahmoor & Qld CSG experience.
- Water models in most jurisdictions are run on the basis of average (median) conditions – even the recent Tahmoor Sth model.
- Adoption of higher percentile sensitivities (67<sup>th</sup> – ‘unlikely to occur’ and 90<sup>th</sup> ‘extremely unlikely to occur’ – increases the number of bores >2m drawdowns’ – but is it real life?
- Bore numbers >2m drawdown are at the margins – not an indicator of bore impairment.
- Experience shows that modelled impacts (being worst case) are not necessarily translated into impaired bore performance.

## WHAT DOES DPIE SAY ABOUT MODELS AND PREDICTIONS?

### **TAHMOOR STH - LATEST PROJECT DEALING WITH BORE IMPACTS**

*“The original modelling determined that about 72 bores in the Tahmoor North would require make-good provisions. And I think in reality only about six of them – or, actually, two in Tahmoor North and six at Bulli seam operations have actually required them. **So that sort of tends to indicate that the modelling itself is actually quite conservative and in reality the requirements for make-good provisions and the requirements ..... is actually significantly less in reality”.***

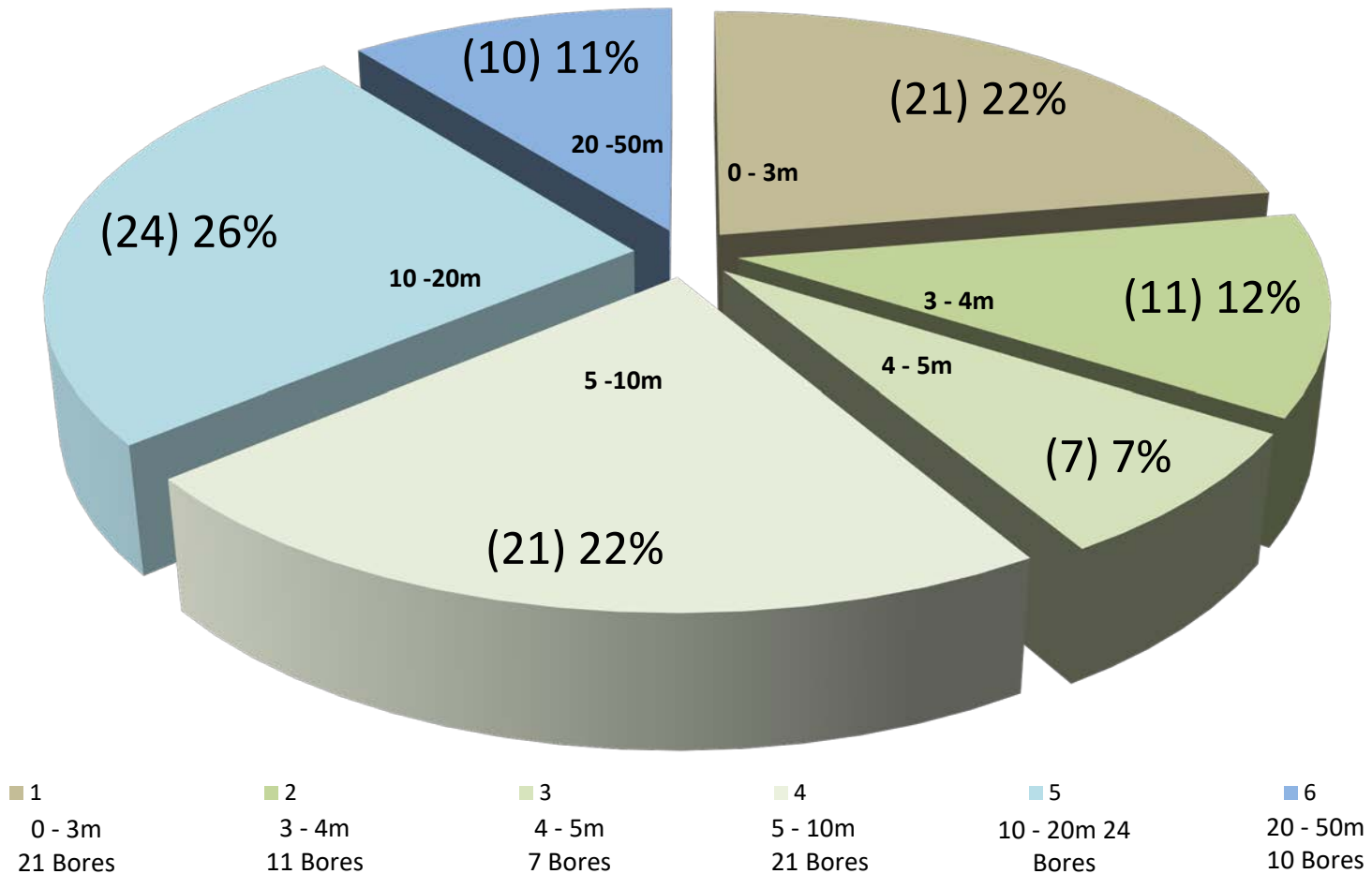
*(Ms Sara Wilson, DPIE Assessments, DPIE Briefing Tahmoor Sth, IPC Transcript 10 Feb 2021 p.16)*

# EASE OF WATER ACQUISITION BEGS THE QUESTION: HOW MUCH WATER IS ACTUALLY USED?

- Hume - 2GL of groundwater licences from the open market - some from project objectors. – Hume has a legal right to utilise its entitlements.
- GND WATER USE (Irrigation Bores not Basic Landholder Entitlement) – Annual Returns due each July
  - WaterNSW Water Register (~25,000 ML tradable)
    - 2017/18 2969.3 ML
    - 2018/19 2858.8 ML
    - 2019/20 345.7 ML (not full year)
  - ABS Water Use on Australian Farms 2015-16:
    - Wingecarribee LGA Gnd Water used – 1500ML out of a total volume of 3,300ML
    - Moss Vale/Berrima (SA2) (comprising most of Hume UG mine) -717 ML (39 agricultural businesses but only 5 businesses using groundwater for irrigation.
    - Water usage figures are consistent with ABS data on agricultural output.

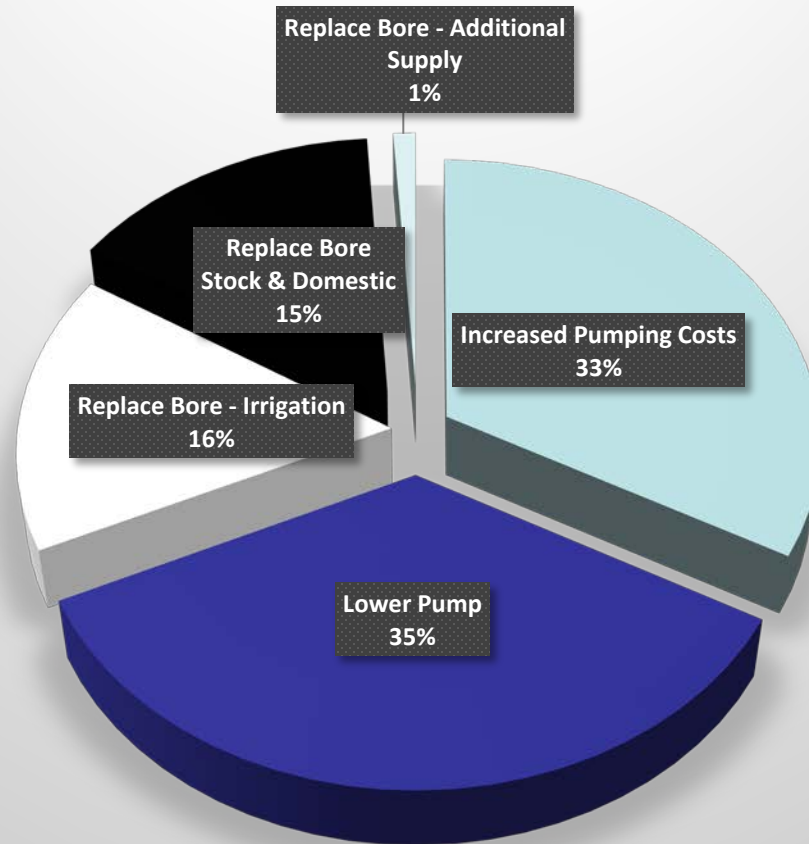
# Depth and Number of Bores Impacted

## Depressurisation causing 'drawdown'

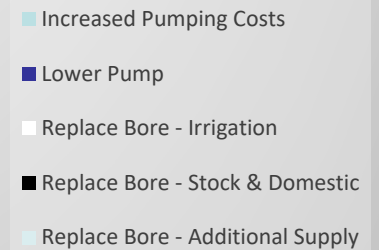


# Make Good Arrangements

## Make Good Break down



**4-5 bores  
each year  
during  
mining (19  
years)**



SCHEDULING							
STAGES	1	2	3	4	5	6	Total
Time when bore first impacted by 2 drawdown (years)	0-5	5-10	10-15	15-20	20-25	+25	
<b>MAKE GOOD ACTION</b>							
Increased pumping costs	-	3	7	9	5	7	31
Deepen pump	6	9	13	3	2	-	33
Replace a stock or domestic bore	5	4	2	2	1	1	15
Replace an irrigation bore	5	8	1	1	-	-	15
	<b>16</b>	<b>24</b>	<b>23</b>	<b>15</b>	<b>8</b>	<b>8</b>	<b>94</b>

## MAKE GOOD ARRANGEMENTS



# MAKE GOOD ARRANGEMENTS – THE AIP POLICY?

- There is no NSW AIP ‘make-good’ policy – therefore the ‘standard consent condition’ is the only mechanism available.
- Letter in response to IRW Ministerial (29 Sept 2019)

DPIE Water: Beth Overton, A/Executive Director, Water Policy, Planning and Sciences – 25 November 2019]

**“I can advise that the Department will be developing a statement on ‘make good’ provisions to support implementation of the AIP.”**

**596 Days and Counting!!!**

# MAKE GOOD ARRANGEMENTS – THE POLICY

➤ DPIE letter also says:

**“I also note that it is not the Department’s role to determine, prescribe or negotiate on behalf of affected parties, what may be ‘reasonable’ make good arrangements. This has always been a matter for direct negotiation between proponents and affected parties”**

**DPIE ASSESSMENT HOLDS THAT THE PROPOSED ‘MAKE-GOOD’ MEASURES ARE TECHNICALLY FEASIBLE – SUPPORTED BY DPIE’S EXPERT (MIDDLEMIS).**

# MAKE GOOD ARRANGEMENTS – FINE TUNING

- At least 14 NSW mine approvals have been granted with ‘compensatory water conditions – ‘Make Good’.
- Misunderstanding by landholders about Hume’s ‘opt in’ fine tuning’ of the ‘standard consent condition’: **Obligation is on landholder to notify after bore impact occurs – This is an ‘opt in’ scheme.**
- Hume is proposing upfront bore assessment prior to mining - but if access denied, or no agreement reached, then the ‘standard consent condition’ applies – **Good enough other mines but not Hume!**
- DPIE is concerned about number of disputes over agreements – **Subjective judgement not supported by history. Nobody can force agreement, but the ‘standard consent condition’ places the onus the miner to ‘make-good’ if requested.**
- **Only 4 to 5 bores require attention each year.**

# MAKE GOOD ARRANGEMENTS

- **‘Make-Good’ baseline monitoring already in place for some 20 landholders. These are voluntary - designed to protect bore owner interests.**
- **Experience in other projects (NSW and Qld) shows landholders don’t engage on ‘make good’ until approval granted. Many not willing to deal on matters that could be many years away.**

***The influence of the Hume project on water bores is temporary, reversible and occurs at different times for different landholders throughout the life of the mine.***

## **MINE DESIGN AND SAFETY**

- **Addressed by Prof Hepplewhite and Russell Howarth for Hume.**
- **Galvin and Canbulat (DPIE Experts) & Hume Experts:**
  - **Agree the mining system meets overall objectives of regional stability and surface subsidence control/management.**
  - **Agree that the mining system is flexible and able to accommodate changes in panel and pillar design.**
  - **Agree that ongoing risk assessment is integral to the operations and used in every mine.**

# MINE DESIGN AND SAFETY

## ➤ SAFETY AND RESIDUAL ISSUES

- **Some academic difference over elements of numerical modelling:**
  - choice of pillar strength formula to derive Factors of Safety (FOS)
  - use of elastic constitutive law v strain softening constitutive law regarding pillar failure.
- **These matters are common to all mines with secondary extraction – managed by robust ongoing operational risk management, and overseen by CIM.**
- **The CIM (17 May 19) in a direct request by the IPC, stated the Hume mining system can be assessed in the same way as any secondary extraction at any mine.**

## MINE DESIGN AND SAFETY

### SAFETY AND RESIDUAL ISSUES

- **Numerical modelling by Heasley using LaMODEL found, irrespective of how soft/unstable the overburden:**
  - **None of the web pillars approach or exceeded their peak strength (based on FOS) – never went beyond an elastic state.**
  - **LaMODEL run with one barrier pillar then all barrier pillars removed - resulted in subsidence of only 16-24 mm – Fair indicator of long-term stability**

## MINE DESIGN AND SAFETY

### MINE DESIGN IN PERSPECTIVE

- **DPIE experts developed the UNSW Pillar Design Procedure (PDP) primarily used primarily longwall assessments – (Aust and South African empirical data). LaModel developed by Heasley USA has empirical data from far more mines than UNSW PDP.**
- **Numerical modelling recommended DPIE experts and LaModel agreed to be ‘fit for purpose’.**
- **3D LaModel confirmed the outputs of the original 2D ARMPS-HWM model. ARMPS – HWM modelling is specifically designed for Highwall Mining (HWM)**
- **Hume mine design is HWM taken underground and a minor variant of Wongawilli method.**
- **Most safety issues with HWM relate to highwall stability above ground. These conditions do not exist underground.**



# MINE DESIGN AND SAFETY

## MINE DESIGN IN PERSPECTIVE

- DPIE experts are the authors of UNSW PDP, and have recognised its limitations for HWM analysis:

*“The UNSW pillar design methodology was developed in 1995, encompassing squat and rectangular pillars. **However, the methodology is not recommended to determine the pillar strength for highwall mining as highwall pillar widths are outside the empirical data regime in the derivation of those strength formulate (Galvin 2010)”.***

Source: *Review of Highwall mining Experience and Practice* Sungsoo Mo, Chengguo Zhang, Ismet Cambulat (UNSW) 2016

## MINE DESIGN AND SAFETY

Examples of mining  
systems/equipment:

[https://pbetechnologies.com/  
/](https://pbetechnologies.com/)

[https://pbetechnologies.com/  
/our-business/](https://pbetechnologies.com/our-business/)

[https://pbetechnologies.com/  
/pbe-mining-process/](https://pbetechnologies.com/pbe-mining-process/)

## DPIE EXPRESSES CONCERN FOR PERSONNEL SAFETY

- **Misunderstanding of the Hume mining method.**
- **Continuous miners (CM) operate in panels with miners absent from the panels – unlike longwalls.**
- **CM's are controlled from outside of panels – using guidance technology developed by the CSIRO. Mines now trialling operation of full remote control from outside the mine.**
- **Equipment exists to remove CM's from panel rock falls without placing miners at risk using 'secondary support'.**
- **Understood that a variant of the 'pine feather' mining method proposed for Ensham UG mine (Qld).**

**REMOVING PERSONNEL FROM COAL FACE MINIMISES  
SAFETY RISK AND SHOULD BE SUPPORTED**

# REHABILITATION UNDERGROUND WATER STORAGE

## FINAL REHABILITATION – MINING SEPP IPC HEAD OF CONSIDERATION

- After mining (20 years) there is sufficient void space for 20GL of stored water- no external adits.
- UG storage volume = 80% of current capacity of Wingecarribee Reservoir (9GL lost in 1998 swamp slump).
- UG storage would be equal to one-fifth of annual evaporation losses from Sydney water storages (100GL annually) – no evaporation
- Cost of an above ground 20GL storage is estimated at \$300 million + (even if land were available).
- Hume will hold 2GL of annual water extraction licences at mine end – a legal mechanism to provide emergency water supply.

**NOW THAT IS IN THE PUBLIC INTEREST!!**

# WHAT IF THE PROJECT IS NOT APPROVED

The Southern Highlands and NSW will miss out on:

- \$922 million (\$640 m NPV) capital expenditure.
- \$1.65 billion (\$747 million NPV) in operating expenditure  
- ~\$412 million going to local businesses
- 316 full-time jobs (paying some 4 times the median employed income in the Wingecarribee Shire) and 454 construction jobs.
- Total wages over the mine life will be \$925 million (\$451m NPV) [excludes construction wages].
- Royalties of \$339 million (\$148m NPV) paid to the NSW government + payroll and land taxes
- Company Tax of \$142 NPV (\$45 million NSW share)
- Mining Rates to the Wingecarribee Shire of \$3.7 million (\$2 m NPV).
- Potential 'just in time' washed coal supply to the Australian steel industry or export.
- Potential supply for high grade thermal coal to Mt Piper power station to make up a projected shortfall from 2024.
- Coal supply to the Berrima Cement Works