Background, Qualifications and Experience
I am a mining engineer and local resident of Bowral. My daughters were born in Bowral hospital and I own a home in Bowral.

I grew up in Wollongong, and my family home was about 900m away from the Kemira Colliery pit top which operated quietly and unobtrusively until its closure in 1992, employing many family friends. I have close to two decades of experience in the underground coal mining industry in NSW, and hold an MBA from the full-time MBA program of the Australian Graduate School of Management, where I excelled in the subjects of economics and corporate finance and achieved an overall high-distinction average. I have multiple industry qualifications, including in risk management, and I obtained my second class Mine Manager's Certificate at the age of 26. My experience spans from shovelling coal from conveyor belts through to developing complex financial models and calculations of mezzanine debt financing. I have been involved in managing coal mines at every level from a crew of men in a production panel, to operation-critical multi-million dollar infrastructure projects for companies including Xstrata and BHP Billiton.

I am responsible for the design of the Hume Coal project, from the underground aspects of the mine through to the rail logistics and interface with the port. No individual knows more about the Hume project than I do.

I am eminently qualified to comment on this project, both as a local resident, and as a mining professional.

Need for the project
Wingecarribee Shire has recently been identified as the 7th most expensive place in the world to buy a home by Demographia's 13th annual International Housing Affordability Survey. This is because of the low wages earned by working people living in the shire, many of whom are employed in low-paid, part-time jobs like retail trade and hospitality. The average salary in the shire is around $46,000 per annum. Since I have lived in Bowral I have seen the price of housing slip further out of reach of young families. The most recent sales in my area are now over $1m for a four bedroom house. This has seen a change in the demographic, with wealthy retirees selling their multi-million dollar Sydney homes and squeezing young families out of the local market. A salary of $46,000 cannot support a $700,000 or $800,000 mortgage or accumulate a $200,000 deposit.

http://www.southernhighlandnews.com.au/story/4424099/wingecarribee-in-top-10-least-affordable-cities/

Wingecarribee Shire also has a worsening age demographic, with a distinct gap in the number of people in the 15-35 age bracket. These are the people who move away from the shire for employment when they leave school.

Another clear trend is that the shire has a large number of skilled and qualified people who need to travel long distances away from their families to find work. I have met a range of people in this unfortunate circumstance who are travelling large distances for work including to:

- Mudgee;
- Hunter Valley;
- Central Queensland;
- Tasmania; and
- the Pilbara.

The shire clearly needs more well-paid, meaningful jobs for young families.

The shire is also seeing a very high level of housing development either planned or underway, including the 1,500 lot development slated for Moss Vale, and developments at Renwick Darraby, and Retford Park. Little consideration appears to have been given as to where these families will work. What is abundantly clear, however, is that this employment will not be provided by the Wingecarribee Council's imaginary and laughable 8000 "sustainable jobs". Some of the ideas from the Council's economic development forum where the 8000 sustainable jobs figure was generated included:

- Promoting people to ride to the shire on electric bicycles from Sydney;
- Hold an annual music festival;
- Web notice boards;
- Create more walking trails;
- Building "eco-friendly" granny flats;
- 3D printing of water tanks;
- Solar-powered tuk tuks; and
- Build a solar farm (sites identified were on private land and landowners were not consulted prior to their land being identified);

http://www.southernhighlandsdevelopment.com/

These ideas are ridiculous to any person with an ounce of common sense and will send our economy backwards. The Southern Highlands has an existing manufacturing base, including many manufacturers already supplying the mining industry. Examples include:

- Omya (limestone supplier)
- Joy Moss Vale (mining machinery manufacturer)
- Eickhoff Mittagong (mining machinery manufacturer)
- Boral (quarried products and cement)
- Steel fabrication shops (multiple)
- Cromford pipes (poly pipe manufacturer)

These businesses should be encouraged and supported, rather than having their Council rates wasted on promoting harebrained ideas like solar powered tuk tuks.

Planning process used to design the mine

Hume Coal used an exhaustive and thorough planning process to design the mine and surface infrastructure that included multiple iterations of design and environmental assessment in order to arrive at the current design. That is not to say that there are no other possible designs with similar levels of environmental impact, however, every aspect of the project has been subject to this process and was subjected to at least two stages of environmental assessment to ensure that the environmental impacts were kept to the minimum practicable level. This is considered to be industry-best-practice.

The design process included taking into account many and varied design considerations, and stakeholder feedback as discussed later.

Radiata Pine Case Study

The properties on which the proposed infrastructure is situated contain multiple windbreaks of radiata pine trees. These trees are a declared environmental weed in NSW and require no approval to fell. Despite this declaration, they provide actual habitat for species including the black cockatoo, magpies, parrots and other native bird species. In recognition of this fact, Hume Coal took steps where possible to preserve these windbreaks where possible, including by realigning elements of the surface infrastructure design. This involved providing instructions to civil and mechanical engineers to redesign around these trees, and sending designs back for re-work when they did not.

This is one small example of the level of care and diligence incorporated into the project's design.

Stakeholder consultation process

Hume Coal has undertaken vast amounts of stakeholder consultation throughout the design and assessment process.

This includes the following stakeholder engagement methods (and this is far from being an exhaustive list):

1. Drill rig open days
2. Community shopfront – opened in December 2012
3. Website with enquiries page
4. Phone enquiry lines
5. Presentations to community groups including Probus, Rotary and the Association of Independent Retirees
6. General information presentations to the community – including East Bowral and New Berrima in 2014
7. Mass mail outs
8. Regular monthly email updates to email newsletter subscribers
9. Regular newspaper advertisements
10. Regular radio advertisements
11. Individual briefings, on request
12. A social reference group with members representing a cross section of my community
13. A water advisory group, including core membership of the anti-coal action group
14. Landowner meetings
15. Briefings to government agencies, including local government on at least two occasions
16. Courtesy letters to all landholders within and adjacent to the project area on the lodgement of the Preliminary Environmental Assessment
17. Six individual community information sessions at Moss Vale, Exeter, New Berrima, East Bowral and Robertson in August 2015, and a separate information session specifically for local Aboriginal groups
18. Presentations to local school groups
19. Special opening hours (Saturdays) for the Community shopfront post-lodgement of the EIS
20. Individual letters and follow-up phone calls to bore owners
21. Active social media presence and webpage on Facebook
22. Use of web-based engagement tool 'Engagement HQ' post-lodgement
23. Ongoing consultation with local government officers on specific aspects of the project
24. At least ten drop-in information sessions on weekends and weekdays during EIS exhibition
25. Briefings to local job-seekers and suppliers
26. Briefings to other rail users
27. Meetings with potential suppliers and potential customers

Aside from being cognisant of trying to achieve the minimal environmental impact across a range of sometimes-conflicting hard and soft constraints, the project team has also been cognisant of all of the community feedback throughout the design process, and many mitigation measures inherent in the design are based on this feedback. A few examples where feedback from this consultation has been incorporated into the project design and project commitments are provided below:

Rail – the rail design incorporates a lengthening of the No 1 siding at Berrima Junction, in order to provide additional operational flexibility at the junction. This was based on collaborative feedback from another stakeholder.

Visual – at the community information sessions in August 2015, a concern was raised about the visibility of parts of the mine's infrastructure from the Berrima offramp on Meday Road. Following this, it was decided to undertake tree plantings (5 rows of native trees) along parts of the property adjacent to the road in order to provide a visual screen. This also required a re-design of the rail line in this area to provide an allowance for the tree corridor. The use of native trees was recommended by the members of the Social Reference Group, and the species, spacing, preparation and other horticultural matters were determined in consultation with a local native plant nursery.

Air quality – Concerns were raised by community members about dust impacts from trains following the lodgement of the PEA. At this point in time, Hume Coal investigated the use of covered rail wagons and committed to their implementation.

Water – concerns were raised about siting infrastructure in the catchment for Medway Dam. Medway dam is not currently used as a town water supply, however it is a third-tier backup supply for the Wingecarribee town water network. Based on this feedback, a decision was made to locate all coal stockpiles outside of the catchment of Medway Dam, despite the very high rainfall events that the storm water management basins for these areas are designed to cater for.

Noise – residents of Golden Vale Road expressed concern over noise impacts at the information sessions in August 2015. This concern was taken into account when the mine's administration facility was relocated further to the north and more central to Hume Coal's property for the EIS.

Infrastructure design considerations
Many other considerations have been taken into account in the overall mine and surface infrastructure design including:

Wind directions – the product coal stockpile has been designed in alignment with the prevailing westerly wind direction, so as not to broadside the wind.

Flood event levels – the infrastructure has been designed to take into account flood event levels to ensure that mine entries are above the PMF level, and other infrastructure components are designed for appropriate rainfall events.

Flora and fauna – the surface infrastructure design has taken into account the mapped flora and fauna of the area. Following this mapping, the infrastructure was redesigned to avoid impacts on flora and fauna habitats where possible. Consequently the mine project involves the clearing of only 64 individual native trees and an unavoidable handful of radiata pines.

Aboriginal and European heritage – a predictive model was undertaken to determine where Aboriginal heritage items would likely be located, and this was followed up by detailed walk-over surveys. The infrastructure design was modified to avoid impacts to Aboriginal items where possible.

Visual, noise and dust - multiple iterations of assessment and redesign were involved design to take into account and mitigate impacts from visual amenity, noise and dust.

Many other design considerations were also taken into account throughout the design process including many hard and soft constraints. Other considerations included (and this is by no means an exhaustive list):

Surface infrastructure:

- Regulatory criteria and design standards
- Property ownership, zoning and land tenure
- Existing public and private infrastructure
- Traffic and transport and operational access
- Construction access
- Surface waterways, catchments and surface water users
- Economics
- Farming operations
- Public safety
- Emergency services
- Bushfire
- Engineering standards
- Equipment constraints
- Technological constraints
- Geology and geotechnical considerations
- Exploration data, including identified geological structure
- Mining hazards, including those specific to coal mining
- Topography and gradients

Underground mine design:

- Regulatory criteria and design standards
- Mining and exploration tenure
- Existing public and private infrastructure
- Groundwater
- Economics
- Farming operations
- Public safety
- Engineering standards
- Equipment constraints
- Technological constraints
- Geology and geotechnical considerations
- Exploration data, including identified geological structure
- Mining hazards, including those specific to coal mining
- Seam dip and gradients
- Underground horizontal and vertical stresses
- Overburden lithology

Mine design outcomes

The outcome of the mine design and surface infrastructure design process is an extremely low environmental impact mine and surface infrastructure design. This is borne out in the individual environmental assessments in the EIS.

The mine design ultimately involves a 'first workings' system of mining, that extracts around one third of the resource, leaving the remaining two thirds to support the overburden and protect the groundwater system for future generations.

The surface infrastructure design has sited all coal stockpiles outside of the catchment for Medway Dam, despite this dam not being in use as a water supply, since it is a third tier water supply in the Wingecarribee water supply system. All surface water runoff from infrastructure footprint is

captured in water management structures designed to cater for very low probability, high rainfall events (typically 0.2%).

The surface infrastructure incorporates visual, dust and noise mitigations in the design. A review of the proposed surface infrastructure design against current best-practice air quality mitigations found that the project would be considered to be industry best-practice in all aspects of its design.

Environmental outcomes
Some key points from the EIS include:

- The project has a benefit to NSW of $368M, discounted at 7% real (net of externalities and other costs);
- The project meets the SCA's NorBE criteria for surface water quality;
- The project will need to provide replacement bores for around 30 landowners spread over the life of the mine – a manageable impact;
- The project will require licences for around 10% of the available pool of tradeable groundwater licences within the Nepean Groundwater System and has already acquired around 70% of the peak volume required
- There will be no negative impact on groundwater quality;
- There are no affected properties that exceed air quality criteria and the project will have almost immeasurably low contribution to particulate matter at all local towns and villages; and
- There are only three properties that exceed the noise acquisition criteria.

Conservatism in the EIS
The EIS consultants have taken an inherently conservative view throughout the assessment process. For example, the air quality assessment report utilises double the amount of weather data required by the relevant guideline, and included weather data from the Bureau of Meteorology Moss Vale site, which is shown to include significantly higher wind speeds than those experienced on site, as recorded by Hume Coal's two weather stations. There are many examples of this type of conservatism throughout the EIS.

The economic assessment has been undertaken in accordance with the 2015 NSW government guideline on economic assessment of coal mining and coal seam gas projects. This guideline requires social benefits and costs to be discounted at a real discount rate of 7% - equivalent to a nominal discount rate of around 10%.

This creates a real internal inconsistency in the assessment, where the 'social cost of carbon' [dioxide] is evaluated using far lower social discount rates (typically between 1 and 5%), meaning that the social benefits of the project have been heavily discounted, whereas the social cost of carbon dioxide is inflated (relative to the benefits).

The economic assessment has also taken a conservative view on the use of employment and income multipliers – a situation that is the subject of ongoing technical debate – and also made conservative assumptions about the ability of people to find alternative employment, which may hold true under certain economic circumstances (i.e. a resources boom) but are highly conservative in a slowdown or under more normal economic conditions.

Summary
This is a well-designed project which will have a minimal environmental impact and support 300 families for up to 20 years.

There is a growing need in Wingecarribee Shire for real job creation - not solar powered tuk tuk drivers – but rather real jobs that can support families with mortgages, and address a growing demographic imbalance.

I support and commend this project to the Department of Planning.