Jennifer Granger
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30 Fowlers Road
Karaak Flat NSW 2429

1st October, 2016

The Director
Resource Assessments Planning Services
Department of Planning & Environment
GPO Box 39
Sydney NSW 2001

Dear sir/Madam,

RE: I OPPOSE THE ROCKY HILL COAL PROJECT – APPLICATION NO SSD-5156 AND THE STRATFORD COAL EXTENSION PROJECT - APPLICATION NO SSD 4966 MOD 1

I STRONGLY oppose the abovementioned projects.

There have been many studies completed throughout the world in regards to the damaging of upstream mining and contamination of downstream regions and waterways, however, in this instance I will refer to a study in Australia from an open cut coal mine which I believe should be significantly weighed against the proposed projects above.

I quote in regards to a recent Australian Study of the Wollangambe River Ecosystem from Coal water discharge …

http://www.bluemountains.org.au/documents/campaigns/wollangambe/7ASM-67%20Belmer%20et%20al%20%20Coal%20mine%20(Final%2025%20July%202014).pdf

"Results and discussion A total of 605 macroinvertebrates from 19 taxa (mostly families) were collected during the sampling period (Table 1.). 80.5% of all invertebrates were collected from the reference site above the mine. Mean family richness at the three sites downstream of the mine discharge (3.6 families) was less than one third of that recorded at the upstream reference site (mean 11.4 families) (Table 1). Mean abundance was much higher at the upstream reference site (mean= 97.4 individuals) and was more than 90 % lower downstream of the coal mine discharge point (mean = 7.9 individuals) (Table 1, Figure 2a). The data clearly points to a significant impact of the wastewater discharge on ecological health. Unpublished data from additional local unimpacted reference sites provide additional support that the changes in macroinvertebrates was unnatural and was due to the coal mine waste discharge. The pollution license does not protect the Wollangambe river ecosystem from the waste discharge …."

The proposed Rocky Hill coal mine is in the Avon River catchment, which is a tributary of the Manning River. The Rocky Hill Environmental Impact Statement suggests the likelihood of discharge and pollution of the Avon Valley tributaries to the Manning River is possible with medium consequences. What would be the ramifications for over 70,000 Manning Valley residents should this happen relying on this river system?

I personally have an irrigation licence to the Manning River as do two other direct family members with properties aligned to the Manning River. In times of low rain water is pumped directly into our home water tanks as the main house water source.

My children and I along with our farm animals rely directly from the fresh water of the Manning River as do many native aquatic animals including the rare and endangered Manning River Turtles, platypus, quolls, bandicoots, wallabies, eagles, hawks, Galahs, Corellas, Lorikeets, pelicans, numerous finches, king parrots, emperor doves, pigeons, native wrens, fresh water muscles, Bass, Mullet, breeding ground of Brim, fresh water shrimp and yabbies and various other water invertebrates and macro invertebrates. ALL would be at risk with any incidents of pollution released into the Manning Catchment. Therefore, as a resident of the Manning Valley region, I am extremely concerned about this proposal.

In addition, Gloucester is one of the most stunning and beautiful valleys within our region on the doorstep to stunning National Parks and it has been proven that Gloucester attracts thousands of tourists a year, with a benefit of $51M to local communities. I can be included as one of those tourists visiting often to meet with friends for lunch and attend festivals, etc I would not want to visit a town with a coal mine on its doorstep NOR would I want to take children or visitors particularly overseas and nonregional friends visiting an unhealthy coal mining town.

Also of major concern is that open cut coal mines may have major implications to ground water aquifers and sources that may affect downriver water applications. As stated in http://www.iesc.environment.gov.au/publications/connectivity-between-water-systems

… “"Certainly from the impacts that we've seen from mining projects around the country, where trees in proximity to mines tend to die and all those things that occur, it comes as no surprise that they are now saying that depleting underground water sources — shallow water resources — close to mine projects impacts other things in nature," he said.

During the time of our studies, we couldn't find any single tree that died because of drought, and this is only the case because water management is preventing that.

Dr Sebastian Pfautsch, University of Western Sydney

Mr Duddy said the research was significant and should be taken into account.

"What this study is saying is that the shallow aquifers have huge impacts on the biodiversity of the region because you kill out entire species when you take away their water sources," he said.

Dr Pfautsch's work was focused on the impact for trees, but he said there may also be an effect on nearby farms.

"The important work that needs to be done is to lessen those impacts as much as possible, so yes, to answer your question, there will be an impact," he said.

"You would expect that there is an impact if you have started digging a very big hole and you dewater the area around it that you will feel an impact further — either upstream in the aquifer or downstream."

REGIONAL PHYSICAL AND EMOTIONAL HEALTH

I completely oppose both of the projects above. We have many friends in Gloucester who are totally opposed to the mine. They have shown us where the mine will be and we are amazed that the state government could approve a mine so close to homes. The scenic beauty of the Gloucester valley will be lost forever. Following on from years of fighting against the AGL Coal Seam Gas project people within the region are already stressed and emotionally distraught this project puts more pressure onto people living in the vicinity of these mines.

Our friends are very concerned about any health issues that will arise from living near this mine. It is known that living near coal mines has a detrimental effect on health, including asthma and heart disease. The NSW Department of Health cannot deny the risks. We ask that the NSW Planning Department do the right thing and not approve this mine, which will affect so many people in a negative way.

On top of this and disturbingly, a recent report has indicated that in Australia the current statistics are "Australia is a country of 22.7 million people with an estimated 446 operating mines, with one worker dying every 15 days," https://www.australianmining.com.au/news/australia-has-more-mining-deaths-than-iran-2/ .

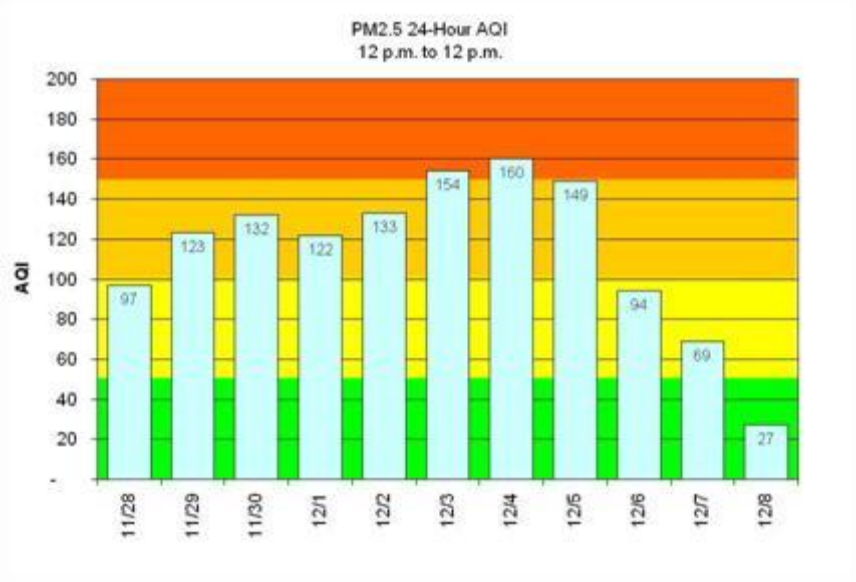
Further of concern a string of recent cases of Coal Workers' Pneumoconiosis, a.k.a. Black Lung, has ignited an inquiry into how Australia, and its individual states, deal with coal dust exposure, its control measures, and screening standards. Further more https://www.australianmining.com.au/news/first-confirmed-case-of-black-lung-from-open-cut-coal-mine/ there is now a confirmed case of this disease in open cut coal mines indicative no doubt that there will be more cases to follow. In the US which has a higher coal dust regulation currently than in Australia "A 2012 study of surface coal miners in the US found 1 in 50 workers developed black lung, with Smyth saying due to similarities between the US and Australia's mining methods, the figure could be comparable in Australia, if not higher."

Also of concern is that Gloucester is situated in and Inversion Valley.

It is stated on the amended file:///C:/Users/Customer/Downloads/Submission-ROCKY-HILL-COAL-MINE-PROPOSAL.pdf that particularly in construction stage there will very high levels of heavy traffic which is generally a cause of pollution through diesel fumes. In a study .. https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.highlight/abstract/7899/report/F similar inversion valley pollution research was undertaken and continues as of this date in regards to Treasure Valley in Idaho. The research emphatically states that pollution is increased to a high level well above EPA levels due to inversion cloud phenomena. This would also be an issue in Gloucester in the Winter months when these events are common and may affect a much larger area than the immediate vicinity of the mining area. *The Boise valley (Treasure Valley), is particularly susceptible to inversion events. Atmospheric inversions often trap polluted air in the Treasure Valley and make it unhealthy to breathe. The dominant atmospheric pollutant in winter valley inversions consists of particulate matter (PM).*

The objectives of the research are the following: (1) to monitor, model, and analyze winter inversion events in the Treasure Valley, including the meteorology and the three-dimensional airflow; and (2) to collect, measure, and analyze meteorological and PM data over space and time. The Study shows a definite correlation between high levels of dangerous pollution and the inverstion event as per the

following table example …
https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.highlight/abstract/7899/report/F



Air Quality Index (AQI)	0-50	51-100	101-150	151-200	201-300	301 and above
Air Quality Category	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy	Hazardous

Figure 2. 24-hour Averaged AQI Values for the Treasure Valley Between November 28 and December 8, 2002, and Pollutant Definitions

A further study from http://www.sciencedirect.com/science/article/pii/S1309104215000057 also clearly implicates increased diesel traffic to higher levels of pollution along with Coal Dust although in particular it focuses on coal vs freight trains. It examined *"the emissions of diesel particulate matter (DPM) and coal dust from trains in the Columbia River Gorge (CRG) in Washington State by measuring PM_1, $PM_{2.5}$, CO_2, and black carbon (BC) during the summer of 2014. We also used video cameras to identify the train type and speed.*
During the two-month period, we identified 293 freight trains and 74 coal trains that gave a $PM_{2.5}$ enhancements of more than 3.0 µg/m^3. We found an average $PM_{2.5}$enhancements of 8.8 and 16.7 µg/m^3, respectively, for freight and coal trains. For most freight trains (52%), and a smaller fraction of coal trains (11%), we found a good correlation between $PM_{2.5}$ and CO_2. Using this correlation, we calculated a mean DPM emission factor (EF) of 1.2 gm/kg fuel consumed, with an uncertainty of 20%." The study went on to conclude … *Our results demonstrate that, on average,*

passage of a diesel powered open-top coal train result in nearly twice as much respirable $PM_{2.5}$ compared to passage of a diesel-powered freight train.

A significant increase of pollutants to the environment and regions involved.

Figure 1. Map of Treasure Valley Region and Photograph of Winter Valley Inversion Event

Gloucester Valley Inversion Event

https://www.google.com.au/search?q=Gloucester+NSW+Inversion+cloud&espv=2&biw=1242&bih=535&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiwjsjBitrPAhVP1GMKHa09C8QQ_AUIBigB#tbm=isch&q=Gloucester+NSW+cloud&imgdii=6gXFuMPNw1MuIM%3A%3B6gXFuMPNw1MuIM%3A%3BZhsFDODMunQ4rM%3A&imgrc=6gXFuMPNw1MuIM%3A

Climate and Health Globally

According to the World Health Organisation http://www.who.int/globalchange/en/ through numerous peer reviewed studies Climate Change is of a major concern and is directly linked to the burning of bio mass fuels (Coal and Gas) and is of a major health issue world wide! Quote …

From the tropics to the arctic, both climate and weather have powerful impacts, both direct and indirect, on human life. While people adapt to the conditions in which they live, and human physiology can handle substantial variation in weather, there are limits.

Marked short-term fluctuations in weather can cause acute adverse health effects:

- Extremes of both heat and cold can cause potentially fatal illnesses, e.g. heat stress or hypothermia, as well as increasing death rates from heart and respiratory diseases.
- In cities, stagnant weather conditions can trap both warm air and air pollutants -- leading to smog episodes with significant health impacts.
- These effects can be significant. Abnormally high temperatures in Europe in the summer of 2003 were associated with at least 27,000 more deaths than the equivalent period in previous years[1] .

Other weather extremes, such as heavy rains, floods, and hurricanes, also have severe impacts on health. Approximately 600,000 deaths occurred world-wide as a result of weather-related natural disasters in the 1990s; and some 95% of these were in poor countries. Some examples:

- In October 1999, a cyclone in Orissa, India, caused 10,000 deaths. The total number of people affected was estimated at 10-15 million;
- In December 1999, floods in and around Caracas, Venezuela, killed approximately 30,000 people, many in shanty towns on exposed slopes.

In addition to changing weather patterns, climatic conditions affect diseases transmitted through water, and via vectors such as mosquitoes. Climate-sensitive diseases are among the largest global killers. Diarrhoea, malaria and protein-energy malnutrition alone caused more than 3.3 million deaths globally in 2002, with 29 % of these deaths occurring in the Region of Africa.

THE SETTING: GLOBAL WARMING

About two thirds of solar energy reaching Earth is absorbed by, and heats, the Earth's surface. The heat radiates back to the atmosphere, where some of it is trapped by greenhouse gases, such as carbon dioxide. Without this 'greenhouse effect' the average surface temperature would make the planet uninhabitable for human populations.

Human activities, particularly burning of fossil fuels, have released over the last 50 years, sufficient quantities of CO2 and other greenhouse gases to affect the global climate. The atmospheric concentration of carbon dioxide has increased by more than 30% since pre-industrial times, trapping more heat in the lower atmosphere.

According to the Third Assessment Report (2001) of the Intergovernmental Panel on Climate Change (IPCC), some effects include:

- The global average surface temperature has increased by 0.6° + 0.2° C over the last century;
- Globally, 1998 was the warmest year and the 1990s was the warmest decade on record;
- Many areas have experienced increases in rainfall, particularly mid to high latitude countries;
- In some regions, such as parts of Asia and Africa, the frequency and intensity of droughts have increased in recent decades;
- Episodes of El Niño have been more frequent, persistent and intense since the mid-1970s compared with the previous 100 years.

Global emissions of carbon dioxide are still increasing. Estimates of future population growth and energy use are used as inputs to global climate models, in order to project future climate change. Reviewing outputs from a range of such models, the IPCC has made the following predictions for the next century:

- Global mean surface temperature will rise by 1.4°-5.8° C. Warming will be greatest over land areas, and at high latitudes;
- The projected rate of warming is greater than anything humans have experienced in the last 10,000 years;
- The frequency of weather extremes is likely to change leading to an increased risk of floods and drought. There will be fewer cold spells but more heat waves;
- The frequency and intensity of El Niño may be affected;
- Global mean sea level is projected to rise by 9--88 cm by the year 2100.

Many countries are working to reduce greenhouse gas emissions under the United Nations Framework Convention on Climate Change. Unfortunately, current international agreements are not sufficient to prevent the world facing significant changes in climate and a rise in sea levels.

THE EFFECTS OF CLIMATE CHANGE ON HEALTH

To a large extent, public health depends on safe drinking water, sufficient food, secure shelter, and good social conditions. A changing climate is likely to affect all of these conditions. Reviews of the likely impacts of climate change by the IPCC suggest that a warming climate is likely to bring some localized benefits, such as decreased winter deaths in temperate climates, and increases in food production in some, particularly high latitude, regions. Public health services and high living standards would protect some populations from specific impacts; for example it is unlikely that climate change would cause malaria to become re-established in northern Europe or North America. Overall, however, the health effects of a rapidly changing climate are likely to be overwhelmingly negative, particularly in the poorest communities, which have contributed least to greenhouse gas emissions. Some of the health effects include:

- Increasing frequencies of heatwaves: recent analyses show that human-induced climate change significantly increased the likelihood of the European summer heatwave of 2003.
- More variable precipitation patterns are likely to compromise the supply of freshwater, increasing risks of water-borne disease.
- Rising temperatures and variable precipitation are likely to decrease the production of staple foods in many of the poorest regions, increasing risks of malnutrition.
- Rising sea levels increase the risk of coastal flooding, and may necessitate population displacement. More than half of the world's population now lives within 60km of the sea. Some of the most vulnerable regions are the Nile delta in Egypt, the Ganges-Brahmaputra delta in Bangladesh, and many small islands, such as the Maldives, the Marshall Islands and Tuvalu.
- Changes in climate are likely to lengthen the transmission seasons of important vector-borne diseases, and to alter their geographic range, potentially bringing them to regions which lack either population immunity or a strong public health infrastructure.

Measurement of health effects from climate change can only be very approximate. Nevertheless, a WHO quantitative assessment, taking into account only a subset of the possible health impacts, concluded that the effects of the climate change that has occurred since the mid-1970s may have caused over 150,000 deaths in 2000. It also concluded that these impacts are likely to increase in the future."

Climate Change Debate on Local Regional Level

http://buckettsradio.com.au/content/suploads/684fa538ba705f1120482561a1a03b34/Microclimate-Report.pdf

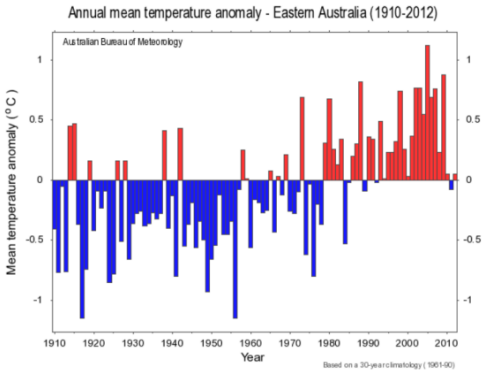


Figure 7.1 Annual Mean Surface Temperature Anomaly – Southern Hemisphere

Climate Change Debate as to the reality of global warming, the rate at which it is progressing, and the economic and social consequences for the human race, has been raging for more than three decades now. On the one hand there is a persuasive accumulation of scientific data from around the world which supports the thesis that climate change is a reality, and that the social, environmental, economic, and political consequences will be severe. Evidence ranges from accelerated melting of polar ice, through rising average temperatures, to increases in the incidence of extreme climatic events. The reality of global warming has been accepted worldwide by scientists and by the majority of government agencies.

Figure 7.1 Annual Mean Surface Temperature Anomaly – Southern Hemisphere

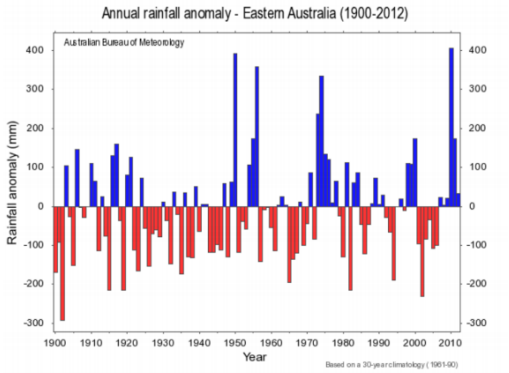


Figure 7.2 Annual Mean Surface Temperature Anomaly – Southern Hemisphere

There remains, however, a block of skeptics who are committed to total denial of this trend, or at least to rejection of the causal mechanism. It would appear that this group is composed of people who have perceived, quite correctly, that recognition of the reality of climate change would require them to accept a reduction in their current level of consumption and wealth accumulation. At this point, short term individual greed triumphs over long term collective vision.

9.1 Evidence for Climate Change While it is not within the scope of this report to evaluate the pros and cons of the various lines of argument being pursued, two graphs prepared by the BOM are reproduced for content enrichment. These are based on long term (1910 to 2012) records averaged across multiple stations on the East Coast of Australia. (Definition? Number of stations?) Figure 9.1 shows average annual temperatures for this period, while Figure 9.2 shows average annual rainfall. The values actually graphed are anomalies, that is divergences from a benchmark temperature or rainfall. This benchmark in turn was calculated as the average for the thirty-year period 1961 to 1990 inclusive. 8 Figure 9.1 shows that for three-quarters of the period temperatures oscillated around a mean anomaly of about - 0.3ºC. Then, starting about 1980, the anomalies shifted into a positive range, with an evident upward trend over time. To date the mean positive anomaly has been about 0.2ºC, but this value will clearly increase if the upward trend continues. On the other hand, the rainfall series could be viewed as the output from a stable random process, though there is a dominance of high values in the second half of the period. An analysis of individual station records might be more revealing in this case."

Further on a local regional level in regards to prior NSW Government noted implications it states ….

"9.2 NSW Government Action. In 2008 the NSW Department of Environment & Climate Change published a series of reports summarizing expected climate Change impacts for the State's regions.

While Gloucester was treated as part of the Hunter Region, the North Coast Region forecast is probably more relevant [5]. The main features as forecast were a slight increase in rainfall in summer and autumn, a corresponding decline in winter, with no change in spring. This, combined with expected temperature increases, would result in drier soil conditions in winter and spring. With regard to temperatures, the report stated: "Days are projected to be hotter over all seasons (1 to 3°C). The greatest increases are projected for winter (2 to 3°C) and the smallest increases in summer (1 to 1.5°C). Nights are also projected to be warmer, with mean minimum temperatures projected to increase by 2 to 3°C in all seasons." Another feature mentioned was a probable increase in frequency and severity of extreme events, such as intense cyclonic rainfalls, thunderstorms, and heat waves. Thus, while overall SGV horticulturalists will be better off, with sustained rainfall, and reduced incidence of frosts, there will also be the factor of increased risk of crop damage or loss from extreme weather events.

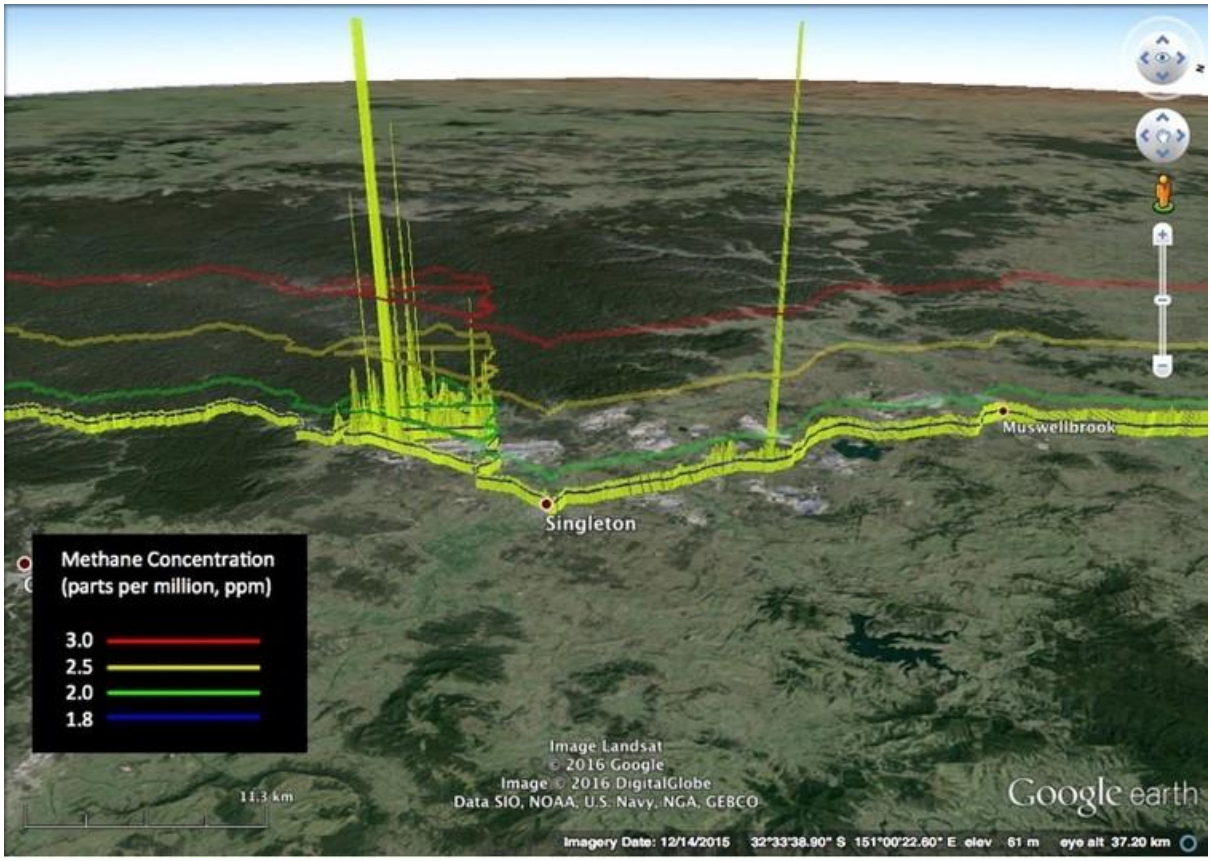
In a report http://theconversation.com/australias-coal-mines-are-pouring-methane-gas-into-the-atmosphere-55394 factual data has been gathered stating that *"From the figure above you can see that Hunter Valley coal mines are a major source of methane released into the atmosphere. While some mines capture vented methane to generate power or flare the methane, this image shows that a lot more work needs to be done if we are to satisfactorily reduce the greenhouse gas footprint of coal mining, even before the coal is used to produce electricity.*

On some days methane concentration above 2,000 ppb extends for 50 kilometres near the coal mines. We have not encountered any other landscape with elevated readings extending for kilometres, with the exception of days when there are bushfires.

Current approximations of methane being emitted to the atmosphere are a combination of measurements and estimates. This has resulted in considerable uncertainty in the values reported to government and tallied in Australia's greenhouse gas accounts.

Australia needs a more extensive greenhouse gas monitoring network, so that we can reduce the uncertainty in our National Greenhouse Accounts and better track progress on our international emission reduction commitments.

Our research is focused on measuring what is actually being released into the atmosphere. This is vital for properly understanding how large our greenhouse gas emissions are, and where to focus our efforts to reduce these. Clearly, further reducing emissions from coal mining is a good place to start.



Ground-level concentration of methane in the atmosphere throughout the Hunter Valley. Spikes extending beyond the 3.0 ppm concentration line are associated with underground mine venting. Bryce Kelly, Author provided

On an economic front … One would have to ask, why??? Why would the NSW Government justify a green field coal mine just 900metres from a residential area. Gloucester is an area of rural beauty, with sustainable industries of tourism, dairies and cattle farming. Not the place for a coal mine. Even coking coal is not in demand around the world. There is enough stockpiled to adequately supply the steel making industry.

Coal mining is not a sustainable industry, with fluctuating prices and worker layoffs. The benefit to the NSW Government and the people of NSW is debatable. GRL will pay $63M in revenue and $60M in taxes. The life of the mine is 16 to 20 years. That means the company is paying just over $3M a year for revenue and taxes. Most of the profit from this company will go overseas. The NSW Government needs to invest in renewables, particularly in rural areas where employment is low. Towns, like Gloucester could be embracing the new world of solar, thermal solar, biomass, wind and hydro. So many options with huge benefits, like, reduced carbon emissions, lower power bills, regional economic development and stable job creation. Gloucester could be the new renewables hub instead of following an out dated industry … shouldn't rather the region explore the possibility of true renewables such as solar and wind?

Whatever financial benefit claims the mining company makes will be cancelled out by loss of tourist dollars. Gloucester is known to be clean and green which ties in with the Manning Valley Naturally initiative. That is our regions claim to fame. That image will be irreparably damaged if this mine is approved.

Further concerns are for the people with short proximity of the mine of which I have friends. It is undeniable that as neighbour to this project their investment into this stunning region will become near if not worthless with no possibility of investment recovery. Blasting is likely to damage infrastructure and noise and air quality would likely severely compromise their quality of life and very likely their health on both financial and emotional basis.

Whether on a local level, regional level, National level or Global level this push for these mine expansions need to be reviewed carefully, however, speaking as a local property owner relying on the Manning River fresh water I strongly oppose this expansion in a scenic and stunning part of world. Originally it was approved as a small boutique mine however these plans are far beyond that and our government needs to ensure the safety of every single citizen that may be impacted by this mine. The inherent risk to fresh water reservoirs and also health implications of pollution from coal dust and diesel fumes from heavy machinery in an inversion valley environment could result in major disasters that should not risked in any form. I stand with 80% of the regions people who oppose this mind and strongly urge the NSW Government to OPPOSE this mine.

Yours faithfully

Jennifer Granger

I declare I have not made any reportable political donations

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http://www.sciencedirect.com/science/article/pii/S1309104215000057