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# Rocky Hill coal project

## 2016 amendment

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***Economic assessment of the Rocky Hill project understates costs and overstates benefits. It is unlikely to be in the economic interest of NSW or the Gloucester community to approve this project.***

Submission

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**October 2016**

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# Summary

The Rocky Hill coal project (2016 Amendment) proposes to develop a new open cut coal mine near Gloucester, New South Wales (NSW).

This submission makes three main points relevant to the economic assessment by Deloitte Access Economics that accompanies the public exhibition of the project.

1. All economic assessments of coal mines in the Gloucester Valley in recent times have overstated the economic cases for the projects. The benefits predicted in two earlier assessments of the Rocky Hill project have failed to materialise. The nearby Stratford coal mine, close to the rail facility, has currently stopped producing because of unfavourable market conditions, despite their 2015 approval to expand. This indicates that the Rocky Hill coal project is highly unlikely to proceed as proposed, skewing the net benefit calculation.
2. In particular, the financial and economic case for Rocky Hill is overstated due to optimistic assumptions about coal quality and price over the life of the project.
3. The economic case for Rocky Hill coal project is overstated due to large local negative externalities being assumed to be perfectly offset by on-site mitigation measures. There is no basis for this assumption. It is already clear that there are significant effects from the mine proposal on nearby residential and rural land values. Based on land value effects in the economic literature, this external cost is likely to be \$24million or more. No social costs are considered at all.

These three points alone should provide a clear case that approving this mine is not in the overall interest of New South Wales, nor the local interest of the residents of the Gloucester Valley.

Importantly, the project is not consistent with the former Gloucester Shire Council's strategic economic plan and represents a move to change the socioeconomic profile of the area. The project is not a marginal expansion of an established local industry, but a major change in the nature of the local economy – a change not welcomed by the community.

# Introduction

Gloucester Resources Limited (GRL) has amended their application for the Rocky Hill Coal Project. The amended development application and revised EIS are on exhibition from 17 August to 14 October 2016.<sup>1</sup> According to the application, the amendment differs from the previous 2013 application in that it does not involve:

- constructing and operating an on-site Coal Handling and Preparation Plant (CHPP);
- constructing and operating a Rail Load-out Facility, including a rail loop and overhead loading bin, to despatch the product coal to the Port of Newcastle;
- developing a 3 kilometre partially-enclosed overland conveyor, to link the CHPP to the Rail Load-out Facility;
- operating the mine during night-time hours; and
- operating during evening hours for the first three years of the mining operations.

Instead, the amended project involves:

- developing and operating an open-cut coal mine, to produce up to 2 million tonnes of run-of-mine (ROM) coal per year for up to 21 years;
- constructing and operating a private coal haul road to link the Rocky Hill Coal Project with the Stratford Coal Complex, approximately 9 kilometres to the south;
- hauling sized ROM coal on the private coal haul road between 7:00 am and 6:00 pm only, Monday to Saturday;
- using the private coal haul road to deliver heavy equipment and construction materials to the Mine Area; and
- rehabilitating the site.

The reason for this amendment is that Gloucester Resources Ltd now has a commercial agreement with Yancoal Australia Limited to utilise their existing facilities at the Stratford Mining Complex to process and despatch coal from Rocky Hill.

The 2013 Rocky Hill Project application (the “2013 Project”) was opposed by the then Gloucester Shire Council and many other local interest groups. Over 1,370 submissions from individuals opposed the 2013 project, with 327 supporting it.

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<sup>1</sup> Available to view at [http://majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=5156](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5156)

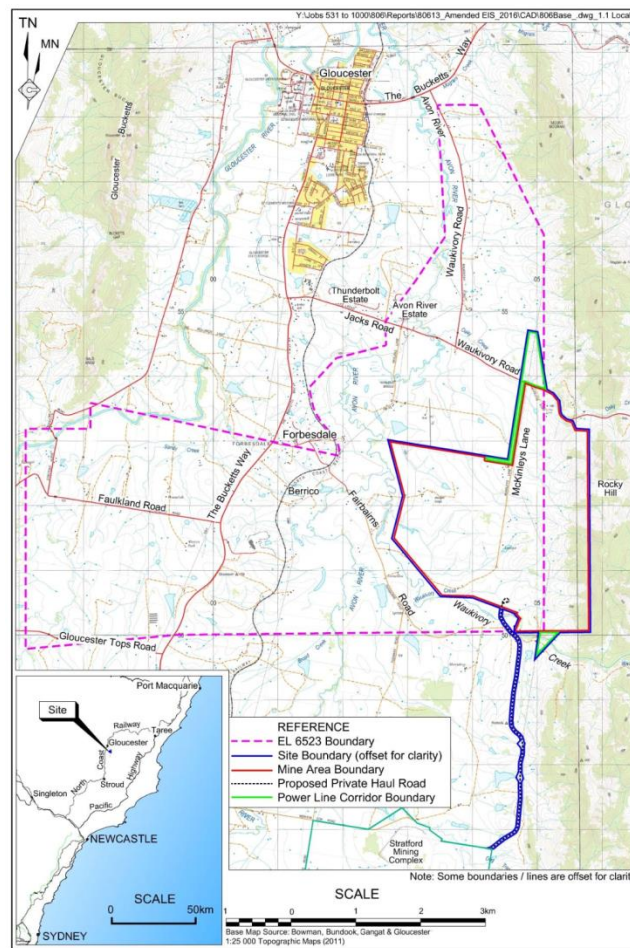
On 2 June 2015, the CEO of Gloucester Resources Ltd, Grant Polwarth, requested<sup>2</sup> that the application be “placed on hold and not progressed” in a letter to Oliver Holm at the NSW Department of Planning and Environment. No public record of the response by the department is available, but given that an amended application is being considered, this unique request appears to have been complied with.

The proposed mine location is shown in Figure 1, along with the new private haulage road connecting to the existing Stratford mining complex. The pit is planned on the western part of the site area, and the majority of the area will be disturbed. The whole site sits in the Environmental Management Zone of the local plan, and adjoins an Environmental Conservation Zone to the north east. The location is around 6km from the centre of Gloucester town, while the nearest dwelling is just 500m away, and the Forbesdale residential area is between 1km and 2kms away. The former Gloucester Shire Council identified a number of environmental factors that would negatively affect the community in their submission, including heavy vehicle traffic, noise, air quality, effect on water courses, and overall amenity impacts being on conflict with their anticipated rural “lifestyle” growth.

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<sup>2</sup> Available to view at <https://majorprojects.affinitylive.com/public/2779954a03557c24015b64f79a8425e9/Letter%20Request%20On%20Hold%20to%20DPE%20020615.pdf>

**Figure 1: Proposed Rocky Hill mine location**



The main focus of this submission is on the Economic Assessment of the Amended Rocky Hill Coal project prepared by Deloitte Access Economics<sup>3</sup> (the “Deloitte EA”). The main points made in this submission are that:

1. All economic assessments of coal mines in the Gloucester Valley in recent times have overstated the economic cases for the projects. Most obviously, the benefits predicted in the two earlier assessments of the Rocky Hill project have failed to materialise. The nearby Stratford coal mine, close to the rail facility, has currently stopped producing because of unfavourable market conditions, despite their 2015 approval to expand, indicating that the project is highly unlikely to proceed as proposed, skewing the net benefit calculation.
2. The base case coal quality and price assumption are optimistic over the life of the project

<sup>3</sup> This economic assessment is available for download at <https://majorprojects.affinitylive.com/public/949b1f2c3aa8d40c84224414bb33b280/60.Rocky%20Hill%20Amended%20EIS%20SCSC%20Vol%205%20Part%2015%20Economic%20Assessment.pdf>

3. Large local negative externalities, particularly on residential and rural land values, now and in the future, are not considered. Nor are any social costs.

Together, these points indicate that the Rocky Hill application may primarily be tool for commercial negotiations amongst miners, rather than a genuine application by a party interested in pursuing the investment in the project case being put forward.

Certainly, the project is not consistent with the former Gloucester Shire Council's strategic economic plan (GSR, 2012) and represents a move to change the socioeconomic profile of the area (Economists at Large, 2013). The project is not a minor change to an established local industry.

The (former) Gloucester Shire Council's Strategic Plan, along with local town planning instruments, express the community's desire to limit mining expansion in the following passage. The Strategic Plan notes:

While the majority of respondents agreed that mining makes an important contribution to the economic future of Gloucester Shire, there was overwhelming opposition to any expansion of mining operations beyond current boundaries toward residential locations. In particular, there was strong opposition toward the expansion of mining activity toward Gloucester township and into the scenic protection zone. (GSR, 2012)

While the Local Environmental Plan has a number of environmental protection zones, with the Rocky Hill project in the E3 zone, that has the following objectives

To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.

To provide for a limited range of development that does not have an adverse effect on those values.

To conserve biological diversity and native vegetation corridors, and their scenic qualities, in a rural setting.  
(GSR, 2013)

Clearly the Rocky Hill coal mine proposal conflicts with community desires for their own economic and social development, something that is not considered in the Deloitte EA. Nor does the Deloitte EA refer to previous analysis of the local economy by other parties, seemingly ignoring many of the issues raised such as the Rocky Hill mine being in conflict with tourism and agricultural growth, and local land value effects already being seen from the 2013 Project proposal.



# Economic assessments of coal in the Gloucester Valley

Economic benefits predicted in economic assessments of coal projects in the Gloucester Valley have not materialised. Most obviously, in 2014 Deloitte estimated the net present value of the 2013 Project to be \$363 million (Deloitte, 2014). The project was to have already spent \$60 million in capital expenditure (by end of 2016). Clearly this has not occurred, due to choices made by the project proponent, and Deloitte's previous forecast was too optimistic.

Prior to Deloitte's 2014 study, the project's response to 2013 submissions contended that the project was viable and criticised the analysis in the Economists at Large (EAL) and Gloucester Shire Council submission:

There is no evidence or substantiation provided in the EAL report, barring some comparisons with Yancoal which operates a significantly different mine, and produces a substantially different mix of products than the Proposal (Gloucester Resources Ltd, 2014, p160)

Three years on, the historical evidence is that the EAL submission was based on more realistic assumptions than either the Deloitte (2014) assessment, or the discarded and discredited initial analysis by Key Insights (2013).

As a comparison case, in 2013 the Stratford Extension Project was proposed, which sought to extend the life of the nearby Stratford coal mine by 10 years, with 2.6 million tonnes per year to be extracted. Accompanying this proposal was an economic assessment that suggested the net benefits of the project were between \$145 million and \$174 million. This expansion has not gone ahead. In fact, all coal production at Stratford has ceased, and Yancoal's other nearby Duralie mine has reduced production to one pit, laying off 45 of the 140 workers in September 2016 (Yancoal, 2015; Kirkwood, 2016).<sup>4</sup>

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<sup>4</sup> Yancoal's general manager of investor relations and corporate affairs, James Rickards', recently commented that the NSW approvals process was delaying mining expansions and costing jobs, which is certainly strange, since they themselves have delayed investment in an approved mine extension (Ker, 2016a)



Yancoal reports in their 2016 mid-year financial report they have made significant write-downs of the capital of their Gloucester Valley coal projects at Stratford and Duralie of \$74.3 million, noting that:

Management may consider reversals of the impairment provision previously recognised if there is either an increase in the average long term real revenue over the life of the mine due to either an increase in USD coal prices, or a further weakening of the AUD/USD foreign exchange rate or a combination of both, or further reductions in the current and life of mine operating costs, capital expenditure requirements, or an increase in the reserves. (Yancoal, 2016)

It is not clear how the high-cost Rocky Hill project being proposed will be viable while the neighbouring established Yancoal projects remains unviable, yet will continue to handle coal from Rocky Hill. The claimed abnormally high coal quality would have to outweigh the additional capital costs, and it is not clear this is a likely scenario. The Deloitte EA itself notes this unusual situation:

In May 2015, development consent (SSD-4966) was granted for the Stratford Extension Project which would involve an extension of the existing Roseville West Pit and development of two new open cut mining areas together with the extension of two existing overburden emplacements throughout the 11 year life of the project. The Stratford Extension Project is yet to commence.

Of relevance to planning authorities is that none of the \$174 million worth of net benefits to NSW from the Stratford mining extension have been realised, and may never be. Overplaying economic gains from mining projects is now common place. Typically, the base case scenario is highly stylised and optimistic, as it appears to be in the case of Rocky Hill.

The reason that the ex-post economic reality of major projects differs so much from proposed “base cases” is that the approvals granted are optional; that is, they require no obligation on the applicant to undertake the amount of investment proposed, nor meet the timelines proposed. Within the limits of the approvals, various real options exist and are often utilised, such as delaying investment, decreasing investment, or changing the nature of the investment. Indeed, the case of Rocky Hill itself demonstrates this optionality. The application for the original 2013 Project appeared to a bargaining chip for a commercial negotiation, rather than a promise to deliver, as the request for delay and subsequent amendment reveal.

Ensuring approvals deliver on claimed benefits as well as external costs, conditions can be included in approvals to ensure a minimum level of investment is made in a timely

fashion, commensurate with those promised in the application. Alternatively, payment upfront of forecast royalties, along with assurance bonds reflecting clean-up costs, could put the onus of determining the plausibility of the project on its financiers, who would have a strong interest in assessing the most highly likely scenario, and filtering out ambit claims.

Granting the option to develop the proposed mine, but not the obligation to do so, will mean that unless all of the optimistic forecasts from GRL are met, the outcome will be vastly different than the proposed base case. Indeed, it may well be the case that only the negative costs on the community are realised, as the mine commences during a period of high global coal prices, only for it to temporarily shut when prices fall. In such cases the gains will be delayed, while the external costs to the community will mostly already have been incurred, turning a potential net benefit to NSW from the project into a net cost.

For example, a 5-year delay in the project base case from year 3 to year 8, assuming that a new approval grants an extension at the end of the 17-year project for an additional five years, reduces the net economic benefits by 27%, to be \$66 million, under all the same assumptions as the Deloitte EA project case (with the mine remaining somewhat profitable).<sup>5</sup> A 10-year delay would from year 3 would reduce the present value of net economic benefits by 49%. Again, this assumes the generous price and coal quality assumptions of the Deloitte EA. Under less favourable assumptions about coal quality the project is already unprofitable under most scenarios, again suggesting the actual outcome will be far different from the proposal.

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<sup>5</sup> This assessment is made on the basis of a DCF model that replicates the Deloitte EA using data extracted from graphs and tables presented, and simplified adjustments for costs, profits, and taxes, where information is not sufficient for exact replication. A summary of this model is in the Appendix.

# Financial and economic case

The Rocky Hill project is presented as being financially and economically strong, just like the 2013 project, and just like Stratford extension project, neither of which the proponents progressed. The current proposal is no different in exaggerating financial viability, and in doing so, the exaggerating the benefits of the proposal. This point is important. Every cost benefit analysis (CBA) makes implicit assessments of project viability in order to understand probability of benefits occurring. Where financial viability is unlikely, so too are economic benefits. This is clearly the case in the Rocky Hill project, where the financial case, and hence economic benefits, are based on optimistic assumptions.

The Deloitte EA was based on the assumption that 97% of coal extracted from Rocky Hill would be metallurgical coal (semi-hard coking), with only 3% thermal coal. Nearby Stratford and Duralie mines report that only 39% of coal extract was metallurgical and 61% thermal, between June 2011 and September 2013 according to quarterly Yancoal production reports. While we have no geological data at hand, the claim that Rocky Hill will produce almost entirely coking coal of very high quality as to warrant a price at 90% of the hard coking coal price (or a 33% premium over semi-soft coal) seems highly implausible.

Additionally, the base case price forecast seems optimistic over the entire life of the mine. Recent unprecedented global price movements for coking coal and thermal coal have meant that forecasts used in the Deloitte EA have recently been met. Australian prices for hard coking coal have more than tripled this year to be over \$USD 190/tonne, which is a four year high. Thermal coal prices have risen around 50% this year to be around \$USD70 /tonne as of September 2016. Whether such prices last of the life of the mine seem questionable, given the overall declining trend in global resource prices.<sup>6</sup> Indeed, the variability of prices, and the ability for an approved mine to temporarily shut down production, reducing local gains from employment but increasing local external costs by extending the mine life, must be considered.

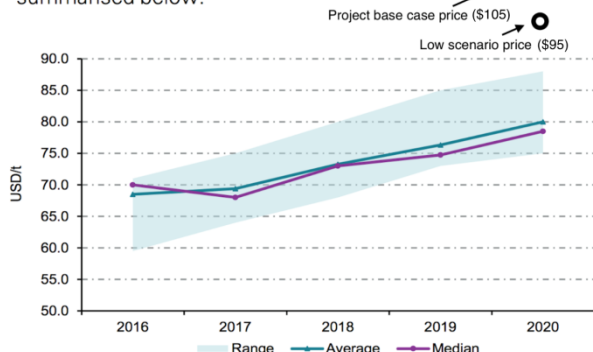
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<sup>6</sup> Global prices are now also leading to Chinese policymakers modifying controls on domestic coal mining to allow for expansion and reduce reliance on expensive imported coal, which is likely to feed back into global prices, keeping them lower than otherwise (Ker, 2016b).

**Figure 2: Forecast prices in Deloitte EA compared to consensus (KPMG, 2016)**

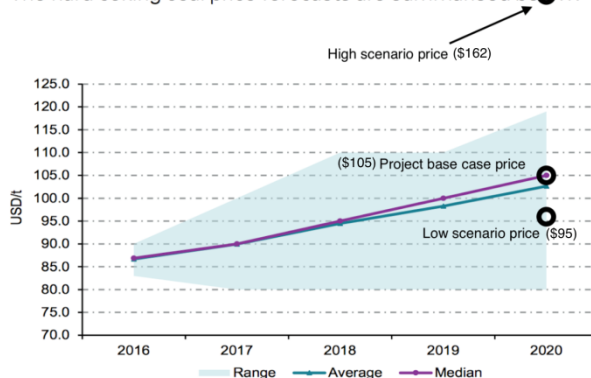
### Semi-soft coking coal price forecasts

The semi-soft coking coal price forecasts are summarised below:



### Hard coking coal price forecasts

The hard coking coal price forecasts are summarised below:



Of interest is that the Deloitte EA chose in their sensitivity analysis to consider only very asymmetric possible future price conditions, of -9%, and +54% of their base case forecast of \$USD 105/tonne (\$AUD 139) for their semi-hard coal product. In Figure 2 the price forecasts used in the Deloitte EA are marked on the forecast consensus from KPMG. Of note is the high premium expected on the semi-soft coking coal price. Figure 2 shows that the base case price forecast for Rocky Hill's semi-hard metallurgical coal is \$105 US per tonne in 2020, 31% above the range predicted for semi-soft coking coal by KPMG. Despite the expected quality of Rocky Hill's metallurgical coal being less than hard (semi-hard), Deloitte's forecasts are in line with forecasts of hard coking coal prices, with the high scenario price 54% above consensus, and 35% above the highest forecaster estimate. Given the discrepancy with Yancoal's published results for Stratford, these coal price forecasts are not reliable.

To show the potential effect on the net benefits to NSW from this project under a wider range of scenarios, Table 1 conducts a sensitivity analysis of a model matching closely the one in the Deloitte EA, but extended to account for coal quality ratios similar to Stratford mine.<sup>7</sup> Notice that where the mine is not profitable the net benefits are zero compared to the base case of no mine and continued agricultural production. The red italicised numbers are the cases where the mine is unprofitable with a 20% increase in costs, which is another risk to this project, given that the project costs in the Deloitte EA are argued to include ongoing site rehabilitation and a variety of other activities seeking to mitigate amenity impacts.

<sup>7</sup> See Appendix for model details.

**Table 1: Sensitivity of net benefits (\$million) to NSW - Coal quality, prices, and discount rate**

	COAL RATIO 97:3			COAL RATIO 39:61		
	Discount Rate			Discount Rate		
	0.04	0.07	0.10	0.04	0.07	0.10
HIGH (1.5)	222	165	125	156	111	80
BASE (1)	120	88	66	0	0	0
LOW (0.9)	100	73	54	0	0	0
LOWER (0.5)	0	0	0	0	0	0

Overall, there appears a reasonable likelihood that the project is only viable in times of abnormally high global coal prices, even with improved efficiencies in the amended project that utilise existing rail facilities at Stratford. This means that the overall economic benefits are highly unlikely to match those in base case scenario in the Deloitte EA.

# Limited consideration of negative externalities

The Deloitte EA quantifies just three types of potential negative externality from the Rocky Hill Coal Project, arising from noise, air quality, and greenhouse gas (GHG) emissions. Other types of negative externality, including social effects, are addressed in written qualitative comments only.

Given that many local submissions were made on the earlier 2013 Project proposal by local residents concerned about social changes and impacts on amenity in all forms, the consideration given to such effects seems limited.

## LAND VALUES

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One way to quantify the negative external effects of resource extraction activities is to look at changes to nearby land values. In 2014 the NSW Valuer General's office reviewed the land value effects of coal seam gas development in the Gloucester area, and noted that:

Agents report that potential purchasers have an aversion to the CSG and mine areas of Gloucester but the main concern is the [Rocky Hill] mine. (NSW Valuer General, 2014)

Due to the close proximity of the proposed mine to current residential areas, and proposed future residential estates, there are likely to be clear and quantifiable effects on property values from the Rocky Hill mine. As the Gloucester Shire Council submission to the 2013 Project application shows, significant future residential development is planned on the eastern side of the township near the proposed mine. Many current residents are also in close proximity of the proposed mine, and the presence of the proposal itself has already compromised their property values, including for nearby agricultural properties.

Residents in the Forbesdale Estate estimate that their properties have declined in value by 30-40% in recent years due to proximity and uncertainty over the project. (GSR, 2013)

The Deloitte EA does not consider any conflicts with residential and agricultural uses, current or future. Yet the economic literature has shown many times that proximity to

coal mines and other resource infrastructure has substantial negative effects on home values, sometimes considerable, as the literature summary in Table 2 shows.

**Table 2: Summary of studies on residential land value effects of resource activities**

STUDY	RESOURCE ACTIVITY	AREA	COUNTRY	LOW	HIGH
WILLIAMS (2011)	Open cut coal	County	US	-0.34%	-1.7%
TRIGG AND DUBOURG (1993)	Open cut coal	Towns <3km	UK	-10%	-40%
BOXALL ET AL. (2005)	Shale gas	< 4km	Canada	-4%	-8%
GIBBONS ET AL. (2016)	Shale gas	< 20km	UK	-1%	-1.5%
GANEGODAGE ET AL (2016)	Power plants	< 15km	Australia	-7%	-21%
DAVIS (2011)	Power plants	< 3.2km	US	-3%	-7%

Table 2 shows that much higher land value effects occur in closer locations, with county level effects still around 1%, while land within a 4km radius of coal and shale gas is likely to have much larger price effects. The whole town of Gloucester is within 7km of the proposed Rocky Hill mine, meaning the land value effects are likely to be at the higher end of these estimates.

To provide a rough estimate of the effect of the proposed Rocky Hill mine on residential values only, the total value of residential property in the town of Gloucester can be adjusted by the expected value changes. Because land values nearby to the mine are so high, even small effects will have large economic outcomes.

The NSW Valuer General, for example, estimated that the total value of all land in the former Gloucester local government area was \$722 million at July 2014 (NSW Valuer General, 2014). This includes agricultural, residential and commercial land. A rough estimate of the total value of residential property (land and buildings) can be derived from by using average home values and the total number of household in the area. According to the latest 2014 ABS estimates, there are 2,000 households in the former Gloucester Shire Council area. The median house value is \$288,655 (homesales.com.au, 2016) while the average value is expected to be much higher, given a brief survey of advertised property on 5 Oct 2016 showed 18% of homes in Gloucester advertised with a price above \$1million (author calculations from realestate.com.au). Using a conservative \$300,000 per home average, and multiplying by the 2,000 homes in the area, gives a total current residential property value of \$600 million.

Every 1% negative effect on property values reduces the property wealth of residents by around \$6 million, which is nearly twice the total negative external costs considered in the Deloitte EA (which mostly comprised an allotted share of GHG emissions to



NSW). A conservative estimate of residential property value declines given the above research would be about 4%, which would be \$24 million, while a high end estimate would be around \$48 million if there is an 8% negative price effect on just the residential land in Gloucester. These estimates ignore also the value of future residential areas over the life of the mine, and the non-residential value effects on rural and commercial property. While mine proponents may argue that such declines are temporary, given that the approved mine will operate till 2034 before final rehabilitation even commences, the evidence from other mines in the valley suggests that this life will likely be extended if it begins operations at all, with temporary closures during times of low coal prices.<sup>8</sup>

## OFFSETS NEATLY SUM TO ZERO

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For other negative external factors, ad hoc assumptions are made about their ability to be offset. The Deloitte EA compares the external cost to rural amenity and culture they accounted for, which are zero, with the estimates of the same external effects from the economic assessment of the 2013 Project, which were \$7.8million. To avoid accounting for such external costs, mitigation measures and environmental offsets are assumed to be budgeted for, and enacted, to perfectly compensate for any effects on local amenity and culture, and environmental effects including impacts on underground and surface water. These unjustified assumptions seem implausible.

The decision in *Bulga Milbrodale Progress Association Inc v Minister for Planning and Infrastructure and Warkworth Mining Limited* [2013] NSWLEC 48 is informative here, for it noted that the proposed local environmental offsetting in that case was inadequate to compensate for environmental losses. There is no rationale provided for why proposed environmental offsets neatly cancel out damage is provided in the Deloitte EA, nor whether indeed there is any offsetting effect at all from the proposed 267Ha of conservation of land adjacent to the east, which would certainly have been conserved in the no-project base case as well. The hidden nature of the assumption that proposed environmental offsets will be effective is revealed in the comment made by the NSW Department of Primary Industries on the project

- The proponent should clarify how much agricultural land is proposed to be removed for the purpose of establishing biodiversity offset areas.
- The proponent should provide evidence in the rehabilitation plan that it is physically possible to return land from the disturbance area to

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<sup>8</sup> Of course, the other mines studied in the economic literature also have limited life spans.

previous or better production levels.  
(Department of Primary Industries, 2016)

Such comments again reveal that the Deloitte EA is based on an overoptimistic case, also in terms of negative external costs.

## REHABILITATION OR EXPANSION

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End of mine rehabilitation costs have been incorporated into ongoing operating costs without any way to assess their validity, nor any mechanism to hold the project proponents to account. Failure to rehabilitate is common when mines reach the end of their life, and the industry as a whole has externalised many billions of dollars of costs to the public by avoiding rehabilitation obligations. Given the financial viability of the proposed project is tenuous, it would be in the interest of the miner to avoid these costs. Importantly, there is no example of an open cut mine of this size completing rehabilitation in NSW. The potential for a long-term degradation of the site should also be considered in the economic assessment.

The nearby Stratford mine, which was proposed to run for 8 years from 1995 then rehabilitated, has now been running for 21 years, with another 11-year extension approved in 2015, is an example of how expansion could be a more economical path for Rocky Hill than promised rehabilitation. Miners also commonly avoid rehabilitation costs by “mothballing” the site pending coal market conditions. The main point is that under these scenarios the true environment cost will be far higher than the zero cost accounted for in the Deloitte EA in terms of local amenity, biodiversity, and other environment costs.

## SOCIAL COSTS

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The abovementioned legal case is also relevant to social costs. It was found that the principles of ecologically sustainable development (**ESD**) are a matter to be taken into account as aspect of the consideration of the "public interest". Regarding social costs, it was concluded that

The Project's impacts would exacerbate the loss of sense of place, and materially and adversely change the sense of community, of the residents of Bulga and the surrounding countryside...

Such arguments have been made in multiple submissions to the 2013 Project, and remain valid considerations, however all social costs are assumed away in the Deloitte EA.

From the numerous submissions made to the 2013 Project and community surveys (GSR, 2011; Key Insights, 2013), the Gloucester community sees itself predominantly as a community that thrives on agriculture, and services targeting tree-changers and tourism. The council's economic plans support this objective. It is not the Hunter Valley, and allowing new greenfield projects is a fundamental change to the nature of the town, rather than a marginal expansion of a major existing industry. The Rocky Hill project imposes a social, if not economic, cost on pursuing this alternative future path.

The existence of local trade-offs between coal mining and rural tourism is regularly reported in survey data, but clean economic assessments of the marginal effects are difficult to find. However, the well-established effects on residential and rural property values suggests that there is likely to be some negative effect in tourism accommodation and occupancy also. While there may be little data and prior research to establish the size of any economic effect from mining on tourism, it remains a valid social concern, given the expressed community desires about the nature of future development in Gloucester.

# Final remarks

In a period where coal mines are closing due to unprofitability the amended application by GRL at Rocky Hill appears strange on its face. The very fact that the 2013 Project application was put on hold reveals the mismatch between approvals sought, and commercial intentions.

The approval does not exclude options to expand to the north in the future, which is likely to be more profitable than the proposed rehabilitation, and a situation similar to Stratford, where the 8 year “boutique” mine has been going for 21 years, with an additional 11-year extension.

It is hard to believe that the project as proposed is in any way likely to represent true outcomes over next 17 years.

The application, given that it was made earlier in circumstances even less likely to be profitable than in late 2016 suggests there are other motivations for this approval, which could include:

1. An approval is a way to reduce risk and therefore increase the possible sale price of the mining lease, quite possibly to Yancoal, who have previously expressed a dislike of rigorous mining application processes (Ker, 2016a), are already involved in the project, and may gain economies of scale from further operations in Gloucester Valley.
2. An approval is a first step to blunt community opposition to a larger second stage mine that expands north towards Gloucester town, improving the financial performance to justify investment in the first stage.
3. An approval provides the option to begin mining only if, or when, the coal price recovers for long enough to secure contracts that would support the upfront investment.
4. A combination of the above three options.

Moreover, the Deloitte EA accompanying the amended application, like many economic assessments of mining projects, was optimistic about private benefits, and limited in their assessment of external costs. The main way this can be seen is in the forecast of coal quality and price, but also the dismissal of all local amenity and environmental effects.

Rather than \$3 million in external costs, the value is likely to be higher than \$24 million, under best case conditions. Under a scenario where coal quality matches the

nearby Stratford and Duralie mines, the Rocky Hill project makes no financial sense on its own, unless there are large and sustained price rises from their already elevated level in global coal market. It is hard to see a likely scenario for this mine where there are positive net benefits to NSW.

Indeed, recent price gains are likely to be temporary as global markets account for Chinese government policy which is now allowing for greater domestic coal production to avoid higher-priced coal from international sources like Australia (Ker, 2016b). Such direct price targeting policy will no doubt undermine the financial viability of many future coal projects in Australia. Yet even under the most extreme scenario of no new coal mines approved and undertaken, the economic impact would be extremely small (The Australia Institute, 2016). This is because of the large already-approved capacity, and the relative unimportance of mining to overall employment and the complex interactions of the domestic economy. The Rocky Hill project is just one of many economically marginal projects that will need to be rigorously scrutinised to ensure they can generate net benefits for NSW and Australia.



# Bibliography

Boxall, P.C., Chan, W.H. and McMillan, M.L., 2005. The impact of oil and natural gas facilities on rural residential property values: a spatial hedonic analysis. *Resource and energy economics*, 27(3), pp.248-269.

Davis, L.W., 2011. The effect of power plants on local housing values and rents. *Review of Economics and Statistics*, 93(4), pp.1391-1402.

Deloitte. 2014. Cost Benefit Analysis and Economic Impact Analysis of the Rocky Hill Coal Project. Deloitte Access Economics. Accessed at [https://majorprojects.affinitylive.com/public/93945e9dab598b7214b08073cdb16687/Rocky%20Hill%20Coal%20Project\\_%20CBA%20and%20Economic%20Impact%20Assessment\\_%20Commercial-in-confidence%20redacted.pdf](https://majorprojects.affinitylive.com/public/93945e9dab598b7214b08073cdb16687/Rocky%20Hill%20Coal%20Project_%20CBA%20and%20Economic%20Impact%20Assessment_%20Commercial-in-confidence%20redacted.pdf)

Department of Primary Industries. 2016. Rocky Hill Coal Project (SSD 5156) Comment on the Environmental Impact Statement (Agricultural Impacts). Letter from Mitchell Isaacs, Director, Planning Policy & Assessment Advice to Ms Melanie Hollis, Resource Assessments, NSW Department of Planning and Environment. 23 September 2016. Accessed at [https://majorprojects.affinitylive.com/public/0566504bcbe1d5dacac60e971b112110/DPI%20Response%20Agriculture\\_%20Amended%20Rocky%20Hill%20Coal%20Project%202016.pdf](https://majorprojects.affinitylive.com/public/0566504bcbe1d5dacac60e971b112110/DPI%20Response%20Agriculture_%20Amended%20Rocky%20Hill%20Coal%20Project%202016.pdf)

Economists at Large. 2013. Gloucester socio-economic profile. A report for Gloucester Shire Council, prepared by Economists at Large, Melbourne, Australia. Accessed at <http://www.ecolarge.com/wp-content/uploads/2013/11/Ecolarge-2013-Gloucester-socio-economic-profile-FINAL.pdf>

Ganegodage, R.K., Khezr, P. and Nepal, R., 2016. The Effect of Undesirable Land Use Facilities on Property Values: New Evidence from Australian Regional Fossil-Fired Plants UQ Economics Papers (No. 569).

Gibbons, S., Heblich, S., Lho, E. and Timmins, C., 2016. Fear of Fracking: The Impact of the Shale Gas Exploration on House Prices in Britain (No. 16/671). Department of Economics, University of Bristol, UK.

Gloucester Resources Ltd. 2014. Response to submissions for the Rocky Hill coal project. Development Application No. SSD-5156. April 2014. Accessed at [https://majorprojects.affinitylive.com/public/00bad530e0d6468a1cf60a53ff75128b/Rocky%20Hill%20Coal%20Project\\_%20Response%20to%20Submissions.pdf](https://majorprojects.affinitylive.com/public/00bad530e0d6468a1cf60a53ff75128b/Rocky%20Hill%20Coal%20Project_%20Response%20to%20Submissions.pdf)



- GSR. 2011. Mining Survey Results. September 2011. Accessed at <http://midcoast.gloucester.nsw.gov.au/planning---development/mining-applications/mining-survey-results>
- GSR. 2012. Community Strategic Plan 2012 – 2022. Gloucester Shire Council. Accessed at <http://midcoast.gloucester.nsw.gov.au/council/committees/economic-development-committee>
- GSR. 2013. Proposed Rocky Hill coalmine – SSD – 5156. Submission by Gloucester Shire Council to an exhibition of the environmental impact statement and development application. Accessed at <https://majorprojects.affinitylive.com/public/711466ad9fe96f8bc7b6f18f450618f2/Rocky%20Hill%20Coal%20Project%20GSC%20submission.pdf>
- homesales.com.au. 2016. Gloucester, NSW 2422 - Suburb Profile. Accessed on 10 October 2016 at <https://www.homesales.com.au/location/gloucester-nsw/>
- Ker, P. 2016a. Yancoal urges ministers to stop passing the buck on mine approvals. Financial Review. 26 September 2016. Accessed on 10 October at <http://www.afr.com/business/mining/yancoal-urges-ministers-to-stop-passing-the-buck-on-mine-approvals-20160926-groms1>
- Ker, P. 2016b. Morgan Stanley calls the peak of the coal price rally. Financial Review. 4 October 2016. Accessed on 10 October 2016 at <http://www.afr.com/business/mining/morgan-stanley-calls-the-peak-of-the-coal-price-rally-20161003-grtzxr>
- Key Insights. 2013. Rocky Hill coal project – socio-economic assessment. February 2013. Accessed at <https://majorprojects.affinitylive.com/public/315bac9615cd601aa4abdb12dbd2f0b9/63.%20Rocky%20Hill%20Coal%20Project%20EIS%20SCSC%20Part%2014%20Socio-Economic.pdf>
- Kirkwood, I. 2016. Gloucester coal mine lays off 45 people but other projects on display. Newcastle Herald. 17 September 2016. Accessed on 10 October 2016 at <http://www.theherald.com.au/story/4170257/45-jobs-to-go-from-duralie/>
- KPMG. 2016. Coal Price and FX consensus forecasts. June/July 2016. Accessed at <https://home.kpmg.com/content/dam/kpmg/au/pdf/2016/coal-price-fx-consensus-forecast-june-july-2016.pdf>
- NSW Valuer General. 2014. Study on the impact of the Coal Seam Gas industry on land values in NSW. February 2014. Prepared by Land and Property Information. Accessed

at

[http://www.valuergeneral.nsw.gov.au/data/assets/pdf\\_file/0020/197003/Study\\_on\\_the\\_impact\\_of\\_the\\_Coal\\_Seam\\_Gas\\_industry\\_on\\_land\\_values\\_in\\_NSW.pdf#Study%20on%20the%20impact%20of%20the%20Coal%20Seam%20Gas%20\(CSG\)%20industry%20on%20land%20values](http://www.valuergeneral.nsw.gov.au/data/assets/pdf_file/0020/197003/Study_on_the_impact_of_the_Coal_Seam_Gas_industry_on_land_values_in_NSW.pdf#Study%20on%20the%20impact%20of%20the%20Coal%20Seam%20Gas%20(CSG)%20industry%20on%20land%20values) \

The Australian Institute. 2016. Never gonna dig you up! Modelling the economic impacts of a moratorium on new coal mines. August 2016. Accessed at <http://www.tai.org.au/sites/default/files/P198%20Never%20gonna%20dig%20you%20up%20FINAL.1.pdf>

Trigg, A.B. and Dubourg, W.R., 1993. Valuing the environmental impacts of opencast coal mining in the UK: The case of the Trent Valley in North Staffordshire. Energy policy, 21(11), pp.1110-1122.

Williams, A.M. 2011. The impact of surface coal mining on residential property values: A hedonic price analysis. Pursuit-The Journal of Undergraduate Research at the University of Tennessee, 3(1), p.6.

Yancoal. 2015. Quarterly Report for quarter ending December 2015. Accessed at <http://www.yancoal.com.au/content/Media/4th%20Quarter%20December%202015.pdf>

Yancoal. 2016. Half-Year Financial Report. For the half-year ended 30 June 2016. Accessed at <http://www.yancoal.com.au/content/Media/ASX%20YAL%204D%20%26%202016%20Half%20Year%20Financial%20Accounts%20June%202016.pdf>

# Appendix

The baseline DCF model relies on cash flow assumptions and methods described in the Deloitte EA. Table 3 summarises the project case in this model. All values are in \$AUD million unless stated otherwise.

The \$3.3million 2016 present value of external costs according to the Deloitte EA are subtracted from the present values of NSW benefits from the project using discount rates of 4%, 7% and 10%. Negative company tax value in early years remain, as losses will roll over to future accounting periods. The close match between this model and the Deloitte EA results and sensitivity analysis indicate that it closely reflects GRL forecasts.

**Table 3: DCF model assumptions mirroring DEloitte EA project case**

	METALLURGICAL COAL PRICE (\$/TONNE)	THERMAL COAL PRICE FORECAST (\$/TONNE)	METALLURGICAL COAL OUTPUT ('000 TONNES)	THERMAL COAL OUTPUT ('000 TONNES)	TOTAL OPERATING COSTS	TOTAL CAPITAL COSTS	REVENUE	COSTS	ROYALTIES	GROSS PROFIT	COMPANY TAX	COMPANY TAX (NSW SHARE)	NSW NET BENEFIT
2018	125	77	0	0	0	35	0	35	0	-35	-10	-3	-11
2019	134	77	108	0	24	22	22	46	2	-26	-8	-3	-7
2020	138	78	308	10	32	6	65	37	5	22	7	2	12
2021	138	78	308	8	32	6	65	38	5	22	7	2	12
2022	138	78	696	23	54	6	147	60	12	75	22	7	35
2023	138	78	857	28	75	6	181	81	14	85	26	8	41
2024	138	78	857	28	75	6	181	81	14	85	26	8	41
2025	138	78	857	25	75	6	180	81	14	85	26	8	41
2026	138	78	1,005	33	81	6	212	87	17	108	32	10	51
2027	138	78	1,005	33	81	6	212	87	17	108	32	10	51
2028	138	78	1,005	33	81	6	212	87	17	108	32	10	51
2029	138	78	1,082	35	80	6	228	86	18	124	37	12	57
2030	138	78	1,082	35	80	4	228	84	18	126	38	12	58
2031	138	78	1,082	35	80	3	228	84	18	126	38	12	58
2032	138	78	1,082	35	80	4	228	84	18	126	38	12	58
2033	138	78	611	20	48	2	129	51	10	68	20	7	32
2034	138	78	859	278	58	1	181	59	14	107	32	10	48

Model notes: Royalties are calculated at 8.2% of revenue less \$3.50 per tonne.

Company tax = (revenue – costs – royalties) x 0.3

Share of company tax attributable to NSW is 32%

Gross profit = revenue – (operating plus capital costs) – royalties

Share of profit attributable to NSW is 5.9%

NSW net benefit = royalties + company tax x 0.32 + (profit-company tax) x 0.059

High, Base, Low, Lower prices are 1.5, 1, 0.9 and 0.5 times each coal price from Table 3.

Present value prices are at 2016 using 4%, 7% and 10% discount rates.

For 61:39 coal ratio case, the total coal volume is held constant, and new volumes for each coal are estimated.

If the present value of gross profits is negative at each discount rate, the project is assumed to be unprofitable and a zero benefit and zero cost are given for NSW, as the project would not proceed in those scenarios.