

The Stratford Extension Project

Environmental Impact Statement

Submission Regarding

Social and Economic Issues

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Summary

This submission contends that the Socio-Economic Assessment Report (Appendix P) prepared by Gillespie Economics is deficient and inadequate for, inter alia, the following reasons:

- (1) It presents overall a biased chain of argument which is focussed solely on the Proponent's commercial interests, and assumes (in fact, asserts) that what is good for the Proponent is also automatically good for society;**
- (2) It trivialises, dismisses, and in some cases completely ignores, the host of negative impacts which the proposal would have on the local community;**
- (3) It ignores geographic, social, and economic reality by presenting a bizarre amalgam of Gloucester Shire and Great Lakes Shire as a plausible local region, and building a case on this foundation;**
- (4) It fails to provide sufficient background information to enable independent checking of the outcomes claimed from I-O Modelling at both the local and NSW State level;**
- (5) It provides conflicting details of direct employment, and grossly exaggerated claims about indirect job creation at the local and State levels;**
- (6) It completely ignores the probable interim and long term personal and public health costs, despite the availability of extensive overseas relevant research; and**
- (7) It assumes an unrealistically high future coal price, and fails to emphasise the conclusions which could be derived from sensitivity testing of this assumption.**

1.0 Introduction

This paper addresses those aspects of the Stratford Extension Environmental Impact Statement (EIS) which were directed towards an evaluation of the potential social and economic costs and benefits of the project, should it be granted approval to proceed. Social and economic concerns embrace a wide range of issues, and in fact relevant material is distributed throughout the three-volume, 3,000 page, EIS. The main points of criticism are summarised in the box opposite.

1.1 The Executive Summary

The Executive Summary of the EIS totals twenty-two pages, of which nine are maps. As this section of the EIS is all that the majority of readers will have time to consider, or in fact all that they may ever see, it is of interest to note the format and content of the information presented.

Noting that the extension would approximately double the existing Stratford workforce of about 125, it is asserted that:

"The Socio-Economic Assessment indicates that operation of the Project is likely to result in an average annual stimulus of up to approximately 250 direct and indirect jobs in the Newcastle region ¹ and some 714 direct and indirect jobs in New South Wales at peak production." (ES-1)

With regard to economic benefits it is stated that:

"The Socio-Economic Assessment indicates a net benefit of between \$145 million and \$174 million would be foregone ² if the Project is not implemented. In addition, the Project would generate total royalties to the state of NSW in the order of \$130 million over the life of the Project."

The above assertions are elaborated on somewhat in the EIS Summary Section, and more detailed supportive evidence and arguments are adduced in the various Technical Appendices. The adequacy of these documents will be addressed in subsequent sections of this review.

¹ This regional entity is not mentioned elsewhere in the Socio-Economic evaluations.

² The somewhat plaintive term "foregone" has appeared in a similar context in other Gillespie Reports. While it has latent emotional and philosophical overtones, the practical implications are not evident. So, coal which is not extracted remains in the ground. What then is foregone? So, a skilled worker finds employment with the ARTC instead of with Yancoal. What is foregone? Examples could be multiplied.

The sole apparent case of foregone which has some reality is that which would be experienced by the senior management and shareholders of Yancoal, due to denial of an opportunity to make windfall profits from exploitation of a NSW Community owned resource. However, examples of local community un-foregone are numerous.

The nine full-page maps do provide useful information about the Project in a visual form, and an observant reader could identify issues which required further explanation. However, the accompanying text is uniformly bland in its dismissal of any possible problems which might arise.

1.2 The EIS Summary

Section 4 of Volume 1 of the EIS provides a 136 page overall summary, of which 12 pages might be considered to address economic and social concerns. They contain the following sub-sections:

- 4.15 Visual Character
- 4.16 Regional Economy; and
- 4.17 Employment, Population, and Community Infrastructure.

These three sections provide a more expansive description of the proposed Project than that contained in the Executive Summary, but essentially the same assertions regarding the alleged benefits which would accrue to the local and wider communities are repeated, without any attempt at justification.

Thus, people who have not read beyond the EIS Summary will be left with the impression that the proposed mining extension will be an **Unqualified Good Thing** for the people of Australia in general, even more so for the residents of NSW, and in particular for the local community.

Readers who wish to engage with the EIS in more depth must proceed to the next level, where the supporting documentation is provided in a number of appendices, each of which is in the form of a Technical Report prepared by specialist consultants. The following three are those most directly relevant to Socio-Economic factors:

- Appendix K Agricultural Assessment
- Appendix O Visual Assessment
- Appendix P Socio-Economic Assessment

The primary focus in this paper is on the content of Appendix P, which was prepared by the consultancy Gillespie Economics (hereinafter Gillespie), though there will be some overlap with the other two Appendices noted above. In their report Gillespie structured the case in support of the Project along three lines of attack. These are, as stated on page 2 of their Report:

- A Benefit Cost Analysis (BCA) of the Project;
- A Regional Economic Impact Assessment; and
- An Employment, Population and Community Infrastructure Assessment (EPCIA).

There are of course numerous other issues which are of direct or indirect concern from a social point of view. In particular, noise and air quality are linked with general community

wellbeing, and also directly with health problems, while disturbance and displacement of rural families and industries also have significant ramifications.

In addition to quality of life, health has direct economic implications, both at the individual level, and at the broader State and national levels. While the clinical aspects of the health impacts of coal mining will be dealt with elsewhere, the economic costs will be addressed later in this review.

2.0 The Director General's Requirements

Before proceeding to a detailed review of the case as presented by Gillespie, it is only fair to look at the justificatory framework within which they were required to operate. This framework is specified in the Director General's Requirements (DGRs), which are reproduced in Attachment 1 in Volume 1 of the EIS. The Requirements were issued in December 2011, and were not subsequently revised.

2.1 Socio-Economic Scope

Within the scope of socio-economic concerns, the DGRs seem to convey a primary interest in considerations such as *"The potential direct and indirect economic benefits of the project for local and regional communities and the State"*, and whether approval of the project would result in *"...a net benefit for the NSW community"*. There is a muted reference to increased demand for housing and other community services at the local level, and also to a rather vague concept styled *"social amenity"*.

The DGRs generally place emphasis on the need for the Proponent to supply details of the mitigation measures proposed, the effectiveness of these, and evidence that there are no such measures available other than those proposed. However, it is considered that this approach allows the Proponent to trivialise adverse effects, and to advance specious claims as to how any problems that might exist can be compensated for, or even removed completely.³

2.2 Concern for the Gloucester Community

A search through the DGRs for keywords which might be considered as indicating an active concern for potential adverse impacts of the proposal on the Gloucester Community had the following outcome:

Health	Mentioned only in relation to adequacy of local health services to cope with increased demand, and to a general requirement to consult with NSW Health.
People	One reference only, requiring a qualitative assessment of blasting impacts "on people, livestock and property".
Hospital(s)	No reference; nor was there any reference to children, compensation, school(s), [the] elderly, [the] disadvantaged, home(s), equity, or social justice.

However, the terms "mitigate" or "mitigation" occur nine times

³ Reference will be made later to the concept of "internalising" an adverse community impact.

2.3 Relevant Documents

An Attachment to the DGRs lists reports and other resources which may be of relevance, and under the Social-Economic sub-heading the following are cited :

Draft Economic Evaluation in Environmental Impact Assessment (DoP).

Techniques for Effective Social Impact Assessment: A Practical Guide (Office of Social Policy, NSW Government Social Policy Directorate).

Not published at the time (December 2011) when the DGRs were issued was the NSW Treasury draft report: *Guideline for the use of Cost Benefit Analysis in mining and coal seam gas proposals*, but this is now available and relevant, and will be referred to.

Also recently published is a comprehensive literature review by Professor Ruth Colagiuri and others of the adverse health and social effects of coal mining on communities, with particular reference to the Hunter Region.

Citations of this and other relevant health research reports are provided in the References Section at the end of this review.

3.0 Alternative Scenarios

It is a requirement of Clause 7 of Schedule 2⁴ that a Proponent provide as part of an EIS:

*"An analysis of any feasible alternatives to the carrying out of the development, activity or infrastructure, having regard to its objectives, including the consequences of **not carrying out** the development, activity or infrastructure".*
(Emphasis added).

Clause 7 is referred to as part of the General Requirements in the DGRs, but a requirement to consider, inter alia, the alternative of not proceeding with the proposal at all is not explicitly stated.

The NSW Treasury CBA Guideline [19] also stipulates that:

"The net impact should be determined relative to the base case. This means the costs and benefits of the base case which will be foregone if the project proceeds should be netted off against the costs and benefits of the project case".

Section 2.2 of Appendix P (pp 3-5), which is headed:

2.2 IDENTIFICATION OF THE BASE CASE AND PROJECT

purports to address this requirement. The relevant section deserves to be quoted in full, as it even more clearly demonstrates that Gillespie perceived the proposed development as proceeding in a social and cultural *terra nullius*. They write:

Identification of the "base case" or "without" Project scenario is required in order to facilitate the identification and measurement of the incremental economic benefits and costs of the Project.

Without approval of the Project, mining at the Stratford Mining Complex of up to 1.2 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal would cease in 2013 although processing of coal from Duralie Coal Mine (DCM) at the Stratford Mining Complex would continue under current approvals until 2019. On cessation of mining activities at the Stratford Mining Complex it is assumed that the residual value of some capital equipment and land would be able to be realised through sale or alternate use. However, the residual value of capital equipment and land required for the continued operation of the Coal Handling and Preparation Plant (CHPP) would not be able to be realised until 2019.

In contrast to the "base case", the main activities associated with the development of the Project include: . . .

⁴ Refer to NSW Environmental Planning and Assessment Regulation 2000.

Here Gillespie launch into an almost one and a half page listing of all of the activities which would ensue, should project approval be granted. They include such items as:

- exploration activities;
- progressive development of new haul roads and internal roads;
- stockpiling and loading of product coal to trains for transport on the North Coast Railway to Newcastle;
- realignments of Wheatleys Lane, Bowens Road, and Wenham Cox/Bowens Road;
- realignment of a 132 kilovolt power line for the Stratford East Open Cut; etc.

The section concludes with a table (Table 2.1) showing the anticipated coal production schedule from 2013 up to 2023, and the following admonitory summary:

"BCA is primarily concerned with the evaluation of a project relative to the counterfactual⁵ (base case) of no project. Where there are a number of alternatives to a project then these can also be evaluated using BCA. However, alternatives need to be feasible to the proponent and to this end a number of alternatives to the Project were considered by SCPL in the development of the Project description. Section 6.9.2 in the Main Report of the EIS provides more detail on the consideration of Project alternatives.

The Project assessed in the EIS and evaluated in the BCA is considered by SCPL to be a feasible alternative that minimises environmental and social impacts whilst maximising resource recovery and operational efficiency. It is therefore this alternative that is proposed by SCPL and was subject to detailed economic analysis."

This is sheer sophistry. The "alternatives" presented in Section 6.9.2 are no more than minor variations in site management and scheduling. Thus, Gillespie have completely ignored the explicit requirement that they consider, inter alia,

" . . the consequences of not carrying out the development . . ",

asserting instead that

" . . alternatives need to be feasible to the proponent . . ".

⁵ It is not clear what this compound word might mean in the present context, and it does not appear in this form in the SOED. The composite elements are unambiguous, "counter" meaning "against", while "factual" is defined in the SOED as "Concerned with facts; of the nature of fact, actual, real".

Though at risk of straying into uninformed conjecture, one can only presume that Gillespie were so convinced of the benefits which the Proposed Stratford Extension would bring in its wake, that they already perceived the status quo as being devoid of any reality, economic or otherwise..

As usual, no justification is provided for this assertion, the proponent's commercial interests apparently over-riding, to the point of complete obliteration, any community concerns and preferences. The reality, which is completely ignored throughout this, and most other private sector EI Statements is that:

A proposed private sector project needs to be acceptable both to the community at large, and more particularly to the community directly affected. If the combined communities doesn't want it, then it is irrelevant whether the project is or is not "feasible" from the Proponent's point of view.

The NSW Treasury [19] clearly endorse this position, stating that:

"CBA estimates and compares the total benefits and costs of a project or policy to the members of a specified community. In order to do this, a CBA lists all the groups in the community affected by a policy or project and values the effects on their welfare in monetary terms as the effects would be valued by the parties themselves". (Their emphasis).

4.0 The Benefit Cost Analysis

Section 2 of the Report presents a BCA as conducted by Gillespie, the outcome of which, as foreshadowed in the Executive Summary (ES), was that:

"Overall, the Project is estimated to have net benefits to Australia of between \$145M and \$174 and hence is desirable and justified from an economic efficiency perspective."

The acronym BCA stands for Benefit-Cost Analysis. Depending on one's point of view, this could, with equal validity, be styled a Cost-Benefit Analysis, and this in fact is the term used by the NSW Treasury [19]. What might be termed the "ground rules" for the analysis, as perceived by Gillespie, are stated in the first paragraph of Section 2, which reads:

"For the Project to be economically desirable from a community perspective, it must be more economically efficient than the base case or "without" Project scenario. Technically, a project is more economically efficient than the "without" Project scenario if the aggregate benefits to society exceed the aggregate costs (James and Gillespie, 2002).⁶ For mining projects, the main economic benefit is the producer surplus (net production benefits) generated by the Project and any non-market employment benefits it provides (refer to Portney, 1994), while the main potential economic costs relate to any environmental, social and cultural costs".

First, it should be noted that CBA was originally developed as a tool for choosing between alternative means of achieving a particular goal in the public investment arena, or in choosing between one alternative as opposed to another, where each might deliver a specific public benefit. Within this framework, only issues of public (societal) costs and benefits were considered, and the reality of limited resources was implicit.

To hijack the CBA approach in an attempt to provide social justification for a private investment proposal involves a massive abuse of economic theory and practice, and acceptance of a principle that what is good for the proponent is also good for society at large.

So, the proposition advanced in the above opening paragraph, namely:

"For the Project to be economically desirable from a community perspective, it must be more economically efficient than the base case or "without" Project scenario."

is blatantly misleading, in that it attempts to present the choice between a proponent being allowed to proceed with their projector or not as one which can be considered entirely in isolation from the societal economy in which it would be embedded.

⁶ The report by James and Gillespie, which is cited frequently as an authority in Appendix P, was, in actuality, originally co-authored for the NSW Department of Urban Affairs and Planning in 1997, and revised in 2002. For some reason, it still remains a daft document, though not available online.

Stated another way, the criterion of "economic efficiency", as viewed by the Proponent, is assumed to be not only a necessary condition for a proposal to proceed, but also to be a sufficient one.

4.1 The Case as Presented

Table 2.3, which is reproduced here in full, shows the components and magnitudes of the costs and benefits which have been considered. Of necessity, these figures have mostly to be taken at face value, since only a few consistency checks can be performed with the limited information available. It should be noted that all amounts in Table 2.3 have been reduced to their Net Present Value (NPV) at a discount rate of 7%.

The upper section of the table presents what is purely an in-house accounting exercise, the bottom line of which is that, should the project proceed, Yancoal would expect to make a gross profit (before company tax and royalties) of \$215M, at NPV, over the 12 year life of the proposed project. Table 2.4 in Appendix P shows how this sum would be distributed, and this information has been abstracted into the following table.

Table 4.1 Distribution of Gross Profits

Beneficiaries	\$M	%
Overseas SC Shareholders	69	32.1
Domestic Shareholders	23	10.7
Commonwealth Tax	39	18.1
NSW Government Royalties	84	39.1
Totals	215	100.0

The first point to note from these tables is that, for an upfront investment of about \$42M, Stratford Coal shareholders would expect to receive over the 12 year life of the project an income stream with a NPV of \$92M. This represents a very attractive rate of return compared with most venture capital undertakings, and clearly suggests that there is a significant element of windfall profits involved. Given this, it is a matter for concern that three-quarters of these profits would go to overseas investors.

The second is that it is misleading to imply, as is clearly done, that the whole of the \$39M payable as company tax to the Commonwealth can be treated as a marginal increment, flowing from, and dependent on, approval of the project. It is widely recognised that the coal mining industry has had a negative impact on other sectors of the economy, in

Table 2.3 Benefit Cost Analysis Results of the Project (\$M Present Values at 7% Discount Rate)

(\$M)	Costs		Benefits	
	Description	Value (\$M)	Description	Value
mine	Opportunity cost of land and capital equipment	\$29	Avoided decommissioning and	\$3
CHPP	Capital costs of establishment and construction including ancillary works, land	\$42	Avoided decommissioning and rehabilitation costs	\$4
Production	Operating costs, including administration, mining, coal	\$909	Value of coal	\$1,180
	Mine decommissioning and rehabilitation costs	\$2	Residual value of capital equipment and land	\$14
	CHPP decommissioning and	\$3		
	Production Sub-total	\$985		\$1,201
	Net Production Benefits			\$215 (\$146)
Non-market Impacts	Greenhouse gas emissions	\$39 (\$0.4)	Non-market benefits of	\$29
	Agricultural production	Reflected in land values and included in capital costs and opportunity cost		
	Operational noise	Reflected in land values and included in capital		
	Road transport noise	Minor		
	Blasting overpressure and vibration	Reflected in land values and included in capital		
	Air quality	Reflected in land values and included in capital		
	Surface water	\$0.3		
	Groundwater	\$1		
	Flora and fauna	Some loss of values but offset. Cost of biodiversity		
	Road transport	Insignificant		
	Aboriginal heritage	Minor		
	Non-Aboriginal heritage	Insignificant		
	Visual	Reflected in land values and included in capital		
	Non-market impacts	\$41 (\$2)	-	\$29
NET BENEFITS – including employment benefits				\$203 (\$174)
NET BENEFITS – excluding employment benefits				\$174 (\$145)

Note:

particular through the demand for skilled labour, and the loss of overseas markets due to the adverse exchange rate. Were the proposal not to proceed, some pressure would be taken off other sectors in the domestic economy, and this would provide an alternative source of company tax, which should have been factored in.

4.2 Non-market Benefits

An item of \$29M appears in the benefits column of Table 2.3, described as a non-market benefit of employment, and this is discussed on page 13 in Section 2.4.2. Essentially, it is argued that society at large may be so concerned about the social costs of unemployment, that people may be prepared to pay to avoid it. The amount which they are (collectively) willing to pay is then treated as a beneficial social outcome which can be expressed in dollar terms, and adduced to the benefits side of the CB Summary.

There are several problems with this proposal. Firstly, despite the hype emanating from the Mining Industry about "Job Creation", the proven fact is that new mining enterprises draw skilled labour away from other sectors in the economy, thereby creating labour shortages, and undermining the productive capacity of other firms. There is little scope for these vacancies to be filled from the pool of unemployed. Conversely, where an existing operation does not continue, resulting in the release of those employed back into the labour market, it is likely that this skilled labour would be rapidly re-employed in other industries.

Gillespie do not provide much detail, but refer to other studies which they had undertaken where estimates of "willingness to pay" were derived. In one of these [8], it was concluded that NSW households were on average prepared to pay \$4.17 per annum for a period of 20 years in order to keep 320 mining jobs open for that length of time.

Apparently another study produced a more conservative value (not stated) and it was this which was transferred and applied at Stratford, yielding the total of \$29M.⁷

⁷ It should be noted that the Gillespie study referred to, which was an exercise in "Choice Modelling", has been criticised, both on methodological grounds, and for the conclusions which were drawn.

In attempt to clarify some of these issues a letter, with a series of questions attached, was sent to Gillespie Economics. Copies of these items, and the reply received, are inserted at the end of this review.

W H Y ?

Gillespie have eagerly promoted the findings from their Helensburgh survey, using it in several CB analyses in support of coal mining ventures in recent years. Insofar as one is prepared to ignore the criticisms of Choice Modelling, it would appear equally valid to use this approach to estimate society's willingness to pay to preserve the scenic values of the Stroud Gloucester Valley, and the health, well-being, and economic security of the people who live there.

Why then have they chosen not to pursue this line of enquiry ?

4.3 Social Costs

Social or external costs are summarised in the lower part of Table 2.3, and discussed in Section 2.4.2, which is headed "**Environmental, Social and Cultural Costs and Benefits**". Despite the use of the plural "Benefits", the only beneficial item discussed is the alleged non-market benefit of employment, as noted above.

In contrast, fourteen separate headings were listed for consideration of Environmental, Social and Cultural Costs. Almost six pages were devoted to a discussion of these potential external costs, of which just over one page concerned Greenhouse Gases. The fourteen headings were as follows:

Greenhouse Gases	Agricultural Production
Operational Noise	Road Transport Noise
Rail Transport Noise	Blasting Overpressure and Vibration
Air Quality	Surface Water
Groundwater	Flora and Fauna
Road Transport	Aboriginal Heritage
Non-Aboriginal Heritage	Visual Impacts

Conspicuously absent from this list are any references, for example, to:

- Personal trauma
- Individual and community level health costs
- Loss of housing stock, and rural businesses
- Consequences for Gloucester Town's future

Of the fourteen areas of concern identified above, only the first two have direct implications which extend beyond the Gloucester community. However, issues such as

visual impacts, and flora and fauna, may also affect a wider community of concern, with consequent detrimental flow-on to the Gloucester tourism industry.

These two issues will be discussed separately below, while the remaining twelve will be dealt with as a group.

4.3.1 Greenhouse Gases

Gillespie devote more than a page of the main text (pp 7-8) to a discussion of this aspect, and provide a further two page appendix (Attachment 1) which reviews the literature on carbon emissions pricing. Their omission of overseas emission costs from the CBA is reasonable, and is not contested here. It is noted that a nominal NPV of \$0.4M was entered as a domestic social cost in Table 2.3.

However, while we accept the reality of the threat which climate poses to food production, and are fully aware of the problem of rising sea levels, we believe that this is a global issue, which must be resolved at the macro level. The Stratford Extension Proposal offers other more immediate and serious threats to the Gloucester Community, and it is on these that we wish to concentrate.

4.3.2 Agricultural Production

Agricultural production and food security are issues which concern both the Gloucester community, and the State and Nation at large. The Stroud-Gloucester Valley is already a productive food producing area, with a potential under future climate change regimes to become even more so. The not-for-profit association **"The Gloucester Project"** has identified this opportunity, and, with support from the NSW government, is promoting intensified horticultural production as one element in a secure economic basis for the Gloucester Community's future.

Discussion of agriculture in the main text of Appendix P is limited to a single paragraph, as copied below:

"The present value of foregone agricultural production is reflected in land prices. The value of foregone agricultural production, as a result of the Project, has therefore been incorporated in the BCA through inclusion of the full land value (opportunity cost) of affected properties. This allowance included in the BCA is considered conservative as it is greater than a detailed estimate of the present value of the forgone agricultural production presented in Attachment 2."

Here Gillespie rely on two highly contestable propositions:

- (1) That the future economic and social value (in perpetuity) of agricultural production from a parcel of land, including its value to future generations, and its value as an

element in a localised community food production system, is **completely** captured by the present market value of the parcel.

- (2) That the process described as **internalisation** of a cost, whereby a resource extractor buys a community asset, and then effectively writes it off, **achieves an outcome which has no residual external impact.**

Having in mind that the Regulations⁸ require that "**the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations**", and that "in perpetuity" might just possibly be a long time, the onus would appear to be on the Proponent to justify the first assertion.

As to the second proposition, while this might be accepted by a neo-conservative market-reliant economist as no more than plain commonsense, he or she should not rely on wide consensus. However convenient it might be, the property market is not able to capture all of the values cherished either by individuals, or collectively by a community.

How, for example, does one "internalise" the pain and anguish experienced by a family when they are forced from the home and land they and their forebears have occupied for generations, and where they in turn had planned to live out their lives, and in turn pass their inheritance on to their children ?

4.3.3 Other Factors Considered

About four pages [9-12 inclusive] in Appendix P were devoted to a discussion of the social costs of the twelve residual items listed above, ranging from Operational Noise to Visual Impacts. The treatment is generally dismissive, as shown in the examples below.

Road Transport Noise - "*. . . would have a minor impact . . . and therefore does not warrant inclusion in the BCA.*"

Road Transport - "*. . . no significant impacts on the performance, capacity, efficiency, and safety of the local road network are expected . . . no economic effects have been identified . . .*"

Visual Impacts - "*There are considered to be no additional visual impacts that are sufficiently significant that they would warrant inclusion in the BCA.*"

Flora and Fauna - "*. . . no significant economic cost would arise that would warrant inclusion in the BCA.*"

⁸ Refer to NSW Environmental Planning and Assessment Regulation 2000

In several instances, e.g. Blasting Overpressure, Air Quality, and Visual Impacts, consideration is given only to properties in the immediate vicinity of the mine, and these are then dismissed by stating that allowance has been made in the capital costs of the Project for acquisition of the properties in question. That is, the problem is "internalised" in the manner noted above, and any external costs to the wider local community are airbrushed out of existence.

With the exception of Surface and Ground Water, none of the other eleven impact headings which appeared in Table 2.3 had any costs associated with them (Rail Transport apparently getting lost along the way).

As for surface and groundwater concerns, it was found that some opportunity costs might be borne by licensed water users. Since, in this case, a market value could be associated with the loss, they were able to be entered into Table 2.3 with a combined NPV of \$1.3M over the life of the mine. What might eventuate beyond the life of the mine was not discussed.

4.4 Factors Not Considered

A short list of four items was presented above, as examples of the kinds of externalities which were completely ignored in the EIS. These were cited as examples only, and many more could be identified. However, a brief discussion of these selected items is provided below.

4.4.1 Personal Trauma

Coalmining can change the lifestyle and character of a community, and Higginbotham et al [13] have detailed the social consequences that result. Medical practitioners in coalmining areas have reported that incidents of stress and mental ill health have become more common. As more coalmines are serially opened, the social fabric of a region changes, the role and function of a township alters, and many inhabitants of these regions develop symptoms of depression, anxiety and ill health.

Albrecht has applied the term "Solastalgia" to the sense of loss experienced when a familiar and cherished landscape is devastated, and residents uprooted. The effects can also emerge in intra-family tensions, when some members may wish to move on to avoid stress, while others are reluctant to abandon their properties to resource extractors and their political backers, and prefer to stay on and fight.

4.4.2 Individual and Public Health

Colagiuri [4] notes the paucity of research data on the immediate and long-term incidence of health problems associated with coal mining in Australia. Such findings as were available from the Hunter were inconclusive, pointing to the need for more focussed

studies. However, research of this nature does not seem to have priority with any Australian Government.

Overseas data from England and The USA is more conclusive. For example, Hendryx and Ahern [9, 10,11] found significantly higher rates of lung cancer mortality in Appalachian coal mining areas, and this finding has been supported in a number of other studies. Again, Brabin [3] in a study of children aged 5-11 years in Liverpool found increased levels of respiratory symptoms, and associated school absenteeism, in exposed groups as compared with controls.

Apart from impacts on the quality and length of life experienced at the individual level, the present and future costs to the public health system have the potential to be enormous, and to persist long after mining has ceased. In fact, it is quite likely that the consequences will not peak until several decades have passed, so that to-day's policies are creating a burden for future generations. This, at least, should be a matter of concern to government.

It should have been well within Gillespie's competence to have undertaken a review of the available literature, and to derive some cost values which could plausibly be transferred to the Australian setting. So, why was this not done ? ⁹

4.4.3 Loss of Housing Stock and Rural Businesses

The various resource extraction companies have been progressively buying selected homes and farms down the length of the Valley, and in the villages of Craven and Stratford, and now own in combination an estimated 10,000 hectares of land. The total number of dwellings affected is not known, but numerous examples are available of friends and neighbours who have been effectively displaced from their homes. With them, in many cases, have also gone their businesses.

One example is the former cut-flower native nursery at 94 Glen Rd, which was a thriving business, with an overseas market. The owners wished to sell, but found that potential buyers lost interest once they became aware that Gloucester Coal might be planning future acquisition. Eventually GCL did purchase the property, but with no compensation for the loss of business. The property would now be in the compulsory acquisition zone for the current proposed extension. The loss of this business to the local economy should have been identified as an external cost in the BC Analysis, but it was not, presumably as result of it's having already been "internalised".

Another example is the former pig farm at 3270 Bucketts Way, Stratford. The property was purchased by GCL in 2006, and the residence and farm buildings have recently been demolished. This represents another loss of community capital, which should have been included in the CBA.

⁹ James and Gillespie [14] specifically mention health costs as a concern which can be incorporated into a CBA.



The former residence and pig-farm at Stratford, in process of being demolished in November 2012.

Both the fabric and residents of the villages of Craven and Stratford will come under increased stress if the present extension is approved. Potentially, more residents, who cannot cope with the increase in noise, dust, and blasting will feel forced to move out, and additional housing stock will become uninhabitable. This represents not only personal loss, but also a material cost to the community.

These costs should have been easy to estimate, and to incorporate into the CBA.

Yet another issue is the decline in market value and saleability of properties which are affected by proximity to the mine, but which are not within a compulsory acquisition zone - an effect which has been validated by the NSW Valuer General. Such property owners are forced to bear an external cost, but without any legislative provision for relief. Once again the NSW Treasury's comment is relevant, namely that external costs should be priced ***"as valued by the parties themselves"***.

4.4.4 Consequences for Gloucester Town's Future

Gloucester has evolved over more than a century as a traditional rural service centre, akin to many others scattered throughout non-coastal NSW. In recent decades its unique scenic attributes, combined with easy access from the coastal conurbation, has led to its popularity both as a tourist destination and as a location of choice for rural retirement. These two factors, far from overwhelming the town's essential service role, have contributed to the maintenance of Gloucester as a vibrant rural service centre.

The intrusion of a single coal mine into Gloucester has in the past distorted and destabilised portions of the community, and expansion of extractive industries has seen an acceleration of this. The cohesion and integrity of community institutions are being gradually undermined, to the extent that post-mining recovery may be impossible.

One obvious example is the rental and housing market, where, on the one hand, short-term and fluctuating demand for rental properties may drive poorer tenants out of the district, while on the other hand departing refugees from the impacts of mining may result in an oversupply of properties for sale, leading to a depressed market.

Again, to the extent that local residents are employed by the mining industry, these will be skilled and able-bodied people who were already in employment in sectors such as manufacturing, building services, utilities, and rural activities. As for those already engaged in manufacturing, their loss may result in the closure of local export businesses, while drawdown from other sectors will be experienced as shortages across the service trades spectrum. Another complaint voiced by local firms is that, after they have undertaken training of apprentices, they are then snapped up by the mines.

Before the influx of miners, tourism had been a steadily expanding sector in the Gloucester economy, with the potential to sustain this role. Now, it is likely that visual pollution, competition for motel accommodation, and the transitory presence of mine workers, will combine to sour the visitor experience, and deter the many families who have been regular holiday period visitors for several years.

Despite its apparent prosperity, Gloucester has been, for the past few decades, close to that critical threshold, beyond which smaller rural service centres may go into spiral decline. Fortunately, the contraction in the timber and dairy industries has been more than offset by tourism and the inflow of retirees, and the emergence of some successful local manufacturing industries.

It is unlikely that, if mining expansion is allowed to continue in the Stroud Gloucester Valley for a further decade or two, the remnant local urban economy will have retained sufficient capacity and resilience to re-create itself, but will join Werris Creek, Denman, Merriwa, and others as sad reminders of a previous better time. (A "foregone better future", as Gillespie might well say).

These issues are relevant to the DGRs that *"any cumulative impacts"* be taken into account in the assessment - but they haven't been considered. Why ?

5.0 The Input-Output Model Approach

In Section 3 of Appendix P Gillespie introduce two Input-Output models, with the goal of demonstrating the beneficial consequences which approval of the Project would or might have on the local economy and on that of NSW.

An Input-Output Model (I-O Model) is a device or technique for displaying and analysing the inter-relationships between different sectors in an economy. Most advanced economies, including Australia, have published I-O Tables for several decades now, and in Australia State level I-O Tables are also available.

An I-O Model is primarily a descriptive tool, which facilitates identification of the linkages, both of supply and demand, between sectors of an economy. For multiple and well-documented reasons, it is not a predictive tool, except within very narrowly constrained limits, and with many caveats. Major shifts in the structure of an economy, involving a re-allocation of scarce resources, require application of less rigid techniques, such as a computable general equilibrium model.

The methodology has also been applied at regional and local geographic scales over the past fifty years, and an extensive literature now exists. While I-O Tables may have useful and valid applications at the local level, concerns about the specific limitations of the technique at regional or sub-regional scale have frequently been raised. The relevance of these concerns to the present application will be discussed further below.¹⁰

5.1 Geographic Scope

A primary requirement for local application of the I-O technique is that the study area should (to a reasonable extent) be a closely integrated functional economic unit. Thus, at the lower end of the scale a candidate entity might be a rural town together with the surrounding area for which it is the primary service centre. Gloucester is a possible example, though it is close to the minimum size threshold. A regional centre, such as Tamworth, which has several smaller towns within its service area, would be a more suitable candidate for I-O modelling.

The terms Community, Region, State, and [Nation] all appear at various points in the EIS, though with varying referents. For example, the DGRs refer to the "NSW community", and Gillespie also use this term. However, elsewhere the terms "Community" and "Region" are used interchangeably.

[It is suggested that the term "Community" should be used to refer to a group of people living in (relative) proximity to each other, whose shared social and economic interests are supported by a central cluster of facilities such as education, health, retail and other services, and who are also linked through networks of personal and social relationships].

¹⁰ Note that some of these issues are addressed in Attachment 4 to Appendix P.

Figure 5.1

Map showing Gloucester Region to be Supplied

5.1.1 Choice of Areas

In Section 2 of their report, Gillespie Economics note that, although some of the profits which might eventuate from the Proposal would accrue to overseas interests, these should not be taken into account. This choice is considered the correct one for the wider community of interest, though reference has previously been made to the issue of windfall profits being transferred overseas.

However, when focusing on the sub-regional or local scale, Gillespie opt for a rather surprising geographical unit. Although frequent references are made earlier in the report to Gloucester and Great Lakes Shires, it is not until Section 3 that the local impact area is formally identified as consisting of these two LGAs, in combination.

It is hard to understand how anyone, who had taken the trouble to familiarise themselves with the local geography, could have proposed an amalgam of Gloucester and Great Lakes Shires as a meaningful sub-regional social or economic entity.¹¹

5.1.2 Gloucester Shire

Gloucester LGA presents as a relatively compact rural area, whose boundaries are mainly delineated by sparsely populated, and mainly forested, hill and mountain ranges. The central feature is the northern part of the Stroud Gloucester Valley, renowned for its scenic attributes, and from this branch several tributaries of the Manning River system, each forming its own agriculturally rich valley, separated by forested ridges.

The total area is 2,950 kms², with a population of about 4,800. Roughly half of these live in the town of Gloucester, which is located near the north end of the Valley, and the remainder in the villages of Barrington, Bundook, Stratford, and Craven, and surrounding rural areas. In contrast with the periphery, the central valley supports (or used to support) a relatively dense rural population.

The principal road through Gloucester is the Bucketts Way, which branches from the Pacific Highway north of Raymond Terrace, and continues on to Taree. From Gloucester, Thunderbolt's Way climbs the hills to the north, leading up to Walcha and the Tablelands. A minor road branches from the Buckets Way at Booral, and leads across to Buladelah, and eventually to Forster-Tuncurry, while another branches to the west at Stroud Road, and leads to Dungog. The sparseness of this road network contributes to the relatively closed nature of the Shire community. Only on the southern and eastern boundaries does Gloucester's social and economic scope extend to include parts of the City of Greater Taree and the Shire of Great Lakes. (See Figure 5.1).

¹¹ It is ironic to note that in Attachment 5 which describes the GRIT Technique it is stated that "[This]. . . also means that the method should be used by an analyst who is familiar with the economy being modelled, or at least someone with that familiarity should be consulted.

5.1.3 Great Lakes Shire

Unlike Gloucester Shire, whose boundary has remain unchanged since first gazetted in 1906, Great Lakes Shire is a recent construct, having been formed through an amalgamation and re-distribution of former Shires and Municipalities. It now covers an area of 3133 kms², and has a total resident population of about 30,000. Of these, over 19,000 live in the twin towns of Foster-Tuncurry, and the remainder in rural areas and other smaller settlements, mainly coastal. The primary focus in these locations is on tourism and retirement.

Great Lakes Shire's own image emphasises the predominantly rural and conservation nature of land use, with tourism, timber, and seafood as the principal industries.¹²

Neither the residents of Forster-Tuncurry, nor of any of the coastal settlements to the south, would be in any way affected by the proposed expansion of the Stratford mine, which is about 80 kms to the west or northwest of their homes, with road links which are, at best, of secondary status.

5.1.4 An Alternative Region

A more rational community framework within to evaluate the likely social and economic costs and benefits of the Proposal would be made up as follows:

Gloucester Shire in its entirety (Population 4800); plus

A section of Greater Taree just to the east of Gloucester (Est. population 150); plus

That part of the Stroud Gloucester Valley running south to include Stroud Rd (550).

This area, with a total population of about 5,500 is shown on the map in Figure 5.1. It is, effectively, the retail service area of Gloucester, and also the area within which the adverse impacts of the current proposal, and any future proposals to extend the Stratford or Duralie mines, would be mainly experienced.

5.2 The Input-Output Tables

Gillespie report (Section 3.2) that they developed two Transaction Tables, one for NSW and one for the Great Lakes / Gloucester areas combined (The Region), both being derived from the Monash 2006 table for NSW. The parent table is described as having been "indexed to 2011", but the implications of this are not explained, and no further mention of indexing is made.

However, it should be noted that Table 3.1 is described as being for the Regional Economy 2005-2006.

¹² A broadscale profile of the Great Lakes Shire community can be found on their website.

Gillespie also state that:

" The input-output table of the NSW and regional economies were aggregated to 30 sectors and six sectors, for the purpose of describing them."

This is ambiguous. Did they mean that the NSW and regional economies were, aggregated to 30 sectors and 6 sectors respectively, or that aggregations at these two levels were produced for each of the respective economies?

In the event, the only table provided for inspection is Table 3.1, referred to above, which is a six sector aggregation for the Great Lakes/Gloucester Regional Economy for the year 2005-2006.

No table, of any vintage, or at any level of aggregation, was presented for NSW, though conclusions drawn are summarised in Table 3.3, and these are relied on throughout the economic assessment.

Given the irrelevance of the Regional Economy as proposed by Gillespie, and the absence of any detailed information as to how the values in Table 3.1 were derived,¹³ no further evaluation was attempted, though several apparent anomalies were noted.

5.3 The Augmented I-O Matrix

In order to estimate the employment, output, and other implications for the regional economy, Gillespie inserted an additional row and column into the transactions matrix. As they explain it (Section 3.3):

"For the analysis of the Project operation, a Project sector was inserted into the regional input-output table reflecting average annual production and processing levels of 2.1 Mtpa of ROM coal and direct employment of 250 staff and contractors for the Project."

Insertion of an additional sector is standard practice in this kind of forecasting exercise, but it is also standard practice to present the augmented matrix for review and evaluation.

This Gillespie have failed to do, though conclusions drawn from it are summarised in Table 3.2, and these also are relied on throughout the economic assessment.

¹³ Reference is made to use of the GRIT technique , and a descriptive Appendix provided. GRIT stands for Generation of Regional I-O Tables. The technique was developed by a group of Regional Economists and Scientists centred at Queensland University in the eighties, and is extensively documented. However, its application in any local setting requires numerous estimates and value judgements to be made, and details of these should be documented.

5.3.1 Multipliers

In Tables 3.2 and 3.3 Gillespie present estimates of the increments in Gross Output, Value Added, Household Income, and Employment which are claimed would occur at the Regional and State levels, should the proposal proceed. The multipliers which were derived from the Regional I-O Table are more modest than some which have been presented in the past by the Minerals Industry, but are still questionable, given the open nature of the Regional Economy, however defined.

For example, the Production Induced and Consumption Induced increments in employment at the Regional scale are given as 23% and 49% respectively. These present as incredibly large ratios. However, given the paucity of detail, this review cannot be pursued further.

5.3.2 Employment Effects

The employment effects presented in Tables 3.2 and 3.3 are particularly, though not exclusively, puzzling. For the Region Table 3.2 cites an initial employment stimulus of 145 jobs, and this is then (questionably) transmuted into a total effect of 250 jobs within the Region.

Moving on to Table 3.3 for the NSW Economy, the value of 250 jobs is now treated as the initial stimulus, and a total effect for the State of 714 jobs is derived. To put it another way, it is being asserted that approval of the Stratford Extension, which might well require the recruitment of 145 skilled workers from elsewhere, would somehow "create" a "beneficial" flow-on effect to the NSW Economy in the form of 569 "new" jobs.

This is arrant nonsense. The re-deployment of 145 skilled workers, whether from elsewhere in the mining industry, or from other sectors, is unlikely to produce more than a ripple effect, if even that. It would also appear that, in deriving the above results, Gillespie may have engaged in double counting, by transferring the Regional total effect into the State table as an initial direct effect, and then building again on that base.

5.3.3 Employment Confusion

As noted above, Table 3.2 presents a figure of 145 for the immediate additional employment at the Stratford Mining Site, commencing in mid-2013, should the Project be approved.

However, in Appendix P (p. 13) it is stated that:

The existing Stratford Mining Complex employs some 125 staff and on-site contractors. The Project would provide an average of 250 direct jobs per year for 11 years from mid-2013, with 128 being direct employees and 122 being on-site contractors. Without approval of the Project mining operations at the Stratford Mining Complex would cease, however, 34 direct jobs would be required for the processing of coal from DCM at the Stratford Mining Complex until 2019 under current approvals. The Project would

therefore result in 94 incremental direct jobs until 2019 and 128 incremental direct jobs for the remaining four years.

Yet again, the sentence quoted in **5.3** above cites a direct employment of 250, consequent on approval of the Project. These apparent contradictions need to be clarified.

5.3.4 Other Material Presented

Figures 3.3 to 3.5 inclusive present graphical data on six economic indicators for the Region, disaggregated over 31 sectors. In addition to the four indicators noted above, the six also included Regional Imports and Exports. The source of this detail is not referenced, nor can it be matched with any of the publications cited in the References section.

The information content is also of dubious value, given that the 31 sectors range from Business Services, and Building/Construction, at one end of the spectrum, to Sheep, and Oil and Gas, at the other. It would be hard to conclude other than that Figures 3.3 to 3.5 have been included for sake of padding. This suggestion is supported by a subsequent comment on their origin (Refer to Section 6.0 Following)

6.0 Social Impact Considerations

Section 4 of Appendix P addresses issues relating to the impacts which the development might have on:

" . . . community infrastructure and human services, which includes for example housing, health, and education facilities" (Page 31).

In this section Gillespie have chosen to provide data separately for Gloucester and Great Lakes Shires, which facilitates review. Of the twenty pages in the section, the first five are devoted to a standard demographic profile of the two LGAs. Despite the fact that detailed results from the 2011 Census were available well before the EIS was finalised, the presentations are limited to comparisons of the 1996, 2001, and 2006 Censuses.

No explanation is offered for this omission, but a comparison of this section of the EIS with the corresponding one in the 2010 Duralie Extension Project EA ¹⁴ shows that several pages from that document have been simply cut and pasted into the new EIS. Since 2011 Census data had been released in good time, one can only speculate that this was done as a matter of convenience, the urgency of which overrode any sense of obligation to provide the Department of Planning, and the general public, with the most up-to-date information available.

6.1 Shire Comparisons

Great Lakes and Gloucester have a shared characteristic, in that both exhibit a much higher proportion of persons aged 65 and over than the NSW average. While the proportion in Great Lakes is higher than that in Gloucester, the latter has been increasing more rapidly.

A notable difference between the two areas is in the proportion of the working population engaged in Agriculture/Forestry/Fishing, which is almost 20% for Gloucester as compared with 5% for Great Lakes.

These two attributes, combined with higher proportions employed in Retail Trade and in Accommodation/Food in Great Lakes, confirm the divergent characters of the two areas, as noted previously.

As noted previously, Gloucester has followed a steady evolutionary path as a typical rural service centre for over a century. In contrast, Great Lakes remained into the post-war era a relatively isolated and under-populated coastal enclave, by-passed to the west by both the Pacific Highway and the North Coast Railway line. There followed then a period of rapid expansion as a tourist destination, centred on the twin towns of Forster-Tuncurry, and later as a retirement area, both in the main urban centre, and in numerous smaller coastal settlements.

¹⁴ The document in question is Appendix G, Socio-Economic Assessment.

These contrasting development histories reinforce the claim made earlier that the amalgamation of these two Shires to create a unified local economy was an arbitrary decision, owing more to considerations of expediency than to an informed appraisal of reality.

6.2 Crime Rates

Although not directly referenced in the DGRs, Gillespie devote one and a half pages to a detailed comparison of crime rates between the two Shires and NSW as a whole. Possibly this was in response to the fact that several writers have associated increased crime rates with the intrusion of coal mining or similar industries into a community.

The essential outcome of the comparison was that, while Great Lakes and NSW exhibit very similar crime rate profiles, the Gloucester community has registered only about 60% of this rate in recent years. Gillespie tentatively attribute the difference between the two Shires to the greater incidence of unemployment and poverty in Great Lakes. This might appear plausible, but it could also be linked in turn to the attractiveness of a seaside resort to unintegrated members of the workforce. Crime rates are also positively associated with urban centre size.

It might have been appropriate at this point to have commented that Gloucester's low crime rate was a social amenity which it was desirable to preserve, and that this constituted an additional argument against the continuation and expansion of coal-mining. However, no such observation was made, nor were any other conclusions presented.

6.3 Education and Health

Section 4.2.5, titled Community Infrastructure, considers the availability of school places and health care and hospital facilities. It is concluded, reasonably, that, due to declining numbers in the school age population generally, surplus capacity would be available in the school system, should it be required.

The information provided for health care facilities is purely descriptive, is limited to hospital based services, and dates from 2007 (p. 39). Given that it is widely acknowledged that General Medical Practice services in Gloucester are already overstressed, failure to address this concern constitutes a serious omission.

References:

- (1) Ahern M, Hendryx M, et al: *"The association between mountaintop mining and birth defects among live births in central Appalachia, 1996-2003"*. Environmental Research 111(6): 838-846. (2011).
- (2) Australian Academy of Technological Sciences and Engineering: *"The Hidden Costs of Electricity: Externalities of Power Generation in Australia"*. (2009).
- (3) Brabin B, Smith M, et al: *"Respiratory morbidity in Merseyside schoolchildren exposed to coal dust and air pollution"*. Archives of Disease in Childhood 70(4): 305-312. (1994).
- (4) Colagiuri R, Cochrane J, Girgis S.: *Health and Social Harms of Coal Mining in Local Communities: Spotlight on the Hunter Region*. Beyond Zero Emissions, Melbourne, October 2012. ISBN: 978-1-74210-292-4
- (5) Connor L, Albrecht G, Higginbotham N, et al: *Environmental change and human health in Upper Hunter communities of New South Wales, Australia*. EcoHealth 2004; 1 (2 Suppl): 47-58
- (6) Connor, Linda et al: *Themes from Gloucester Region Community Interviews*; (2008), University of Newcastle .
- (7) Cox, Gary et al: *Techniques for Effective Social Impact Assessment: a Practical Guide*; (1995), NSW Government Office on Social Policy.
- (8) Gillespie Economics: *Managing the Impacts of a Mine in the Southern Coalfield - A Survey of Community Attitudes*; (Dec. 2008). Report prepared for Helensburgh Coal Pty Ltd.
- (9) Hendryx M, Ahern M M, et al: *"Hospitalization patterns associated with Appalachian coal mining"*. Journal of Toxicology and Environmental Health Part A 70(24): 2064-2070. (2007).
- (10) Hendryx M & Ahern M M.: *"Relations between health indicators and residential proximity to coal mining in West Virginia"*. American Journal of Public Health 98(4): 669-671. (2008).
- (11) Hendryx M & Ahern M M: *"Mortality in Appalachian coal mining regions: The value of statistical life lost"*. Public Health Reports 124(4): 541-550. (2009).
- (12) Hendryx M: *"Mortality from heart, respiratory, and kidney disease in coal mining areas of Appalachia"*. International Archives of Occupational and Environmental Health 82(2): 243-249. (2009).

- (13) Higginbotham N, Freeman S, Connor L, Albrecht G.: *Environmental injustice and air pollution in coal affected communities, Hunter Valley Australia*. Health Place 2010; 16: 259-266.
- (14) James, D. and Gillespie, R.: *Economic Effects and Evaluation in Environmental Impact Assessment*; (May, 1997); Draft published by the NSW Dept. of Urban affairs and Planning. (Revised 2003).
- (15) Jensen, R C and West, G R: *Input-Output for Practitioners: Theory and Applications*; Australian Govt. Publishing Service, Canberra (1986).
- (16) LGA and Shires Association of NSW: *Submission to the Legislative Council Standing Committee on State Development – Enquiry into Skills Shortages in Rural and Regional NSW* (2005).
- (17) McCalden G.: *Muswellbrook: An Urban Case Study*; Monograph 31, The Hunter Valley Research Foundation, Maryville, NSW. (1969)
- (18) McCalden G.: *Craven - A History 1903–2009*; Self-published (2010)
- (19) NSW Treasury: *Guideline for the use of Cost Benefit Analysis in mining and coal seam gas proposals*; (Nov. 2012).
- (20) NSW Department of Health (Population Health Division): *“Respiratory and cardiovascular diseases and cancer among residents in the Hunter New England Area Health Service”*. (2010).
- (21) Solow, Robert et al: *Report of the NOAA Panel on Contingent Valuation*; (2001).

"Clon Garribh"
594 Glen Rd
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30th December 2012

The Manager
Gillespie Economics
13 Bigland Ave
West Ryde NSW 2144

Dear Manager:

Re: Stratford Extension Project – Environmental Impact Statement

In Appendix P to the above document, dealing with Socioeconomic Effects, reference is made to the following report:

"Managing the Impacts of a Mine in the Southern Coalfield – A Survey of Community Attitudes"; Prepared for Helensburgh Coal Pty Ltd by Gillespie Economics (December 2008).

In that report there was a finding to the effect that households in NSW were prepared to pay, on average, an annual sum of \$4.17 for twenty years in order to secure the employment of 320 workers at a certain underground coal mine.

In the Stratford EIS it is assumed that it is legitimate to transfer a similar finding to the Gloucester Region and apply it there to an open-cut mine, with proportional adjustments for timespan and number of jobs involved. The transfer value, which was apparently derived from a different study, relating to a mine at Bulli, was not revealed in Appendix P.

In preparing a submission on the Stratford EIS, some members of a working group of concerned Gloucester residents have reviewed the Helensburgh report, and have raised certain questions relating to the sampling methodology, and to the presentation of the results.

Some of these are itemised in an attachment, and your early response would be appreciated in order to enable us to meet the revised deadline (25th of January 2013) for submissions.

Yours faithfully,

(Dr) Gerald McCalden.

"Managing the Impacts of a Mine in the Southern Coalfield – A Survey of Community Attitudes"; Prepared for Helensburgh Coal Pty Ltd by Gillespie Economics (December 2008).

Questions Relating to the Above Report:

- (1) Given that (in round figures) 7,500 invitations to respond were sent out to on-line panel members, but that only the first 1,000 respondents were selected, was the possibility of self-selection, or other forms of bias, considered ?
- (2) The high (75%) proportion of females in the Illawarra sample was noted in the report as being significant. It was in fact an astronomically improbable result for a sample of 525 if random sampling was being assumed. Were any efforts made to determine whether the bias could be attributed to causes other than mere chance ? If so, what was the outcome ?
- (3) Is it known whether coal mining interests, in whatever form, took any steps to publicise, to any population group or sub-group, the fact that the survey was being undertaken ?
- (4) While some comparative detail has been provided for the two sample groups, were separate analyses made of the key outcomes of Willingness to Pay ? If so, are these results available ?
- (5) In response to a screening question as to whether the respondent or a close family member were "associated with the mining industry", 11.4% of Illawarra respondents, and 8.0% of those from the rest of NSW, answered "yes". Even allowing for the fact that the question was open to varying interpretations, the response rates still seem rather high. Note further that on p. 18 of the Report an affirmative answer was interpreted as "being a miner" . Can you comment ?
- (6) In Table 21 (page 25) the value of \$4.17 in column three of the last line appears to represent the annual Willingness to Pay to keep 320 miners in work for 20 years ? If so, why was the Present Value of \$26.09 again multiplied by 23 (years), instead of by a factor of 1.15 ? The result would seem to have been to overestimate the alleged Social Benefit of mine employment by a factor of 20 ?



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Dr McCalden
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Dear Dr McCalden,

Thank you for your letter dated 30 December 2012 regarding the Stratford Extension Project Environmental Impact Statement (EIS).

I suggest that you submit any queries or concerns that you may have regarding the economic analysis of the Stratford Extension Project to the Department of Planning and Infrastructure as part of your working group's submission on the project.

Stratford Coal Pty Ltd may then seek Gillespie Economics' assistance to prepare responses to submissions on the EIS, including any economic concerns that are raised by your working group.

Regards


Rob Gillespie

7/1/13