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Bylong Coal Project

Submission to the NSW Independent Planning Commission

Based on its own figures, the Bylong Coal Project is a high-cost, low-quality proposal. It is unlikely to be competitive in a time when exports through Newcastle have stalled, with the port's fourth coal terminal recently abandoned. Approving the Project will bring uncertainty rather than economic benefit.

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Summary

The Bylong Coal Project (**Project**) is a proposal for a new mine in the NSW Bylong Valley. It would be the first mine in the valley and produce around 4 million tonnes of coal per year. It is proposed by Korean company, KEPCO.

Based on the proponent's own analysis it would be a high-cost mine with relatively low-quality coal. The Project would be financially unviable at Federal Treasury's long term coal price forecast of $AUD80 per tonne. While thermal coal prices are currently above this level, the longer term outlook is poor as climate policy comes into effect and the economics of renewable energy improves.

Arguments that KEPCO will develop the mine regardless of its viability as it could sell the coal to itself do not make sense from an economic or financial perspective. A firm will buy from the market rather than use their own supply when it is cheaper to do so.

KEPCO's economists evade this issue by focusing their sensitivity analysis on the potential value of coal royalties to NSW. This analysis assumes operators are willing to operate at a loss. A more likely outcome would see operators cease operations temporarily or permanently. This could drastically reduce, or eliminate entirely, any royalty payments and economic benefits to NSW.

International coal demand has declined, with the most relevant local impact being the cancellation of Newcastle's fourth coal terminal, T4. Port owners and operators do not expect NSW coal exports to increase substantially. Further, NSW has approved projects with large volumes of coal for export. Not all of it will be exported, meaning that production from the Project will to some degree come at the expense of other mines.

The economic consultants to the T4 project based their assessment of that project on an assumption that almost 200 million tonnes of coal would be shipped by the proponents in 2017. Instead, they shipped just 105 million tonnes.

The consultants to the Project are the same consultants that worked on T4 and have previously produced overly-optimistic financial analysis other projects.

Several economic modelling exercises have estimated the Project could generate anywhere between zero and 830 jobs in the local area. However, there is no indication as to what local labour market conditions are like or what they might be like in the future. This is because the modelling exercises are entirely desktop based, with no data collected from the locality.

A claim by one of Bylong's consultants that the project could make the local region $4,866 million better off is misleading. This is 16 times greater than another estimate by a consultant to the Project.

Approving the Project will bring uncertainty rather than benefit. This uncertainty brings costs for the local community.

Introduction

The economic case for the Project was weak in 2015 when The Australia Institute's submission highlighted that the project would be financially unviable at Federal Treasury's long term coal price forecast of $AUD80 per tonne.[1] While thermal coal prices are currently above this level, the economic case for the project has gotten worse, not better.

Internationally, demand for thermal coal has plateaued as climate policy begins to take effect and the economics of renewable energy has rapidly improved. This was noted by the International Energy Agency in the 2017 World Energy Outlook, due to be updated this month:

> *Against a background of falling coal use in Europe, the United States and China, global coal demand fell by 2% in 2016, for the second year in a row.*[2]

Despite this, NSW has approved large volumes of coal production based on claims of indefinitely increasing coal demand and for coal shipped through Newcastle.

The changed outlook for thermal coal is most evident locally in the cancelation of Newcastle's fourth coal terminal, T4. It is clear to the port owners and operators that NSW coal export volumes will not rise substantially in the foreseeable future. Rather than all NSW miners benefiting from growth, they will instead compete against each other for a slice of a shrinking pie.

Based on the EIS documents, Bylong is a high-cost mine, with relatively low quality coal looking to commence operations at a time when the world is trying to phase out coal-fired power. Approving the project is unlikely to lead to significant economic benefit, but will impose uncertainty on the local community over potential start dates, the longevity of the project and the ability of eventual owners/operators to fund its site rehabilitation obligations and other liabilities.

[1] Campbell (2015) *Bylong Coal Project: Submission on Environmental Impact Statement, Appendix AE Economic Assessment*, http://www.tai.org.au/sites/defualt/files/TAI%202015%20Bylong%20coal%20submission%20FINAL.pdf

[2] IEA (2017) *World Energy Outlook*, https://www.iea.org/weo/

Finances and history of the project

According to the original economic assessment of the Bylong Project, the proponents KEPCO bought rights to the site in December 2010.[3] At that time, coal prices were around $USD120 per tonne and international demand had been growing strongly for a decade.[4]

By 2015 however, prices had declined. The project's economic assessment was based on prices of $AUD100 per tonne, despite prices being around $AUD80 at the time, which is Federal Treasury's long term forecast price for thermal coal.[5] The Australia Institute's 2015 submission on the Bylong Project showed that at a coal price of $AUD80 per tonne the production schedule in the EIS would yield present value revenue of $3,238 million, while present value costs reached $3,226 million. Accounting for royalty payments of present value $220 million would leave producer surplus at negative $307 million.[6]

This shows that based on the EIS, the project is not financially robust and has relatively high costs. The changes proposed to the Project are unlikely to change this conclusion result given that they slightly delay and reduce production volumes.[7]

The financially marginal nature of the project is compounded by relatively low coal quality. Relative to other NSW mines it is of low energy content and high ash, as shown in the proponent's response to PAC documents:

[3] Gillespie Economics (2015) *Bylong Coal Project Economic Impact Assessment*, http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6367

[4] IndexMundi (2018) *Coal, Australian thermal coal Monthly Price*, https://www.indexmundi.com/commodities/?commodity=coal-australian&months=120

[5] Bullen et al (2014) *Long-run forecasts of Australia's terms of trade*, http://www.treasury.gov.au/~/media/Treasury/Publications and Media/Publications/2014/Long run forecasts of Australias terms of trade/Documents/PDF/long_run_tot.ashx

[6] Campbell (2015) *Bylong Coal Project: Submission on Environmental Impact Statement, Appendix AE Economic Assessment*, http://www.tai.org.au/sites/defualt/files/TAI%202015%20Bylong%20coal%20submission%20FINAL.pdf

[7] Gillespie Economics (2018) Bylong Coal Project: Revision to project mine plan economic impact assessment, https://majorprojects.accelo.com/public/4156623d554e7256365dfc0ab581b992/Appendix%20L%20Economic%20Impact%20Assessment%20for%20Revised%20Mine%20Plan.pdf

Figure 1: Bylong and other NSW mine coal specifications:

Mine	Specific Energy (kcal/kg, GAR)	Ash (air dried %)	Total Moisture (%)
Bylong	5,700-6,000	16	11
Ulan	6,300-6,400	14	9
Wilpinjong	6,400	15	9
Hunter Valley Open Cut (HVOC)	6,300-6,850	13.5	10
Moolarben	6,500-6,100	17 -20	NA
Whitehaven	6,330	10	9.5
Rolleston	5,970	7.5	16

Source: JT Boyd (2018) Review of integrated Bylong Project, p6-19

While Boyd goes on to list KEPCO generators that can use still lower quality coal, the fact remains that this is a new, high-cost mine with relatively low-quality coal that will face difficulty competing with other Australian and international mines.

Implications of high costs and low quality

Rather than contesting the high-cost nature of the project, or discussing its implications, Gillespie Economics write about:

> *The perversity a scenario in which a proponent would invest a significant component of a $1.3B Project investment and then abandon it*.[8]

Gillespie Economics misrepresent the situation. At this point the company is simply seeking approval, not making major capital investment. If approval is granted the company may decide to invest in the project, or it may not. It may try to sell the project, or keep it in case coal prices remain high. The project might be further modified to reduce costs, its operation may be sporadic rather than consistent, or the project may become a stranded asset.

Arguments that KEPCO will develop the mine regardless of its viability as it could sell the coal to itself do not make sense from an economic or financial perspective. In my opinion a firm will buy from the market rather than use its own supply when it is cheaper to do so. In my opinion no rational firm would pursue a more expensive supply option unless there was a compelling argument around security of supply. Given the abundant supply available in world markets, there is no reason why KEPCO would do this.

In their response to the earlier Planning Assessment Commission comments, Gillespie Economics do not address whether the project is likely to operate consistently by limiting the sensitivity analysis to the value of coal royalties and minor benefits accruing to NSW. Table 1 in

[8] *Gillespie Economics* (2018) Response to the Planning Assessment Commission's comments on the Economic Impact Assessment of the Bylong Coal Project, p20, http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6367

the response document considers royalty payments at various coal prices and discount rates, finding that no matter what the coal price or the discount rate, the project would always pay royalties in the hundreds of millions of dollars:

Figure 2: Gillespie Economics January 2018 sensitivity analysis

Table 1 - RTS Additional NSW CBA Sensitivity Testing (Present Value $Millions) (Excluding Non-Market Employment Benefits)

	4% Discount Rate	7% Discount Rate	10% Discount Rate
CENTRAL ANALYSIS	465 (426 royalties)	315 (290 royalties)	220 (205 royalties)
INCREASE 30%			
AUD coal value	629 (554 royalties)	425 (377 royalties)	299 (267 royalties)
DECREASE 30%			
AUD coal value	303 (298 royalties)	207 (203 royalties)	147 (144 royalties)

Source: Gillespie Economics (2018) Response to the Planning Assessment Commission's Comments on the Economic Impact Assessment, p8

What is omitted here is disclosure that at these lower prices the project will lose money for its proponents and in fact be likely to cease operations temporarily or permanently. This could drastically reduce, or eliminate entirely, any royalty payments and economic benefits to NSW. This sensitivity analysis does not provide decision makers with a realistic idea of project benefits at lower coal prices as it ignores the project's high costs and un-competitiveness at lower coal prices.

Global coal trends and local implications

As quoted above, the International Energy Agency points out that international coal demand has declined for several years in a row. It is clear that demand has plateaued as climate policies are implemented globally and the economics of renewable energy and storage improves.[9]

The proponent's economic assessments, however, are based on assumptions of future coal demand growth. For example, the JT Boyd review claims "coal demand for power will increase by 90 million tonnes of coal equivalent or 10%...in 2040".[10] JT Boyd focuses on the IEA's 2016 'New Policies Scenario' despite:

- Australia's commitment to the Paris Agreement being in line with the IEA's 'Sustainable Development' Scenario, which sees coal demand reduce by 75% in 2040.
- The Boyd report is dated 15 December 2017, a month after the 2017 IEA report came out with less optimistic coal figures.

While Gillespie Economics' reports on the Bylong Project do not discuss the wider coal market context, that consultant has a history of optimistic predictions of the coal market, as discussed below. This was most evident in Gillespie Economics' assessment of the Port of Newcastle Terminal 4 project.

Terminal 4 cancelation

T4 was officially abandoned in May 2018, because:

> *The bullish predictions of coal demand that led PWCS to plan for the port's fourth terminal never eventuated, meaning the Port of Newcastle has more than 20 per cent spare capacity at the existing three loaders…* [11]

These bullish predictions were made by Gillespie Economics, the consultants to both T4 and Bylong Coal. Gillespie Economics forecast that demand for coal through Newcastle would reach increase from current levels of around 170 million tonnes per year, to 325 million tonnes

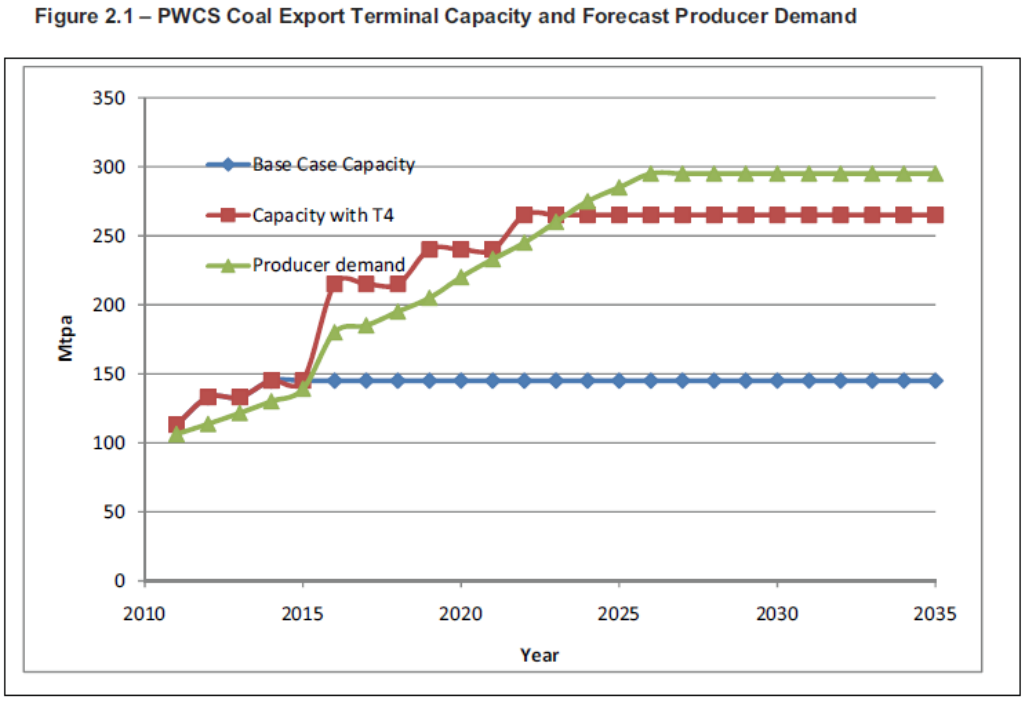
[9] Many examples and discussion can be found in IEA (2018) *World Energy Outlook*, https://www.iea.org/weo/

[10] JT Boyd (2018) Review of integrated Bylong Project, p6-6

[11] Kirkwood and Kelly (2018) *Controversial fourth Newcastle coal loader now history* https://www.theherald.com.au/story/5440760/pwcs-officially-cancels-t4-coal-loader/

per year by 2025.[12] The Port Waratah Coal Services (PWCS) terminals alone were expected to ship around 200 million tonnes in 2018:

Figure 3: Gillespie Economics forecast of PWCS coal terminal capacity and demand



Source: Gillespie Economics (2012) T4 Economic assessment, p10

Instead, PWCS shipped just 105 million tonnes in 2017,[13] similar to the level Gillespie Economics observed in 2011. Two points are relevant to consideration of the Bylong Project:

- Exports are not expected to reach current capacity of export facilities in Newcastle. Further, NSW has approved large volumes of potential coal production. The Bylong Project would add another potential source of supply, but one that may just dislocate production elsewhere in the region.

- Gillespie Economics estimated the economic value of the T4 project at up to $60 billion in 2012. The project was significantly scaled down a year later and Gillespie Economics simply adjusted their estimate of net benefits down with proposed coal volumes to $33 billion. In that case Gillespie Economics did not give decision makers any indication

[12] Gillespie Economics (2012) T4 Economic Assessment, http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4399

[13] PWCS (2018) Annual Report, p1. https://pwcs.com.au/media/2096/2017-annual-report.pdf

> that there was a possibility that the T4 project would not be commercially viable and that approving it could result in zero benefit.[14]

The Cobbora Coal Project was estimated to bring net benefits of $2.0 billion by Gillespie Economics, but was later abandoned at significant cost to the community. The Shenhua Watermark project was forecast to bring net benefits of $1.3 billion, but has not progressed.[15]

Coal price increases

Coal prices have increased since mid 2016, with Newcastle benchmark prices above $USD80 per tonne for most of the last two years. However, this increase is driven not by increased demand but by reduced supply from the world's largest coal producing country – China. This is driven by Chinese Government policy to reduce production from dangerous, dirty and loss-making mines and act on air quality. This is widely understood by market analysts, including the Federal Department of Industry:

> ***China's coal imports will continue to be driven by government policy***
>
> *China's thermal coal imports surged by an estimated 21 per cent over June and July, driven by a prolonged heatwave,…There has also been a decline in China's domestic coal output. In addition to the closure of 80 million tonnes of capacity in the year to July — as part of the annual target of 150 million tonnes — there have been renewed efforts to reduce pollution and improve mine safety. Subdued domestic coal production is expected to continue to provide support for imports in the near-term.*[16]

The Federal Department of Industry and most analysts expect these high prices to be short lived, although many have been saying this for more than a year now:

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[14] Gillespie Economics (2012) *Terminal 4 Project Economic Assessment*, Gillespie Economics (2013) Terminal 4 *Project Economic assessment of modified design*, http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4399

[15] Gillespie Economics (2012) Cobbora Coal Project Economic Assessment, https://majorprojects.accelo.com/public/b6e5fdf636129edfdc6690ecff477a89/28.%20Cobbora%20Coal%20Project%20EA%20-%20%20Chapter%2020%20-%20Economics.pdf, Gillespie Economics (2012) Watermark Coal Project Economic Assessment, https://majorprojects.accelo.com/public/23e06b5f535d19d5c7760c09e0940fc7/35.%20Watermark%20Coal%20Project%20EIS%20-%20Appendix%20AF%20-%20Economic%20Impact%20Assessment.pdf; Ferguson (2017) *Failed NSW Government mine land sales bring in $73m* https://www.abc.net.au/news/2017-11-02/cobbora-sold/9111724; Foley (2018) *Shenhua set two year deadline to dig Liverpool Plains coal mine* https://www.northerndailyleader.com.au/story/5539927/shenhua-set-two-year-deadline-to-dig-liverpool-plains-coal-mine/

[16] Office of Chief Economist (2018) Resources and Energy Quarterly September 2018, https://publications.industry.gov.au/publications/resourcesandenergyquarterlyseptember2018/documents/Resources-and-Energy-Quarterly-September-2018.pdf

> *The forecast decline in the thermal coal price is underpinned by an expected softening in import demand, particularly as domestic supply picks up in China…*[13]

Chinese policy may keep coal prices high for some time, making the Bylong Project viable. KEPCO themselves may choose to supply from the project for security of supply reasons. However, the Project's success is largely reliant on policy decisions by third parties rather than its own economic case. This increases the level of risk associated with the project.

Employment and local economic effects

Several economic modelling exercises have now been conducted by consultants to the Bylong Project, using both input-output models and computable general equilibrium models. Across these modelling exercises the consultants estimate the project could generate anywhere between zero and 830 jobs in the local area:

Figure 4: Modelling summary table

Table 3 - IO and CGE Analysis Results for the MWRC LGA During Project Operation

	Annual Gross Regional Product	Annual Gross Regional Income	Annual Operational Employment
IO Analysis	$380M	NA	830 Part time and Full time
CGE Analysis			
- Inelastic labour supply	NA		
- 0.15 labour supply elasticity	$248M to $739M	$268M to $860M	153 to 365 FTE
- 0.30 labour supply elasticity	$258M to $769M	$278M to $870M	272 to 648 FTE

Source: Gillespie Economics (2018) Response to the Planning Assessment Commission's Comments on the Economic Impact Assessment, p19

The wide range in estimates results from different model assumptions relating to the labour supply. 'Inelastic labour supply' sees workers simply move from one job to another with no new jobs created at all. The IO Analysis line assumes that all jobs are new, not just in the mine but also in companies that service the mine or provide goods and services to its 'new' workers.

None of these estimates are particularly useful to decision makers as there is no indication as to what local labour market conditions are like or what they might be like in the future. This is because, in my experience, the modelling exercises are generally entirely desktop based, with no data collected from the locality. It appears that none of the consulting economists have visited the region to interview local businesses and collect data on the local economy and its interlinkages.

In my experience, this is common. Economic consultants rarely visit the sites they assess. It is time consuming to gather data from the field. Much of this data would be qualitative and based on interviews.

An unstated assumption of all these modelling exercises is that the project is financially viable, begins on time and runs consistently for the entire project life. As discussed above, this is unlikely. There is no certainty that the project will run as planned and according to schedule. These estimates are best-case scenarios.

Estimates of regional economic output from these models should not be given great weight. Official statistics on the output of small regions are rarely published and not based on actual data collection, but usually derived from national or state-level statistics. The only state treasury to publish such figures that we are aware of is Queensland, which clearly labels their estimates 'experimental', explaining:

> *The statistics are labelled 'experimental' owing to the paucity of economic statistics available at the regional level to assist with more rigorous estimation. As such, care should be taken when interpreting changes at the regional industry level.* [17]

The CGE modelling exercise goes beyond gross regional product, estimating gross regional income which it claims:

> *[Is] the preferred measure of economic welfare, ie whether the region as a whole is better or worse off.*[18]

Cadence Economics estimate the supposed welfare impact for the modified project on the Mid West Regional Council Local Government Area (LGA) at $4,866 million (present value). This is sixteen times higher than Gillespie Economics' $301 million estimate of the net present value of the project for all of NSW in cost benefit analysis, a tool more usually associated with changes in economic welfare economics.

The limited value of the Cadence Economics gross regional income estimate is obvious when compared to the population of the LGA – 24,076 people in 2016.[19] As such, Cadence Economics' estimate, this increase in the region's 'welfare' is equal to $202,110 dollars for every man, woman and child in the LGA, which is clearly unrealistic. If this were the case, it is unlikely that so many local residents would be protesting against the project.[20]

In fact, most of the benefits of the proposed Project and the coal price remain high enough to ensure consistent operation, will accrue to KEPCO. The Gillespie Economics cost benefit analysis correctly interprets this benefit as accruing to the Korean community, rather than the Mid West Region LGA.

[17] Queensland Treasury and Trade (2013) Experimental Estimates of Gross Regional Product, http://www.qgso.qld.gov.au/products/reports/experimental-estimates-grp/experimental-estimates-grp-2010-11.pdf

[18] Cadence Economics (2018) Economic impact assessment of the Bylong Coal project July 2018, https://majorprojects.accelo.com/public/4156623d554e7256365dfc0ab581b992/Appendix%20L%20Economic%20Impact%20Assessment%20for%20Revised%20Mine%20Plan.pdf

[19] ABS (2016) Census QuickStats, http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA15270

Conclusion

The time for new thermal coal mines in NSW is over. Exports through Newcastle have not grown as industry consultants had forecast, leaving existing mines to compete for a slice of a shrinking pie.

The Bylong Project is unlikely to be competitive. Based on its own figures, the project is relatively high cost, with coal quality lower than many other mines in the region. Accordingly, Project's finical viability is uncertain.

Approving the Bylong Coal Project will bring uncertainty rather than benefit. This uncertainty brings costs for the local community.