



The
Treasury

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Dear Mr Haddad

PAC Review of the Coalpac Proposal - Assessment of the Economic Evaluation

At the request of the Department of Planning and Infrastructure, Treasury has reviewed the comments on the economic issues contained in the report of the Planning and Assessment Commission (PAC) in its Review of the Coalpac Consolidation Project (Project), along with some related issues.

Background

The Project seeks to consolidate the Cullen and Invincible thermal coal mines and for the consolidated mine to increase production to 3.5 million tonnes of coal per year over a 21 year period. In support of its application for Project approval, Coalpac provided an Economic Impact Assessment which had been prepared by Gillespie Economics (GE). GE estimated that the benefits of the Project (primarily the economic value of the coal from sales to both domestic and export) less the Project's costs (primarily the direct costs of production and the wider costs to the local environment) resulted in a material net benefit (estimated ~\$1.5 billion).

The PAC Review Report took issue with the GE analysis and with a number of the key assumptions used by GE. The PAC considered that relative to GE's estimate, the benefits of the Project were materially lower and that the costs including some unquantified costs were materially higher, and accordingly, concluded that the Project should not be approved.

Key Issues

- Structure and conduct of the thermal coal market in the Lithgow region
- Forecasting prices for thermal coal from the Project
- GE's application of the cost-benefit framework
- PAC's implicit assessment of environmental costs
- Potential impact on electricity prices

Treasury's Consideration of these Key Issues

A more detailed consideration of these and other related issues is attached.

- Structure and conduct of the local coal market

The PAC Review has given inadequate weight to Mount Piper and Wallerawang power stations' heavy dependence on the local coal supplies from the Cullen Valley and Invincible Colliery mines as well as the Centennial coal mines. Apart from a relatively small supply from the Pine Dale coal mine, there are no other economic sources of coal supply to these power stations. The Centennial company would increase its market power over the local electricity generation in the event this Project did not proceed. In the future, this could push up offer prices for coal supply to the Mt Piper and Wallerawang stations and reduce the volumes on offer.

The economics of the power supply industry are complex, but the base load coal fired power stations were sited with the intention of accessing their local coal supplies. The approval of the Coalpac proposal raises public policy issues that go well beyond the private commercial interests involved. The PAC Review gives inadequate weight to these issues.

- Forecasting prices for thermal coal from the Project

There is an absence of solid evidence to support the PAC Review's statement that there is a declining trend in electricity consumption in NSW. The PAC Review makes no reference to the authoritative forecaster AEMO which is anticipating increasing electricity consumption in NSW over the medium term. Rather, PAC places too much reliance on assertions that suggest that electricity consumption will decline.

- GE's application of the cost-benefit framework

The GE economic assessment report presents an economic evaluation of the Coalpac project that is basically sound and Treasury's view is that it does not "*grossly overstate the real financial benefits*" (see PAC Review Main Report p139). The PAC Review's view that the economic assessment should be "*accorded little weight*" (PAC Review Main Report p140) gives too much credence to some partial criticisms of the economic assessment.

- PAC's implicit assessment of the environmental costs

In reaching the conclusion that the Coalpac proposal should not be allowed, it appears the PAC Review is implicitly placing a high value on the non-quantified environmental impacts. This "high" valuation is contentious and as it is critical to the overall PAC judgement on the Project, further scrutiny and analysis/quantification of the impacts seems warranted.

- Potential impact on electricity prices

Consumers will benefit from any reduction in electricity prices that is a consequence of Coalpac's supplying Delta Electricity. This is a desirable outcome. It is clearly a policy

priority for both the NSW Government and the Commonwealth Government to try and reduce upward pressure on electricity prices.

Given these and other issues noted below, Treasury supports the PAC Review proposal that an independent expert review of the economic analysis be undertaken (see Main Report p140), which includes testing the assumptions made in the analysis and the conclusions it reaches. Alternatively a new independent economic evaluation could be commissioned.

Treasury can assist DPI in appointing an independent reviewer if desired.

Thank you for the opportunity for Treasury to provide comment on this important development application. We are happy to provide any further detail or clarification of any of our comments if required.

Yours sincerely



Philip Gaetjens
Secretary

Attachment

PAC Review of Coalpac Proposal – Assessment of the Economic Evaluation

1. Power Station Siting and Fuel Supplies

The advent of high voltage transmission technology shaped the development of the NSW electricity network, by enabling power stations to be located in the coal fields adjacent to fuel supply sources, rather than close to their customers. This development dramatically changed the economics of the electricity supply industry, through allowing cost reductions from avoided fuel transportation.

Coal fired power stations are very capital intensive, but (historically) have low fuel costs, in part because of this close proximity to coal supplies. This means they were designed to be operated as base load, ie to continue to operate for a large proportion of time. In NSW, our major base load power stations have been built in areas where there are local fuel supplies for them to use. This does mean that there is potential for local suppliers to exploit market power if there are constraints on alternative supplies becoming available.

The design of the transmission system is obviously strongly influenced by the location of the major power stations.

Therefore significant capital has been invested in large coal fired power stations such as Mount Piper and associated electricity infrastructure, in the expectation of their continued base load operation for a life of perhaps thirty years, or possibly longer. In fact Mt Piper was designed to be upgraded from a 2 unit to a 4 unit power station, on the understanding that local fuel supplies were sufficient. Should the costs of operating these power stations rise to the point where they are uneconomic to run, there is an economic cost to the community of stranded infrastructure investment.

There are negative environmental externalities of one sort or another associated with most generation technologies (including renewables), which can depend on the scale. The costs of these externalities generally get internalised through regulatory controls. CO2 emissions were not recognised as a negative externality when Mt Piper was commenced in the 1980s, but the related cost is now internalised through the carbon tax. If coal is to be used, it is generally desirable to use the cheapest source, which is likely to have little CO2 impact (though the CO2 impact may vary depending on coal quality differences). The Coalpac project if approved will only proceed if it is commercially viable after including carbon costs associated with both the mining operation and coal combustion in the power stations.

Noting the preceding, the approval of the Coalpac proposal raises public policy issues that go well beyond the private commercial interests involved.

2. Demand for Coal

The PAC Review appears to dispute the power stations' projected demand for coal, on the grounds that the demand for electricity may fall, commenting on page 139:

the Australian demand trend is downwards and this is particularly the case in NSW. This trend is not anticipated to change in the short-medium term;

This statement is not supported by the evidence referred to. The report of the UTS Institute for Sustainable Futures is referenced, even though the ISF do not present alternative forecasts or projections, or provide a systematic assessment. On page 14 of that report the ISF refer to AEMO's most recent *Electricity Statement of Opportunities* (AEMO, 2012) reflecting that both annual energy and forecast peak demand have decreased since their 2011 publication. Nevertheless, as reproduced below, all three of AEMO's forecast scenarios are for increasing electricity demand in NSW, and nationally. The main purpose of AEMO's demand forecasts is to "*highlight opportunities for generation and demand-side investment*", and as such the AEMO forecast should be regarded as the most authoritative available at the current time, in the absence of a compelling alternative.

Figure 3-7 — New South Wales annual energy projections

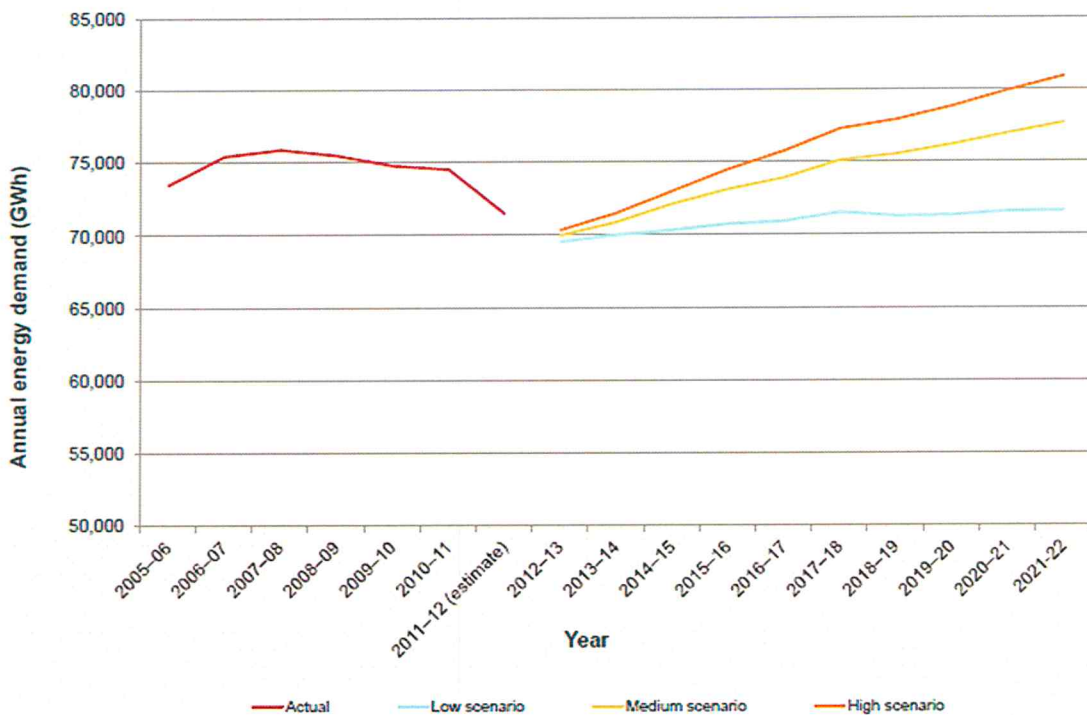


Figure 3-8 shows the medium scenario's summer 10% and 50% POE maximum demand projection for New South Wales. The projected summer 10% POE maximum demand for 2012-13 is 14,065 MW, a reduction of 2,056 MW (13%) from 2011, and is projected to grow at an average annual rate of 1.2%, or approximately 175 MW.

Source: AEMO, 2012, *Electricity Statement of Opportunities for the National Electricity Market*, p3-9.

The PAC Review makes no reference to the AEMO projections.

3. Economic Assessment Methodology

The PAC Review identified some concerns over the methodology used for GE's economic assessment, including some raised by third parties. However, Cost Benefit Analysis is the standard evaluative technique for development projects and is prescribed in the NSW Government Guidelines for Economic Appraisal. CBA is widely used for evaluations by governments globally and by international organisations such as the World Bank and the OECD. The CBA framework is the preferred assessment approach for strategic land use

situations involving possible conflicts between agriculture and mining and coal seam gas development, per the recently released draft guidelines.

The PAC Review comments on the appropriateness of the analytical approach given a mooted shift to “*triple bottom line cost benefits analysis*” (p138). The issue is whether the CBA has adequately taken into consideration possible environmental and social costs and benefits in a consistent way, not whether CBA is the appropriate technique. In questioning the approach, the PAC Review refers to comments by the Institute for Sustainable Futures (ISF Review pp10-12). Those comments suggest the extreme position that the development assessment process should always make economic factors subservient to environmental factors. This is not the Government’s policy, and we note there are a range of possible policy instruments in place or available for the management of environmental and social impacts.

DPI’s *Coal Mines and Related Infrastructure EIS Guideline* requirements for environmental impact statements relating to *economic issues* (s6.5.13) include considering “*categories of cost and benefits to the community*” that include impacts on demand and supply, additional employment, impacts on property values, and impacts on land use. Such secondary economic impacts are not required for a CBA based economic evaluation and may lead to double counting. The provision of such related information alongside the core components of a CBA may have clouded interpretation of GE’s net benefit calculation.

The characteristics of a good quality CBA include transparency and repeatability, with assumptions and methodology clearly identified, and rigorous sensitivity testing. Unfortunately in the paper available to us, the GE analysis does not clearly detail the inputs and assumptions used in its calculations, making the testing of assertions more difficult.

4. Economic Value of Coal

In general the GE report appears to be a methodologically sound study. The GE report estimates that the net economic benefit of the proposed mining project is \$1.52 billion, principally from sale of coal to the Mount Piper and Wallerawang power stations. This compares with a base case of no mining.

A key input to this estimate is the economic value of the coal that Coalpac would sell to the two power stations. This requires applying the economic principle that the value of a good to any economic party is the maximum amount that party would be willing to pay for it. Equivalently this is the minimum price that an alternative supplier would demand.

In applying this principle, GE appears to assume that the alternative to Coalpac would be from a source that could be made export quality by washing it. As such the economic value is given by the average FOB (free on board) export price for thermal coal, less washing and delivery costs to a port. This appears to be a conceptually sound application of the principle. However, if the alternative to Coalpac could not be made export quality, then the economic value would be given by the avoided costs of the alternative, ie the costs that would be incurred by the supplier, including transportation costs to the power stations.

In practice however, there is insufficient detail in GE’s report to fully assess its application of the valuation principle, including the plausibility of assumptions about alternative sources of supply. Of particular interest is whether the full volume that would be required without Coalpac could be washed to an export grade standard.

If the Coalpac proposal does not proceed, the only other available local supplier is Centennial Coal. The more distant potential suppliers, such as from the Ulan area, would be costly because of the lack of bulk transport access. The capital expenditure requirements and haulage costs would be large. If Ulan were the only alternative, this would imply a higher economic value for Coalpac in terms of avoided cost.

An explicit dollar price for coal could not be found in the GE report, although the analysis did note that the FOB price was above A\$100 at the time of the report. Over the last year, the FOB price has fallen by 20% from about US\$120 to US\$100. GE reports that a 20% price fall would reduce the net benefit to \$0.88 billion.

The Review questions the GE export parity based valuation principle, because it does not recognise that the key valuation issue is the cost and viability of alternative coal supply to Coalpac. The PAC Review asserts that the value should be the price under current supply contracts, and suggests that the negotiated price under current supply contracts with the power stations would give a lower value than GE's. The poor quality of the coal currently being supplied to MPPS is emphasised.

The GE methodology should produce a plausible estimate of value if applied correctly. If the power stations were paying a price different to the cost at which an alternative supply could be made available, this would determine the allocation of the value of the coal being supplied, but would not change the total value.

So the fact that Centennial Coal's market power would be consolidated without Coalpac, would mean that Centennial could or would capture net benefit at the expense of the power stations, but does not change the economic value of the coal.

With respect to environmental costs, the GE report includes various environmental constraints, impact mitigation and acquisition expenses (in the order of \$0.3 billion) *within* the net economic benefit estimates referred to. GE also estimates the impact on land values, and carbon emission costs. While the land and carbon impacts are not debited from the net benefit estimate, GE estimates these costs as totalling less than \$50 million.

GE also estimates various employment and regional benefits, and discusses possible electricity price impacts without the project. Correctly, however, these estimates are excluded from the core net benefit calculation.

5. Electricity Prices and Other Issues

The PAC Review report focuses significantly on considerations like electricity market price effects, employment generation, and the supply of sand to western Sydney. These are not central to the core economic case made in the GE analysis and the net benefit estimate, or to the underlying economics of the electricity supply industry.

Any impacts on electricity prices will have consequences for the allocation of value, though not a measure of economic value. Nevertheless, consumers will benefit from any reduction in electricity prices that is a consequence of Coalpac's supplying Delta Electricity. This is a desirable outcome. It is clearly a policy priority for both the NSW Government and the Commonwealth Government to try and reduce upward pressure on electricity prices.

The estimation of electricity price impacts requires complex modelling and is necessarily imperfect. But the key point is that as coal is the main variable cost for the power stations, bidding prices are driven by coal prices, and therefore Mt Piper and Wallerawang's place in the merit order is largely determined by coal prices. Therefore we can be confident about the direction of any impacts – ie that lower coal prices can lead to lower power prices.

Even a 5% reduction in retail electricity prices is a very worthwhile reduction. We do not agree with the PAC Reviews conclusion "*any issues arising from coal supply to MPPS will almost certainly be dwarfed by these impending changes*" (p142). First, any reduction in bills from lower coal costs will be additional to other sources of reduction. And second, the magnitude is comparable. According to IPART, average residential customer bills in NSW are \$2100 for Energy Australia customers and higher for the other main retailers. The magnitude from "*the impending changes*" referred to, based on a Productivity Commission report released last October, was for reductions from \$100 up to \$250 for a household annually, which is less than 5 per cent to 12 per cent of the average Energy Australia bill.

The PAC Review report notes that the project cannot meet all air quality and noise standards at all residences, but does not appear to recognise that mitigation and acquisition costs have been included in GE's net benefit estimate. The PAC Review observes that the benefits are widely distributed away from the area of the impacts, but again this relates to the allocation of value which in principle can be dealt with by compensation agreements.

NSW Treasury
30 January 2013