

26 May 2005

Mr Sebastian Roberts
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Dear Sebastian,

Directlink Conversion Application - Review of Inter-regional Market Benefits

Origin Energy welcomes the opportunity to comment on the Directlink Conversion Application - Review of Inter-regional Market Benefits report. As an operator of generation plant in QLD and a retailer in NSW and QLD, Origin both competes with inter-regional transmission, and utilises these same transmission services to ensure cost effective delivery of electricity to our customers across the NEM.

The benefits of the regulated transmission network to the market as a whole are maximised when the network is expanded in an economically efficient manner. The regulatory test is the primary tool used to ensure such an outcome and hence it is essential that this test be applied in a robust manner. Failure to apply the regulatory test in a robust and consistent manner will increase the risk profile for both the regulated and competitive sectors of the market, so inefficiently increasing costs to end users. This suggests that development of a robust and transparent regulatory test is a matter of urgency.

Over the last few years, projects such as SNOVIC, SNI and the Murraylink conversion process have driven significant advances in the both the economic theory and market modelling techniques that support the application of the regulatory test. In contrast, alignment of modelling assumptions with external factors such as physical transmission system capacity and generation development economics appear to have progressed little since the initial Riverlink work by the IRPC. Origin therefore wishes to confine its comments to the modelling assumptions which, if not fairly considered, may distort the application of the regulatory test.

Origin believes that the inter-regional benefits of the Directlink cable are quite sensitive to modelling assumptions and simplifications both in the area of physical transmission system capacity and generation development economics. Origin offers the following comments on the inputs to this modelling, with the hope of improving the robustness of the regulatory test both in this and future applications.

Committed Generation.

Origin notes that since publication of this report, both the Laverton peaker and Breamar peaker would appear to have progressed toward committed status. These generators are significantly large enough to impact on the economic evaluation and should be included in the analysis.

ACIL report new generation entry costs- specific concerns.

Gas marginal costs.

ACIL's conclusions on cost of gas appear to convert the capital component of gas transportation to a variable cost although, granted, the report does not specifically identify a breakdown of costs. If so, this risks missing the chunky nature of gas transmission.

Wind generation.

No attempt is made by any of the reports on the Directlink conversion to include the economics of wind farm development in the NEM. As of 25th May 2005, the Auswea website shows at total of 5304MW of wind generation south of the QLD either under construction, proposed or under feasibility study. This compares with only 64MW in QLD. This suggests that wind generation has the potential to significantly skew the economics of generation development south of QLD. This is likely to delay entry of base load plant and increase the value of capacity support from QLD.

OCGT cost too low.

The IES report quotes a value of \$539k/MW capital cost after inflation. This is well below the recent experiences of developers in the NEM. It is interesting to note that in the press release announcing financial close of Wambo, a capital cost can be calculated at \$750k/MW nominal capacity. This should be a relatively low cost development given the proximity to existing infrastructure and the relatively large unit size.

Gas turbine hot weather derate.

The capacity of gas turbines declines as air temperature rises. As system reliability stress usually correlates with high temperature, the capital cost of reliability plant needs to be based on hot weather, not nominal capacity.

Lack of objective carbon costing and consideration of environmental constraints.

Neither the TUES or IES report appear to have fully captured the accelerated role out of low carbon intensity generation in QLD. This phenomenon is likely to be exacerbated over time as the magnitude of carbon signals increase, so highlighting the abundance of low carbon intensity fuel in QLD relative to NSW (coal seam methane and possibly PNG natural gas). It is envisaged that this will drive continued acceleration in QLD generation planting relative to NSW increasing the benefits of Qld to NSW transmission capacity.

It is also suggested that environmental issues that may influence generation development adjacent to major population centres need explicit consideration.

Network capacity assumptions - specific concerns.

Breamar constraint

Around 2007 the combined Millmerran, Kogan, Wambo and QNI contribution to flows north out of Breamar will approach the firm capacity of the Breamar-Tarong circuits. There is no consideration of this constraint in either the TUES or IES reports.

Middle Ridge transformer constraint.

Commissioning of the Middle Ridge-Greenbank line in around 2008 will alleviate the emerging Breamar limit. The capacity of the elements between Millmerran and Greenbank will limit flows out of NSW a few years later once Kogan Creek, Wambo and Spring Gully are commissioned. The potential de-commissioning of Swanbank B within 10 years will exacerbate this issue.

QLD to NSW southward capacity.

Powerlink have released 1050MW capacity in the southward direction on QNI. Recent market experience has shown this capacity to be consistently available during peak periods. It is also noted that IES asserts that Directlink does not contribute to net southward capacity. Prior to



upgrade of the 965 line, Direct Link did act as a positive gate keeper when periods of high NSW demand resulted in overloading of the Northern NSW 132kV system that parallels QNI. This effect can be easily seen in NEMMCO's constraint equations (for example $Q > N-NIL_DF$).

Transgrid and Powerlink are forecasting that as the Northern NSW load continues to grow, these 132kV constraints will again become material over the next couple of years. This suggests that Directlink will again contribute somewhat to the QLD to NSW transfer capacity once the augmentation of the supply into the Gold Coast is completed next year.

NSW to QLD northward capacity.

The IES reports asserts that Directlink does not contribute to the NSW to QLD capacity. This appears to be based on the assumption that the Armidale-Tamworth constraint is the only constraint on flows north out of NSW. This assumption does not take into account limitations north of the Breamar connection point of QNI. Although not material at present, constraints between Breamar and South East Queensland will potentially limit flows north out of Breamar and NSW within five years. It must be noted that the ability of NSW to export north through the Armidale-Tamworth constraint will decline steadily over time, dropping to zero by around 2015 (assuming that these circuits will be mildly up rated during this period). Alleviation of this constraint is unlikely to be economically justified.

This suggests that for a period between 2008 and 2015, constraints between South West QLD and South East QLD will bind prior to the Armidale-Tamworth constraint. Under these circumstances, Directlink will indeed contribute to NSW to QLD capacity.

We recognised that many of the issues raise are indeed highly technical in nature, and reliant on detailed modelling. Please contact Andrew Jones on (02) 8345 5555 if further information on the assumptions, modelling and supporting documentation is required.

Regards,

Michael Hayes
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