ElectraNet transmission network revenue proposal

Report prepared by CHC Associates Pty Ltd

for the Australian Energy Regulator

Comments on aspects of the Response by

The Energy Consumers Coalition of SA

Dated February 2008

March 2008

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Introduction

The Energy Consumers Coalition of SA (ECCSA) has responded to the AER's draft decision on ElectraNet SA's Revenue Application.

These comments by CHC Associates (CHC) relate to parts of this response that refer to CHC's Report to the AER on the readmission of optimised assets to the regulatory asset base[1].

Issue 1: Dependence of CHC's recommendation on the completion of other capital works

ECCSA commented as follows:

> CHC makes some statements that the reversion to the as-built design being included in the RAB relate to planned capex programs being completed that will allow the full capacity of the as-built design to be utilised. For CHC recommendations to be accepted these other capex programs must be implemented. If ElectraNet fails to implement these capital works, then the CHC recommendation has no validity. Accordingly ECCSA support for the re-admission of these previously optimised assets is dependent on the capital works program proceeding as planned.

Comments on dependence on Capital Works

Certain assets that were constructed years ago by ElectraNet's predecessor organisations incorporated physical features that involved higher expenditure than was immediately required.

The additional features were included by the original asset owners on the basis that they were justified by a comparison of the net present value of the implemented plan against the net present value of all other alternatives, which implicitly includes a plan that included the optimised assets. Specifically this meant that the implemented plan would be more economic if the additional expenditure on the assets would actually be utilised within a given time frame, referred to in CHC's Report as the break-even time.

[1] Report by CHC Associates Pty Ltd for the Australian Energy Regulator on Readmission of optimised assets to the Regulated Asset Base, August 2007

This expenditure was judged to be not warranted when the assets were subsequently valued for regulatory purposes some years ago. The fact that the assets were optimised and assigned a lower value implies that a judgement was made that it was unlikely that the additional features would be utilised within that break-even time frame. CHC has no information about the circumstances of that judgement, but notes that it has resulted in the current owners not receiving any revenue on the basis of the difference in values.

CHC's recommendation looks forward from the start of the next regulatory period, to assess whether the situation has changed. Thus it is based on assumptions about the future of the network using assumptions that are consistent with those that ElectraNet used when developing its current revenue proposal. These include assumptions about scenarios of demand growth and the development of generation to meet that demand, and the utilisation of interconnection. Effectively the methodology is consistent with the ex ante planning process adopted for the capex, but extrapolates further ahead where necessary.

CHC's assessment estimated the future time ahead when the NPV of the capital works that would have been required if the network had been constructed as optimised will be equal to the NPV of what will actually be required. These break-even times are summarised as follows:

- Tailem Bend to Keith 132 kV lines: 20 years
- Tungkillo to Mobilong (Tailem Bend) 275 kV: 20 years
- Davenport to Cultana 275 kV: 13 years
- Tungkillo to Cherry Gardens: 20 years

In all cases CHC has assessed that the break-even time is beyond the next reset period, but that the additional expenditure is justified now (i.e. at the start of the next regulatory period) on the basis of the comparison with the notional pattern of expenditure that would be implied for the optimised assets.

Just as ElectraNet's ex ante capex may prove to be wrong as circumstances change and assumptions are not matched by actual outcomes, CHC's assessment might be inaccurate. However in all cases the tolerance for error is large, meaning that the current expectation is that the actual asset features will be utilised well before the break-even time, even if this is not within the next regulatory period.

It should also be noted that for three of the assets the utilisation of the "as built" construction does not require any change to the assets themselves to obtain the ultimate benefit. This means that ElectraNet is currently planning its proposed developments on the basis that the assets are "as is", rather than "as optimised".

The exception is the Tungkillo to Mobilong line, for which the second circuit will need to be strung using the physical provision made for this in the initial investment.

Issue 2: Assumptions about South East generation and Heywood capacity

ECCSA commented as follows:

> In relation to the Tailem Bend to Keith re-optimisation, it is noted that a number of conditions precedent are fundamental to the CHC recommendation, and some of these are outside of ElectraNet control (such as augmentation of Heywood). Further much of the re-optimisation relates to allowing new generation to be built in the South East and to be dispatched. ECCSA has already noted that the value of the Heywood interconnector has reduced over time as more generation is built in the SE of SA. This then raises three questions:
>
> 1. Should this augmentation be included in the RAB provided it is allocated as an entry cost perhaps with deep connection costs associated, and therefore the costs be allocated to the new generation as required under the Rules?
>
> 2. If the augmentation is included but does not result in a greater carrying capacity of power from Heywood due to the increase in generation (particularly at Snuggery) there is some doubt as the whether the augmentation would allow the expected augmentation of the 275 kV connection to Heywood.
>
> 3. CHC refers to the fact that some 142MW of gas turbines are connected in the SE – at Snuggery and at Ladbroke Grove. IP has already indicated that due to congestion at Snuggery it will relocate their turbines, and Origin (owner of Ladbroke Grove) has indicated that gas supplies are limited for the continue operation at Ladbroke Grove.

General comment on the Tailem Bend to Keith optimisation

For the Tailem Bend to Keith lines there is no construction required, and the issue is the utilisation of the existing assets in a manner that would not be achievable with the optimised asset.

In its report to the AER[2] CHC said that it considered that the presence of the real configuration has a moderate potential value in the medium term that is greater than that of the optimised asset, and that there is a reasonable probability that this potential could be utilised in the next regulatory period. Two reasons for this opinion were outlined.

Firstly, ElectraNet has included a project in its revenue proposal that will connect a new Distribution Network Service Provider (DNSP) supply substation to the Keith to Tailem Bend number 2 line at an intermediate location identified as "Coonalpyn West." ElectraNet has advised that this will occur in the next reset period, and the ElectraNet Annual Planning Review[3] indicates a date of 2012. This connection will alter the configuration, such that there will no longer be two single circuit lines directly between Keith and Tailem Bend.

[2] Report by CHC Associates Pty Ltd for the Australian Energy Regulator on Readmission of optimised assets to the Regulated Asset Base, August 2007

[3] ElectraNet Annual Planning Review 2007-2017, June 2007 p68

Secondly the ROAM Report for ElectraNet[4] indicates that there is a high probability of new generation in this area. It is reasonable to assume that, in the next regulatory period, the combined output of gas and wind generation at times of good wind strength will begin to load up the 132 kV system to the extent that the import capability from Victoria on the 275 kV system may be further constrained. At times when there is a high availability of wind generation, it may be important that this energy is not excessively constrained by network capacity in offsetting more expensive (and more greenhouse gas intensive) generation. This second factor needs to be assessed by a market benefit analysis.

CHC noted that the current actual configuration of the 132 kV lines, compared with the optimised assets, gives ElectraNet some relatively low cost options to address this problem within the context of a market benefits test. For example the 132kV line that has the larger conductor is relatively less utilised, and the network could possibly be configured at relatively low cost to cause this to accept a greater proportion of the power transfer.

Augmentation of Heywood

In its preliminary comments ECCSA stated that the augmentation of Heywood is outside of ElectraNet's control, implying that this affects the recommendation.

In a broad sense this observation is true for the whole of ElectraNet's augmentation capex budget, in that ElectraNet responds to demand growth, ETSA Utilities plans, and new generation that are decided by others. In some cases ElectraNet is able to influence outcomes so as to optimise the total costs, but it is also accountable through regulatory, legal and public processes.

CHC assumes that Heywood was mentioned because of the additional processes related to the national transmission flow paths, and the roles of ESIPC within SA, as well as through the IRPC and NEMMCO.

CHC considers that these factors will have no bearing on the probability that Heywood will be augmented, which will be determined in a rational manner by technical and economic (net market benefit) considerations according to future patterns of development.

In particular it is immaterial whether the additional power transfer requirement towards Adelaide will arise from additional south east generation or additional Heywood power transfer capability.

Question 1

In respect of question 1 in the ECCSA response, CHC notes that the beneficiaries of the construction of the real assets will be the market customers in South Australia, who will potentially experience lower prices through the displacement of higher energy cost offers in the market by low cost wind energy. Different consumers will also experience lower network costs through the economic connection of Coonalpyn West. These are clearly prescribed services, and are not related to the connection of any particular generator. Their value will be determined through application of the regulatory test.

[4] Appendix C to ElectraNet's Transmission Network Revenue Proposal: ROAM Consulting Report: 2007 South Australian Generation and Load Scenario Analysis, 28 May 2007

Question 2

In respect of question 2 it is apparent that ECCSA does not fully appreciate the benefit to consumers in SA of the presence of wind generation.

In section 2.2.2 of its response ECCSA says:

> Consumers are exposed to decisions of generators but incur the costs and outcomes. Increased generation in the SE will further limit the ability to access low cost electricity from Victoria. The non-dispatchable generation from the SE effectively increases the market power (especially of the largest power station in SA – TIPS) of the dispatchable generation in the region by reducing the impact of dispatchable supplies from Victoria. The spot price in the region is set by dispatchable generation and not by the wind farms in the south east. It is the interests of wind farms to increase the spot price in the region, and this is assisted by constraining the interconnector. The direct outcome of increasing wind farm generation in the south east is to increase the price of electricity which is a detriment to consumers.
>
> To overcome this constraint, augmentation of the SE to Adelaide connection is required, and becomes a cost to consumers through higher network charges. As before this is also a detriment to consumers, but not one of their making.

CHC has confirmed that wind generation output in the south east reduces the maximum permitted power transfer from Victoria to South Australia. This is managed by NEMMCO through constraints applied the market dispatch process. However the reduction in the constraint is less than the amount of wind generation, with the result that there is a net increase in the amount of low cost generation in South Australia[5]. This will reduce the market power of dispatched SA generation, rather than increase it as ECCSA has postulated, and so reduce the regional energy price.

This benefit would be lost if the wind energy could not achieve access to the Adelaide area because of insufficient transmission capacity between the south east and Adelaide. The two assets that are subject to optimisation that can affect this outcome are the Tailem Bend to Keith 132 kV lines and the Tailem Bend to Tungkillo 275 kV line, where provision has been made for stringing a second circuit. It should be noted that this additional circuit would also raise the permitted transfer at Heywood, because it would improve voltage control in the south east[6].

Question 3

In respect of question 3 CHC based its assessment on the planning scenarios that were developed by Roam Consulting and adopted by ElectraNet. These included scenarios for generation developments that aimed to maintain SA's

[5] Although wind generation has very high capital costs it has low, even zero, incremental energy costs. If the wind farm owner was required to make offers to the market the energy prices of these would be very low, and dispatch would be almost certain. Wind generation does not set the market price, but earns income towards repayment of the capital either through the "premium", which is the integrated difference between the market price and the incremental input energy cost, or through energy supply contracts with consumers or their agents.

[6] The network constraint that is sensitive to the presence of wind generation in the south east is aimed at preventing the failure of voltage control mechanisms in the south east after the occurrence of particular contingencies. Additional transmission capacity between Tailem Bend and Adelaide would partially alleviate this constraint.

regional reliability with load growth at the standards that are set by the Reliability Panel, and scenario variants based on different utilisation of the Heywood interconnector.

Roam did not depart from the official assumptions about Snuggery and Ladbroke Grove. However, the Roam scenarios contain enough flexibility to make any change in the status of these stations immaterial to the outcomes. For example Roam assigned probabilities to the potential new entrant generation, and it would take relatively small changes to compensate for changes in the status of Snuggery or Ladbroke Grove.

Conclusions

CHC has no reason to change its original recommendations on account of the information provided by ECCSA.