Australian Energy Regulator

NSW Electricity Transmission Revenue Reset

AER Draft Decision and TransGrid revised proposal

A response

by

The Energy Markets Reform Forum

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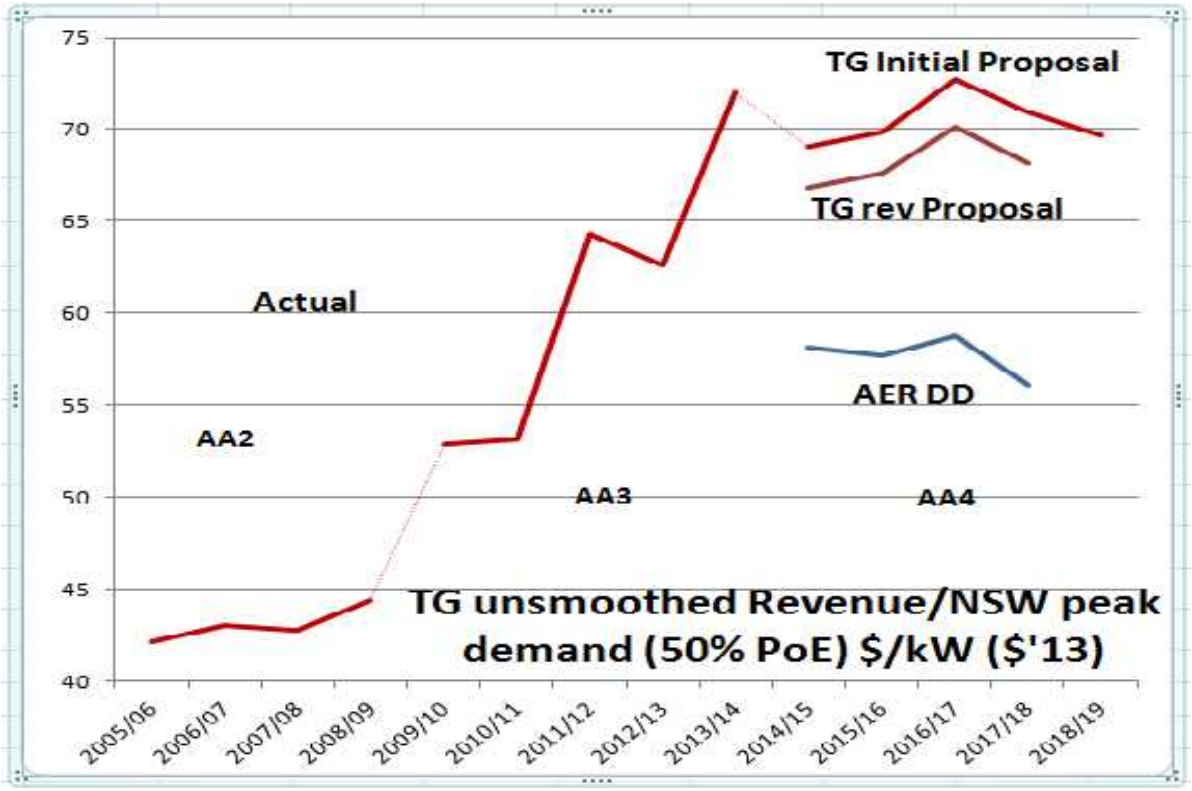
Executive Summary

The Energy Markets Reform Forum (EMRF) welcomes the opportunity for presenting its views on the draft decision by the AER on the TransGrid (TG) reset of the electricity transmission costs in NSW, and on the revised TG proposal.

The EMRF noted in its response to the TG proposal that rather than see an increase in TG revenue, it expected to see a reduction, and that the costs per kW would not rise as forecast by the implementation of the TG proposal. The AER draft decision results in costs/kW reverting to levels seen in the middle of the current period. The EMRF considers that this is at least where prices should return to, even though this represents a significant premium to the TG prices that applied before the explosion in costs after the implementation of the rule changes made in 2006.

The changes proposed by TG in its revised application do little to address the price impacts of its initial proposal and merely maintain prices at their current excessively high levels rather than increase them as the initial proposal did.

The relative cost movements (in constant dollar terms) can be seen in the following chart.



Source: TG economic expenditure RIN, AEMO June '14 NEFR, TG application, AER DD, TG RIN

On this comparative basis, it is clear that the AER draft decision is reflective of the reality of prices appropriate for the supply of transmission services in NSW and that the TG initial and revised proposals maintain the widely recognised unnecessarily high prices. This clearly indicates that the TG revised proposal for its revenue is significantly overstated despite TG being aware of the AER draft decisions on the various elements of the TG revenue build up.

Closer examination of the TG revised proposal demonstrates that TG has effectively refuted much of the AER assessed cost adjustments and has basically adjusted its claim to reflect a lower risk free rate than it used in the initial proposal.

The EMRF has investigated the reasons why the AER identified considerable reduction in the TG revenue including the approach to the development of the rate of return on capital, a reduction in operating costs and a lesser need for capital investment. TG revised proposal has rejected the AER approaches to all three of these cost elements despite a competitive market view that prices should reduce when facing falling demand and consumption as TG is currently experiencing.

In its assessment of the AER draft decision and revised proposal the EMRF notes that:

- The AER has applied its rate of return guideline to setting a cost of capital and the revised TG proposal continues to refute the applicability of the guideline despite this. What is further concerning is that TG is openly seeking to recover more revenue than it clearly incurs. For example,

    - The cost of debt TG actually incurs is considerably lower than the cost of debt that it is seeking for its revenue reset
    - By insisting on removal of the transition provisions to the new approach to setting the cost of debt, TG is also effectively seeking to recover an apparent loss on the cost of debt from the past that it never incurred.

    The EMRF is most concerned that there is a view amongst the networks that even after more than 12 months of wide consultation, there is a refusal to accept that the AER guideline reflects an efficient allowance for the cost of capital for a regulated network, especially when compared to what is achieved in the competitive market after adjusting for the differences in risks. The EMRF considers that the AER should undertake a longitudinal benchmarking study comparing the returns achieved by networks to what is achieved in the wider market after adjusting for the risk differentials.

- The EMRF considers that the initial TG claims for opex were grossly overstated and the AER approach to assessing what is efficient allowance is wide reaching. What is even more important is that the various approaches used by the AER identify an outcome which is internally consistent regardless of the specific tool used. In contrast, in its revised proposal TG attempts (unsuccessfully in the view of the EMRF) that the AER approaches are flawed. Because of this TG persists with its own flawed and inconsistent approach which results in only a modest reduction in its opex claim despite the benchmarking evidence provided by the AER that the opex allowance should be significantly lower. TG rejects the bulk of the AER assessments (in terms of actual money involved) of the draft decision on opex. The EMRF does not consider that TG has introduced sufficient new information or sufficient argument to cause the AER to resile from the opex allowance determined under the draft decision.

- Whilst there appears to be some agreement for the capex needed by TG to continue its operations efficiently, the EMRF notes that the major areas of difference lie with the views on land acquisition, the amount of renewal capex required and the need for significant span remediation. The EMRF considers that the AER analysis is much more compelling with regard to what is required for the next three years. Whereas the arguments provided in its revised proposal for TG maintaining capex at the same level as in the initial proposal do not address the clear AER analysis based on risks (which is the basic driver for these three elements) which relate to the amount of the capex needed in these three elements where there is dispute. What is most concerning is that TG does not accept that TG's historical performance and actual outcomes must have a major bearing on how the risks should be addressed, with TG preferring to approach the needs from a perceptual basis using a bottom up assessment. Such an approach cannot be demonstrated to be efficient whereas the AER approach based on risk is much more likely to identify an efficient allowance

- The bland acceptance by the AER of the TG proposal for the Network Capability Incentive Parameter Action Plan (NCIPAP) is very concerning. The AER would have appeared to accept the NCIPAP proposal without examining the detail assuming that, as the AEMO had endorsed the program, it was acceptable. The EMRF has identified a number of the projects within the NCIPAP where is it clear that consumers will not achieve any additional benefit from TG carrying out the proposed projects, yet the mere completion of the projects will allow TG to garner a significant benefit. The EMRF considers that the NCIPAP in its current form is not in the long term interests of consumers and there is a need for considerable rework of the principles and implementation of the program.

- The pricing methodology proposed by TG is likely to result in greater cost reflectivity yet it still does not address some basic concerns that a better formulated methodology would achieve. Despite this, the EMRF accepts the pricing methodology provided in the revised proposal and expects the AER to ensure that it is used for pricing commencing 1 July 2015.

One of the major issues the EMRF has with the AER draft decision, is that it consistently provides a conservative assessment for each of the individual elements in the build up of an efficient cost allowance. It is unfortunate to note that it is the view of the EMRF that these conservative assessments are to the benefit of TG. The EMRF does not object to there being a conservative approach used by the AER as this recognises that it is preferable for consumers to pay a little more than is efficient rather than to suffer the consequences of a loss of reliability of the network. However, the EMRF considers that this conservatism should be declared as a separate amount rather than being buried within many different assessments. The EMRF considers that the AER approach results in greater conservatism than perhaps is intended by the current AER approach.

On balance, the EMRF considers that the AER draft decision provides a much more efficient revenue stream than the TG revised proposal does, and the AER reasoning results in internally consistent outcomes which the TG approach does not. Consistently the TG approach to assessing its costs does not provide the discipline that the EMRF members see in their own organizations when seeking approvals for expenditure allowances. In contrast, the AER approach provides the top down assessments that are typical of what is seen in firms operating in competitive markets. Even though the EMRF considers that the AER has been conservative in its assessments, the EMRF accepts that the AER draft decision provides a more appropriate approach to identifying efficient allowances.

1. Introduction

The Energy Markets Reform Forum (EMRF) is a group representing large energy consumers in NSW. The EMRF is an affiliate of the Major Energy Users Inc (MEU), which together comprise some 20 major energy using companies in NSW, NSW, SA, WA, NT, Tasmania and Queensland.

The EMRF welcomes the opportunity to provide comments on the draft decision made by the Australian Energy Regulator (AER) regarding the initial proposal provided by TransGrid (TG) and on the revised application provided by TG provided subsequent to the AER draft decision.

1.1 An overview of the TG application

In its response to the TG proposal, the EMRF was critical of TG in that TG, despite asserting concerns about the cost pressures on consumers from network charges, had not reduced its cost structures in order to address the exact concerns they had expressed. In fact, TG had increased its proposed revenues in relation to its:

- Weighted cost of capital proposal where it decided not to follow the AER guidelines
- Proposed opex where TG sought an increase in its allowances. This was based on a number of opex elements being costed on a bottom up basis rather than using the revealed costs from its performance in previous years
- Despite there being little reason to augment the network due to demand falling, its proposed capex was similar to the current period which reflected a period of time when there was an expectation of increased demand. Specifically, TG sought a massive increase in its replacement capex, well in excess of the amounts that it used in the current period.

To relate the increased revenue to the main driver of network costs (ie peak demand) the EMRF showed that the cost of TG services would increase by roughly 15%, based on the 50% PoE NSW demand forecast in the AEMO 2014 NEFR. This clearly showed that the TG assertion about providing prices that are relatively static is incorrect as prices are seen to rise in terms of the key driver of costs

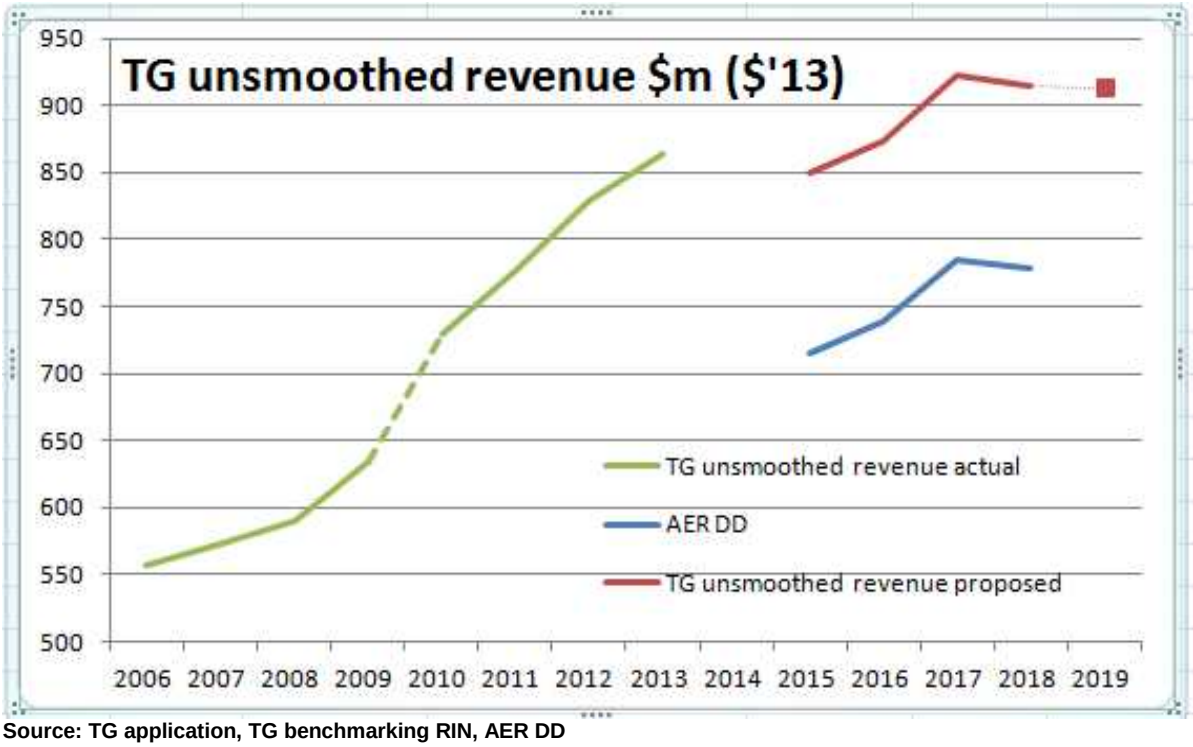
Overall, the EMRF considered that TG had made an ambit claim against which the AER had to attempt to identify and remove costs considered to be inefficient;

the EMRF recommended that the AER review the proposals on the basis that the cost rise in the current period (AA3) was demonstrably excessive.

1.2 An overview of the AER draft decision

The EMRF has reviewed the AER draft decision and considers that overall, the AER has identified and removed most of the TG inefficient costs TG had included in its application.

The following chart highlights the actual revenues achieved by TG in previous years and that proposed by TG for the next period. The chart also includes the AER draft decision allowed revenues which are similar to those allowed for the early years of the current period[1].

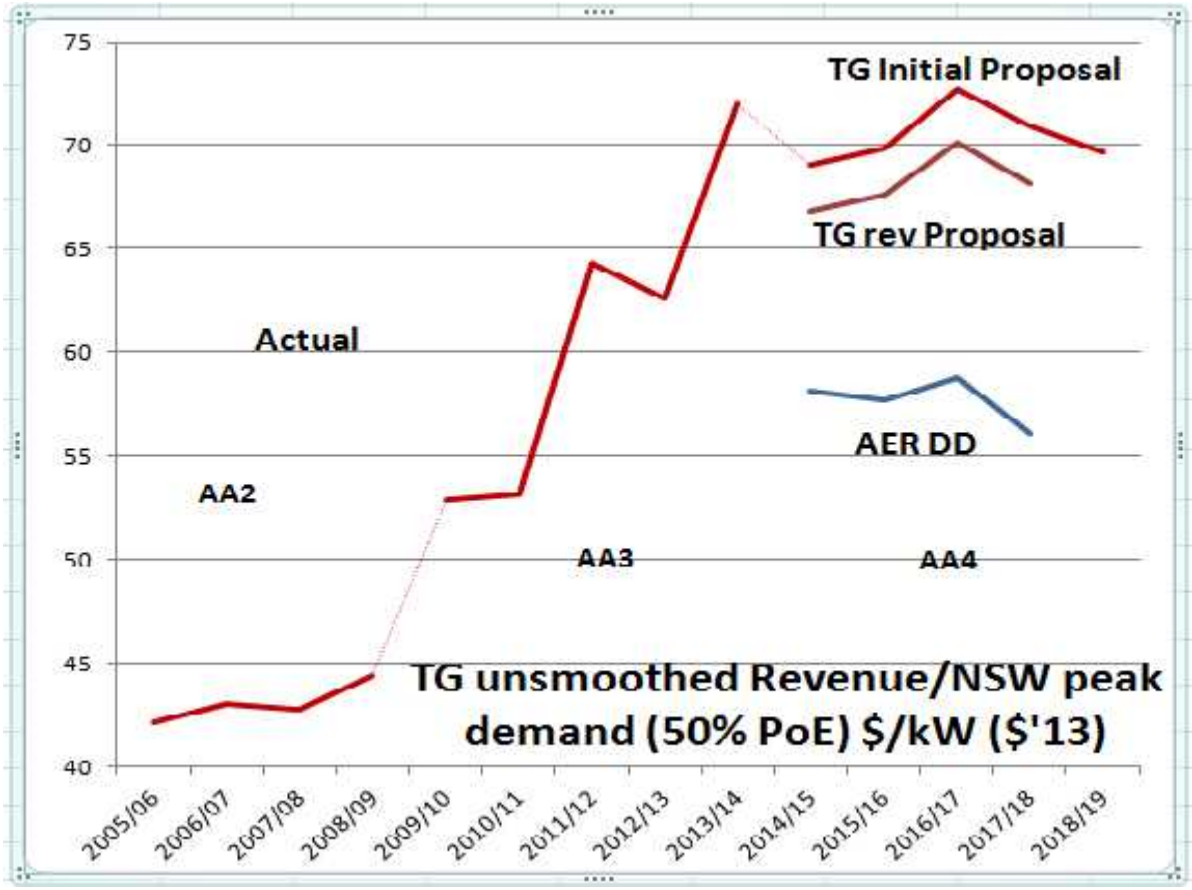


Source: TG application, TG benchmarking RIN, AER DD

Recognising that revenues of themselves do not provide a useful indication of the value of the service provided to consumers, the EMRF has plotted the revenues related to the peak demand seen in the TG networks because peak demand is the main driver for the size of the network that needs to be provided.

[1] The EMRF uses unsmoothed revenue as this removes the distortion introduced to the relativities caused from the AER over compensating TG for allowed revenue for the transition 2014/15 year

Based on the revenues shown in the foregoing chart, the EMRF has added to its chart plotting actual and TG proposed average costs[2] per kW of electricity peak demand the outcome of the AER draft decision.



Source: TG economic expenditure RIN, AEMO June '14 NEFR, TG application, AER DD, TG RIN

This chart shows that the AER draft decision, rather than increasing prices to consumers as would have occurred if the TG proposed revenues had been accepted, effectively resets prices at roughly the midpoint of prices occurring in the current period.

This high level analysis would support a view that the AER draft decision is consistent with a recognition of high peak demands seen in the early years of the current period[3], and that AEMO has forecast that these early year peak demands are unlikely to be exceeded (even at 10%PoE) for a decade or more to come.

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[2] The EMRF used forecast peak demand estimated at 50% PoE as this is the most likely peak demand expected and therefore is consistent with actual peak demand recorded over time.
[3] The peak demand in NSW occurred during the first three days of February 2011 and this has not been repeated

What is disappointing from a consumer viewpoint is that the massive 20% step increase in prices seen as a result of the current period allowed revenues has effectively been "locked in", despite the significant reduction in revenues seen in the AER draft decision.

In its response to the TG proposal, the EMRF commented that it:

> "… would have expected considerably lower costs for the next period, rather than the continuation of the growth in the current excessively high costs seen at the moment."

The AER draft decision has gone well on the way to achieving this EMRF aspiration. Although, it is worth noting that the draft decision still results in a 30% step increase in prices from those seen in period previous to the current period (ie AA2)..As the EMRF commented in its response to the TG proposal:

> "At its most fundamental level, an increase in selling prices of nearly 50% between AA2 and AA3 could not be sustained by any competitive business against an environment of falling consumption."

Even at a 30% increase the EMRF considers that its observation is still valid.

Despite the AER draft decision, TG has only marginally reduced its proposed revenue and the bulk of this revenue reduction comes from TG reducing the risk free rate used by it to generate its revised cost of capital.

Overall, the resultant unit cost for supply of TG services based on its revised proposal still maintains its extraordinarily high level of pricing. This indicates that the TG revised revenue is still excessive. Further, this maintenance of a high revenue highlights the monopoly TG retains on the marketplace and the flagrant disregard to consider pricing outcomes that are in the interests of their customers.

1.3 The conservatism built into the AER draft decision

The EMRF notes that the AER draft decision does deeply analyze the TG proposal and identifies many aspects where the TG proposal is deficient in identifying what are efficient costs from costs that TG thinks that it might be exposed to.

What is concerning to the EMRF is that the AER has a tendency to set a conservative allowances (which are moreover biased towards TG interests) when there might be some doubt at the actual allowance. Whilst the EMRF does not disagree that the AER needs to be conservative, the EMRF is concerned that consistently this conservatism is compounding within the decision. This means that the overall conservatism which has been applied in its draft decision is significant but unquantified.

This conservatism operates in two clear ways:

- When a series of unrelated conservative allowances are made, statistically not all elements will be result in the extreme condition that justifies the conservatism allowed but some will. To address this additive conservatism, the AER should make an assessment as to which elements are most likely to be at the extreme of any likely range. Then the AER should apply the conservatism only to that element and hold all other elements at their most likely operating point. This approach recognises that there will be a spread of likely outcomes rather than all outcomes being assumed to be at the extreme point of a likely range.

- When there are a series of elements that build on each other and a conservative approach is taken for each, the overall conservatism builds up geometrically. So if two elements are multiplied and both have a conservative aspect, then the overall conservatism is enhanced. An example of this is the equity risk premium where the equity beta and market risk premium are multiplied to create the equity risk premium. If there is conservatism applied to both then the outcome is more conservative than either of the two inputs. For example, if there is a 10% conservatism built into both the equity beta and the market risk premium, the equity risk premium will have built into it a 21% conservatism allowance which is twice the amount of conservatism allowed for either.

With this in mind, the EMRF has identified a number of conservative allowances that have been built into the draft decision revenue allowance and these are detailed within the body of this submission. However, some of the more obvious elements where the AER has provided conservatism are:

- Setting of equity beta
- Setting of market risk premium
- Assuming all debt will be provided from corporate bonds
- Not recognising that networks have a lower cost of corporate bond than other seekers of debt with the same credit rating
- Setting gamma in a lower end of the likely bounds

- Assuming the revealed opex for the base year is efficient when it is still remote from the efficient frontier
- Allowing a productivity adjustment lower than indicated to allow for a lesser amount of step changes
- Allowing a bonus under the NCIPAP even though there is no certainty that each project will deliver a benefit to consumers, or if the payback on a project is efficient.
- Providing excess opex and capex in the regulatory allowance when its inclusion will result in out-performance in service (and hence deliver a bonus under the STPIS)

The EMRF considers that the AER should have used the midpoint of any range of point estimates where there might be doubt and then applied an overall level of conservatism to the final assessment of the revenue allowed.

1.4 Consumer engagement

The EMRF considers that the AER assessment of the TG consumer engagement carried out so far is a reflective of what the EMRF members have experienced.

It is clear from the detail provided in the AER assessments for each of the various elements that comprise the draft decision, that the AER has relied little on the TG assertions regarding the outcomes of the TG consumer engagement to influence this revenue reset process.

The single exception to this observation is the AER draft decision on the proposed pricing methodology. Based on the AER draft decision it would appear that there is a real risk that the consumer engagement activity TG put into its pricing methodology will come to nought. This is concerning to the EMRF as it, and its members, devoted considerable effort into working with TG to develop a pricing methodology proposal that had some excellent features and reflected the views of their consumers. In addition, the EMRF considers the AER has an obligation to work with TG to bring the concepts of the proposed methodology to fruition as there was almost universal support from all consumers for the concepts embodied in the methodology.

The EMRF is well aware that if TG proposed a revision to its methodology which results a worse outcome for consumers, then the AER will have acted to prevent this positive consumer engagement from being realised.

1.5 Regulatory control period

The AER has accepted the TG proposal that the current regulatory period will be effectively 4 years (including the transition year). The EMRF accepts that the transition rules allow the TG to propose a shorter regulatory period for this reset review and requires the AER to accept this, although the EMRF doubts the validity of the reasons provided by TG for seeking the shorter period.

1.6 Shared assets

The EMRF notes that TG does provide services to others using the assets fully paid for by consumers and therefore consumers should receive a benefit for this additional use. The EMRF also notes that the amount of revenue TG asserts it receives in this manner was less than the level of materiality applied under the AER guideline.

It would appear that the materiality of the shared asset revenue is still below the materiality level despite the proposed reduction in allowed revenue that is included in the draft decision.

The EMRF remains concerned that the materiality level included in the AER guideline is inappropriate and will take this up with the AER at a later time.

1.7 Interplay between incentive schemes

As noted in its response to the TG proposal the EMRF recognises the importance of the incentive schemes for opex, capex and service standards. The EMRF also agrees that now there are a suite of competing incentives covering the three elements a better outcome for consumers should result.

The EMRF observed that the complementary nature of the schemes will only be achieved if the allowances for opex and capex particularly are set at the efficient frontier. Although the EMRF also notes that if the WACC allowed exceeds the cost of sourcing funds, this will incentivise excessive capex.

Whilst the EMRF considers that the draft decision has gone a long way towards setting opex and capex at efficient levels, the EMRF has a concern that the approach used by the AER still results in a significant degree of conservatism - this point is made in section 1.5 above.

If there is conservatism included in the allowances this will reduce the effectiveness of the balanced nature of the incentives. In particular, the EMRF is concerned that any excess allowed in the opex and capex will provide an NSP to optimize where it takes its bonus - in the EBSS, the CESS or the STPIS.

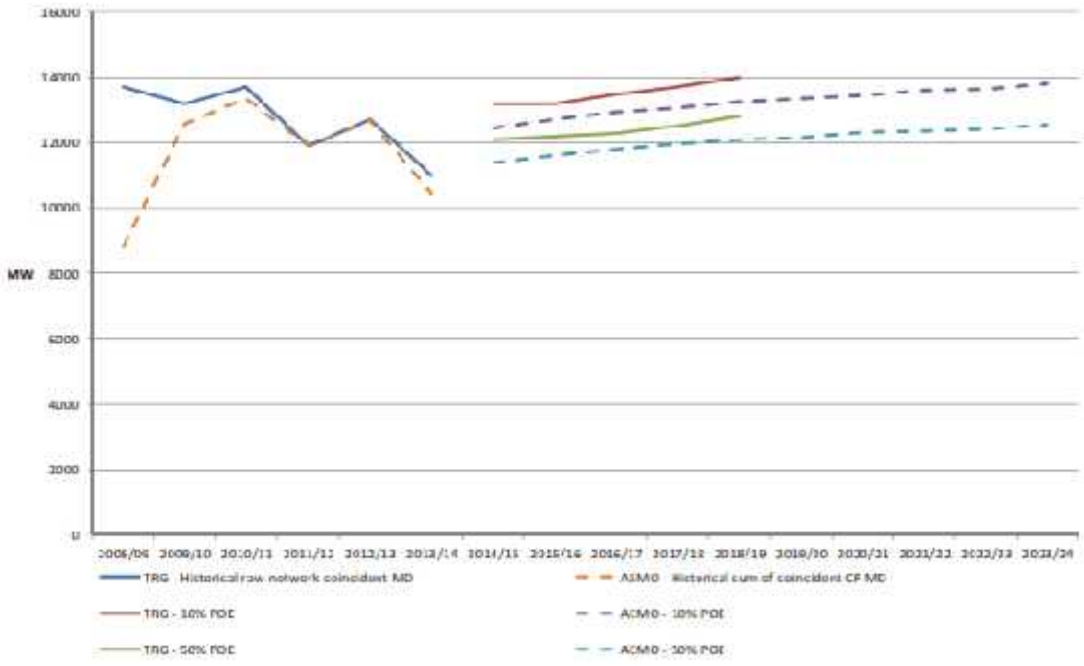
2. Forecasts of demand, consumption and input cost changes

2.1 An overview of electricity (demand and consumption) forecast changes

In its response the TG proposal, the EMRF commented that the forecast demand for NSW over the regulatory period would not exceed the previously observed highest demand in the region. On this basis, the EMRF concluded that there was little rationale for any augmentation capex for the next period.

The EMRF used the 2014 AEMO NEFR as the basis for its analysis. Rather than use this, the AER has used the 2014 AEMO Connection Point demand forecast for NSW to assess the need for TG augmentation capex. The AER comparison between the AEMO forecast and the TG forecast (AER figure C-1 on page 6-68 in attachment 6) still shows that TG has over forecast future demand whereas the AEMO CP forecast still shows that expected peak demand in the next period is still less than the actual peaks incurred in the past.

Figure C-1 Comparison of TransGrid demand and AEMO CP demand



Source: TransGrid reset RIN; AEMO, *Dynamic interface for connection points in New South Wales and Tasmania*, 31 July 2014.

The peak demand recorded in NSW was 14.58 GW on 1 February 2011 and the AEMO CP forecast assessed at 10%PoE does not indicate that this demand will be exceeded within the next decade.

The EMRF has previously highlighted that networks have consistently had a bias towards overstating expected peak demand (in order to maximise their capex allowance) and underestimating expected volumes of electricity to be used (in order to maximise prices when under a price cap regime). The EMRF notes with particular pleasure the AER decision to

> "…monitor the accuracy of TransGrid's demand forecasts in future regulatory years to check for any indications of bias. This in turn would aid in monitoring potentially inefficient expenditure levels in the network." (AER DD page 6-68)

2.2 Escalation forecasts for labour and materials

2.2.1 Wages cost growth

The AER decision on wages cost growth generally reflects the view of the EMRF although there are some elements where the EMRF does not agree with the AER approach.

However, what the AER has done is to develop a suite of tools which when combined provide a comprehensive and well developed outcome to adjust opex for forecast changes in prices, productivity and output growth.

A particular item that the EMRF raises in regard to the wages cost growth relates to the wages price adjustment for 2013/14. The EMRF notes that the table B-6 on page 7-72 of attachment 7 both DAE and BIS-Shrapnel forecast a real growth in wages for2013/14. Whereas the ABS statistics for 2013/14 show that real growth was negligible. In determining the forecast allowances, actual figures should be used rather than estimates.

Whist accepting the current approach to forecasting outputs for use in output growth has been the focus of considerable debate throughout the Better Regulation program, the EMRF has a major concern with the decision to use as drivers of increased opex growth in terms of volumes of electricity transported and ratcheted demand. The EMRF will request its affiliate MEU to take up with the AER why these outputs should be used to adjust opex, particularly with such high proportions that are included in the development of the final adjustment. In particular, the EMRF cannot see

why 21.4%[4] of the opex adjustment would be impact as a result of increased volume of electricity delivered if there was no other change in the network at all.

2.2.2 Materials cost growth

The AER has provided a very important and detailed analysis on the issue of materials future price movements. By comparing the forecasts of future materials prices from a range of forecasters, it has identified that the range of forecasts is just too wide to place reliability on the forecasts.

The EMRF notes that although futures prices are used as the basis for such forecasts, it is well known that the further out from the current times, the volume of contracts decreases dramatically. Therefore, even though prices might be forecast well into the future, the longer out the forecast, the less it is based on as wide a cross section of buyers as might be imagined.

The issue of the volatility and unexpected nature of material forecasts is probably most exemplified in recent times, where the spot price for oil, coal and iron ore have seen massive falls in very short time frames. Who, six months ago would have predicted that the spot price of oil would have fallen by over 50% by the start of 2015?

The EMRF notes the AER has concluded that spot prices for raw materials (which are used for materials escalation purposes) are also unlikely to be a good guide for future material purchase costs because:

- The cost of the raw material is unlikely to be "at spot" as most trading is carried out on longer term contracts rather than buying "at spot"
- Networks purchase processed materials (eg aluminium made into cables, copper and steel made into transformers and switchgear) which means that there is a considerable labour component included in the actual items procured.

The EMRF considers that the AER has highlighted some considerable shortcomings in the approach to forecasting the cost escalation of the materials used by networks.

The EMRF accepts that the AER has concluded the TG proposal for

[4] The cost elasticity for energy delivered

adjusting materials prices into the future is not sufficiently robust for it to be used for regulatory purposes and that allowing materials prices to increase at the same rate as the Australian CPI is a more appropriate approach to adjusting for material price movements. In principle, the EMRF agrees with the AER approach as a long term basis for future movements in the cost of materials

However, it is important to note that following this approach is, at this time when materials costs are falling so dramatically, extremely conservative and as such it is likely to provide the networks with a short term benefit at the expense of consumers.

The MEU considers that forecasting error can be avoided and addresses this in section 2.2.4 below.

2.2.3 Property escalation

The EMRF notes that effectively the AER draft decision allows for property growth escalation to be adjusted in line with movements of the CPI.

The EMRF considers that this is an appropriate approach.

2.2.4 Labour and material forecasting inaccuracies

The EMRF notes that, despite making a suggestion the AER consider developing an industry specific adjustment to escalation of costs, the AER has persisted with applying CPI adjustments to network revenue. The reason the EMRF proposed an industry specific escalator was to address the inaccuracies inherent in the current approaches used by networks and the AER - aspects that the AER refers to extensively in its assessment of wages and material cost adjustments.

The reason previously provided by the AER for not implementing a specific industry escalation factor was because of a preference that network prices should increase with CPI as this was what consumers would want. The EMRF considers that an industry specific escalator would remove all of the risk to both consumers and networks and remove the conservatism that is apparent in the current approach used by the AER

However, now that there is to be a variation each year to adjust for changes in the cost of debt, the AER argument is no longer valid. The EMRF intends to ask its affiliate MEU to take up this issue with the AER at a future point in time.

3. TransGrid WACC

In its draft decisions on TG, the AER has applied its WACC guideline as developed during the Better Regulation program. This results in a considerably lower value for WACC than was seen from the TG application.

In its revised proposal, TG essentially maintained the same view that it had espoused in its initial proposals with the only adjustment made regarding the lower risk free rate that currently applies.

The EMRF considers that TG, by rejecting the key elements of the AER guideline and draft decision, is pursuing an agenda to unnecessarily maximise its revenue stream to the detriment of consumers.

The arguments about WACC provided by TG all revolve around it gaining more revenue, yet this is not what the National Electricity Objective (NEO) or of the Rate of Return Objective require.

- The NEO is about the long term interests of consumers. Whilst TG argues that the AER is incorrect in its guideline, it has not demonstrated that the AER guideline does not result in an outcome that is not in the long term interests of consumers. At a high level, the AER guideline bears much commonality to the development of the WACC seen over the past 15 years. This long used approach has resulted in adequate (some would say excessive) investment in networks. It is therefore incumbent on TG to provide evidence as to where the AER guideline would result in less investment than has been needed in networks rather than arguing that a different method is more likely to meet the NEO

- The rate of return objective requires the AER to grant an allowance that recovers at least the efficient costs for the capital needed by the benchmark network. Again, history shows that the allowances provided in past determinations have delivered this outcome. TG needs to provide evidence that the AER guideline is so different from previous decisions that its efficient costs will not be recovered.

The EMRF is of the view that the AER guideline is not so different from the previous approaches used or that the guideline is demonstrably deficient; in fact the EMRF considers the AER guideline removes risks to the networks rather than adds them. TG has focused on attempting to prove that its preferred approach meets the **requirements of the Rules** more so than the AER approach and, by doing so, has concentrated on showing it is entitled to a higher return than that they would get from the AER guideline. What is totally absent from the TG arguments, is any evidence that the AER draft decision does not deliver an

outcome which is efficient, meets the NEO and the rate of return objective. The EMRF considers that the empirical evidence from history supports the AER guideline as meeting the core requirements for the costs of capital rather than the approach so strongly put by TG.

3.1 The AER draft decision

The AER has devoted considerable effort into identifying an appropriate process to develop a weighted cost of capital (WACC) that meets the requirements of the Rules and the intent of the Law. The bulk of the work was undertaken during the Better Regulation program which balanced the views of both the networks and of consumers whilst ensuring the requirements of the Rules were implemented. As the EMRF commented in its response to the TG initial proposal,

> "…the EMRF supports using the [AER rate of return] guideline in its entirety rather than "cherry picking" aspects which favour one stakeholder over another."

Except for the AER draft decision on the value of "gamma", the AER has maintained the integrity of its guideline by applying it in full in its draft decision. The AER goes to considerable lengths to demonstrate that its guideline and the current assessments of point estimates remain as valid now as they did during the development of the guideline. The EMRF also notes that during this time, all stakeholders had considerable opportunity to provide their disparate views and the AER devoted considerable effort to balance these as it settled on a suite of outcomes which now constitutes the guideline as published.

Despite the EMRF accepting that as the rate of return guideline must be seen in its entirety and not being "cherry picked" for elements which favour one stakeholder over another, the EMRF does highlight that there are elements of the guideline which are biased in favour of the network.

In particular, in reviewing the detailed explanations by the AER for its draft decision, the EMRF notes that there are aspects where the AER has taken a conservative view on the parameters used to determine the final "point estimates" that are inherent in the guideline. These amplify the EMRF concerns on conservatism discussed in section 1.3 of this report.

3.1.1 Gearing and credit rating.

> The AER determined that the benchmark entity would be geared at 60% debt with a credit rating of BBB+.

As the level of gearing is also closely related to the benchmark credit rating, the EMRF considers that both parameters should be set in relation to the other. Analysis of the actual gearing of energy networks and the credit ratings achieved indicates that the AER has taken a conservative view in relation to both. Table 3-35 in the DD attachment 3 shows that the average gearing of the networks examined was between 63% and 66% after excluding the impact of AGL, Alinta and GasNet in the assessments[5].

In table 3-61 in the same attachment, the AER provides a listing of network service providers (each with their credit ratings).From this list it concludes that the typical credit rating would be BBB+ for the cohort of firms included, thereby concluding the benchmark credit rating would be BBB+

What is absent from the analysis is any correlation assessment of the gearing and credit rating. For example, Envestra is shown to have a credit rating ranging from BBB- to BBB+. Yet the reasons for this variation can be seen when its gearing is assessed. In fact, Envestra had a gearing in excess of 80% and yet still had a credit rating of BBB+, yet Envestra contributes to the setting of the benchmark.

The table also does not differentiate between regulated and unregulated networks. For example, the networks closer to pure play networks (eg ETSA, CitiPower, Powercor, AusNet) all have credit ratings higher than BBB+ and APA which has about half of its assets unregulated has a credit rating of BBB.

The purpose of this analysis is not to argue that the AER should have increased the gearing and/or the credit rating of the benchmark entity, rather to highlight that the AER has been significantly conservative in its setting of the benchmark parameters. This conservatism provides the networks with an outcome which increases their revenues for no real value to consumers, and is discussed in section 1.3 of this report

3.1.2 Corporate bond rates.

In previous submissions to the AER, the EMRF and its affiliate MEU has

[5] The EMRF considers that these firms should be excluded as they had (other than GasNet) considerable non-regulated activities included in their portfolios which would have depressed considerably their ability to be classed as "pure play energy networks". In particular, the large portfolio of energy retailing in their portfolios would have required considerably lower gearing levels in order to maintain a credit rating of BBB+.

observed that the corporate bond rates for entities with the same credit rating vary significantly and that energy networks appear to have lower bond rates than other firms with the same credit rating. In its draft decision, the AER acknowledges this (see section G.8.6). However, because the AER prefers to use third party sources of data it is constrained from adjusting the data to reflect this very apparent anomaly.

For the reasons given by the AER, the EMRF does not propose that the bond rates used by the AER for use in setting the cost of debt should be discounted.

The EMRF affiliate MEU has previously provided its view to the AER that using corporate bonds is a higher cost source of debt than is available from other sources. This observation has also been made by the ACCC's Regulatory Development Branch in its 2013 paper "Estimating the Cost of Debt".

Both of these observations highlight that using estimates of the cost of corporate bonds to be the basis of the efficient cost of debt overstate the efficient cost of debt that networks will incur. This decision by the AER again highlights that the approach used adds another level of conservatism into the setting of the WACC and provides networks with another unearned benefit.

3.1.3 Private credit ratings and government owned firms.

The EMRF noted in its response to the TG proposal, that TG will be granted more revenue than it needs because it accesses its debt at the NSW Treasury Corporation credit rating of AAA. Yet consumers are expected to pay for TG debt calculated at BBB+ credit rating levels.

The AER has provided a view from M. Klein that it is taxpayers that underwrite the debt sourced by governments through recourse to taxation. The EMRF does not disagree, but points out that the Electricity Rules require the network only to be allowed a rate of return

> "…commensurate with the efficient financing costs of a benchmark efficient entity…" (The rate of return objective)

The implication of the rate of return objective is that the financing costs must be efficient. Following from the Klein observation, the AER must be assured that efficiency will be maximized by electricity consumers paying a premium for provision of the networks and that this premium is returned to

the taxpayers that underwrite the lower borrowing costs. If there is any doubt that the overpayment is not returned to the taxpayer, then requiring consumers to pay a premium (as the AER does) then the approach used by the AER is not efficient and therefore would not meet the rate of return objective.

In this regard, the EMRF points out that the Rules highlight that an inefficient rate of return has previously been widely attributed to a significant amount of inefficient capex and specifically rule 6A.6.2(k)(3) draws attention to this concern.

Therefore, unless the AER can be absolutely certain that the overpayment by consumers to government owned networks by allowing a cost of debt significantly in excess of the actual costs the network incurs is returned to the taxpayers that underwrite the lower cost debt, then the AER should not provide government owned networks with a cost of debt based on accessing the debt on the open market.

By allowing the commercial cost of debt in the WACC for government owned networks, the AER is being excessively conservative. This conservatism provides networks with an outcome that increases the revenues to the networks without providing a benefit to consumers.

3.1.4 Gamma

The EMRF accepts that it is difficult to argue the individual details for each element comprising the value for gamma as there is no consistency in the data that is available.

The EMRF considers that the draft decision on gamma (reducing it from 0.5 to 0.4) reflects a move towards more conservatism in assessing the available information. For example, the AER notes that the distribution rate can be assessed as low as 0.7 or higher to 0.8 depending on the source of data (see tables 4.1 and 4.2 in attachment 4). The AER considers the lower bound for the distribution rate should be used in the calculation of gamma although it also points out that with that source of data, the utilisation rate might be higher. This approach results in a more conservative outcome than might otherwise apply.

What also concerns the EMRF is that there is a lack of consistency in the approach for setting gamma compared to the basis for setting WACC. For example, the WACC is theoretically based on a pure play regulated energy network business operating in Australia.

In contrast, the influences on the calculation of gamma cover a much wider scope of data than this limited group of companies. For example, the distribution rate is based on assessments made from data covering the entire cohort of tax payers subject to imputation. There is a basic assumption made that pure play regulated energy network businesses provide dividend imputation to their shareholders in proportion to the entire cohort of the market. This is a bold assumption. It is also widely recognised that certain types of businesses provide less franking of their dividends than others - those with secure cash flows (such as energy networks) are more likely to fully frank their dividends than others. This means that imposing an assumption that the benchmark entity would frank its dividends to the market average is unlikely and therefore is a conservative assumption.

Further, offshore investors in market wide cohort have made a conscious decision to acquire assets to generate income in Australia with the full knowledge that they will not be able to benefit from imputation and this biases the data for the derivation of the utilisation rate.

It would appear that the AER has based its assessments on lower utilisation and distribution rates than would otherwise be the case for a pure play energy network which is the benchmark entity for setting the WACC.

The EMRF questions whether the AER is addressing the correct question with regard to imputation. The EMRF accepts that the data reflects the utilisation of tax credits for the entire cohort of tax payers including offshore owners. However, should the revenue adjustment made for regulated networks be based on data for the entire cohort or should it just be based on how a benchmark entity would operate?

The EMRF considers that the AER has moved to a conservative position on the issue of gamma to the detriment of consumers[6].

3.1.5 The debt transition approach

One of the key contentious issues regarding the AER cost of debt guideline is the transition approach embedded in it. The EMRF affiliate MEU during

[6] The EMRF points to the absurd situation seen recently in Victoria where the government provided networks with cash to implement enhancements to the networks to limit bushfire risks. Because the AER had granted a gamma less than unity, consumers were obliged to pay a premium to the networks to reimburse them for the potential tax liability they might incur because the government grant is seen as revenue.

the Better Regulation program commented that it saw the need for a transition on the approach to assessing debt was probably not required especially for larger networks as they would have already implemented a phased approach to debt acquisition because they probably could not have refinanced their debt all at a single point in time. Therefore, they would have already had in place a phased approach to debt which the guideline seeks to implement in developing a cost of debt for the benchmark entity.

Countering this, were the views expressed by the smaller networks that either did refinance their debt at one time (usually when the reset was finalised) as this reduced their risk exposure to volatility in the cost of debt in the future. Other networks commented that although they might have a phased acquisition for their debt, they rehedged the debt portfolio when the reset was finalised as this reduced their risks.

It was clear that there were two opposing views from networks during the Better Regulation program about how debt was managed and therefore opposing views as to how the cost of debt should be assessed in the future.

It was also recognised during the Better Regulation program that there needed to be one approach to assessing the cost of debt - one which recognises that there are both large and small networks which each have their own approaches to managing their debt.

The AER guideline effectively recognises these opposing views and proposes a mechanism that will allow those networks using the "on-the-day" approach (these tend to be the smaller networks) to unwind their current practices and acquire their debt in a manner that minimizes their risk as they move to the AER guideline approach.

Whilst the EMRF recognises that the larger networks might argue that they are disadvantaged by this approach, equally the AER needs to recognise that their guideline should also minimise the risk to other networks as change is introduced.

It was with this in mind that the MEU and its affiliates supported the AER cost of debt package as appropriate and equitable.

3.1.6 Benchmarking

The fact that TG has claimed a higher WACC than that resulting from the application of the AER guideline reveals a failure by the AER to carry out benchmarking of historic outturn financial performance of the energy

network firms and comparing these to returns seen in the wider market.

A longitudinal study of the financial performance of regulated networks compared to the wider market, after adjusting for the difference in risk profiles would provide empirical evidence as to the validity (or not) of the claims by TG and other networks and provide the AER with support for its view that the guideline delivers an efficient allowance for the cost of capital.

3.1.7 Conclusions on draft decision on WACC

The EMRF considers that the AER should apply its guideline in its entirety. The EMRF considers that there has been little new information provided that causes the need to deviate from a guideline that has only been in operation for 12 months.

The EMRF points out that the existing guideline has considerable conservatism built into it. In addition to the points made above, the EMRF points to the setting of the equity beta (where the point estimate is set at the highest point of the credible range) and in the market risk premium (where the set point is also at the higher end of the credible range) also add considerable conservatism into the WACC calculation.

Because of the AER approach at building in conservatism at each assessment point, there is no certainty as what the overall conservatism the AER has allowed into the WACC development. The AER approach effectively results in a compounding of the levels of conservatism and as a result is likely to significantly overstate the amount of conservatism that is being provided.

The EMRF considers that, rather than follow the AER approach at building conservatism at each point in the development of the WACC it should set the parameters at the most likely equitable points and then add a defined amount of conservatism at the conclusion of the calculation if this is considered to be necessary.

3.2 The TG response to the AER draft decision.

The EMRF notes that TG has maintained its view that the AER return on equity guideline is in error, although in its revised application, TG has adjusted its return on equity for the change in the risk free rate. TG asserts that the AER has erred in not interpreting the Grant Samuel report correctly and therefore the AER should revise its guideline in light of the "new evidence".

The EMRF considers that even if the Grant Samuel report does provide new evidence (and the EMRF is not convinced this is the case) then this is just another "expert report" that the AER should assess along with the many other expert reports the AER gathered during the development of the return on equity guideline. The EMRF does not consider that the addition of one new report provides sufficient support to overturn all of the information provided and conclusions reached based on significantly more evidence used during the development of the guideline to change the guideline

Despite the extensive work by the AER, TG has universally rejected the AER guideline and continues to insist that its approach provides a more balanced assessment for developing a return on equity. The AER has been quite clear on how it arrived at its guideline and in the draft decision explained how it has implemented the process. For TG to regurgitate its arguments (even when backed up by additional consultant views) begs the question as to whether the proposal from TG provides a more balanced outcome.

The EMRF notes that the AER guideline has resulted in an approach that has varied only a little from that used by Australian regulators for over 15 years. What TG fails to recognise is that the historical performance of the AER approach has resulted in sale prices for network assets which have consistently exceeded the regulatory asset base (RAB). This longitudinal assessment quite clearly provides a view that the AER guideline does reflect a reality that is totally missing from the TG view on the AER guideline. If TG (and its consultants) were correct in their views, then the sale prices of network assets would have been less than the RAB, but history shows this is not the case. This empirical evidence provides a clear counter to the theoretical arguments of the TG consultants.

With regard to the cost of debt guideline, TG considers that the AER has erred in applying the transition program to TG as TG is one of the largest networks (in terms of RAB) in Australia and that it would have acquired its debt on a staggered basis and not as a point cost as the transition implies.

The EMRF considers that TG is dissembling in this regard as the actual cost of TG debt is well below the allowance assessed by the AER under the cost debt guideline. If TG considers that its cost of debt has to be assessed in a unique fashion because of its size, then the EMRF considers that its cost of debt should be based on what it actually costs TG rather than using some construct such as that implied by the AER cost of debt guideline. It is bizarre that TG considers that the AER should give it special preference because of its size yet it should also give TG a larger cost of debt allowance than it actually incurs because it disagrees with the way the AER intends to apply its guideline.

The EMRF accepts that TG debt is probably too large to have been hedged as implied by the cost of debt guideline due to market liquidity difficulties. However, equally, as TG debt did not need to be hedged (because it was sourced from the NSW T-Corp at a cost considerably less than the market cost for debt of this size) then the issue as to whether it could have been hedged is moot in the extreme.

What TG overlooks is that the AER is required to provide an allowance for TG so that it can reasonably expect to recover its costs (in this case its cost of debt). There is no doubt that TG will be able to do this within the allowance provided by the AER when using its guideline.

In its proposal, TG asserted that application of the AER guideline (specifically the transition approach) would cause TG not to recover money that it would lose if the transition approach is applied because this would prevent it from recovering the high costs of debt incurred during the GFC. This is quite untrue. The cost of debt incurred by TG during the GFC was little different to the costs of debt it acquired both pre and post the GFC[7]. Therefore, TG has not been in any way disadvantaged by applying the transition approach to the cost of debt.

The EMRF considers that TG is self serving in the extreme by persisting with its view that it is disadvantaged by the application of the transition approach for the cost of debt allowance. It further highlights that the AER guideline (developed after considerable research and consultation[8]) should be applied as it stands rather than be modified because TG considers that it is incorrect. As stated earlier, the AER is required to only provide an allowance that recovers the efficient costs incurred or likely to be incurred. It is not permitted to provide for costs that were never incurred as this would be inefficient.

3.3 Pass through events

The use of “pass throughs” is a mechanism for the regulated entity to reduce its risk by passing these onto consumers. Consumers have little ability to manage such risks faced by networks whereas a network has the ability to prevent, mitigate or pass the risk to another party (eg insurance). The EMRF points out that the rules are designed to pass a risk to the party best able to manage the risk. In principle, this means that there should be limited ability for a network to pass a risk onto the consumers.

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[7] The EMRF refers the AER to the published annual reports from TG which provide evidence of the cost of debt it actually incurred

[8] The EMRF provides its views on the transition approach in section 3.1.5 above

In addition to previously accepted pass throughs, TG sought to add further pass through events including insurer's credit risk event, cyber-related external attacks and gradual environmental contamination as well as adding new definitions to previously accepted pass through events.

The AER has not accepted the TG proposed changes; either the re-definitions or the additional events. The EMRF considers that the AER is correct in its draft decision for the reasons given.

The EMRF notes that in the cases of the additional pass throughs sought, insurer default, cyber attack and the environmental contamination, that TG has the ability to readily manage these risks and it is unreasonable to seek consumers to bear these risks. In particular, the EMRF recognises that the environmental contamination may well be caused by poor operational practices by TG and it would be inappropriate for consumers to bear the risk for contamination caused directly by poor practices of TG employees and/or contractors.

The EMRF notes that TG should have an incentive to better manage the risks inherent in **all** of the allowed pass through events. In this regard, the EMRF considers that TG should be exposed to some share of the costs that might result from these pass through events. If TG was so exposed to even a relatively small proportion of the risk, then this could result in better management of the risk. The concept of sharing is already embedded in the regulatory bargain through the benefits of revenue from shared assets and the EBSS, the CESS and STPIS and a sharing of the costs from allowed pass through events would be no different.

4. TransGrid Depreciation

4.1 The AER draft decision

The AER draft decision accepts the TG proposed changes to the depreciation asset classes although it does require the new depreciation rate proposed for communication assets to only apply to Communications (short life) - a new asset class - with long lived communication assets to continue with the previously used asset life for this class of assets.

In its response to the TG proposal, the EMRF noted there was a lack of clarity on the refurbishment of transmission towers where TG proposed a life extension program. It would appear that with this change, the depreciation rate for transmission towers will have two elements - the existing tower assets will be depreciated as before and the new capex used for the life extension will have a life extension of 25 years. The EMRF considers that this approach is incorrect.

By the application of the life extension program the entire transmission towers refurbished will have a longer life, not just the capex used to extend their lives. With this in mind, the EMRF considers that all of the undepreciated amount included in the RAB for those towers should be depreciated (along with the new capex used for the refurbishment) and that this is the amount that should be depreciated over 25 years as the refurbishment allows the entire transmission tower to have an extended life.

The EMRF raised the issue that TG had proposed to reduce the lives of certain assets (especially secondary systems) by a massive 20 years from previously used 35 years. We note that the AER has commented that it addressed this issue because of the concerns raised by the EMRF and the AER observes that they are satisfied with the proposed change.

The EMRF finds this explanation insufficient. TG did not provide the reasons for this change and neither has the AER. Stakeholders have the right to know why such a large change has been proposed and agreed to. The EMRF expects that the AER will provide more explanation as to its reasoning as TG has not explained in its revised proposal why the change is necessary or appropriate, presumably because the AER draft decision has accepted the change.

4.2 Forecast or actual depreciation

The EMRF notes that the AER draft decision requires that forecast depreciation will be used to set the RAB during the next period. The EMRF considers this is an appropriate decision.

5. TransGrid Opex

The EMRF notes with considerable pleasure that the AER has applied its opex guideline in its entirety to the TG reset proposal and has undertaken considerable analysis to identify ways to assist networks get their costs to the efficient boundary.

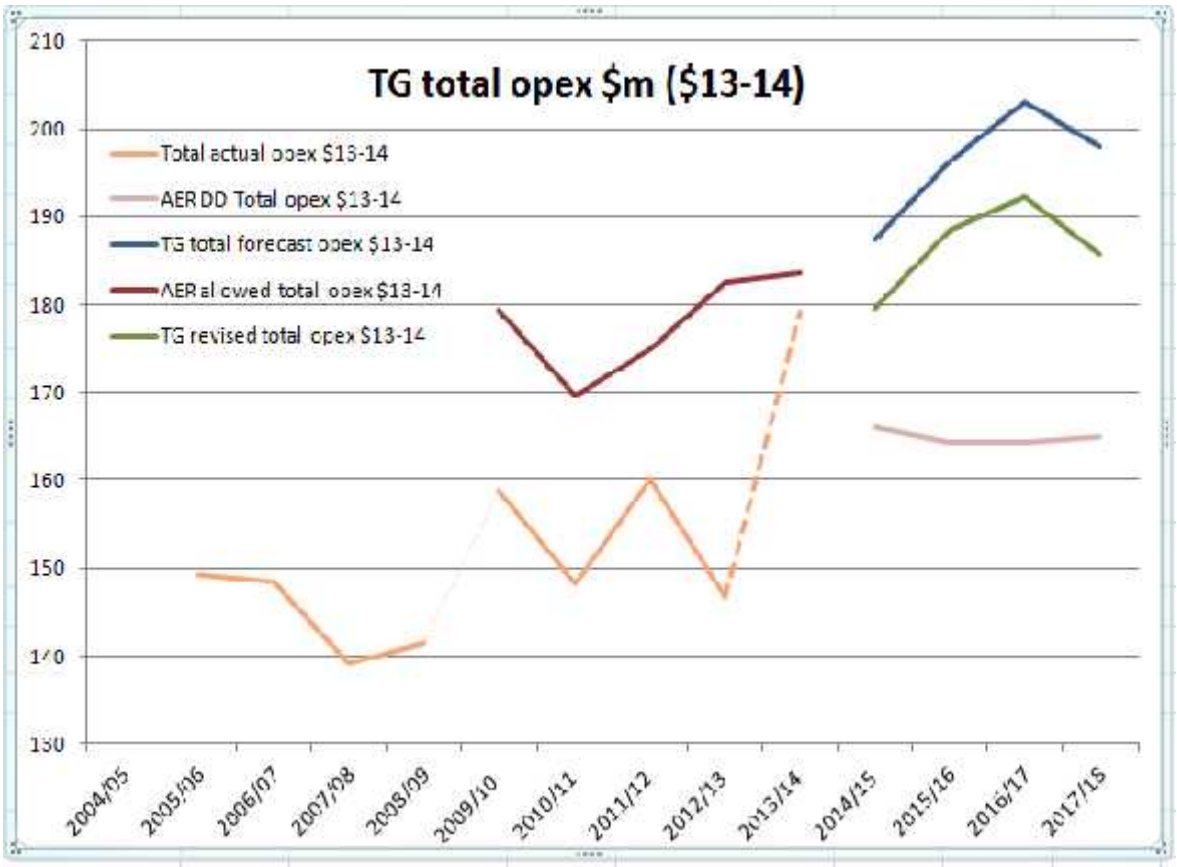
In this draft decision, there are a number of key changes to how the AER has assessed opex claims in the past, including

- Analysis to verify that most opex is recurrent (a view that has not applied in the past with the decision to address controllable opex differently to supposed non-controllable opex),
- Limiting the use of bottom up assessments through judicious benchmarking
- Verifying the base year costs are efficient through benchmarking and trend analysis
- Assessing step changes and productivity contemporaneously rather than separately and using benchmarking of historic opex to assess the actual impacts of step changes as a part of the productivity improvement rather than assessing the potential costs of each in isolation.

The EMRF considers that the AER approach will assist in driving network costs to the efficient frontier and reduce the many interminable debates as to whether a network claim is reasonable or not.

The AER has carried out an in-depth review of the methodology behind the TG proposed opex and the outcomes proposed by TG. Many of the issues the EMRF raised in its response to the TG proposal have been addressed by the AER and the AER has concurred with many of the concerns expressed by the EMRF.

As a result, the AER draft decision shows the opex that should be allowed is considerably less than that claimed by TG. However, TG revised proposal accepts a little of a substantive nature of the AER considerations and has only reduced its opex claim by an average of 5% compared to the AER draft decision which reduced the TG opex claim by an average of 16%. This is shown in the following chart.



Source: TG applications, AER decisions, AER draft decision, TG revised proposal

Despite the AER draft decision demonstrating a considerable discount to the TG proposals (initial and revised), the AER draft decision for opex still reflects an average 15% premium above the actual average of total opex observed during the first four years of the current period.

What is absent from the AER draft decision is any benchmarking of the draft decision opex allowance. As there is unlikely to be any significant increase in the output moderators (ie total entry/exit point voltage, circuit length, maximum demand served, MVA of downstream capacity) due to the limited augmentation capex being proposed or allowed in the draft decision, the increase in opex will result in TG opex benchmarking showing that the AER allowance for TG opex will be less efficient than it is now.

This failure by the AER to benchmark the forecast allowances results in the AER not being able to demonstrate the efficiency of the opex that it considers should be allowed. Certainly, if the TG forecast opex had been benchmarked, this would have clearly demonstrated the excessive inefficiency of the TG claimed opex but also of the draft decision allowance.

The EMRF considers that the AER must benchmark the forecast opex as part of the support needed for the AER analysis.

5.1 The AER draft decision

In its response to the TG proposal, the EMRF was critical of the approach used by TG to develop its forecast opex in that it provided some significant adjustments to the base year opex, used bottom up costs for many elements of the forecast opex and used excessively high escalation allowances.

In particular, the EMRF considered that opex should have seen a considerable reduction because of the massive increase in replacement capex (repex) provided in the current period. Further, there is an expectation that during the period, opex should be seen to reduce as the amount of repex increased, yet this has not been observed.

5.1.1 Setting the base year costs

In its draft decision, the AER (rightly in the view of the EMRF) decided that the base year opex should not be adjusted except for the way provisions were made for defined benefit superannuation provisions. The AER demonstrated that opex remained reasonably consistent over time when the superannuation provisions were excluded from the opex, and that all other opex elements could be assumed to be included in the base year actual opex.

The EMRF agrees with this approach as it replicates what actually occurs in an organization exposed to competition. Most organizations use the revealed opex of previous years (regardless of how the opex was incurred) as the benchmark performance for the ensuing years, coupled to an improvement in productivity which is required to keep the firm with competitively priced products. Other than for the define benefit superannuation provisions, this is what the AER draft decision has done.

However, the EMRF has a concern that the AER may have included in the base year opex some contribution for define benefit superannuation and then added more as an overall adjustment.

On page 7-32 of attachment 7, the AER states:

> "Therefore we have used TranGrid's unadjusted 2012–13 opex as our base year opex for the purpose of estimating our alternative opex forecast."

Yet on page 7-28 of attachment 7, the AER comments:

> "Therefore, if we used the contributions TransGrid made in the base year, we would over-estimate its recurrent opex."

The AER shows in figure 7-2 of attachment 7, that it adds to the revealed opex an allowance of $62m for provisions, presumably for the defined benefit superannuation provisions.

This sequence of statements seems to indicate that the AER might have included for the superannuation provisions twice. The EMRF seeks clarification on this issue.

The EMRF has reviewed the benchmarking studies undertaken of the TNSPs and agrees with the AER that the results with regard to TG are inconclusive. The question that the EMRF has, is to what extent it can be assumed that the quite small cohort of the TNSPs used in the study will show where the efficient frontier might be? In this regard the EMRF points to the benchmarking studies undertaken for DNSPs which has a significantly larger cohort and which shows there is considerably more variation in the outcomes of the studies.

On this basis the EMRF considers that, although it accepts that the outcomes of the TNSP benchmarking are inconclusive with regard to TG, there remains a concern that the benchmarking undertaken for TNSPs is somewhat lacking.

A further issue is that under the current levels of opex, TG was able to maintain (even increase) the levels of reliability of supply to consumers. Prima facie this clearly identifies that the base year opex is all that is needed to provide the service required by consumers.

Overall, the EMRF considers that based on the information available and the observation made above regarding provisions, the AER draft decision to accept the TG 2012/13 actual opex as efficient for the purposes of using it as a base year, is not an unreasonable conclusion.

5.1.2 Step changes

Step changes should only be allowed where the cause of the change in costs are driven by the imposition of requirements that TG cannot avoid. The

EMRF agrees with the draft decision with regard to the step changes that it has allowed. In accepting this, the EMRF also notes that the draft decision to reduce the productivity improvement adjustment on the basis that the lower productivity allowance accommodates many of the step changes claimed by TG, provides a better outcome for TG and is therefore another conservative decision that results in a probable penalty for consumers.

In particular, the EMRF considers the AER draft decision not to allow increased costs for:

- The increased regulatory processes that TG has claimed, is correct. The EMRF is very concerned at the increased costs being claimed/incurred by NSPs in their endeavours to increase their allowed revenues has to be limited. It is simply inappropriate for consumers to be required to pay ever increasing amounts to NSPs which NSPs use to require consumers to pay more for the services provided. In this regard the AER considers that there should be a fixed amount allowed for regulatory resets and no costs in excess of this should be allowed in a regulatory reset.
- The requirement to provide costs to meet the detailed RIN data should be rejected by the AER as it is data that a competent NSP should be gathering for its own use. Whilst there might have been some set up costs to convert the data to a standard format, this is a once off cost and has already been incurred by TG and paid for by consumers within the base cost allowance.
- Certain identified cost elements should not be allowed as TG is recovering additional funds under the EBSS and the import of the EBSS program is to provide an incentive to minimise costs. While TG (and other NSPs) identify where they might have incurred additional costs because of minor changes, they do not identify where they made savings from other changes. The AER is correct to recognise that the EBSS provides an ability to be more equitable in terms of the current "one way" nature of the process to assess efficient costs and rewards. This is exemplified in figure 7-6 of attachment 7, which shows that the base year opex (in constant dollar terms) is only marginally lower than the opex incurred in the previous period. This provides a view that the productivity of TG has probably improved despite there being the presence of a number of the changes that TG claimed as step changes.

The AER has elected to quantify productivity increases in concert with step changes and, by allowing a lower productivity increase to accommodate step changes, has provided a conservative assessment of what the efficient opex should be. The EMRF accepts that step changes that occur within a

regulatory period will have a dampening impact on productivity improvements.

Equally, the EMRF notes that there is an assumption that step changes are all positive (ie act to increase costs) and that an NSP is unlikely to actively incorporate a negative step change unless there is an offset in the regulatory reset (such as TG has with claiming capex for the acquisition of a head office building and offsetting the cost with a reduction in opex as there is no need to claim office rental). This asymmetric issue can be addressed by the AER calculating an average productivity inclusive of step changes as part of the opex review process. By making the productivity adjustment all inclusive it results in consumers effectively receiving the benefit of negative step changes as well as paying for positive step changes.

The most significant area of concern for the EMRF is that it would appear that this approach has resulted in a higher opex allowance than might be the case if the AER had allowed increases for the legitimate step changes sought by TG. To a large degree the AER approach is reflective of what happens in a competitive environment where the cost of step changes must be absorbed by a firm, as including the costs from step changes would make the firm less competitive. At most, step changes will be reflected in a firm increasing its costs by general inflation although the firm might not allow the opex to increase by this amount as a method of controlling input costs.

On balance, the EMRF considers that the AER approach (although giving a conservative opex allowance in this case) probably results in an overall better outcome for all.

5.1.3 Revealed costs and bottom up forecasts

The EMRF was particularly critical of the TG approach to use a mix of revealed costs and bottom up assessments as this gives the NSP an ability to increase its forecast opex despite the incentive scheme supposedly driving an efficient outcome.

The longitudinal analysis of the TG opex undertaken by the AER in the draft decision is especially compelling and to a degree is based on the EMRF view that opex should be assessed over more than one year of operation. This analysis highlights that an NSP has the ability to increase or decrease expenditure in a particular category of costs between years. The longitudinal study of TG opex shows that its opex is relatively stable over time even though expenditure in a particular category might vary year on year. Acceptance of this premise then leads to a view that it is not efficient to allow a mix of forecasting approaches for different categories of cost.

The EMRF had noted in its response to the TG proposal that the approach for assessing the cost of TG's "major operating projects - MOPs" was flawed and had resulted in a considerable step increase in the allowance. The AER draft decision approach confirms the basis for concerns held by the EMRF, and provides a sensible outcome by accepting the year on year variation by recognising that a shortfall in one category in one year is offset by a rise in another category in that year.

The AER approach to identifying which specific "lumpy" expenditure outside the control of TG led to distortions in the revealed opex and then removing this influence highlights the relative constancy of TG total opex over time. The EMRF notes that figure 7-6 in attachment 7 demonstrates this when the influence of the provisions for defined benefit superannuation is removed from opex[9].

By excluding the uncontrollable "lumpy" elements, the AER has highlighted that there is no substantive reason to carry out a bottom up assessment of any aspects of the opex and that by doing so will unnecessarily increase the opex allowance.

The AER draft decision examines the issue of preventative vs corrective maintenance in some depth and identifies that the TG approach results in a greater allowance for both whereas there is every reason to expect that an increase in one (especially more preventative maintenance should result in a reduction in the corrective maintenance). The EMRF considers that the AER approach to developing a sensible and logical allowance for maintenance overall is sound and reflects the practices used in a competitive environment, and certainly those of the EMRF who also have capital intensive operations

5.1.4 Extent of productivity outcome

The EMRF notes that the AER draft decision for the allowance for replacement capex is greater than that used in the current period by over 15%. On this basis, the EMRF considers that the draft decision forecast for the opex allowance for maintenance is probably overstated as the base year

[9] The AER decision to accept that the 2013/14 opex could be used as "efficient" is probably conservative as it is the highest cost for opex incurred over the entire current period.

opex reflects a lesser amount of replacement capex than is being allowed for the next period.

Increasing replacement capex should result in a reduction in opex as old (opex intensive) plant is replaced with new plant which will require less opex.

On this basis, the EMRF considers that the opex allowance in the draft decision is conservative, and as highlighted earlier in this report, it is the view of the EMRF that inclusion of these multiple conservative allowances are detrimental to consumers.

5.1.5 Demand management innovation allowance

The draft decision excludes the sought after increase in the demand management innovation allowance claimed by TG but, retains the $1m pa allowed for this purpose included in the base year costs.

The EMRF does not consider that TG requires any allowance for carry out investigation into demand management as it has only very large consumers of electricity and the four DBs connected to its network. The EMRF considers that for a transmission network facing declining demand, with few direct customers, investigation into demand management practices is inappropriate and unnecessary.

Further, the EMRF notes that the NCIPAP program accepted in the draft decision already includes nearly $7m to carry out research into "energy storage" and "behaviour of residential solar during system events" which are related to demand management innovation.

The EMRF considers that there should not be any further allowance for TG to carry out "research" or other demand management activities until it can demonstrate that the funds provided so far have resulted in TG implementing demand management practices that have benefited consumers. That TG believes it needs to commission further research into this area, is indicative of their blatant attempts to justify an increase in their opex, and cost shift this expense to the detriment of consumers.

5.1.6 Summary of EMRF view

The EMRF agrees that the AER draft decision has highlighted a contentious issue with the forecasting of opex and that its approach has provided a valid rectification to the problem. Overall, the EMRF supports both the analysis undertaken and solution proposed by the AER.

The EMRF considers that the current levels of opex were sufficient to maintain the required levels of service reliability. Therefore no increase in opex is considered to be necessary except where the actual network is increased in size. The allowed larger replacement asset program should put downwards pressure on the opex but the AER draft decision allows an increase.

On this basis the EMRF agrees with the AER draft decision conclusions on TG opex and considers that benchmarking the forecast opex (both that claimed by TG initially and in its revised proposal and by the AER in its draft decision) the AER can demonstrate that it will support the conclusions that its draft decision reflects a reasonably efficient but conservative allowance.

5.2 TG revised opex claim

Despite the considerable explanation provided by the AER in its draft decision, TG has only marginally reduced its opex claim from that included in its initial proposal.

Whilst TG has accepted some of the AER draft decisions, TG gives the following reasons to dispute the AER approach to setting an efficient opex allowance:

- Historic opex is not a good indicator of future costs[10],
- The partial factor productivity opex benchmarking is not fit for purpose
- The assessment of the productivity allowance is flawed
- The AER draft decision disallowed step changes that it should not have
- The AER has not accepted the expenditure that concerned consumers consider should be included
- Escalation time lag was incorrectly applied

5.2.1 Forecasting methodology

TG considers the AER has erred in using the base-step-trend approach it has based on advice from Frontier Economics. This view revolves essentially on the premise that non-recurrent expenditure needs to be assessed on a bottom up basis especially for major operating projects, insurance and long service leave provisions.

[10] The implication of this observation by TG is this limits the use of base-step-trend for all opex categories and benchmarking. The EMRF disagrees

The AER and TG agree that the defined benefits superannuation provision should be assessed on a bottom up basis. The ERMF agrees with this as the provisions that do need to be provided for such a scheme show considerable volatility over time. This is due to the returns that are made on the previous investments that vary considerably with time and therefore the make up of funds required exhibits considerable volatility.

However, this volatility is not so clear for the other three elements noted by TG. Long service leave provisions exhibit a close relation to the passing of time and the turnover of staff. A stable workforce will result in a relatively stable contribution required to provide for long service leave. Additionally, long service leave has a built in "leveling" feature in that staff who leave the organization before becoming entitled to long service leave, forfeit their entitlements and this forfeiture tends to result in an over-commitment of funds which can be used to offset any variances. Similarly, it has been seen that insurance costs exhibit a stable outlook particularly when the organization has not experienced significant claims.

The major issue that TG has appears to be in relation to major operating projects - that MOPs are non-recurrent. The EMRF (and the AER) disagrees. MOPs are recurrent. The TG assertion is that each individual MOP is unique is just applicable as an assertion that each breakdown maintenance operation on a specific transformer or piece of switchgear is unique; yet, TG does not assert this as it accepts that maintenance (both preventative and breakdown) is a recurrent function.

The AER demonstrated from TG past performance that its opex inclusive of MOPs, insurance and long service leave showed conspicuous consistency over time supporting a view that inclusion of these supposed non-recurrent costs did not result in significant year on year variation. That this is the case does not surprise the EMRF. As the EMRF has consistently identified, based on the advice of its members (who are also vey capital intensive like TG) opex budgets are not set based on some bottom up estimates and some past performance, but a decision that opex must reduce (or at least remain no more) compared to previous performance. This is an absolute requirement for the firm to remain competitive regardless of any identified need[11].

The AER analysis highlights the fallacy in the TG assertion that the costs for these three elements should be considered non-recurrent. There is a difference in terminology between the TG view and that of the AER. TG is

[11] Of course, where there is an augmentation more opex is allowed and where an element of opex does exceed its allowance, the firm expects that savings will be made in another element so the overall budget is not exceeded

identifying non-recurrence in terms of activity whereas the AER approach defines non-recurrence in terms of costs. The EMRF considers that if the cost is reasonably consistent when including a number of activities then even though there may be variation between elements over time, then the sum of the activities can be classed as recurrent just as the AER has done.

TG provides an observation from Frontier Economics that asserts that either all opex elements should be included in the base year opex and that excluding one element (in this case provisions for the defined benefit superannuation) is akin to "cherry picking". The EMRF disagrees. The purpose of using the base year for setting opex is to minimise the use of bottom up assessments. However, where it can be shown that there is significant volatility over time in a specific element, which then causes similar volatility in the total, it would be unwise to not recognise this reality. Whilst in this case, the provision for the define benefit superannuation scheme is forecast to reduce for the next period, it is just as likely at another time (eg just after a major crash in the share market) for the provision to be much greater than what was allowed in the base year. The EMRF sees that the AER has been cognizant of the long term risk to TG by excluding this element from the assumption that this cost is stable over time and can therefore be assumed to reflect volatility in the future.

The EMRF considers that the AER approach is consistent with the advice it has been given and reflects the reality of how opex is managed.

5.2.2 Base year easement shortfall opex

TG considers the AER has erred by not reinstating the short fall in easement maintenance into the base year opex.

The EMRF disagrees and provided its views on this issue at length in its response to the initial TG proposal.

5.2.3 Forecast trend

TG asserts that the AER erred in using the benchmarking data to develop an alternate opex forecast. The EMRF considers TG makes an unsupported assertion. As the EMRF reads the AER draft decision, the EMRF considers the AER has not used the benchmarking for any purpose than for supporting a view that the 2013/14 year opex is probably efficient and should be used as the base year.

The only part of the benchmarking that was specifically used by the AER was the NEM wide data on productivity gains with and without step changes. TG

has provided a view that using benchmark data to set productivity trends is not robust and highlights that productivity when measured over different time periods results in different outcomes exemplifying the lack of robustness. The EMRF can equally point to the TG approach to assessing future productivity is not robust and depends very much on the assumptions made by TG.

The EMRF points out that the same assertion about robustness and applicability of data ranges can be made about elements of the rate of return on equity. The EMRF points out that depending on the time span used to assess the elements of the return on equity, vastly different outcomes can be identified, yet this does not lead to assertions of inappropriateness in the development by TG of its assessments for these parameters or outcomes.

The EMRF notes the figure 6.3 in the TG revised application (page 91) where TG seeks to exaggerate its view by positing a large negative productivity change by identifying a mere three year trend (2005/06 to 2008/09). The EMRF accepts that trends need to be based on periods long enough to smooth out short term issues but also short and recent enough to be relevant. The EMRF considers that the AER assessment of productivity reflects these competing requirements.

The only aspect on benchmarking where the EMRF is critical of the AER use of the benchmarking data is that it does not benchmark the forecast opex to assess whether the forecast allowances are demonstrably efficient.

5.2.4 Step changes

The EMRF provided its views on the TG proposed step changes in its response to the TG proposal and its views remain unchanged on each of the changes proposed. TG asserts in its revised proposal that its claim for step changes combined with its productivity adjustment results in an efficient opex. However, TG provides no evidence that its forecast opex is efficient, other than it provides its views that the base year opex is efficient. The EMRF is very concerned that neither TG nor the AER has demonstrated that the forecast quantum of opex claimed or allowed is efficient other than assert the increases from the base year are efficient. Benchmarking of the forecasts would provide a view on assertions such as these.

The AER has addressed productivity adjustments in concert with step changes. As noted in 5.1.2 above, the EMRF sees that this approach by the AER is not only reasonable but has led to it providing a conservative allowance for opex in its draft decision for TG.

5.2.5 Demand management allowance

TG has stated that it disagrees with the draft decision not to increase the demand management innovation allowance from the current allowed $1m pa included in the base year costs. TG asserts that it requires this increase in order to provide value to its customers.

The EMRF disagrees. So far, despite being provided considerable funds to date, TG has not provided value to its customers using the funding already provided.

Further, TG has claimed (and been allowed in the draft decision) additional funds for research work on demand management (energy storage and behaviour of residential solar) under the NCIPAP program.

Before consumers are levied additional costs it is incumbent on TG to demonstrate that the works it has done to date with the funds provided has resulted in benefits to its customers. Until this is done, the EMRF considers that all funding of demand management research should not occur. Once there has been shown there has been benefit provided, then the issue could be reviewed to assess whether more research should be carried out. If more research is demonstrated as appropriate then TG should focus its research on demand management for transmission networks rather than the widespread processes it now undertakes

5.2.6 Debt raising costs

TG asserts that the AER is incorrect in not including the costs for supposed liquidity requirements.

This supposed cost is new to the regulatory arena dreamt up by consultants under the employ of NSPs as a new way to get more money from consumers and has not been claimed in previous NSP resets. In particular, because of the way TG gets its debt, it is not a cost that TG actually incurs.

If the cost is real, the EMRF asks why has it not been sought in reset assessments before as would appear to be a cost that would have been observable? If it cannot be observed (and that is why it has not been claimed before) then it has to be seen in context with other non observable costs. Generally, the overall profitability of an NSP would indicate whether this is a real but unobservable cost as the outcome for NSP profitability would be less than the profitability expected from the regulatory allowance. In fact, NSPs have been more profitable in the past than was expected by the regulatory allowances granted by regulators indicating that this supposed cost is not real, or if it is, then it is included in the overall allowances that were granted.

By looking at the outcomes for NSPs on a high level, there is no reason to increase the opex allowance for this supposed but unobservable cost as it is already embedded in the regulatory approach used to set allowances.

5.2.7 Summary of TG views

Effectively, TG has rejected most of the substantive issues raised by the AER in its draft decision and as a result has revised its opex claim down a little from the amount it initially sought.

The EMRF considers that the revised opex claim remains ambit and TG has not demonstrated a real need for the additional opex claimed.

5.3 Summary on opex

The EMRF is concerned that the AER draft decision for opex is conservative but despite this, the EMRF considers that the AER draft decision on opex is not unreasonable. What is just as important is that the draft decision on opex, when the forecast opex is benchmarked against the partial factor productivity controls (ie total entry/exit point voltage, circuit length, maximum demand served, MVA of downstream capacity) highlights that the AER allowance is less efficient than the efficiency of the base year. The TG revised opex is even more inefficient when assessed against the same measures.

The EMRF notes there is an important aspect of the AER assessments of the efficiency of the TG opex that TG totally overlooks. Even using a number of different techniques to assess the TG opex needs, the AER conclusions deliver similar outcomes which demonstrate that the AER approach and conclusions are internally consistent. This is a stark contrast to the TG assertions that only parts of the opex can be forecast based on past outcomes and that other parts can only be predicted based on a unique basis through a bottom up assessment.

The EMRF considers that the AER approach using multiple tools giving similar assessments, is more likely to identify what is efficient, than the TG approach.

TG rejects the bulk of the AER assessments (in terms of actual money involved) of the draft decision on opex. The EMRF does not consider that TG has introduced sufficient new information or argument in its revised proposal to cause the AER to resile from the opex allowance determined under the draft decision.

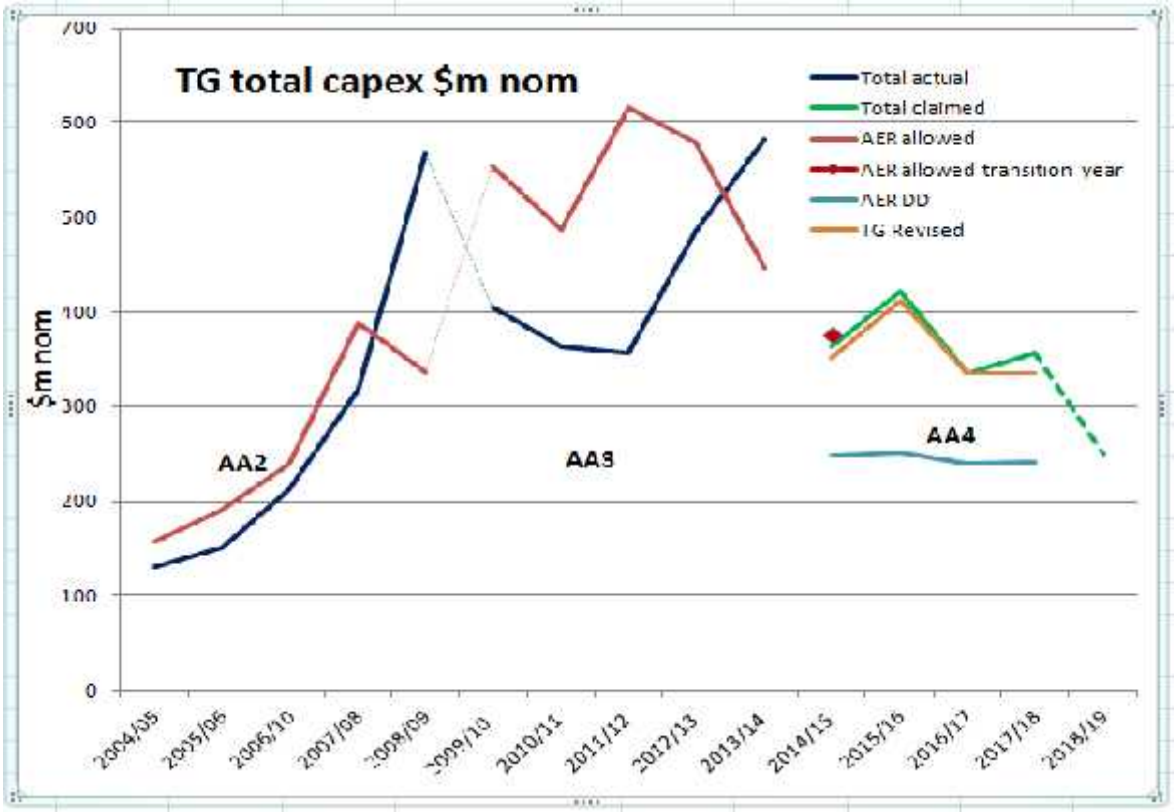
6. TransGrid Capex

The AER draft decision trimmed considerably the capex claimed in the TG proposal, although the AER did accept the TG capex proposals for augmentation, customer connections and non-network needs. The AER rejected the capex for replacement, security and compliance and strategic property acquisitions.

The EMRF had also identified particularly these same three elements of capex for close attention supporting the AER consideration that TG had made excessive claims. The EMRF notes that TG has accepted the AER draft decision with the exception of these three areas.

Overall, the AER draft decision removed some $465m of capex from the TG proposed capex and effectively, except for some minor adjustment on augmentation capex, the TG revised proposal is much the same as its initial proposal.

The following chart highlights the AER draft decision and the slight move by TG on its capex needs for the next period.



Source: Derived by EMRF from TG applications, AER decisions, AER draft decision and TG revised proposal

The effective difference between the AER draft decision and the revised proposal relate to the same three aspects. These are discussed in the following sections.

6.1 Land acquisition

The AER has accepted that there be some land acquisition (Beryl) and acquisition of easements in the ACT under transmission lines already installed. The EMRF accepts that these acquisitions need to be implemented

There are four land acquisition proposals that are in contention - Maraylya, Surry Hills, Richmond Vale and Powering Sydney's future.

6.1.1 Maraylya

The issue to acquire (or not) land is heavily dependent on the forecasts of future demand. However, even on the highest forecast demand, the need for augmentation on a regional basis is at least 15 years hence. Further, the history of forecasting in recent times shows that forecasts are generally high rather than low. This means that there is a strong view that even on the highest forecast demand, it is more than likely that the forecast will continue to fall rather than increase.

With a history of consistent over estimation of future demand by all forecasters, the EMRF is of the view that consumers of today should not be required to fund the acquisition of land that is unlikely to be needed for 15-20 years or more. If the land is acquired now and is not needed for 20 years then current consumers would be required to pay interest amounting nearly three times (in real terms) the purchase price of the land using the proposed TG cost of capital[12].

Whilst there is an expectation that the price of the land might increase in the future, and therefore acquiring the land now at a lower price might seems to be efficient, the overall cost to consumers for land that will be idle for such a long time is significant.

The EMRF agrees with the AER that acquisition for the Maraylya land which is most unlikely to be used in the next 15-20 years is not efficient and should not be permitted. This is therefore an overt attempt by TG to bank land and

[12] Even if the TG forecast for the need for the land is used (ie 15 years hence) consumers would pay twice the land value (in real terms) purely in the expectation that it might be required

increase the TG asset base at the cost of the consumer, and is frankly unacceptable.

TG has advised that it disagrees with the AER draft decision as it considers that the acquisition is efficient. This observation by TG is made without even calculating the interest costs that consumers will be required to fund over the next 20 years. This omission by TG is quite disturbing and shows that it has not really addressed the cost/benefit of the acquisition or carried out an impact assessment in the interests of consumers.

6.1.2 Surry Hills

The AER is correct to exclude the purchase of the Surry Hills land if it already owned by another regulated network.

In its revised proposal, TG advises that the current owner (Ausgrid) is proposing to sell the land next year. This needs to be confirmed by Ausgrid and the disposal being included in its revised proposal. Neither the AER nor TG provide comment on why Ausgrid does not see a use for the site and is willing to dispose of it.

The need for the site under the current forecasts is that it will not be required for 20 years or even longer. For consumers to fund the purchase of the site now for use in more than 20 years time will impose a cost of over three times the value of the site. Whilst the current forecast is that demand for electricity in the vicinity will be at least 20 years there is no certainty that growth in demand will actually occur as forecast. Over such a long time period, there may well be other new technologies and alternatives available to TG to address the need if and when it arises.

There is a proposal by TG that the land could be used by others in the interim and generate some revenue to offset the costs for holding the land. This is true, however, the risk as to whether this is actually achieved (even if another use is found for the intervening period), and if it will generate sufficient funds to offset the holding costs are all aspects where consumers will carry the risk.

The EMRF considers that even if Ausgrid does decide to sell the site, the costs and risks to consumers are too great over such a long time to make the acquisition efficient. The EMRF does not consider the AER should permit the acquisition even if Ausgrid does decide to dispose of the land.

TG disagrees with the AER draft decision as Ausgrid has confirmed it will dispose of the site. What TG fails to do is demonstrate that the cost of the acquisition and the interest payments consumers will have to make over the

period whilst the land lies idle, really does reflect a benefit compared to the cost. The simple analysis undertaken by the EMRF shows that the benefit to cost is acceptable.

6.1.3 Richmond Vale

The forecast need for the land at Richmond Vale indicates that the land is not required for 25 years or even longer if the forecasts for demand are correct. Acquisition now of this land would require consumers to pay nearly four times the value of the land (in real terms) for land that will lie idle just to prevent the possibility that future development might occur. This is totally unreasonable and the AER is correct to refuse to allow its acquisition in the reset.

TG has advised that it disagrees with the AER draft decision as it considers that the acquisition is efficient. This observation by TG is made without even calculating the interest costs that consumers will be required to fund over the next 25 years. This omission by TG is quite disturbing and shows that it has not really addressed the cost/benefit of the acquisition or carried out an impact assessment in the interests of consumers.

6.1.4 Powering Sydney's Future

The AER draft decision provided the AER view that the project Powering Sydney's Future was not to be included as a contingent project and therefore there is no need for the land acquisition to enable the project to proceed.

TG has accepted that the project need not be a contingent project and that the land acquisition is not required

6.1.5 Concluding comment

The EMRF also notes that even if the land acquisition might be considered to be prudent under historic assumptions, the EMRF has observed that there has been a major shift in technology in recent years which is changing the electricity delivery landscape immeasurably and this trend is increasing. This means that assumptions made about the needs for future substations and easements based on historic considerations might not apply in 20+ years, such as when the Surry Hills land might be needed.

For example, changes in providing electricity supplies to large buildings in the future might be considerably different in 20 years time where the building has its own solar PV generation coupled to battery storage reducing (even

eliminating) its need to be connected to the network[13]. It would only require a few buildings to follow this pattern to result in the continuing fall being seen now in electricity demand from the network.

The EMRF considers that the potential use of land by networks is often so far away that there is no certainty that any network augmentation will be required because of technology or other changes. The now very observable changes in electricity supplies are putting great doubt on the future need for the land acquisitions being contemplated by TG.

For example, TG seeks approval to acquire the land probably being disposed of by Ausgrid. With the changing approaches to electricity delivery, the EMRF considers that Ausgrid seeing no use for the land is quite telling.

6.2 Replacement and security/compliance capex

Whilst TG addresses these two capex elements of replacement (repex) and security/compliance separately, the AER draft decision tends to combine the two. The EMRF agrees with the AER approach as there is little dissimilarity between the two elements and their drivers.

In its response to the TG proposal, the EMRF identified that it viewed the proposal for repex and compliance/security as grossly overstated in regard to these elements and argued that the allowances should be severely reduced. The AER draft decision reflected this EMRF view yet in its revised proposal, TG basically rejected the AER (and EMRF) arguments.

6.2.1 Capital is limited

The prime basis for the TG rejection of the AER analysis is that historic activity is not a predictor of what is needed. Whilst the EMRF might accept this argument with regard to augmentation capex[14], the EMRF (along with the AER) considers that in the case of replacement capex the TG assertion that history is not a predictor of future needs is just incorrect.

Replacement of an asset is only required when the asset costs more to maintain in working condition than the cost of the replacement and/or when the reliability of the asset leads to levels of lower productivity causing increases in the cost of the product the asset provides. In this regard, it

[13] See appendix 1 which highlights such potential
[14] Which is driven by changes imposed on the network

important to note that the supply of capital for replacement of assets is not a limitless resource as implied by the TG proposal. Therefore there must be an economic assessment on whether to replace or repair.

As capital is a limited resource, then the amount of capital available for replacement is also limited, forcing a firm to make decisions on where best to allocate the scarce resource. The TG assertion that the amount of replacement capital must be what is considered necessary regardless of previous usage of capital for the purpose is patently inefficient and not supported by what actually occurs in the market place. This TG observation flies in the face of what a competent Board of Directors of a firm would use in its assessment of repex need - Boards more commonly assess past usage of capital for repex as a starting point as it is a very good indicator of what might be needed in the future, particularly as replacement capital is considered to be a recurrent cost to the firm.

TG comments that if the network had been developed consistently over time, and assets reached their end of life as planned, then replacement capex might be considered to be recurrent. No capital intensive operation operates in this manner. Further, directors have to face capital availability constraints and therefore have to limit capital even if there is sound advice that replacement is needed.

Unfortunately, we note that neither AER nor TG place significant reliance on this very pragmatic and real-world observation.

6.2.2 Benchmarking and trend analysis

The AER has carried out some benchmarking work on capex and concluded that TG was not the most efficient user of capital and therefore the AER instituted a deeper examination of why this might be the case. Accordingly AER appointed consultant engineer EMCa to examine, not so much the projects proposed (although this was also done) but to examine the TG processes that led to the TG conclusions that more repex was needed.

What the EMCa review highlighted is that TG processes were excessively conservative. This conservatism resulted in conclusions that led to premature replacement of assets, that TG's risk analysis led to excessively high outcomes of risk and that the TG governance processes indicated that there was insufficient control of decisions being made.

The EMRF members advise that the conclusions reached by EMCa with respect to the assessment processes of whether an element requires replacement (or not) is consistent to what they apply when assessing their

needs for replacement. They advise that they face very stringent controls and governance processes for new capex because of the firm's constraints on capital.

However, what is just as concerning, is that the TG approach resulted in considerable waste where assets with considerable remaining life were being replaced as part of proposed total rebuilds. The EMRF has advice from its members that total rebuilds are seldom carried out and the asset is maintained with replacement of elements that are causing failures[15]. More generally, existing production lines were kept in operation and new production lines added as demand for the products increased. Under times of falling demand and/or prices older production lines are either mothballed or closed down[16]. That TG was proposing to totally replace substations rather than addressing specific elements within the substation is not efficient and does not reflect practices where capital is more clearly constrained or where firms are subject to competition. The experiences from EMRF members very much support the conclusions reached by EMCa regarding asset replacement.

Overall, the AER and EMCa assessment of the replacement capex from a high level examination of the proposed replacement capex is sound and reflects EMRF member observations of how they address repex.

In contrast, TG offers a questionable benchmarking approach to assessing repex using average asset life related to the RAB and replacement capex related to RAB as providing evidence the AER proposal is too little and that TG is operating efficiently compared to other TNSPs. The EMRF points out that any benchmarking related to RAB is flawed as the outcome reflects a number of unmeasured influences[17] which impact the benchmark outcomes. During the discussions on benchmarking during the Better Regulation process, using RAB as a control for benchmarking was rejected for this reason.

The EMRF assessment of average asset life and the impact of the proposed TG repex and the AER proposed repex is based on the TG economic benchmarking RIN page 4 which provides residual asset lives. The clear

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[15] One member noted that it still had a production line in operation that was over 100 years old and which had experienced parts replacement over the years.
[16] It is pertinent to note that TG is not proposing any closures or asset retirements because of the falling demand for its services
[17] such as the relative age of the fleets involved in the benchmarking, the amount of augmentation that had been implemented, the efficiency of the earlier expenditure, whether unnecessary assets were built into the RAB, etc

import of the actual data is that under the level of repex used over the past 7 years (ie in the later years of the previous period as well as in the current period), residual assets lives have remained relatively steady. This combined with the outturn reliability performance clearly indicates that the current level of repex has more than addressed the age of the TG network and delivered the reliability performance required by consumers. As the AER is proposing an increase in repex and security capex (albeit a small increase) then AER allowance should maintain the average life of the TG fleet as well as maintain the reliability performance as in the past.

TG refers to the reliability performance indicators as lagging indicators and therefore not representative of future needs. The EMRF (and the AER) have assessed the performance indicators relative to past repex and these reflect consistency in the trend analysis. This trend analysis approach is widely used and is consistent with how firms in the competitive environment address their needs. Therefore, the EMRF does not agree with the TG assertion that lagging indicators cannot be used to provide a trend on what is needed in terms of repex.

6.2.3 Engineering review

The AER employed consultant EMCa to examine the processes used by TG to develop their repex. This is s stark change from previous reviews where the consultant was required to examine the proposal on a bottom up basis, effectively replicating what the network had also done. Consistently the EMRF and its affiliates have been highlighting, is that a bottom up review will always result in an over-estimation of capex needs. This change by the AER to look at processes and examine proposals from a top down approach is exactly what the EMRF has been seeking from the AER for many years, as this approach reflects the practices used in the competitive sector.

What TG fails to recognise is that a top down review is essential to provide the discipline on a firm to ensure that its "needs" are not crowded out by "wants" from operating staff. A bottom up assessment reflects the "wants" and the top down assessment imposes the discipline to limit the "wants" to what the firm is able to provide and stay in business - that is, its "needs".

To ensure that the top down assessment has validity, it is essential to review how the "wants" were generated and whether the risk of not acceding to the "wants" reflects sound practices. The EMRF considers that the work by EMCa has provided a sound basis on which the AER can draw comfort that they have ensured that by not agreeing to the TG "wants" their alternative top down control still provides sufficient repex to ensure TG can still maintain the reliability of the network.

One of the key features of the EMCa assessment is analysis of the risks involved in not acceding to the TG claim for repex. This risk analysis provides strong support for reducing the repex along the lines indicated by the top down assessment.

What is intriguing is that TG asserts that it has reset its risk assessment parameters to reflect the EMCa recommendations and TG advises that the outcome of reducing the risk parameters resulted in the same outcome. This would appear to be inconsistent. If the risk is lower, then the need for repex would commensurately be lower too. This statement by TG would support a view that its current approach is flawed.

TG commented on the EMCa observation that TG had planned more "large discrete options" (ie greenfield options) rather than implement other (less expensive) options (ie brownfield options). TG asserts that the EMCa observation is flawed as TG considers greenfield options provide more efficient outcomes than brownfield options. The EMRF disagrees and points out that its members tend to implement brownfield options as a matter of course as the overall costs are more efficient and might use greenfield options when a new production line is to be implemented. It is brownfield refurbishment that allows production lines to be still in productive use many years after the economic life of the initial asset build has passed. It is also important to note that brownfield options require less capex at any particular point in time and this reflects the limitation on capital for reinvestment that firms operating in a competitive environment have to recognise in order to stay competitive and keep their shareholders content with the returns they get.

TG makes the observation that EMCa is incorrect in its contention that TG has not examined lower cost options. The EMRF has no reason to doubt the EMCa view because it recognises that TG has an incentive to propose more expensive options within its proposal. By doing so, this allows TG to later identify lower cost options and thereby under-run its capex allowance. In the past, the only benefit of doing this was in the time value of reducing capex in the early years of a regulatory period, but under the new capital expenditure savings scheme, TG will not only garner the time value of capex not used but a quantified bonus in using less capex.

6.2.4 Low span remediation

The AER agreed with the EMRF that the claim for security/compliance capex needed to be reduced and proposed a reduction by 30% (reflecting the review by EMCa of the controls and governance on capex) but that the

allowance was otherwise reasonable for all aspects other than the low span remediation project where it had considerable concerns.

The AER approach on low span remediation consisted of a detailed risk management approach highlighting that the risks identified by TG were overstated and where the quantum of the work was related to historic standards used.

The original premise for the proposed works is that TG had been able for the first time to measure that some power lines were not compliant with the engineering standard AS 7000. Prior to this, power lines had been installed to a lesser clearance standard and, generally, unless it was obvious that clearances had deteriorated over time for whatever reason, no action was taken. Despite this, the risk to TG employees and others has been very low as there had been very few observable accidents that warranted action. On this basis the insurance risk was also very low.

TG's view is that the risk of no action is too high and does not comply with the regulations that it is subject to. Further, the TG revised proposal effectively illustrates that these regulations are not explicit but could be read so as to imply that TG should take action on low spans.

TG then adds that the risk of no action is greater than has been assessed by the AER and EMCa and draws attention to the economic cost of the 2009 Victorian bushfires. What TG overlooks is that the cause of the Victorian bushfires was not attributable to the transmission network and where it has been alleged electricity networks caused one of the fires, this has been identified as being a result of poor maintenance rather than from exceeding ground clearances. The EMRF considers that TG should relate the risk to outcomes and on this basis, the risk of exceeding ground clearances is not supported by the facts. In fact, easement clearing is more of a risk than substandard span clearances.

TG makes reference to the court case against Country Energy (now Essential Energy) where insufficient clearance under power line led to injury. What TG fails to point out is that Country Energy could have avoided the risk by other means than doing nothing.

The AER draft decision provides a conservative approach to the allowance and provided TG with funds to implement low cost strategies to minimise the risk of future injury, but not the full amount claimed by TG.

The AER assessment highlighted that TG had not identified or elected to use lower cost options for addressing the core problem. Countering this TG

provided a view that the most effective solution to the issue was to "eliminate the hazard altogether". Whilst the EMRF does not disagree with this view, it points out that commercial considerations must be addressed as part of the solution[18]; such interim solutions can be as effective as the "eliminate" solution until the power line needs replacement due to old age or when it needs upgrading for larger power flows.

TG has failed to look at the issue of lower cost solutions as part of the overall process for developing and maintaining the reliability of the network in the long term. Whereas the AER approach examines the actual risks, and points out the problem might not be a great as asserted by TG (eg in the number of spans that are significantly outside standard) and identifies there may be lower cost solutions that would be suitable until there is a requirement to carry out major works on the offending power line when the low spans would be rectified as part of the major works.

The EMRF also points out that some of the problem areas might well disappear if the loading on the power lines continues to fall as consumers use the networks less.

6.2.5 The amount of repex provided

It is clear that the suite of approaches the AER has taken to address what seemed to be an excessive claim for repex, are all internally consistent. The benchmarking indicated that the claimed repex was excessive. The trend analysis supported the initial view that repex reductions were needed. The engineering assessment of the processes and governance explained why the claimed repex was more than should be required in order to maintain reliability. The detailed engineering analysis quantified the excess there was in the claim. When this excess is removed, the outcome of the repex allowance then becomes consistent with the earlier analyses undertaken (ie trend and benchmarking) thereby closing the loop on what the top down review had indicated.

The fact that all of the different AER assessments are internally consistent and each tends to support the conclusions reached from other assessments indicates that the AER draft decision is correct with regard to repex and security/compliance capex. This adds considerably to the view that the AER top down assessment is more likely to be closer to the efficient frontier than the TG assessment based on a bottom up assessment.

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[18] In it assessment of the VBRC requirements, TG does not highlight that both the VBRC and the Victorian government recognised they need to be cognisant of commercial considerations and that the cost to eliminate the risk was just too great for the community to bear.

In its revised proposal, TG asserts that what it initially claimed was needed and is efficient; it had reached this conclusion based refuting the analysis undertaken by the AER which had used a number of different tools which all delivered similar conclusions. The EMRF is not convinced that the TG approach has provided an efficient level of repex and considers that the comprehensive AER assessment is closer to the efficient allowance for repex than that proposed by TG.

What TG fails to recognise is that what the AER has provided is a "bucket of money" of capex for TG to use in the most effective manner. If TG is convinced that it really needs more capex it can overspend on capex during the regulatory period and prove ex post that what was spent was efficient. If it can do this then the overspend will be included in the RAB.

Equally TG can use the allowance provided and prioritize the funds so that the maximum value for consumers is achieved. If the outcome is that reliability is maintained, then the allowance will be demonstrated as being efficient. If reliability falls, then it was not efficient, TG will incur a penalty through the STPIS but consumers will suffer more; such empirical analysis will provide TG with ammunition to seek increased repex at the next reset in just three years time.

If TG does not use the allowed capex and the reliability is enhanced, TG will earn bonuses under the CESS and the STPIS (which is what the incentive program is meant to achieve) and the AER will be seen to have been too conservative with its allowances.

Overall, the EMRF is of the view that the AER allowance for repex is probably conservative based on the historical repex and reliability outcomes achieved over the last decade.

6.3 Contingent projects.

The EMRF notes that TG has removed the "Powering Sydney" project from the list of contingent projects

The EMRF noted that the AER agreed with the "reinforcing southern NSW" project subject to a change in the trigger events but TG has not accepted the AER proposed words for the trigger event.

The EMRF is concerned that there is considerable doubt about whether the project will commence in the next three years due to views that demand is still seen to be falling or is static, and that the commitment of more wind farms will be dependent on government decisions on the renewable energy target (RET).

The EMRF also notes that under the NCIPAP, ratings of power lines involved in the southern reinforcement will be increased further reducing the likelihood of the need for this work during the next three years. The EMRF therefore supports the AER decision to impose more stringent triggers for this project.

6.4 Conclusions

The EMRF considers that the detailed examination by the AER and its consultant provides a strong basis for setting the TG capex at much lower levels than that claimed by TG, despite the additional arguments provided by TG in its revised proposal

The EMRF sees that the AER assessment process utilizes a number of different methodologies to assess the reasonableness of the TG proposal and these different methodologies all result in similar outcomes demonstrating there is internal consistency in the AER allowance. In contrast TG in its revised proposal has rejected the AER conclusions maintaining that its bottom up assessment provides a more efficient outcome that the AER approach.

The EMRF is not convinced by the TG arguments that the AER is in error and therefore the EMRF considers the AER draft decision should apply in relation to the allowed capex.

7. TransGrid Efficiency gain

The EMRF notes that the AER draft decision on the Efficiency Benefit Sharing Scheme (EBSS) addresses the EBSS so that the EBSS and the opex allowance assessment are internally consistent. The EMRF agrees that this is essential.

Despite earning a reward for under-running its opex in the most recent period, TG has not used the principles behind the EBSS to set its forecast opex at previous resets and thereby has earned its rewards from a mix of efficiency improvements and "gaming" the regulator. The Better Regulation program aims to prevent unearned rewards from being given to networks which is to be achieved by the strict application of its guidelines by the AER.

The EMRF considers that the AER has interpreted the EBSS correctly in its assessment included in the draft decision and that TG has attempted to subvert the integrity of the EBSS in its revised application.

The intent of the EBSS is where the network is incentivised to reduce its overall costs (ie reach the efficient frontier) and for these efficient costs be used as the basis for setting future costs. As a reward, consumers are prepared to allow the network to have the benefit of reducing costs for a period of time into the future, replicating what might occur for a firm operating in the competitive market.

TG's attempts to subvert the essential simplicity of the scheme through arguing about what should be or should not be included in the EBSS; the TG approach, does not reflect the reality that in a competitive market, the source of all under-runs and the impost of all over-runs is effectively immaterial[19] to a firm subject to competitive pressures. This means that if a firm incurs a greater cost than it budgeted for, this still impacts the bottom line and the competitive position of the firm.

Following this logic, the AER is correct in including the source of all under-runs and over-runs in the assessment of the reward attributable to TG. For TG to argue that certain cost elements should be excluded from the assessment of the reward could result in consumers paying a reward for something for which they never received a benefit and might never benefit from in the future.

TG has specifically sought to exclude from the EBSS the under-run in costs it achieved from the vegetation clearance contract issue (even though it is probable that TG is unlikely to incur the cost in the future) and savings from any TG under-

[19] This is not to say that the firm will not take immediate action to limit its exposure to the over-runs

run on the money provided by consumers to carry out the demand side innovation program.

Similar comments apply to the costs for insurance. Whilst TG asserts that the costs for insurance are exogenous, this is not entirely true. In fact, much of the cost for insurance relates to the number and size of claims made. The number of claims (and their size) is related to the manner in which TG operates its network and the actions it takes to minimise the likelihood of damage that might necessitate a claim on its insurer. This provides support for the AER decision to not only set its opex forecast on actuals including insurance but to include the insurance cost within the EBSS.

The EMRF considers that the changes TG wants to make to the EBSS are not warranted and detract from the very premise on which the EBSS is based in an attempt to replicate the rewards and penalties that are faced by firms operating in the competitive sector.

The EMRF therefore supports the AER draft decision and rejects the changes TG wishes to make

8. Service standards

In its response to the TG proposal, the EMRF suggested that the caps and collars for the performance targets should be 1.5 SD rather than the 2 SD used previously by TG and the AER. The AER pointed out that the 2 SD was preferred because a tighter cap/collar range would provide a disincentive once the cap/collar was exceeded. The EMRF acknowledges this but comments that the same disincentive applies using 2 SD - the only difference being that the likelihood of exceedance using the tighter cap/collar relationship will be greater with 1.5 SD than using the 2 SD.

The EMRF also commented that during the current period, TG increased its replacement capex (although still remaining under the overall capex allowance) and this would have contributed to TG gaining a bonus under the performance element of the STPIS - that is consumers contributed to TG gaining the bonus.

In its draft decision, the AER has commented that by using the recent average performance and allowing a similar amount of replacement capex, it has balanced the capex incentive with the performance incentive and therefore using historical averages is internally consistent. However, the EMRF notes that the AER draft decision provides TG with an increase in replacement capex which should result in an improvement in performance. This means that the historic performance is more likely to be exceeded than not, providing a bias in favour of a bonus being paid.

Where the EMRF has a major disagreement with the AER is in the AER decision to approve the NCIPAP in its entirety and not to adjust the performance targets to reflect that a number of the NCIPAP projects are designed to improve network performance. Nearly half of the NCIPAP projects proposed will result in improvements in outturn performance, yet the AER draft decision (whilst acknowledging the impact of repex on performance) totally overlooks the impact of the NCIPAP.

When the bias in repex[20] is added to the benefits to performance resulting from the NCIPAP projects, the EMRF considers that the AER has failed to ensure that there is a clear balance between the various incentive programs affecting performance, repex and NCIPAP.

The second leg of the STPIS is the market impact component of TG performance. Again the EMRF notes that a significant number of the NCIPAP projects will result in improving the impact of the network on the market. Yet there is no proposal by

[20] This bias is that increased repex above the historic usage will increase the likelihood of higher reliability compared to lower reliability

either TG or the AER to adjust the market impact component for the impacts generated by the NCIPAP. This is a significant oversight in the draft decision.

9. TransGrid NCIPAP

The EMRF made its views on the NCIPAP program very clear in its response to the TG proposal and is aware that its views are supported by its affiliate MEU. Whilst the EMRF supports the concept of the program it considers that its implementation leaves a lot to be desired.

In particular, the EMRF is very concerned that the wording of the NCIPAP seems to indicate that if the amount of funding for the NCIPAP projects is less than 1% of MAR, the TNSP is still entitled to be paid 1.5% of MAR if it completes the projects listed. If this interpretation is correct, it indicates that the AER has carried out some very sloppy wording in its NCIPAP guideline. The EMRF expects that the AER will carry out an immediate assessment of the NCIPAP wording to verify or otherwise if the EMRF interpretation is correct. If the EMRF is correct, then the AER must rectify the wording as a matter of urgency to prevent what is clearly an inappropriate use of consumer funds being included in the TG reset.

The AER draft decision has accepted the NCIPAP program submitted by TG and endorsed by AEMO. The EMRF is appalled by this element of the draft decision. That in its revised proposal TG has accepted the AER draft decision for this element is fully understandable as the EMRF considers that the projects proposed and the rewards from the NCIPAP is a "licence to print money" for TG.

It is obvious that there has been no close assessment of the program proposed despite the assertions by the AER that it has examined in detail each of the projects.

For example, the AER states that it has identified (page 11-17 and 11-18 of attachment 11):

- "for every transmission circuit or injection point on its network, the reason for the limit for each transmission circuit or injection point
- the total operational and capital cost of each priority project
- the proposed value of the priority project improvement target of each priority project
- the current value of the limit for the transmission circuits and/or injection points which the priority project improvement target is seeking to improve, and
- the ranking of the priority projects in descending order based on the likely benefit of the priority project on customers or wholesale market outcomes"

The AER also states that it (page 11-18 of attachment 11):

> "…considered information provided by AEMO in determining the benefits of the proposed priority project improvement targets and whether the net benefit of each project resulted in a material benefit"

The EMRF finds the reliance by the AER put on the AEMO endorsement are not supported by the facts.

For example, TG priority project 26 proposed by TG and endorsed by AEMO discusses the issue of energy storage. The TG proposal does not have any quantifiable payback yet the AER has accepted the project because AEMO has assessed that it will provide a "material benefit". The EMRF accepts that research into energy storage might provide value but this is work that has been or is already being carried out by many other organizations. TG comments that:

> "The benefit of the [project a] pilot installation would to trial and evaluate the concept for potentially more widespread use"

There is no doubt that energy storage will provide a benefit to networks and this has already been proven. The EMRF considers that a project of this type is not appropriate for a transmission NSP as such an installation would be better suited for use within a distribution network where the storage can be located nearer to the point of congestion. The EMRF is already ware that trials for up to 1 MW of energy storage are already in operation so the EMRF questions why TG has the repeat to exercise. Unless the work is unique to the TG network, then the EMRF does not see why TG should be carrying it out

Project priority 23 is another research project and is to assess the behaviour of residential solar installations on networks. TG asserts that the project payback will be 5 years, yet, work on this issue has already been carried out by others and the results are already known. Why does TG need to repeat the work, especially as it has only a peripheral impact on decisions that TG might make to improve its network performance? The EMRF considers that it is inefficient for TG to replicate work already carried out by others and adds little to the overall knowledge base.

Both of projects 23 and 26 are related to demand management which are not strictly issues that AEMO should be providing endorsement or not as they are not related to the operation of the TG network. The EMRF considers that AEMO should not be "endorsing" research projects and neither should the AER be accepting such endorsement.

Even though both projects are related to demand management, it has to be noted that TG has sought additional funding under the demand management innovation

allowance as well[21]. Why then are those projects included and accepted into the NCIPAP when there is another avenue for TG to seek funding? The EMRF notes that the AER draft decision has not approved an increase in the demand management innovation allowance in the opex (and provides sound reasons for its exclusion) yet has allowed for similar work within the NCIPAP program. This is quite extraordinary!

Project priority 27 is about installing communications to ANM, Hume and Albury substations. TG has already advised its customers that there is more than adequate spare capacity in the network in that region, so the EMRF questions what real value there is in installing these communications will deliver. As AEMO should be aware of this fact, the EMRF questions why AEMO has endorsed the work.

Further, as the pay back on the project is some 18 years, the EMRF questions the commercial value in the work as at TG request and with AER draft decision agreement, communications such as these will be depreciated in a period of time less than the pay back.

These are just three very obvious projects where it is quite clear that the AER and AEMO have not carried out due diligence on the NCIPAP program.

The EMRF is not convinced that the AER has properly assessed the list of projects claimed by TG for inclusion in the NCIPAP program or that AEMO has properly applied the responsibility the AER had placed with AEMO to assess the projects.

In its response to the TG proposal, the EMRF made a number of comments about the specific projects included in the NCIPAP program. None of these issues were addressed by the AER in the draft decision. It is therefore quite apparent that AER has blindly undertaken a "tick the box" approach to this proposal from TG without examining what has been sought (except that it totals less than 1% of MAR) and that AEMO has endorsed the program, clearly without any detailed assessment otherwise it would have rejected the research projects at east.

The EMRF also noted in its response to the TG proposal that the NCIPAP program will impact on the rewards generated under the performance targets and the market impact component of the STPIS. The EMRF has commented in more detail on this in section 8 above. The fact that these impacts were not even identified by the AER in its draft decision is most concerning and highlights that the AER has merely addressed the NCIPAP in a purely procedural fashion without

[21] And the AER has effectively allowed $1m pa to continue as this was included in the base year opex

examining the likely outcomes and the inevitable biasing that will result in increasing the potential for TG to gain rewards.

The EMRF considers the AER has failed to take the long term interests of consumers into account when assessing the NCIPAP.

The EMRF remains very concerned that the NCIPAP program is being used by TG to generate a much better outcome for TG than was the original intent of the program. Effectively, if TG is allowed to use this program in this manner, consumers will be required to effectively pay, not only for the projects themselves and the bonus TG gets from completing the projects, but for TG earning enhanced revenues from other incentives which are related to the benefits that the NCIPAP projects will achieve.

10. TransGrid Pricing methodology

The EMRF is extremely interested in the outcomes of the revised TG pricing methodology as the EMRF is very concerned that current TG pricing does not reflect the costs for the service provided. The AER has an obligation to ensure there are no anomalies in network pricing through the pricing methodology approved. However, investigations of the current pricing methodology by EMRF affiliate MEU indicate the outcomes do not support that this requirement has been met.

The EMRF was actively involved in the TG review of its pricing and was pleased with the outcome of that review, even though the EMRF still considered there were aspects where the pricing methodology could be further enhanced to make the pricing more equitable.

When the AER draft decision was released the EMRF was quite disappointed with the draft decisions on the new pricing proposal. The EMRF considered that by rejecting key elements the AER had not accepted that the new pricing proposal incorporated a number of the aspects that consumers considered improvements. As a result of these concerns the EMRF was involved in a number of discussions with TG and the AER in an attempt to

- Retain at least some of the improvements
- Enable the early implementation of the new pricing approach
- Set the scene for further discussions with TG for implementation of consumer views on other aspects of the approach where such discussions are warranted or recommended by the AER.

Resulting from the draft decision, TG has made a number of changes to its proposed pricing methodology, some of which overcome concerns raised by the AER but which still retain the intent of the new concepts and other changes which reject aspects consumers had considered were improvements. Despite these rejections, the EMRF considers the revised proposal is an improvement on what is currently being used by TG.

As it now appears that timing is critical to ensuring the proposed TG pricing methodology, the EMRF has decided that it will support the new TG pricing methodology despite its concerns with a number of its features.

The EMRF notes that there is a potential clash between when a pricing methodology has to be put into operation and the timing of the release by the AER of the Final Determination on the TG revenue reset. It would be an extreme pity if the one element of the TG consumer engagement which was seen by consumers

as being very good is prevented from being implemented because of bureaucratic interference.

The EMRF notes that TG is required to provide a new pricing proposal by 27 February 2015 in order to comply with the new IRTUoS rules. As this will have to be reviewed and approved by the AER there is no reason why the AER could not include the other aspects of the TG pricing methodology in is review and approval of the IRTUoS element.

The EMRF plans to engage with TG to address the aspects of the pricing methodology where the EMRF considers further improvements can be made to achieve a more cost reflective outcome for consumers and where cross subsidies are eliminated.

Appendix 1

Batteries to revolutionise energy, says MIT's Donald Sadoway

BY JOHN KERIN, AUSTRALIAN FINANCIAL REVIEW: PUBLISHED: 27 JAN 2015 16:36:38 | UPDATED: 28 JAN 2015 00:11:25

Manhattan and Wall Street could face crippling power shortages within two years, according to Donald Sadoway.

But the Massachusetts Institute of Technology electrochemist has a solution – install his liquid metal batteries in skyscrapers.

Professor Sadoway, who is visiting Australia to spread the word on how he believes the low-cost, long-life cells could revolutionise power generation, says Manhattan's crisis could be brought on by ever-increasing demands of the modern high-technology financial system exceeding the capacity of the electricity transmission lines between the island and New York State.

"In the financial district, the demand for electricity keeps going up, up, up, with all the servers becoming more powerful," Professor Sadoway said.

"There is plenty of electricity generated in the New York area but it's not on the island of Manhattan and predictions suggest that by 2016 at present growth rates the demand will exceed the capabilities of the existing transmission lines," he said.

He said a new transmission line could be built but it would cost $1 billion and be unpopular with the public because no one wants the unsightly poles in their back yard. That's where liquid metal batteries come in.

"Traditional lead acid solid state batteries are expensive, have high maintenance, and have limited lifespans; liquid metal batteries could potentially last for up to 300 years because they can be recharged thousands of times while still retaining capacity," Professor Sadoway says. "You are generating electricity in the morning when the demand is low you continue to store it in the batteries and then you can transmit to supplement supply at times of high demand," he said.

Professor Sadoway was named one of *Time* magazine's most influential people in 2012 for his work improving battery technology.

He is in discussions with the Australian National University over establishing a research lab and setting up a potential test site for the battery technology in Hay in western NSW.

Up until now the development of large scale batteries for the power grid has eluded researchers with excess electricity causing fluctuations which can result in blackouts.

Professor Sadoway predicts liquid metal batteries will also have an impact on climate change and the environment by reducing the amount of coal, oil, diesel or liquefied natural gas power stations need to burn to produce the same electricity output.

While he says the technology also promises to increase the efficiency of solar and wind power plants because the batteries can release electricity at night or when there is no wind.

Professor Sadoway expects resistance from the traditional electricity industry because the technology presents such a challenge to existing business models.

He has established his own company, Ambri, in Boston to commercialise the technology. Backed by investors such as Microsoft’s Bill Gates and French giant Total, he expects to deploy its first commercial batteries from late this year.

Australian partner and adjunct professor of sustainability at Boston University Gordon Hinds said talks were being held with the ANU on a research lab to test more metal combinations and assist in reducing the temperature at which the battery operates. Mr Hinds said the long-term goal was to establish Australia as a liquid metal battery manufacturing hub with the domestic market alone estimated to be worth “billions of dollars”.

The Australian Financial Review