ElectraNet Transmission Network Revised Revenue Proposal 2008 - 2013

REVIEW OF ELECTRANET REVISED REVENUE PROPOSAL

- for the Australian Energy Regulator
- Final Report
- 24 April 2008

ElectraNet Transmission Network Revised Revenue Proposal 2008 - 2013

REVIEW OF ELECTRANET REVISED REVENUE PROPOSAL

- Final Report
- 24 April 2008

Sinclair Knight Merz
ABN 37 001 024 095
100 Christie Street
PO Box 164
St Leonards NSW
Australia 1590
Tel: +61 2 9928 2100
Fax: +61 2 9928 2500

Web: www.skmconsulting.com

Executive Summary

ElectraNet is the Transmission Network Service Provider in South Australia, and has made an application for a revenue cap decision to apply for 5 years from 1 July 2008. Following the AER's Draft Decision on the ElectraNet revenue proposal, ElectraNet submitted a revised revenue proposal on 18 January 2008.

The AER engaged SKM to review elements of ElectraNet's Revised Revenue Proposal, where it has raised objections to the Draft Decision or provided other new information that may affect the Final Decision.

This report presents SKM's review and findings in relation to the matters referred to it for review by the AER.

Weather stations project costs

ElectraNet's original Revenue Proposal included $4.1million for a number of weather stations that would allow for real-time rating of a number of transmission circuits. The AER's draft decision reduced the allowance for this project to $2.2 million, based on SKM's recommendation. ElectraNet has rejected these costs, and provided additional information supporting a revised cost estimate of $3.6 million.

The additional information provided by ElectraNet shows that low-cost communication options are not available at many of the proposed sites, and this will result in higher costs than SKM had previously estimated.

SKM has reviewed ElectraNet's revised costs, and compared to installed costs for similar projects, considers ElectraNet's costs are above efficient costs, including allowance for the remote communications required. SKM recommends revised costs of $2.9 million for this project.

Land and easement escalation

ElectraNet's original Revenue Proposal based assumed escalation in land costs on historical Australian Bureau of Statistics (ABS) data over the period 2000 to 2006, equating to an average 10% nominal price increase. SKM's assessment of the revenue proposal considered this period was too short and that longer term data over the period 1989 to 2006 was more appropriate, giving an annual 8.17% nominal increase. SKM's recommendation was adopted by the AER in its Draft Decision.

In its revised revenue proposal ElectraNet has rejected this position, and resubmitted its original land price escalator for consideration, based on its belief that land prices in South Australia are growing strongly, and supported by analysis by BIS Shrapnel.

The BIS Shrapnel report notes that the early 1990s was characterised by stagnant or falling land prices as a result of the property boom in the late 1980s, and that this will affect the average growth factors if the period 1989 to 2006 is used. Based on recent price increases and a strong economic outlook for South Australia BIS Shrapnel supports ElectraNet's position that the period 2000 – 2006 provides the best basis for estimating future land price growth to 2013.

SKM has considered these views, but does not consider there is a compelling case to demonstrate the period 2000 – 2006 is the best basis for estimating future price growth. SKM notes the effect of recent price rises on affordability, interest rate increases and the global economic outlook provide an argument for lower growth in the future. While noting the property market tends to be cyclical, ElectraNet and BIS Shrapnel have not indicated when they expect the current cycle to peak, or whether this is likely prior to 2013.

In the absence of a compelling case to demonstrate price growth to 2013 will necessarily follow the growth rates of 2000 – 2006, SKM considers the proposed escalators are unreasonable, and that long term growth rates provide the most reasonable basis for estimating future trends. With the potential for a cyclical peak prior to 2013, SKM considers this position provides a reasonable balance of optimistic and pessimistic views on future property prices.

SKM recommends 6.5% (actual) real growth for 2007, and 4.9% long term average real growth for the period 2008 to 2013 should be used as a basis for estimating land price movements.

Non-labour construction cost escalation

ElectraNet's original revenue proposal included estimates for above-CPI increases in the capital cost of network infrastructure, which it applied to its capital forecast. These estimates were based on extrapolation of recent trends in commodity prices and economic forecasts of labour costs in South Australia.

While accepting that prices are likely to increase faster than CPI, SKM did not agree that extrapolation of recent trends provided the best basis for estimating future prices, when credible economic forecasts were available indicating some inputs were likely to fall rather than continue growing per recent trends. SKM recommended a revised set of escalators which the AER accepted in its draft decision.

ElectraNet has accepted that the use of economic forecasts is a reasonable basis for constructing cost escalators, but has proposed an alternate set of cost escalators based on analysis by CEG. The

CEG approach uses contract prices on futures markets in preference to economic forecasts, and proposed more transparent economic forecasts than those used by SKM.

SKM agrees with the approach adopted by CEG, but does not consider some of CEG's assumptions to be reasonable, in particular that economic forecasts should be adjusted to calibrate them with futures market prices, and that a single day's market prices represent the best view of the market.

On this basis, SKM has proposed a revised set of escalators, using the same data sources and broad approach as CEG, but with unadjusted economic forecasts, futures market prices averaged over a month to smooth volatility, and has also used the most up to date data available.

In calculating the escalation factors to apply, SKM has also allowed for the timing of capital spend throughout each year, and that the full year's escalator will not apply to all of this spend. SKM has allowed for half of the first year's price growth to apply on average to capital spent in 2008-09, with subsequent years index calculated from mid-point to mid-point of each year.

SKM has calculated and recommends the following network capital cost escalators:

Weighted real escalation	2006-07*	2007-08*	2008-09	2009-10	2010-11	2011-12	2012-13
Annual Real price increase	3.35%	1.92%	1.05%	1.28%	1.14%	0.98%	1.04%
Cumulative inflators							
Adjust BPOs to June 08	1.034	1.053					
Annual escalation to December			1.005	1017	1.029	1.040	1.051

Contingent projects

ElectraNet's Revenue Proposal included 17 contingent projects. In its Draft Decision, the AER considered that two of these projects should not be included because they did not satisfy the Rules requirement that Contingent projects relate only to prescribed transmission services, and one of the trigger events could not be objectively verified.

ElectraNet has revised the scope of these projects, and proposed a new trigger event.

SKM has reviewed ElectraNet's revised proposal, and on the basis of the additional information supplied, considers the revised contingent projects are reasonable.

Corrective maintenance costs

In its review of ElectraNet's original revenue proposal, SKM considered there was scope for cost savings in corrective maintenance as a result of increased routine maintenance being carried out by

ElectraNet, and recommended ElectraNet's estimates be adjusted to remove assumed growth in these costs for the last two years of the upcoming regulatory period.

In its revised submission ElectraNet has rejected this approach as unreasonable in that it is not based on sufficiently robust analysis of the efficient costs of a prudent network operator. SKM accepts its approach is not based on detailed analysis, which is not possible with the data available, but continues to hold the view that the increased routine maintenance effort allowed in the draft decision should lead to reduced corrective maintenance costs over time.

SKM reconfirms its recommendation that corrective maintenance costs be held constant at $5.39 million for the years 2012 – 2013.

Maintenance projects

In its review of ElectraNet's original revenue proposal, SKM recommended two changes be made to opex maintenance projects proposed by ElectraNet:

- Cost estimates be adjusted to reflect uncertainty in the scope of the proposed projects; and
- That some projects should be considered to be capital, on the basis that a significant proportion of some systems were being replaced.

In its revised submission ElectraNet has provided additional information regarding the scope of these projects, and the proportion of the systems being replaced. Based on this additional information, SKM has accepted ElectraNet's revised submission as reasonable.

Service Target Performance Incentive Scheme

In its review of ElectraNet's original revenue proposal, SKM recommended changes to a number of targets, collars and caps for parameters used to calculate the S Factor for service standards performance.

In its revised submission ElectraNet has accepted most of SKM's recommended changes, but has rejected SKM's caps and collars for the loss of supply frequency parameters.

ElectraNet has proposed an alternate method for setting caps and collars, based on a one standard deviation approach, as accepted by the AER for setting some parameters in previous determinations.

SKM notes that the AER's previous determinations have adopted a one-standard deviation approach only where two standard deviations produced impractical targets. SKM understands the preferred approach is to set caps and collars to take into account outlying performance for 1 year in 10, corresponding to 5% - 95% probability distribution, or two standard deviations.

In this instance, however, the 5% - 95% probability points proposed by SKM fall inside the one standard deviation band, and SKM accepts the parameters proposed by ElectraNet are reasonable. SKM notes this should not be taken as a blanket endorsement of using one standard deviation to set caps and collars in the future.

Contents

In preparing this report, SKM has relied in good faith on information provided by ElectraNet and others, in addition to independently gathered data and research. Various documents, data and reports provided by ElectraNet, AER and other third parties have been used as inputs to SKM's review and the views it has formed as expressed in this report. Except as otherwise stated in this report, SKM has not independenty verified or audited the accuracy or completeness of the information, and accordingly the validity of SKM's views and conclusions is contingent on the accuracy and completeness of the information provided.

SKM has formed its views based on the information available to it at the time, but cannot guarantee the accuracy or completeness of data, or that it is free from misinterpretation or errors.

Projects, costs, demand and other projections of future values are inherently uncertain. While SKM has endeavoured to review forecasts and the likelihood of future events in line with good industry practice and the data available, it cannot and does not guarantee any specific outcomes.

This report has been prepared for the Australian Energy Regulator to assist it in its consideration of the revenue application for ElectraNet, and should not be relied upon by any other party or for any other purpose. SKM will not be liable to any other person that relies upon or otherwise reaches conclusions based on the content or findings of this report. Without limitation this includes any negligent act or omission of SKM.

Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
A	20 March 2008	B Kearney	B Kearney	20 March 2008	Working draft
1	31 March 2008	B Kearney	J Butler	31 March 2008	Draft report
2	11 April 2008	B Kearney	J Butler	11 April 2008	Final Draft for comment
3	15 April 2008	B Kearney	J Butler	15 April 2008	Final Draft
4	24 April 2008	B Kearney	M Farr	24 April 2008	Final Report

Distribution of copies

Revision	Copy no	Quantity	Issued to
A	1	1	AER
1	1	1	AER
1	1	1	AER
1	1	1	AER

Printed:	28 April 2008
Last saved:	28 April 2008 09:04 AM
File name:	QH43507R104.doc
Author:	Ben Kearney
Project manager:	Ben Kearney
Name of organisation:	Australian Energy Regulator
Name of project:	Review of ElectraNet Revised Revenue Proposal
Name of document:	Review of Revised Revenue Proposal 2008 – 2013
Document version:	Final
Project number:	QH43507

1. Scope

The AER has engaged Sinclair Knight Merz (SKM) to provide technical advice and to review certain aspects of ElectraNet's revised revenue proposal.

Specifically, SKM has been engaged to review and provide comment on:

- the weather station project costs raised in sections 4.2.1 and 5.2.1, and appendix A2—*Transend's use of weather stations to support the real-time rating of transmission lines*, and the reassessed project scope and costs
- the land and easement escalation raised in section 4.2.3 and appendix A3—BIS Shrapnel report "*Outlook for land values in South Australia"* January 2008, and whether this justifies a change to SKM's previous advice on land escalation rates
- the non-labour construction cost escalation raised in section 4.2.4, appendix A4—CEG report "*Escalation factors affecting capital expenditure forecasts*" January 2008, appendix A9—*Breakdown of network capital projects into component costs*, and whether the new information justifies a change to the AER's draft decision on materials escalators
- the contingent projects raised in section 4.7 and appendix A7—*Revised proposed contingent projects*, in particular, whether (a) the resubmitted project scope for the Northern Transmission Reinforcement project provides only prescribed transmission services (b) the Parafield Gardens West project provides prescribed transmission services (c) their triggers are objective and verifiable
- the validity of the arguments raised in section 5.2.2 in relation to corrective maintenance costs
- the validity of the arguments raised in section 5.2.3 in relation to maintenance projects
- caps and collars for loss of supply event frequency parameters raised in section 8.2 and the methodology proposed in support of the resubmitted caps and collars…

2. Introduction

Background

ElectraNet is the principal Transmission Network Service Provider in South Australia, and owns and operates a high voltage transmission network. ElectraNet's current revenue cap decision made in 2002 expires on 30 June 2008, and it has made an application for a revenue cap decision to apply for 5 years from 1 July 2008.

The Australian Energy Regulator (AER) is responsible for economic regulation of transmission services, and is currently assessing ElectraNet's revenue application. Following the AER's Draft Decision on the ElectraNet revenue proposal, ElectraNet submitted a revised revenue proposal on 18 January 2008.

The AER engaged SKM to review elements of ElectraNet's Revised Revenue Proposal, where it has raised objections to the Draft Decision or provided other new information that may affect the Final Decision.

This report presents SKM's review and findings in relation to the matters referred to it for review by the AER.

3. Capex

3.1 Weather stations project costs

3.1.1 Issue under review

- the weather station project costs raised in sections 4.2.1 and 5.2.1, and appendix A2—*Transend's use of weather stations to support the real-time rating of transmission lines*, and the reassessed project scope and costs

3.1.2 SKM Review

In its original Revenue Proposal ElectraNet included $4.1million for construction of a number of weather stations that would allow for real-time rating of a number of transmission circuits, under an expectation that these would deliver market benefits by removing constraints on some generators for some of the time, thereby allowing more optimal generation dispatch.

In its review of ElectraNet's original Revenue Proposal, SKM recommended revised costs of $2.2 for these projects, which was accepted by AER in its Draft Decision. ElectraNet has rejected SKM / AER's costs of $2.2 million, and provided additional information supporting revised costs estimates of $3.6 million.

SKM considers the additional detail provided by ElectraNet provides relevant new information regarding the issues faced in constructing weather stations, in particular that many of the proposed sites are remote where communications will be a significant problem. SKM also considers there will be additional benefits from establishing communications to the Baroota substation.

SKM has noted and considered the information supplied by Transend relating to the design and costs of its weather stations used for real time line ratings. SKM has also considered costs for recent similar projects and remote telemetry projects that it is aware of.

SKM has accepted that there will be additional communications costs at a number of the proposed sites, however it does not consider the proposed solution provides the lowest practical cost in some instances, and that appropriate consideration of alternative solutions and trade-offs between costs and benefits have not been fully identified.

The cost's used in ElectraNet's revised submission are summarised in the following table:

Item	No. required	ElectraNet cost	SKM cost
Weather station	15	$50k	$50k
Mast, power and 3G comms etc for remote sites (1)	11	$100k	$75k
Engineering for 3G solution (1)	1	$100k	$50k
Additional UHF Radio comms where 3G not available - remote site (2)	6	$150k	$125k
Additional UHF Radio comms where 3G not available – substation (2, 3)	1	$200k	$150k
Total ($2005/06)		$3050k	$2525k
Total (escalated)		**$3620k**	**$2854k**
(Implied total escalator)		18.7%	13.0%

SKM notes:

- (1) 3G is now effectively "off the shelf" technology, and SKM considers the task of engineering a solution (effectively interfaces between 3G equipment and the weather station and SCADA) is not a major task. SKM is aware of similar remote telemetry projects where costs have been below $100k, and considers $75k to be a more reasonable estimate.
- (2) 3G facilities are not currently available at many sites, making UHF radio the most effective solution. UHF radio is essentially a line of site solution, and some sites may require more than one "hop" in order to provide an effective communications link.
- (3) Communications to Baroota substation will have additional benefits (safety, SCADA), and should proceed regardless of whether a weather station solution is adopted.

SKM's assessment of the efficient costs for the weather stations is shown in the table above, based on installed costs for a recent remote telemetry project for a water utility that SKM has reviewed. SKM's total is some 17% lower than ElectraNet's, and SKM has also applied a lower escalator[1] in accordance with other recommendations in this report.

3.1.3 SKM Conclusion and Recommendation

SKM notes the additional detail provided by ElectraNet, and agrees this provides a better basis on which to estimate the costs. SKM does not consider ElectraNet's proposed costs to be efficient, and recommends costs as shown above be adopted.

SKM's recommended cost for this project are $2.53M ($2005/6) which equates to $2.9M ($2007/08 real) when escalated in accordance with the escalators recommended in this report.

[1] SKM has applied SKM's recommended annual escalators assuming costs are based on June 2006 costs, and also allowed a 4.6% portfolio risk weighting in accordance with ElectraNet's revised submission.

3.2 Land and easement escalation

3.2.1 Issue under review

- the land and easement escalation raised in section 4.2.3 and appendix A3—BIS Shrapnel report "*Outlook for land values in South Australia*" January 2008, and whether this justifies a change to SKM's previous advice on land escalation rates

3.2.2 SKM Review

ElectraNet's original Revenue Proposal based assumed escalation in land costs on historical Australian Bureau of Statistics (ABS) data over the period 2000 to 2006, equating to an average 10% nominal[2] price increase. SKM's assessment of the revenue proposal considered this period was too short and that longer term data over the period 1989 to 2006[3] was more appropriate, giving an annual 8.17% nominal increase. SKM's recommendation was adopted by the AER in its Draft Decision.

In its revised submission ElectraNet has not accepted the revision to its land and easement escalation recommended by SKM and adopted by the AER in its Draft Decision, and has re-submitted a proposed 10% real escalator for consideration.

The land and easement cost escalator is used to inflate land prices for the purposes of calculating capex required for new easements, and also opex related to land tax on existing land and easements.

In support of its decision to reject the SKM / AER treatment of land price escalation, ElectraNet has provided a report by BIS Shrapnel that stated:

> *"The average of increases observed for the past 17 years (as suggested by SKM) includes a decade of depressed property values and land values. Accordingly, using it will, we believe, significantly understate the escalation of land values over the 2008 to 2013 period. Indeed, there is a significant risk that land price escalation will be higher than over the first part of this decade".*[4]

[2] ElectraNet has indicated it considers its original figure was 10% *real*. The commentary in ElectraNet's revenue proposal p57 suggests it is real without stating so explicitly, while the figures used in its escalation calculations are applied as if it were 10% *nominal*.

[3] The longest period possible using ABS data, with the state land prices series 6401 starting in 19889.

[4] BIS Shrapnel "Outlook for Land Values in South Australia", January 2008.

BIS Shrapnel's report notes that property prices are cyclical, and analyses land prices from the period starting around 1980, which showed a strong peak in 1989, followed by falling or stagnant prices in the 1990s, with the recovery in prices starting early in this decade. BIS Shrapnel expects this growth to continue through the forecast period to 2013, underpinned by a strong economic outlook for South Australia.

SKM accepts BIS Shrapnel's premise that property prices are cyclical, and that the period included in the 17 year data set used by SKM includes a period of falling or stagnant prices in the early 1990s, particularly for commercial property.

SKM does not consider, however, that the additional information provides a sufficiently solid argument to support the decision to select the year 2000 as the starting point for trend analysis that will apply for the forecast year. While noting that property prices are cyclical, it does not identify when the current cycle is expected to peak, and whether this will occur during the current period.

SKM also notes a number of factors that may tend to deviate land prices from recent strong growth in the future:

- The strong growth this decade in property prices has resulted in housing affordability falling to historically low levels, and a further increase of more than 50% in real terms may not be practical, noting the proposed land escalator is significantly higher than the proposed wages escalator;
- Several recent interest rate rises, and anecdotal evidence this is starting to impact property sales;
- Recent global financial events that have reduced the global growth outlook, and further increased effective interest rates; and
- Some negative economic news that counterbalances the strong economic outlook driven by resource developments in South Australia, including the recent closure of the Mitsubishi factory in South Australia.

Given this information, SKM does not consider there is a compelling case that demonstrates the most recent 7 years is the best indicator of land price growth over the next 7 years. This approach fails to take into account the potential for reaching a cyclical peak, or at least a slowing in growth from recent trend growth.

Without a compelling reason to support the proposition that growth over the period 2000 to 2006 is the best basis on which to forecast growth during the forecast period to 2013, SKM considers this approach is not reasonable, and that long term data is the best basis on which to forecast future growth.

Using what it considers to be the most credible and robust data series available from the ABS, SKM considers the most reasonable basis for allowing for future land price escalation is to use the longest period available, corresponding to the period from 1989 to 2007.

3.2.3 SKM Conclusion and Recommendation

SKM does not consider the additional information supplied by ElectraNet in its Revised Revenue Proposal provides a compelling case to change the Draft Decision, and SKM continues to hold the view the use of short term trend data over the period 2000 – 2006 is not a reasonable basis on which to forecast land price escalation over the period to 2013.

On balance, SKM reconfirms its recommendation from our earlier report that the long term 1989 – 2007 property escalator be adopted. SKM notes that ElectraNet has applied its land and easement escalation for 2006/07 of 10% real. However, this escalation should be based on the actual 2006/07 ABS data for each land component which is now available, weighted according to ElectraNet's forecast capex program and adjusted for actual inflation. This actual ABS data should also be used to derive the long-term historical escalation rate for land and easements.

Adjusting for actual inflation (ABS All capital cities) and weighting according to the breakdown of ElectraNet's forecast capex for residential, commercial and rural land, SKM recommends an annual real escalator of 6.51% (historical actual) be used for 2007, and 4.94% be used for the years 2008 – 2013.

Real escalation factor	2006-07 actual	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Land and easements	6.5%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%

3.3 Non-labour construction cost escalation

3.3.1 Issue under review

- the non-labour construction cost escalation raised in section 4.2.4, appendix A4—CEG report "*Escalation factors affecting capital expenditure forecasts*" January 2008, appendix A9—*Breakdown of network capital projects into component costs*, and whether the new information justifies a change to the AER's draft decision on materials escalators

3.3.2 SKM Review

In its original Revenue Proposal, ElectraNet identified cost pressures that were tending to increase the cost of capital projects at a rate faster than CPI, that is real price escalation. ElectraNet's proposed escalators were based on extrapolation of recent trends in input components to its capital costs such as copper and steel, and economic forecasts of labour.

SKM did not consider these costs to be reasonable, as there were credible economic forecasts predicting future prices significantly different from recent trends. SKM recommended alternate escalators based on these economic forecasts, which the AER adopted in its Draft Decision.

While accepting that the use of forecasts instead of trend based analysis is reasonable, ElectraNet has not accepted the SKM / AER escalators, and has proposed a new set of escalators in its Revised Revenue Proposal. Its revised escalators are based on work by Competition Economics Group (CEG)[5], that moves away from trend based forecasts and adopts and builds on the SKM approach to capital cost escalation based on economic forecasts of various input prices.

In general, SKM considers the approach used by CEG, and the weightings applied by ElectraNet, to be reasonable.

SKM notes the CEG methodology used two data sources to develop its aluminium and copper price forecasts: LME 27 month forward contracts for short-term price forecasts out to April 2010 and consensus economics' long-term price forecasts from March 2010 to 2017. SKM agrees with CEG that in the short-term LME forward contract prices provide the best estimate of the price of aluminium and copper for a relevant future date. SKM's forecasts accepted in the Draft Decision were developed using a similar approach, but it considers that adopting the consensus economics forecasts provides additional transparency and rigour to developing the materials cost escalators.

In the case of Oil prices, NYMEX futures exist to 2015 and hence the issue of transitioning to an economic forecast is not an issue.

SKM has reviewed the weightings proposed by ElectraNet, and has found that after adjusting for the move of the CBD underground cable component to the contingent project budget, the weightings are close to those originally used by SKM, though presented in a different form. On this basis SKM considers ElectraNet's proposed weightings to be reasonable.

CEG has also proposed that market data, in the form of LME and NYMEX futures contract prices, provides a more credible predictor of future prices than economic forecasts, noting that futures prices do not extend for the full period of the forecasting period for some input commodities. Linear interpolation is used to estimate a price path from futures market data to economic forecast data. SKM accepts this view and approach.

CEG also considered SKM's forecasts to be out of date, and used the most recent data available at the time of its report to ElectraNet (January 2008). SKM considers it is reasonable to use the most

[5] "*CEG Report, Escalation Factors Affecting Capital Expenditure Forecasts*" ElectraNet revised revenue proposal, Appendix A4, Available from: http://www.aer.gov.au/content/index.phtml/itemId/717171/fromItemId/717161

current data, and has updated its proposed escalators to March 2008 data and the most recent (January 2008) consensus economics forecast.

However, there are elements of the CEG methodology that SKM does not consider to be reasonable. These are:

- CEG has adjusted the consensus economics long term forecast prices.
- CEG has taken the long term (5-10year) forecast to occur at the extreme end of the date range indicated, that is the 10 year point.
- CEG has use a single day LME/NYMEX forward contract prices

CEG notes that there is a discrepancy between the economic forecast and futures price for some input commodities, notably copper and aluminium. CEG reasons that the market is a more credible predictor of prices, and has "recalibrated" the economic forecasts by adjusting future economic forecasts up by a percentage to equal the futures price at the 27 month point.

SKM does not consider this approach to be reasonable. Its view is that if we consider the forecasts to be the best information available, and are to rely on economic forecasts (including wages which forms the major component of ElectraNet's escalators) then we should not be making adjustments to those forecasts, particularly as there is not sufficient information available through the consensus economics report to understand the thinking behind the individual economic forecasts it uses.

SKM makes two specific points to support this position:

- The economic forecasters had the futures prices available to them at the time they produced their forecast, and consciously chose to forecast different values.
- The difference between the forward curve and the economic forecast at a specific point in time (27 months) could be due to relatively small differences in thinking about the timing of price cycles, rather than fundamentally different views about the long term value of the commodity price.

SKM put this position to ElectraNet and CEG, and notes that they are still of the view that the CEG approach is reasonable. CEG has stated:

> *Specifically, we observe a clear bias in the Consensus forecasts relative to our preferred forecast out to 27 months. The natural assumption is that this reflects the vagaries of the way that the Consensus forecasts are put together. It is true that this is not the only explanation. However, some evidence would be required before adopting an alternative explanation – such as that Consensus forecasts and LME forecasts would eventually meet in the future (if LME forecasts extended out far enough).*

CEG further noted the consensus forecast remain below futures prices for other commodities where there are longer dated futures contracts.

> *We find this compelling support for our presumption that the vagaries of the Consensus forecasts results in an inherently biased estimate of the price that would be observed in futures markets.*
>
> *On the basis of the above we do not believe that SKM's proposed rejection of our methodology is reasonable.*

CEG concludes:

> *Both of these positions are internally logical. However, we consider that the CEG position is the natural starting place. In our opinion, the SKM position may well be reasonable but some evidence would be required to support its adoption over the CEG position.*

SKM has considered this view, and agrees with CEG that both approaches are internally logical, and not without merit. However we remain of the view that it is not reasonable to adjust someone else's forecast without understanding the basis for that forecast. If we are to accept the view that future prices will increase at a rate greater than CPI based in part on economic forecasts, then we should rely on those forecasts as providing the best information available.

The second point where SKM has disagreed with CEG is on the point in time at which the consensus "long term" (5-10 year) forecast is taken to apply. CEG has taken this to be at the 10 year point. Alternatively, the 5-10 year price could be taken to apply for the whole of the period from 5 to 10 years. SKM considers the mid point of this time period is a more reasonable and balanced approach to the treatment of the ambiguity regarding the date at which the long term forecasts are taken to apply.

When SKM put this view to ElectraNet and CEG, CEG responded:

> *In our view, the uncertainty around the meaning of the Consensus forecast justifies a conservative approach to their use – even if there was no apparent bias at 27 months. This is the reason we adopted an assumed time frame of 10 years (at the top of the 5 to 10 year range specified by Consensus Economics).*
>
> *However, we accept that reasonable minds may disagree on this approach. While we continue to consider our approach reasonable, we do not find SKM's proposed adoption of 7.5 years unreasonable.*

SKM concludes that the mid point at 7.5 years is the most balanced and reasonable treatment of this uncertainty. Like CEG, SKM has used a linear interpolation from the 27 month futures contract price to the long term consensus economics price.

Lastly, CEG based its LME and NYMEX futures contract prices on the closing price on a single day: 2 January 2008 and 6 January 2008 respectively. SKM notes that LME futures prices can fluctuate significantly from day to day and that this approach lends itself to potentially biasing the future price. To overcome this, SKM recommend that a monthly average be used to establish the future prices for aluminium, copper and oil.

In its report CEG also notes that ABS 2314 *Copper used in the production of Power Transformers* index has increased by around one third of the LME copper price over the period 1990 – 2007, from which it is inferred that there may be doubts regarding the accuracy of using LME prices as a basis on which to predict electrical equipment prices. SKM notes this ABS series includes a mix of more highly refined "varnished wire" used in small appliances, as well as strip and busbar used in power transformers. On this basis the ABS series was not used as an input to SKM's original escalators, and the LME index weighting was based on an assessment of the component subject to copper commodity price movements, including information from transformer contract escalation clauses.

With these changes in mind, SKM has recalculated the capex cost escalators for ElectraNet. In calculating these forecasts, SKM has also made the following minor changes to the CEG method:

- SKM has updated its forecasts to March 2008 (January 2008 consensus economics forecasts)
- SKM has used monthly averages for futures prices, rather than a single day.

SKM has accepted as reasonable ElectraNet's steel, labour, construction costs and "other" escalators, though has corrected minor transposition errors.

SKM's recommended escalators are shown in the following tables:

Commodity price forecast	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-11	Jun-12	Jun-13
Exch rate fcast (Econtech)	0.75	0.82	0.87	0.88	0.87	0.86	0.85	0.84
CPI fcast (CEG)	154.3	157.5	162.1	166.4	170.4	174.7	179.2	183.9
CPI change fcast (CEG)		2.07%	2.90%	2.70%	2.40%	2.50%	2.60%	2.60%
LME Copper								
Copper USD nominal	5,058	7,089	7,859	7,512	7,166	6,676	6,185	5,694
Copper AUD nominal	6,714	8,648	9,070	8,527	8,223	7,776	7,306	6,807
Copper AUD real (2006)	6,714	8,473	8,635	7,905	7,444	6,868	6,290	5,711
Escalator (annual, real)		26.2%	1.9%	-8.5%	-5.8%	-7.7%	-8.4%	-9.2%
LME Aluminium								
Aluminium USD nominal	2,248	2,695	2,816	2,864	2,874	2,839	2,804	2,769
Aluminium AUD nominal	2,984	3,288	3,250	3,251	3,298	3,307	3,313	3,310
Aluminium AUD real (2006)	2,984	3,221	3,094	3,014	2,986	2,921	2,852	2,777
Escalator (annual, real)		8.0%	-3.9%	-2.6%	-0.9%	-2.2%	-2.4%	-2.6%
NYMEX Light Crude Oil								
Oil USD nominal	70.97	67.53	102.30	98.23	96.09	95.93	96.01	96.34
Oil AUD nominal	94.21	82.39	118.06	111.50	110.25	111.74	113.41	115.16
Oil AUD real (2006)	94.21	80.71	112.40	103.36	99.81	98.69	97.63	96.63
Escalator (annual, real)		-14.3%	39.3%	-8.0%	-3.4%	-1.1%	-1.1%	-1.0%

Weighted real escalation factor	Capex weighting %	2006-07*	2007-08*	2008-09	2009-10	2010-11	2011-12	2012-13
Real price movement								
Copper	2.4%	26.2%	1.9%	-8.5%	-5.8%	-7.7%	-8.4%	-9.2%
Aluminium	0.2%	8.0%	-3.9%	-2.6%	-0.9%	-2.2%	-2.4%	-2.6%
Crude oil	1.2%	-14.3%	39.3%	-8.0%	-3.4%	-1.1%	-1.1%	-1.0%
Steel	4.4%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Labour (EGW)	30.4%	4.0%	2.6%	2.7%	3.7%	3.4%	2.7%	2.5%
Construction costs	17.3%	7.2%	2.3%	1.8%	0.7%	0.5%	0.9%	1.7%
Other	39.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Land and easements	4.4%	6.5%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%
SKM annual real escalator		**3.35%**	**1.92%**	**1.05%**	**1.28%**	**1.14%**	**0.98%**	**1.04%**

** The 2007 and 2008 escalators are required to bring ElectraNet's 2005/06 based cost forecasts into 2007/08 dollars.*

ElectraNet's original submission only included escalation for 2007/08, on the assumption that the cost estimates were based on prices at the end of the 2006/07 year. ElectraNet has since identified

that its Base Planning Objects (BPOs) used to construct capex cost estimates are as at July 2006, and hence an additional year of escalation is warranted. SKM considers this approach to be reasonable, and that on the basis of this new information provided by ElectraNet the capex forecast should include an allowance for escalation over the 2006/07 year.

SKM notes that ElectraNet applies its real capex cost escalators over the 2008/09 to 2012/13 period in a cumulative manner in its capex model to the project cost estimates. The approach taken by ElectraNet assumes that capex is incurred at the end of a year.

Further, SKM notes that the AER's revenue model (PTRM) assumes that capex is incurred in the middle of a year. Because capex is not added to the RAB until the end of the year, the PTRM provides a half real WACC adjustment in recognition of this forgone return on capital. Therefore SKM recommends the real cumulative capex cost escalators should be applied to the project cost estimates consistent with the PTRM timing assumption for capex to provide the correct compensation for capex cost escalation.

The projects implemented throughout a particular year will not all experience the full price rise indicated by the annual escalators above. On average, only half this escalation will be seen if projects are implemented throughout the year. On this basis, SKM considers it reasonable that only half of the first year's (2008/09) escalator be applied to that year's capex. For the escalators in the following years the full previous year's escalator should be multiplied by half of the year's escalator in which the project will be implemented.[6]

SKM considers its approach to calculating the cumulative real escalators to be similar to ElectraNet's, particularly for 2007 and 2008. However, SKM has applied the half year escalator from 2009 onwards to take account of the capex timing in the PTRM.

This results in the cumulative weighted real escalators shown below:

Real escalation factor	2006-07*	2007-08*	2008-09	2009-10	2010-11	2011-12	2012-13
Adjust BPOs to June 08	1.034	1.053					
Annual escalation to December			1.005	1017	1.029	1.040	1.051

[6] Year 1 = $(1 + \text{year 1 escalator})^{1/2}$
Year 2 = $(1 + \text{year 1 escalator}) \times (1 + \text{year 2 escalator})^{1/2}$
Year *n* = $(1 + \text{year 1 escalator}) \times (1 + \text{year 2 escalator}) \times \ldots \times (1 + \text{year n escalator})^{1/2}$

3.3.3 SKM Conclusion and Recommendation

SKM concludes that while the approach used by ElectraNet and CEG provides some improvements to SKM's approach adopted in the Draft Report, there are some elements that are not reasonable. Additional information regarding component breakdowns and weightings have been accepted.

SKM recommends the escalators shown in the table above be adopted and used to escalate ElectraNet's base ex-ante capex allowance.

3.4 Contingent projects

3.4.1 Issue under review

- the contingent projects raised in section 4.7 and appendix A7—*Revised proposed contingent projects*, in particular, whether (a) the resubmitted project scope for the Northern Transmission Reinforcement project provides only prescribed transmission services (b) the Parafield Gardens West project provides prescribed transmission services, and (c) their triggers are objective and verifiable

3.4.2 SKM Review

ElectraNet's Revenue Proposal included 17 contingent projects where there was sufficient uncertainty regarding the timing or scope of these projects that it was not reasonable to include them in the ex-ante capex proposed.

In its Draft Decision, the AER considered that two of these projects should not be included because:

- In the case of the Northern Transmission Reinforcement project the proposed trigger event is not capable of objective verification, and the scope included both prescribed and negotiated transmission services; and
- In the case of the Parafield Gardens West project the scope included both prescribed and negotiated transmission services.

In its Revised Revenue Proposal ElectraNet has revised the scope and trigger event for the Northern Transmission Reinforcement project, and provided additional information in support of the original Parafield Gardens West project.

Northern Transmission Reinforcement

ElectraNet has revised the scope of the project to include only those assets required on the shared transmission network, and excluding all items they consider to be connection assets. That is, the

revised scope applies to prescribed transmission services only, and the negotiated transmission services component of the project has been excluded.

The revised scope of the project is the installation of two static var compensators (SVCs) and two capacitor banks at the Davenport substation. This project would be required to support the required level of power transfer on the shared transmission network between Adelaide and Port Augusta should the loading of the proposed Olympic Dam project exceed approximately 340 MW.

While the immediate need for this project is likely to be driven by increased loads associated with a connection that will involve negotiated transmission services, this project is located within the shared transmission network, and will be required to support the overall new loading on the network. SKM has reviewed legal advice provided by ElectraNet that supports ElectraNet's view that this constitutes prescribed transmission services, provided a Regulatory Test can demonstrate a market benefit.

SKM has reviewed this project, and is satisfied that:

- The project is likely to be necessary to support the required power flows on the shared transmission network;
- The project is located within the shared transmission network, and is classified as prescribed transmission services in accordance with the National Electricity Rules;
- The indicative scope and costs or the project are reasonable, noting ElectraNet has stated there is uncertainty regarding the required timing and scope that can only be resolved once a connection application is made; and
- The trigger for the project includes the successful application of a regulatory test demonstrating the scope is prudent and efficient.

On this basis, SKM accepts that the project relates to prescribed transmission services, the scope is reasonable, and the cost estimate is reasonable for the indicative scope at this time. The cost exceeds the threshold for ElectraNet.

The AER also rejected ElectraNet's original trigger for this project. ElectraNet has revised the trigger event for this project to be a customer application to connect and the application of a Regulatory Test for prescribed transmission services demonstrating that the proposed scope is both prudent and efficient.

SKM accepts that the proposed project estimate and trigger are not unreasonable for the given scope.

Parafield Gardens West

In its Draft Decision the AER rejected the inclusion of this project on the basis that it included a component related to negotiated transmission services. ElectraNet has rejected this position, and resubmitted the original project with additional supporting information, supporting its view that the project relates entirely to prescribed transmission services.

The Parafield Gardens West project would be required to support power flows on the shared transmission network should generator output in the Le Fevre Peninsula or Torrens Island area increase. While the need for this additional backbone capacity may be driven by a project for which there could also be a negotiated connection services component, SKM is satisfied the proposed contingent project is wholly within the shared network and is therefore classified as prescribed transmission services. In particular:

- SKM accepts that the indicative project scope appears reasonable, noting that the trigger event will be subject to a successful application of the regulatory test to establish that the project would deliver net market benefits.
- SKM accepts that the proposed project estimate is reasonable for the given scope, and exceeds the threshold for ElectraNet.

Interrelationships between contingent and ex-ante projects

It is possible that works associated with a contingent project could affect the timing or scope of one or more projects included in the ex-ante project budget. This could result in the amount allocated for an ex-ante project exceeding the efficient costs if an associated contingent project was triggered.

In order to understand whether this concern was likely to manifest itself in practice, SKM requested and received from ElectraNet analysis of any interrelationships between the proposed contingent projects and other projects already included in the ex-ante capex allowance. This analysis shows:

- The Eyre Peninsula contingent project requires the Port Lincoln Reactive, Cultana and Whyalla projects to already be in place. If the contingent project was triggered it could result in some of these ex-ante works being brought forward.
- The Yorke Peninsula contingent project requires the Kadina East project to be in place, and hence if triggered could result in some of these works being brought forward.
- The Southern Suburbs contingent project trigger assumes the Southern Suburbs ex-ante project has already been implemented in 2011. While there could be some interaction between these projects, the interrelationships with other constraints means it is unlikely this project would result in underspending or deferral of ex-ante funds.
- The Fleurieu Peninsula contingent project could, under certain circumstances, defer the need for the Southern Suburbs contingent project.

- The Northern Transmission Reinforcement project requires the Davenport Reactors project to be in place. If triggered prior to 2013 this would require the second reactor replacement to be brought forward.

On this basis, SKM is not concerned that contingent projects if triggered are likely to result in windfall gains from the ex-ante project budget. If anything, the triggering of some contingent projects could place additional pressure on the ex-ante budget.

Should such a situation arise, SKM would expect ElectraNet's contingent project application to the AER would flag any such interrelationships, and take these into account when determining the required revenue adjustment.

3.4.3 SKM Conclusion and Recommendation

SKM is satisfied that the revised scope and trigger for the Northern Transmission Reinforcement project meet the requirements for a Contingent Project.

SKM considers that based on the additional information supplied by ElectraNet the Parafield Gardens West project relates to prescribed transmission services, and meets the requirements for a Contingent Project.

SKM notes the clarification by ElectraNet and acceptance by the ESIPC that the trigger event should be *forecast* load and not actual. The ESIPC forecasting methodology includes a number of tests for project commitment before a project is included within its load forecasts. SKM agrees with this approach.

SKM further notes that it is not concerned about interactions between contingent and ex-ante projects giving rise to windfall gains to ElectraNet in the event that contingent projects are triggered, however it would expect that any such impacts would be noted by ElectraNet in its application for a revenue adjustment to the AER.

4. Opex

4.1 Corrective maintenance costs

4.1.1 Issue under review

- the validity of the arguments raised in section 5.2.2 of the revised revenue proposal in relation to corrective maintenance costs

4.1.2 SKM Review

Corrective maintenance cannot be considered in isolation. Corrective maintenance captures those defects which require immediate rectification. Opex projects, to a large extent, represent corrective maintenance that can be bundled into "projects" and undertaken as planned work. The summation of these two budget line items is shown in Table 1 below and shows significant increases over the current regulatory period. It is considered significant that the level of corrective maintenance fell considerably in 2004/05 as the opex project expenditure began to ramp upwards. By the base year, 2005/06, SKM believes that this work already shows the increases expected from more intensive asset inspection.

- **Table 1 Summation of corrective maintenance and opex projects over the current regulatory period ($ 2007/08).**

	2003/04	2004/05	2005/06	2006/07	2007/08
Corrective Maintenance	$ 5,112,189	$ 2,516,743	$ 4,278,607	$ 5,162,978	$ 4,532,701
Opex Projects	$ 1,616,489	$ 4,169,211	$ 9,144,165	$ 10,339,134	$ 10,334,560
Total	**$ 6,728,678**	**$ 6,685,955**	**$ 13,422,772**	**$ 15,502,112**	**$ 14,867,260**

The growth in opex projects is considered to be a "catch-up" of outstanding corrective maintenance, and it is expected that the higher expenditure levels will address the condition of some of the high failure risk assets. SKM continues to believe that this should eventually be reflected in fewer emergency repairs.

As indicated in the SKM review, it is difficult to quantify this effect. The decision to remove any real growth in the last two years of the next regulatory period was a modelling approach to reflect the expectation that the opex projects would impact on corrective work. It was not meant to suggest a disconnect between the maintenance requirement and the assets in service.

4.1.3 SKM Conclusion and Recommendation

SKM continues to believe that by the completion of the 5 year maintenance cycle, the order of magnitude increase in opex project expenditure will result in a reduced level of emergency corrective repairs and that a roll down in the real value of corrective maintenance in the latter years of the forecast is a reasonable expectation.

SKM recommends that the corrective maintenance allowance included in the draft decision be retained.

- **Table 2 Recommended Corrective Maintenance Allowance ($m 2007/08)**

	2008/09	2009/10	2010/11	2011/12	2012/13
Corrective Maintenance	4.72	4.99	5.39	5.39	5.39

4.2 Maintenance projects

4.2.1 Issue under review

- the validity of the arguments raised in section 5.2.3 of the revised revenue proposal in relation to maintenance projects

Two issues have been raised by ElectraNet in relation to the forecast allowance for opex projects. The first relates to an adjustment recommended by SKM to account for the degree of uncertainty surrounding the scoping of opex projects. The second issue relates to a recommendation made by SKM that the secondary system opex projects planned to replace protection relays at a range of substations should be capitalised rather than expensed. These issues are considered in the following sections.

4.2.2 SKM Review

Uncertainty

SKM's initial concerns were that the condition assessment reports for lines were based on desk top reviews. The opex projects generally include the assessment and scoping of the projects, and until this is done, the scope of the work package for each project remains an estimate. ElectraNet's revised revenue proposal and subsequent responses to requests for additional information focussed on increasing the level of confidence in the accuracy of defining the 'package of work".

The scope of works for the opex lines projects was developed from a number of sources:

- Condition assessment reports prepared by external contractors/consultants – although these were completed as desktop exercises, they did include the review of defect photos and other results of inspection and defect reporting;
- Recent and planned opex and capital works on the specific assets to be refurbished;
- Defect history and operational performance records; and
- Experience, understanding and anecdotal reports from ElectraNet and maintenance service personnel.

The reliance on sources other than the desk top assessment and the combination of independent consultants, maintenance contractors and ElectraNet staff has improved SKM's confidence in the project scoping.

An error related to project naming that was detected in SKM's initial review resulted in a complete review of all the opex projects by ElectraNet to ensure that there is no overlap or other sources of error in the project listing.

Capitalisation

SKM accepts that replacement of "a small portion of relays" may not justify capitalisation of the opex protection projects. Previous advice from ElectraNet referred to "$200k for replacement of large numbers of electro-mechanical relays at 19 older sites".

The grounds for capitalisation of project expenditure would be that the project offers either, an extension of life for the substation protection system as a whole or an increase in functionality of the system as a whole. SKM accepts that replacement of a small number of electro-mechanical relays with digital relays would not necessarily provide access to the additional functionality offered by the new relays. The extension of life issue would appear to be the only justification for capitalising these projects.

Information provided by ElectraNet in response to subsequent queries included the following information.

- **Table 3 Location and scope of secondary systems opex projects**

Substation	Age of system being refurbished	% of relays to be replaced
Baroota	32	67%
Berri	39	14%
Brinkworth	39	6%
Davenport	25	4%
Happy Valley	34	11%
Kanmantoo	36	40%
Keith	33	12%
Kilburn	37	7%
Kincraig	30	28%
Mobilong	30	16%
Morphett Vale East	29	19%
Mount Gambier	36	17%
Mount Gunson	28	33%
Pimba	19	20%
Pt Lincoln	28	19%
Robertstown	23	8%
South East	19	4%
Tailem bend	29	5%
Yadnarie	30	7%

The majority of the systems being refurbished are beyond their technical/economic lives. However the proportion of the components being replaced is generally low.

4.2.3 SKM Conclusion and Recommendation

SKM recommends that the adjustment included in the Draft Determination to reflect uncertainty in the scoping of opex (maintenance) projects be removed.

SKM recommends that the secondary systems (protection) refurbishment projects that were nominated as capital projects in the Draft Determination be re-allocated as opex.

- **Table 4 Recommended Opex Project Allowance ($m 2007/08)**

	2008/09	2009/10	2010/11	2011/12	2012/13
Draft Decision Opex Project Allowance	6.12	5.62	5.65	5.57	4.48
Remove adjustment for uncertainty	0.45	0.52	0.51	0.49	0.40
Remove adjustment for capitalisation of protection systems	0.80	0.84	0.86	0.86	0.87
Recommended Opex Project allowance	7.38	6.97	7.01	6.92	5.76

5. Service Target Performance Incentive Scheme

5.1.1 Issue under review

- caps and collars for loss of supply event frequency parameters raised in section 8.2 of ElectraNet's revised revenue proposal and the methodology proposed in support of the resubmitted caps and collars…

In its revised revenue proposal, ElectraNet noted the changes that had been made to the parameters under the STPIS for the next regulatory period.

ElectraNet has "… *implemented all aspects of the AER's draft decision in its revised Revenue proposal with the exception of those related to the methodology for setting caps and collars for the loss of supply event frequency parameters.*"[7]

The revised revenue proposal discusses an alternative approach for setting cap and collar values to the method adopted in the AER draft decision, using a precedent established in the SP AusNet draft decision of August 2007.

5.1.2 SKM Review

ElectraNet suggested that SKM adopted the curve-of-best-fit approach for the Loss of Supply events, whilst not demonstrating that the approach taken by ElectraNet was unsound. It was never SKM's intention to suggest that ElectraNet was unsound in its approach, only that SKM was seeking to be consistent in its chosen approach across all of the parameters, including availability, average outage duration and loss of supply event frequency.

ElectraNet raise what SKM accepts are valid points regarding recent determinations, in which the approach of using standard deviations as a guide to setting caps and collars was considered sound. In the review of the SP AusNet submission, it was proposed to use standard deviations as a guide to set the cap and collar values either side of the target, which remained as the arithmetic average of the recent 5 year performance. The original submission by SP AusNet proposed asymmetric caps and collars, with the maximum bonus being at 1 standard deviation above the target, and the maximum penalty at 2 standard deviations below the target.

This was challenged in the AER draft decision, alternatively suggesting that, if a normal distribution was assumed to be applicable to the dataset, setting the caps and collars ideally 2

[7] ElectraNet, *Transmission Network Revised Revenue Proposal*, 18 January 2008, section 8.1, pp 64

standard deviations either side of the target should capture approximately 90% of the annual performance results. That is, the cap and/or collar event should only be exceeded once in every 20 years.

SKM agreed that this approach applied more rigor to the process, and looked to establish a standard methodology. However, as was acknowledged during the SP AusNet review, the dataset for the historical results is not necessarily a normal distribution, and so it was appropriate to modify the approach on occasions to avoid setting caps and collars at unattainable levels eg. availability above 100%, or number of events less than 0. Similar intuitive adjustments were necessary in the review of the proposed Powerlink parameters. In these instances one standard deviation was typically used to avoid setting a cap or collar outside of the possible range of outcomes. The STPIS and SP AusNet decisions note that it is allowable to have asymmetrical caps and collars, that is the cap and collar can be set at differing distances from the target.

As an alternative approach, SKM used the past 5 years of ElectraNet historical performance data and plotted best fit curves, typically a Weibull distribution which is asymmetrical and hence avoids the issue of setting unattainable levels. Whilst the statistical confidence in the best fit curves generated is somewhat limited by the small data set, it does allow for an analysis of the data to be conducted that considers the nature of the distribution of the historical data. To simulate the nett effect of using 2 standard deviations either side, SKM adopted the 5% and 95% cumulative probabilities as the cap and collar values.

SKM has compared the results achieved by the two methods, as a practical and reasonable outcome for caps and collars should see comparable results from the alternative approaches.

Table 5 summarises the cap and collar values generated by the two methods.

Table 5 Loss of Supply Event Frequency parameter values

Parameter	Method	Collar	Target	Cap
LOS > 0.05 system mins	Best fit curve	10	8	6
	Standard deviations	11-12	8	4-6
	ElectraNet proposal	11	8	6
	SKM recommendation	11	8	6
LOS > 0.20 system mins	Best fit curve	5	4	2
	Standard deviations	6-7	4	1-2
	ElectraNet proposal	6	4	2
	SKM recommendation	6	4	2

The cap values developed for the Loss of Supply Event Frequency indices using the two methods were comparable, whilst the collar values generated using the curve-of-best-fit approach were less

than 1 standard deviation above the target values, which is not in line with the previously accepted approach based on standard deviations.

ElectraNet has noted in its revised revenue proposal that 1 standard deviation has been previously accepted by the AER as the basis for setting caps, and that on this basis it has submitted revised values. SKM notes the 1 standard deviation approach has only previously been applied where a 2 standard deviation approach is not practical or reasonable.

SKM is of the view that the caps and collars should be set to exclude only extreme results, defined as 1 year in 10. This is consistent with the 2 standard deviation approach previously accepted by the AER, and with the 5% and 95% probability points used in SKM's assessment of ElectraNet's original Revenue Proposal.

On this basis, we do not consider the approach ElectraNet has taken to deriving its proposed caps and collars for the loss of supply frequency parameters is reasonable. SKM considers the starting point should be a 1 in 10 year approach.

However, SKM accepts that when working with small data series, such as the 5 years of historical data used to set the STPIS parameters, some discretion must be allowed. Factors to be considered would include the standard deviation of the data set, and whether the caps and collars set would provide for a "neutral" S-Factor based on historical results.

In this instance, SKM's previously proposed collar values fell inside 1 standard deviation, and SKM agrees that in this instance moving to 1 standard deviation is reasonable.

Therefore, whilst SKM remains of the opinion that the best fit curve approach is most useful in assessing the caps and collars for parameters, as it considers that natural distribution of the data, SKM accepts that the collar values proposed by ElectraNet in this instance would be more appropriate with consideration of previously accepted statistical approaches, and in maintaining an equivalent incentive for a bonus and penalty for falling below target performance.

SKM notes that in previous decisions, one standard deviation has generally been recommended only where two standard deviations would result in impractical outcomes.

5.1.3 SKM Conclusion and Recommendation

SKM considers that the collar values nominated by ElectraNet for its two Loss of Supply (LOS) parameters appear reasonable, and would recommend that the AER accept these amendments.

Considering the results that would be achieved under the new LOS parameters using the most recent 5 years of historical data, the proposed collar values maintain the revenue neutral case for

the LOS > 0.05 system minutes that existed under the original parameter proposed in the Draft Decision, whilst the revised collar value for the LOS > 0.20 system minutes slightly improves the revenue neutral case. The proposed values from ElectraNet are comparable with those calculated using previously accepted methodologies, and SKM considers that these amended values will continue to provide sufficient incentive for performance improvement in line with the objectives of the AER STPIS.

6. Other Submissions Received

SKM has reviewed the other submission received on the Draft Decision, and incorporated those views into its thinking and consideration in preparing this report. In particular it notes the robust and detailed analysis undertaken by ESIPC, and its overall endorsement of the findings of the Draft Decision.

SKM also notes the lengthy submission by ECCSA, which raises a number of concerns that SKM has addressed below.

Reference	SKM summary of ECCSA Submission	SKM Response
Executive Summary P4	ECCSA remains concerned that: · the incentives to replace used and useful assets before their economic lives are complete, are still high · particularly with opex claims, the AER has not been rigorous in its review and has demonstrated regulatory bias (details are provided in the body of the submission)	SKM reviewed in detail the condition assessment and other information supporting the case for replacement of assets, and considers ElectraNet's proposed replacements to be reasonable. SKM has not identified anything it considers "regulatory bias", and based its earlier recommendations regarding opex on rigorous assessment.
Executive Summary P5	ECCSA compares historical pool and transmission prices.	SKM does not see the relevance. Pool prices are driven by the demand / supply balance in the NEM (including other states), fuel prices, water availability, and startup costs of various generator types. Transmission prices have separate drivers, and there is no reason transmission charges should remain a constant proportion of pool price.
Section 1.7 P12	ECCSA does note in its review of the SKM report that there might in fact be a bias in the SKM approach to extrapolating its views from particular projects to all projects. SKM also effectively comments that its estimates for work carried out by ElectraNet were lower than the actuals incurred by ElectraNet, yet still considers that the ElectraNet actuals are acceptable, adding to ECCSA concerns.	SKM reviewed a sample of projects, selected in conjunction with AER. From its assessment of this sample, it found no evidence of systemic or material inefficiency in ElectraNet's costs, and on this basis has accepted ElectraNet's costs as reasonable. In some instances there were minor differences (in both directions), and SKM does not consider ElectraNet's estimates to be systemically inflated.
Section 2.1 P14	The MEU agrees that demand in SA currently is, and is likely to continue to, outstrip consumption. This is a result of the increasing use of air conditioning for residential, commercial and office use. Despite this the AER has made little attempt to require ElectraNet to provide clear and unequivocal pricing measures to better manage demand, in the SA electricity system which clearly shows a declining load factor.	ElectraNet's pricing is based on contracted demand, and hence includes an incentive for customers to reduce the peak demand at connection points. ElectraNet is not responsible for final pricing to consumers.
Section 3.2 P19& 20	"It is concerning that SKM did not assesses the revised capex program for acceptance under the regulatory test. That the AER has not even examined this aspect is just as concerning." Just as concerning, is that neither SKM nor AER	The regulatory test is not required for replacement assets. SKM reviewed condition assessment reports and other supporting information regarding replacement projects, and was satisfied they

	consider that this sudden need for increased spending on replacement projects warrants deeper investigation, being satisfied with a bald statement from ElectraNet that a focusing on asset management resulted in the change.	were justified.
Section 5.2 P25 & 26	The ECCSA remains concerned that the approach taken by ElectraNet and tacitly agreed by the AER is that assets will be replaced before the end of their economic life. ECCSA members advise that in a competitive environment assets are kept operating well beyond the depreciated life if at all possible, as by doing so the businesses can reduce the effective LRMC for their assets. As a standard rule in a competitive environment assets are only replaced when the IRR assessed for replacing them exceeds ~25%. The ECCSA and its affiliates have consistently raised the issue of unnecessary replacement of assets. The AER makes reference to the asset monitoring programs that network owners have (will) introduced but the details of these and the outcomes are not reported**.**	SKM assessed ElectraNet's approach to asset management and replacements, and found replacement decisions were based on condition, not age, and an assessment of the safety and reliability risk posed by various assets. While some assets may be replaced earlier than what is typically considered to be a "standard" economic life, many remain in service well beyond this age, and SKM notes ElectraNet's proposal to refurbish some assets to extend their useful lives. An IRR assessment of costs to ElectraNet would be problematic, as it would face minimal costs resulting from a failure, while the value to consumers of lost load is orders of magnitude higher. SKM considers the overall level of replacement to be prudent and in keeping with good industry practice.
ElectraNet Opex		
Section 6 P28 & 29	In fact SKM has used a mix of base case and zero base assessments to arrive at its recommendations. This approach is from the view point of ElectraNet the best of both worlds, but it allows ElectraNet to argue for increases in opex where it considers the base case is too low, and to retain the base case where the opex is as needed or where there is some "fat". This approach to using base case resets is incorrect as it can be manipulated (as shown) to achieve a specific goal that benefits the TNSP. The use of base case must be entirely consistent for all ElectraNet's application – the base is set and only identified step changes which are not included in the base case should be implemented. The ECCSA considers that both SKM and the AER are incorrect in allowing a hybrid approach to be used.	SKM applied considerable scrutiny to ElectraNet's proposed zero-based costs on the basis that it considered this to be a significant risk area. This review found on the whole that the proposed costs, while higher than historical, were prudent and necessary for the reliable operation of the network in the future. SKM considers ElectraNet has made a compelling case for the need to re-assess some aspects of its maintenance practices, and that it is in the best interests of consumers to allow an increase in some areas to safeguard future reliability. The alternative to a hybrid approach would have been to zero-base the entire opex budget, including those areas that had not changed. SKM considers this would have been a time-consuming and inefficient process.
Section 6.2P31	SKM has observed that ElectraNet still needs to "catch up" with an historic underspend on opex refurbishment and this is part of its justification for agreeing that the ElectraNet claims should be granted. Both SKM and AER have agreed that ElectraNet should be allowed an even higher amount for opex than did the ACCC, on the premise that ElectraNet has only just found out that its assets are in a worse state than they expected in 2002. What has obviously occurred is that ElectraNet was permitted funds for significant refurbishment works in 2002, underspent its opex allowance by some $17m, did not use its allowance to refurbish assets	SKM's report notes that it investigated in some detail the cause of the historical underspend in opex, and was unable to find compelling evidence this was due to an underspend in direct maintenance costs. ElectraNet provided a breakdown of opex savings showing the cost savings were in other areas and ongoing. SKM highlighted this as an area of concern to be scrutinised at the subsequent revenue review.

	as intended, has transferred this work to the new period and will retain the benefits of the opex under-spend. This is clearly unacceptable.	
Section 6.4 P33	In appendix 3 to this submission, ECCSA makes a number of observations about the SKM assessments of various opex elements. In particular, ECCSA points out that: · SKM seems to agree with ElectraNet's conclusion that the ElectraNet arrangement with ETSA (where ETSA carries out all the field work for ElectraNet) delivers "market based pricing for maintenance services" but SKM delivers no proof or even much analysis to demonstrate that this assumption has a factual basis. · SKM makes the assertion that using the Powerlink asset management approach will be beneficial (and this is not denied by ECCSA) but implicitly draws the conclusion that therefore the costs developed by ElectraNet for following the program are efficient. The AER also accepts these assessments as providing efficient outcomes, but carries out no analysis to even substantiate the claims let alone respond to ECCSA's concerns. The ECCSA submits that this, again, demonstrates poor regulation by the AER..	SKM notes that competitive processes were used to source these maintenance contracts, and reviewed supporting information in detail. It is not practical to provide in detail evidence for every aspect of SKM's findings. SKM reviewed the asset management approach (based on that used by Powerlink) and determined it to be in line with good industry practice. Costs were also reviewed, and unless noted otherwise were found to be efficient.
Section 6.5 P33 & 34	As a result of this effective recognition of these projects replicating capital works, SKM has considered that many of the projects should be capitalised and not expensed as opex is. This should result in ElectraNet carrying out a Regulatory Test assessment rather than being able to avoid this critical step in demonstrating the need for the works. The AER also pointed out that as there is some uncertainty of all projects proceeding in the current period, and in the estimates for the work, this should be reflected in the allowances. The ECCSA supports this approach, and notes that there is potential for "double dipping" from having these projects run as part of the overall asset management program. The ECCSA does realise that as a result of the condition maintenance program routine maintenance should reduce as the project work done now should cause a lesser amount of routine maintenance immediately the project is completed. Thus, there should be (but is not) a compensating reduction in routine maintenance to reflect that this asset management program has already commenced.	A Regulatory Test is not required for asset replacements or refurbishments, and the cost of these projects would fall below the threshold. SKM considered the impact on routine and corrective maintenance costs arising from the opex projects (including those it recommended be transferred to capex), and found the benefits would generally be realised *after* one 5 year maintenance cycle. SKM recommended a reduction in opex in the latter years of the regulatory period to reflect some savings in opex costs, and this has been challenged by ElectraNet in its revised submission.
Labour Escalation Section 6.6 P35, 36 & 37	The ECCSA considers that as there is an underlying trend for wages to consistently demonstrate a premium over CPI, then it must, as a matter of equity to consumers, allow only an adjustment for the premium between the underlying trend and the expectation for the next period. For the AER to allow the full differential between wages and CPI as a basis for a step change, will create a regulatory precedent and enshrine this erroneous approach into the future. The ECCSA considers the AER should not accept that there is a wages change that warrants	SKM considers there is reasonable evidence that capital costs for the electricity industry, including the wages component, have risen materially faster than CPI. The wages component and materials mix of network opex and capex is different to the economy as a whole, and SKM would not expect the price index to exactly match the broad CPI index. This is the basis for ABS tracking separate producer price indices (PPI). SKM agrees that CPI forecasts used in various aspects of the decision should be consistent.

	adjustment for this current period, as wages have consistently outperformed CPI over the long term, and the current premium is not significantly different from the past. At most, the AER should only allow for the premium in wages over the underlying wages premium over CPI, and use the inflation estimate it sets for the WACC as the forecast of inflation when developing the wages premium over CPI. The ECCSA points out that the CPI will adjust, in the long term, for short term movements of individual costs. The AER should retain the view that over the long term, CPI will accommodate all of the individual short term price movements expected in the market, and therefore should not allow for short term adjustments that are biased in one direction.	
Asset growth relationships Section 6.7 P38	The ECCSA is very concerned that opex is allowed to increase at the rate of 40% relative to the replacement costs, as this approach has little validity in practical terms when considering the various scenarios that can occur. Neither AER nor SKM addressed the scaling factors proposed by ElectraNet, referencing only that these had been used for Powerlink. Equally it is interesting to note that other TNSPs (eg SP AusNet) do not use this approach to adjusting opex with replacement costs in addition to a bottom up assessment. The ECCSA is extremely concerned that the AER has allowed this mechanical approach to ramping up opex each year of the period.	The bulk of direct operation and maintenance costs were calculated on a zero-based approach, using the numbers of various items on the network based on the capex forecast. SKM reviewed this approach in detail and found it to be reasonable. Other opex components that could reasonably be expected to increase in line with the size of the network were indexed to the network replacement cost, with an allowance for economies of scale, which SKM considers reasonable. A zero-based assessment of all costs would be a time consuming process and would be likely to yield substantially similar results.
ElectraNet CAPEX		
Section 7.2 P43 Inflation expectation	The ECCSA considers that where the costs for services reflect CPI, this index will over the long term provide a true indication of the movement of costs in the economy. Bearing this in mind the ECCSA considers that the AER should take a long term view of cost movements and not be influenced by short term aberrations.	See earlier comments regarding the applicability of CPI to network capital costs. While long terms trends in equipment prices may differ from short term aberrations, the escalators proposed by SKM were intended to produce the best estimate of the actual capex costs ElectraNet will face over the coming 5 years. It would not be reasonable to expect ElectraNet to earn a sub-commercial return on these assets just because some costs have increased faster than CPI.
`Section 7.4 P44	It is of concern that although AER is convinced that much of the capex requested for augmentations and connections has validity, this is not supported by any significant increases in consumption or demand. The outcome of this is that the unit cost for providing the service has now increased markedly. The AER has accepted that ElectraNet has to increase its capex program for replacements yet at the same time opex has increased dramatically, and the new opex allowance does not show any benefits to consumers as a result of the large capex injection in the current period, nor in the expected opex for the new period.	The independent demand forecast prepared by ESIPC does show increases, and SKM reviewed the load-flow studies and other criteria used by ElectraNet to demonstrate the need for augmentation projects. A significant proportion of the capex program is driven by changes to the ETC, which the ECCSA did not oppose. The zero-based opex forecasts do take account of replaced assets, with reduced maintenance requirements for new assets as compared to the old assets they replace.

Service Standards		
Section 9 P49	ECCSA agrees with increasing the number of circuits classified as critical, but is concerned that AER has reduced the target performance by the addition of these. When comparing the actual performance of the system (100% of circuits) to critical circuits (14% by length) this implies that the performance of the other 86% of the circuits (by length) have an availability at peak times of 99.43% (NB availability at non peak times for the critical circuits is even higher). Thus as a minimum the peak time availability of the increased number of circuits should be 99.43% and probably higher, as the amount of the circuits by length has increased to 37%. By applying ratios based on length implies the actual performance would be 99.53%. By not adjusting the target and retaining the AER proposed cap, would automatically deliver to ElectraNet maximum bonus for this category. **The ECCSA recommends that the target for critical peak circuits should be increased to 99.53%, with a corresponding adjustment to the critical non peak target and to the bandwidths**	SKM appreciates the ECCSA appraisal that our alternative approach to setting targets, caps and collars was sound The alternative target proposed by ECCSA for critical circuits ignores the underlying data for these circuits. The increase in the number of circuits from 6 to 14 was done to capture not only those associated with the interconnection between SA and Victoria (the original 6), but other circuits associated with the main power transfer corridors in South Australia. In doing so, this included the circuits between Para and Davenport which have historically shown relatively poor performance - certainly performance well below the network average. As a result, the 5-year historical average is lower than that for the network as a whole, and for the non-critical circuits. The availability of individual circuits will depend on a number of factors including length, terrain, construction, age and maintenance. It does not follow that critical circuits will necessarily have higher availability than other circuits, though the inclusion of a critical circuit parameter is intended to provide an explicit incentive to improve the reliability of critical circuits. SKM considers the approach taken by ECCSA in suggesting a target for the critical circuits to be overly simplistic and does not benefit from the detailed circuit availability data SKM was able to apply to the task, and remains satisfied that the values proposed by SKM represent sound targets/caps and collars considering historical performance.
Section 9 P49	The AER has agreed to reduce the number of peak times from the historic 80 hours per week to 60 hours. ECCSA would point out that a review of the peak demands in the SA system do not occur just between the hours 8am-8pm weekdays, but system peaks also occur on weekends. This is due to the changing nature of what causes SA demand being heavily influenced by ambient temperatures resulting in demand from high penetration of air conditioning and extended shopping hours, and the trend for businesses not to have traditional shut down periods. As a result, the SA system peaks do not follow traditional load shapes where weekend and public holidays exhibit significant lower demands than weekdays, a direct outcome of SA demand being very ambient temperature related. **ECCSA recommends that the peak periods for measurement of the measure for peak period availability should therefore be assessed on 8am-8pm every day.**	SKM is unconvinced by the argument presented by ECCSA regarding peak/off-peak periods. The decision to set peak/off-peak periods was done on the basis of recent summer/winter maximum demand readings, and the impact on spot prices in the SA market. SKM agreed with ElectraNet that setting the peak period between 8am and 8pm sufficiently captured the time when work on the network would have its greatest impact on the market, and that this provided sufficient time in a day for ElectraNet to plan and conduct its work in an efficient manner.
Appendix 3 Observations regarding the SKM report to the AER – P59		
A3.1 PAST CAPEX P59		

P60	SKM observes that there was one project which was executed and incurred costs in excess of what SKM considered reasonable, and SKM recommended a small adjustment be made. Even though this demonstrated a potential for other non-investigated projects to have similar cost over-runs, SKM makes no attempt to extrapolate this instance into other projects, yet is quite content to assume that all other projects had no such problems. **This approach by SKM to extrapolate from the particular to the general for an assumption that all projects are acceptable, yet not to extrapolated from the particular to the general where there is a demonstrable issue is extremely concerning, and shows a clear bias in favour of ElectraNet when it is expected to be impartial and fair.**	SKM considers it would be impractical to review every project in detail, and that the sample selected, in conjunction with the AER, included a significant proportion of the past capex. While SKM found an instance of costs in excess of what it would consider reasonable, it found this was isolated, small in the context of the overall capex, and was not considered systemic. On this basis, SKM found no compelling argument why it should find all of ElectraNet's past capex to be unreasonable.
P61	SKM should have examined the capex program (as should ElectraNet) to assess whether the assumptions behind the capex program developed in 2002 still held validity when assessed against the regulatory test. ElectraNet advises that the capex was redirected from augmentation to replacement**.** **That SKM did not verify that the replacement projects still complied with regulatory test requirements is a concern.**	A regulatory test is not required for replacement projects. SKM assessed these projects in accordance with the Rules, including the prudency test and capex objectives.
P61	SKM has agreed that ElectraNet should receive an amount for IDC for the commissioned projects and adds in that ElectraNet should receive an additional amount not claimed by ElectraNet for IDC for work-in-progress which will be capitalized as the next regulatory period will allow for actual expenditure as incurred to be integrated into the RAB, rather than as commissioned. Whilst the logic cannot be denied, **SKM has assisted ElectraNet in gaining an increase in its RAB by doing this.**	SKM notes it found a small number of mathematical errors in ElectraNet's models, which resulted in both positive and negative adjustments. The overall level of adjustments proposed by SKM was significantly negative, however SKM was bound to provide a fair and unbiased assessment of efficient costs, and has done this in this instance. ECCSA appears to support the logic and reasonableness of the capitalisation of IDC.
A3.2 OPEX P61		
A3.2.2 Labour escalator and efficiency P64	**What SKM failed to do was to analyse what the real growth in wages was likely to be compared to the fact that wages have consistently risen higher than CPI over many decades.** In fact the difference between wages growth and CPI provides a very strong indication of the increases in productivity of the nation. If SKM had carries out such an analysis they might then have recommended that the step change due to wages growth should be a much lower figure than ElectraNet had claimed. By using the escalator proposed by ElectraNet it allows the inclusion of the national productivity to be excluded from the opex allowances.	SKM has sought to quantify the efficient opex costs over the upcoming regulatory period, and accepted after considerable scrutiny ElectraNet's estimates of the growth in the labour component of its costs in the future. The historical relativities between wages and CPI is irrelevant. Productivity improvements were factored into SKM's recommended opex.
A3.2.3 Base case with step change methodology P64 & 65	The whole concept of using a "base case with step change" approach is to eliminate any potential for gaming, and to permit the regulator to use an less intrusive assessment. **What SKM has allowed ElectraNet to do is to "cherry pick" and so potentially develop a "rational" basis for increasing opex.** **SKM falls into the trap and devotes extensive effort into then discussing opex claims developed on the zero base approach**.	See previous comments regarding SKM's assessment of the hybrid approach to assessing opex.

A3.2.4 Field maintenance P65	Unfortunately SKM seems to agree with ElectraNet's conclusion that the arrangement with ETSA delivers "market based pricing for maintenance services". **SKM delivers no proof or even much analysis that this is a factual outcome.**	SKM is satisfied it investigated this aspect in sufficient detail to form a reasonable view that costs were reasonable.
A3.2.5 Projects P67	Whilst SKM does identify that ElectraNet has under-run its opex allowance in the current period by some $17.4m (page 91), it makes no reference to the fact that ElectraNet intended to use the increased opex it was granted by the ACCC for refurbishment of aged assets. ECCSA in 2002 supported that this work (or at least some of it) was probably needed. The fact that ElectraNet did not do so and earned a significant windfall benefit by effectively transferring the allowed expenditure from the current period in to the new period and retaining the benefit has not been identified by SKM **– in fact SKM has agreed that the new allowance be increased to allow for the need for this work. SKM has failed to identify that works allowed for in the 2002 reset and not spent, has been transferred into the new period.**	See earlier comments. SKM did review this matter in detail on the basis of similar concerns it formed to those expressed by ECCSA. After these investigations, SKM was not able to determine that the opex underspend was due to underspend in direct maintenance, and was provided with analysis and supporting information from ElectraNet showing the cost savings were in other areas and ongoing. SKM raised this as an issue to be given further scrutiny in the future.
A3.3 Service Standards P67		
P69	ECCSA agrees with increasing the number of circuits classified as critical, but is concerned that SKM has reduced the target performance by the addition. When comparing the actual performance of the system (100% of circuits) to critical circuits (14% by length) this implies that the performance of the other 86% of the circuits (by length) has an availability at peak times of 99.43% (NB availability at non peak times for the critical circuits is even higher at nonpeak times). Thus as a minimum the peak time availability of the increased number of circuits should be 99.43% and probably higher, as the amount of the circuits by length has increased to 37%. By applying ratios based on length implies the actual performance will be 99.53%. By not adjusting the target this would automatically deliver to ElectraNet maximum bonus for this category. **The ECCSA recommends that the target for critical peak circuits should be increased to** **99.53%**	See earlier comments.
P70	ECCSA has only one criticism of SKM in regard to its assessment, in that SKM has agreed to reduce the number of peak times from the historic 80 hours per week to 60 hours. ECCSA would point out that a review of the peak demands in the SA system do not occur just between the hours 8-8 weekdays, but system peaks also occur on weekends due to the changing nature of air conditioning penetration and shopping hours, and the trend for businesses not to have traditional shut down periods. As a result the SA system peaks do not follow traditional load shapes in that weekend and public holidays exhibit significant lower demands than weekdays, being more ambient temperature related. **ECCSA recommends that the peak periods for measurement should therefore be assessed on**	See earlier comments. SKM reviewed this matter, and while reluctant to introduce a separate definition of "peak period", did not consider ElectraNet's proposed definition to be unreasonable. SKM notes that shorter "peak periods" will enhance the monetary incentive for ElectraNet to improve performance, and that the times proposed correspond to peak loads on the network as a whole.

	8-8 every day.	
A3.4 Capex program **P70**		
P73	Despite identifying that the capex program is a large expansion on the current level of capex, SKM considers that subject to some minor adjustments, the capex program proposed is well based, needed and capable of being delivered.	Yes. Given changing demand patterns, changes to ETC rules, and aging assets, historical capex is not necessarily an indicator of the level of efficient capital required in the future.