SP AusNet Revenue Determination: Technical Review

Findings on SP AusNet's Revised Revenue Proposal

PUBLIC (REDACTED) VERSION

Report to

Australian Energy Regulator

Energy Market Consulting associates
Strata Energy Consulting

January 2014

This report has been prepared to assist the Australian Energy Regulator (AER) with its determination of the appropriate revenues to be applied to the prescribed transmission services of SP AusNet from 1 April 2014 to 31 March 2017. The AER's determination is conducted in accordance with its responsibilities under the National Electricity Rules (NER).

This report relies on information provided to EMCa by SP AusNet. EMCa disclaims liability for any errors or omissions, for the validity of information provided to EMCa by other parties, for the use of any information in this report by any party other than the AER and for the use of this report for any purpose other than the intended purpose.

In particular, this report is not intended to be used to support business cases or business investment decisions nor is this report intended to be read as an interpretation of the application of the NER or other legal instruments. EMCa's opinions in this report include considerations of materiality to the requirements of the AER and opinions stated or inferred in this report should be read in relation to this over-arching purpose.

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About EMCa

Energy Market Consulting associates (EMCa) is a niche firm, established in 2002 and specialising in the policy, strategy, implementation and operation of energy markets and related access and regulatory arrangements. Its Director, Paul Sell, is an energy economist and previous Partner in Ernst & Young and Vice President of Cap Gemini Ernst & Young (now Capgemini). Paul has advised on the establishment and operation of energy markets and on matters such as electricity network open access, pricing and regulation and forecasts for over 30 years.

About Strata

Strata Energy Consulting Limited specialises in providing services relating to the energy industry and energy utilisation. The Company, which was established in 2003, provides advice to clients through its own resources and through a network of Associate organisations. Strata Energy Consulting has completed work on a wide range of topics for clients in the energy sector both in New Zealand and overseas.

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1 Introduction

1.1 Purpose of this report

1. The Australian Energy Regulator (AER), in accordance with its responsibilities under the National Electricity Rules (NER), is required to conduct an assessment into the appropriate revenue to be obtained from provision of prescribed transmission services provided by SP AusNet for the years 2014/15 to 2016/17 (the next regulatory control period, or RCP). The process that the AER is required to follow is described in chapter 6A of the NER.

2. SP AusNet provided its initial Transmission Revenue Proposal (RP) for the period 2014-17 to the AER on 28th February 2013.

3. The AER engaged EMCa and Strata Energy Consulting (Strata) as a Technical Consultant to review and provide advice on specific areas of SP AusNet's Revenue Proposal. The focus of the review was on SP AusNet's past and forecast capital expenditure (capex) and operational expenditure (opex), associated policies and procedures, proposed contingent projects and its service standard proposals.

4. The AER delivered its Draft Decision on SP AusNet's initial Revenue Proposal in August 2013.

5. On 11 October 2013, SP AusNet submitted its Revised Revenue Proposal (RRP).

6. The AER has engaged EMCa and Strata to review SP AusNet's RRP and advise whether any new technical information and/or reasoning has been submitted relating to the original report which could lead EMCa/Strata to change our findings in the original report pertaining to the following matters only:

    - West Melbourne Terminal Station
    - IT Capex
    - Capex prudency and estimation bias

- Opex (technical matters).

7. The purpose of this report is to provide the AER with the findings from our technical review on these matters.

1.2 Regulatory framework

8. The main relevant chapter of the NER for our assessment of transmission revenue proposals is Chapter 6A which deals with the rules for economic regulation of transmission services, including such services provided by SP AusNet.

9. The Revenue Proposal must establish how forecast expenditure meets SP AusNet's regulatory obligations. To do this the forecast expenditure must meet the submission guidelines, be for prescribed transmission services, and be provided as a total and for each year of the regulatory control period. In addition, the revenue proposal must identify whether forecast capex is for reliability augmentation (i.e. to meet the reliability standards in the NER or State legislation) or has met the regulatory investment test for transmission.

10. Under the NER, the AER must accept SP AusNet's proposal if the costs are considered efficient, prudent, and realistic in relation to forecast demand and anticipated input costs as set out in the Operating Expenditure Criteria (cl 6A.6.6 (c)) and the Capital Expenditure Criteria (cl 6A.6.7(c)).

11. A transmission network service provider (TNSP) can propose contingent projects as part of its revenue proposal. These are subject to the same capex and opex tests as non-contingent expenditure. A trigger must be set to determine if and when the capex and opex associated with contingent projects will be added to the aggregate annual revenue requirement (AARR). When the trigger event occurs, the TNSP must make an application to the AER for inclusion of the contingent capex and opex in a revised revenue allowance[1].

1.3 Approach taken for the initial review of the RRP

12. We were first asked by the AER to undertake an 'initial review' of the RRP. The scope for this initial review[2] required EMCa to examine the RRP to (i) identify any new information or reasoning that would lead us to change our findings or advice to the AER (relative to our report on SP AusNet's initial RP), and (ii) to provide an assessment which describes and prioritises any technical matters that warrant further investigation.

13. EMCa examined the information provided in the RRP. We did not conduct site visits with SP AusNet as part of this initial review. The same team involved in writing this report undertook the initial review.

[1] These provisions do not apply to the current review, which excludes consideration of network augmentation expenditure

[2] AER, *Terms of Reference – Initial review of SP AusNet's Revised Revenue Proposal and scoping*, Sept 2013

14. EMCa reported the findings of its initial review to the AER board of directors on 25 October 2013. The areas recommended for further investigation are the subject of this report.

1.4 Approach taken for this review

15. The scope for this review covers the requirements for the technical consultant as set out in the AER's 'Terms of Reference for Technical Consultant' (the TOR). Our interpretation of the TOR was also informed by direct reference to the NER, as described above. The terms of reference for the Technical Consultant were subject to some clarifications and changes of emphasis as the review progressed. As described in Section 1.1, this review is focused on technical aspects of SP AusNet's proposed capital and operational expenditure.

16. AEMO plans and procures SP AusNet's augmentation and connection capex and therefore EMCa was not required to review these components of SP AusNet's expenditure.

17. This technical review considers SP AusNet's actual expenditures for the current RCP and considers the reasons for any significant variances from the expectations and assumptions on which the revenue allowance was based. This assessment also takes into account material variations between historical expenditures (planned and actual) and the proposal.

18. The scope of this review can be summarised as comprising the following components

West Melbourne Terminal Station (WMTS)	Review the proposed WMTS project and provide advice on: the technical reasons for why the WMTS project should be considered as a contingent project; the base amount of capex that should be allowed; whether the AER should account for any material opex impacts within the next RCP that might result from allowing the WMTS project as a contingent project
IT Capex	Consider and advise the AER on: the strategic nature of the proposed asset and works management system and the quantum of strategic expenditure; the benchmarking information provided; the status of the project; and the link to resilience
Capex prudency and cost estimation bias	Assess the benefits achieved from prudent management in the current RCP; assess SP AusNet's claim that prudency and efficiency benefits have already been factored into the capex forecast; assess SP AusNet's claims in relation to the shorter RCP period; assess SP AusNet's arguments that the AER should not have made an adjustment for cost estimation bias
Opex	Provide an overarching opinion of the reasonableness of technical aspects SP AusNet's proposed opex taking into account the specific circumstances of the business

19. To assist in providing the overarching opinion as to the reasonableness of SP AusNet's proposed opex and the allowance in the AER's Draft Decision, EMCa

undertook a 'bottom-up' review of the nominated components of the Step Changes and Asset Works categories. In doing so, we took into account new and/or confirmed information.

1.5 Data sources

20. In the course of this review we have examined a large quantity of documents. This includes documents that SP AusNet provided to the AER with its Revised Revenue Proposal and a number of other significant documents that were provided in the course of on-site meetings or in response to our requests for information. We held on-site meetings with SP AusNet on 13-14 November.

21. We wish to acknowledge the considerable assistance that SP AusNet provided with this review. This assistance was of a highly professional nature, as evidenced in the course of on-site meetings and by SP AusNet's provision to us of supporting information and responses to queries.

1.6 Our qualifications

22. To support our management-level approach, the review team is comprised of people with Board, senior management, and senior advisory experience with electricity network businesses. The credentials of the authors of this report are summarised in Appendix D.

1.7 Structure of this report

23. The structure of this report aligns with the structure of the AER TOR and with the above scope for the review. Findings and recommendations are presented in section 2. In sections 3 and 4 we cover our assessment of major stations capex and IT capex respectively. In section 5 we cover our consideration of the SP AusNet's propositions in the RRP with regards to the AER's Draft Decision to allow for a capex prudency adjustment, and to accept SP AusNet's proposed capex efficiency adjustment.

24. In section 6 we address those aspects of the RRP opex proposal that we were asked to advise on, focusing in particular on the proposed step changes and the proposed asset works expenditure allowance. In this section we also provide our advice on the overall adequacy of an adjusted opex allowance, responding to issues of risk and lifecycle economic consequence that SP AusNet has contended.

25. Appendices A and B provide supporting information on our assessment of the RRP step change and asset works proposals and appendix C contains statements by SP AusNet that we have considered in our assessment of opex adequacy and risk. Finally, appendix D contains the brief resume statements for the authors of this report.

2 Findings and recommendations

27. This section of the report provides our review findings and recommended adjustments based on those findings. We also indicate the overall impact of making the proposed adjustments.

2.1 Findings and recommendations

2.1.1 WMTS

28. We find that:

i. The costs that will be incurred by SP AusNet for the WMTS rebuild are the actual costs of the rebuild less the contribution to costs made by the LMA. Accordingly, we consider that the capex allowance for WMTS should be based on the reasonable net cost that will be incurred by SP AusNet and not the gross cost, as SP AusNet has proposed;

ii. The actual cost that SP AusNet is expected to incur is the original cost for the project (based on GIS construction) contained in the initial RP;

iii. Electricity consumers should only be expected to pay the costs that they would have incurred had the land at this site not been required by the LMA;

iv. SP AusNet's proposed one year deferment of WMTS is consistent with our recommendation from our review of the initial RP. Therefore the WMTS capex that SP AusNet has proposed in the RRP is reduced by $38.6m relative to the initial RP. Allowing for the net cost before redesign, the capex allowance is reduced by a further $8m relative to what SP AusNet has proposed in the RRP, leaving an allowance of $61.5m required within the next RCP;

v. The costs of relocating and converting the distribution assets should be included in the allowable capex, and

vi. It will be necessary to undertake the proposed relocation of distribution assets to enable the WMTS rebuild to be undertaken. The costs relate to relocation and conversion of overhead lines into underground cables.

29. We recommend that:

i. The allowance for WMTS for the RCP is $61.5m, being the initial RP proposed cost of the WMTS project with a one year deferral to the original project timeline. , and

ii. An allowance of $11.4m as proposed by SP AusNet in its RRP for the relocation of distribution assets at WMTS is included in the allowable capex.

2.1.2 RTS

30. We find that, as with WMTS, the costs of relocating and converting the distribution assets should be included in the allowable capex and that it will be necessary to undertake the proposed relocation of distribution assets at RTS to enable the RTS rebuild to be undertaken.

31. We recommend that an allowance of $9.2m as proposed by SP AusNet in its RRP for the relocation of distribution assets at RTS is included in the allowable capex.

2.1.3 IT capex

32. We find that:

i. SP AusNet only revealed that the IT capex forecasts in the initial RP and RRP were not the full extent of the IT capex that SP AusNet was proposing to spend across the three businesses at on-site meetings in November 2013. This meant that the information provided previously in the initial RP and RRP (e.g. IT Strategy) supported the overall IT expenditure and not the IT Capex proposed in the initial RP and RRP. This raises concerns regarding the integrity of SP AusNet's proposal for IT capex.

ii. SP AusNet has used the 'Do Nothing' option as a proxy for what would be spent as an alternative to the proposed '[redacted]' option. Therefore, the [redacted] IT capex in the RRP is the estimated cost of a Do Nothing option covering replacement or remediation of existing applications.

iii. EMCa has reviewed the information and considers that it is sufficiently comprehensive and independent and provides an approach for establishing the remediation and/or replacement costs of a Do Nothing Option. However, we note that the cost estimates are high level and carry independent advisor caveats.

iv. The use of a proxy introduces several issues when it is used in a regulatory revenue proposal.

v. A further issue is that an integrated project such as the proposed [redacted] cannot reasonably be split into definitive strategic and replacement elements as SP AusNet has proposed.

vi. By ignoring the benefits arising from project [redacted] in its proposed opex allowance, SP AusNet's scheme would result in significant financial gains from its relatively small contribution towards project costs.. Consumers are unlikely to see any benefit, despite effectively underwriting the majority of the cost.

vii. It is not reasonable to allocate the costs and benefits of the [redacted] project differentially, as SP AusNet has done.

33. We recommend that:

i. SP AusNet's proposed IT capex of $47.1m is accepted; and

ii. The opex in the final year of the RCP is reduced by $3.6m.

2.1.4 Prudency and efficiency

34. We find that:

i. We accept SP AusNet's analysis of the effects of prudent management in reducing capex in the current RCP.

ii. We do not accept SP AusNet's contentions (in the RRP) that all impacts of future prudent management decisions have been already taken into account, or that no adjustment should be made because of the shorter time-period of the next RCP.

iii. SP AusNet provided updated information on project status that reduces the proportion of expenditure that the prudency adjustment applies to, and this is accepted.

iv. SP AusNet has proposed a capex efficiency adjustment of 1.44% (as proposed initially in the RP) and we propose to continue to accept this and not to apply a specific cost estimation bias adjustment in assessing the RRP.

v. In the RRP, SP AusNet has provided a reasonable assessment of a prudency adjustment that would apply, taking account of both (a) consideration of roll-ins and roll-outs and (b) the updated project commitment status that it has provided.

35. We recommend that the AER:

i. Does not accept SP AusNet's proposition that no prudency adjustment should be made;

ii. Applies a prudency adjustment that reflects the updates that SP AusNet has made in its RRP, and which result in an adjustment of -$19.5m, and

iii. Continues to accept the -1.44% capex efficiency adjustment proposed by SP AusNet, and which applies to all projects.

2.1.5 Opex

36. We find that:

i. The proposed step changes of $27m are not reasonable and should be reduced by $17.4m to $9.6m[3, 4]. The tower painting program is not yet ready to be considered a recurrent ongoing program, and the program should be considered as part of Asset Works, not as a step change in recurrent expenditure.

ii. Provided Tower Painting is included in the Asset Works program and not allowed as a step change (as above), then we consider the proposed Asset Works budget of $24.3m is reasonable[5].

iii. The most recent actual recurrent opex amount, which is from 2012/13, provides a better indication of revealed cost for the next RCP than the 2011/12 recurrent cost. Excluding taxes, leases, insurance and Asset Works (for which we propose a different base) we estimate that use of 2012/13 as the base year would result in a $5.2m lower opex allowance than if the 2011/12 year is used.

iv. Consistent with the benefits now disclosed for its investment in [redacted][6], the controllable opex allowance should be reduced by $3.6m in the final year of the RCP. It should be noted that this figure updates and replaces the opex benefit of $0.8m resulting from deployment of this system, and which SP AusNet proposed in its initial RP.

v. Consistent with findings in our Technical Review of the initial RP, we consider that the opex that SP AusNet has proposed should be reduced by $7.2m ($2.4m per year) to allow for the benefits that should arise from its strategic investments in IT to date.

vi. An overall level of controllable opex, as proposed but after making the recommended adjustments, is likely to be sufficient to allow SP AusNet to efficiently and prudently deliver network services over the next RCP, is unlikely to lead to increased risk relative to current levels, reasonably allows for economic opex/capex trade-off opportunities to be realised, and reasonably takes account of the circumstances of the business that SP AusNet has disclosed to us,

37. We recommend that:

i. The overall opex allowance is set at a level that reflects the technical adjustments above, comprising

    i. A reduction of $17.4m in recurrent expenditure step changes, and

[3] This reduction includes the $8.8m proposed tower painting costs, moved to Asset Works
[4] For comparability reasons the step change adjustment is presented relative to a 2011/12 base year and must be further adjusted if a different base year is used.
[5] This figure is as per SP AusNet's proposal, as reviewed, and excludes escalation and support costs. The equivalent that SP AusNet proposed after escalation is $25m. After submitting its proposal, SP AusNet provided the AER with an opex model seeking to increase this to $26.1m, after escalation.
[6] See section 4

ii. A reduction of $5.2m to account for the lower revealed cost of recurrent expenditure.

ii. The overall opex budget allowance should also be adjusted to reflect opex efficiency benefits of $7.2m arising from the benefits of past strategic IT expenditure, and $3.6m of opex benefits that SP AusNet has identified as arising from its investment in an upgraded [redacted] system.

2.2 Implications for adjusted capex and opex

38. The following indicative adjustments to SP AusNet's RRP result from applying these findings. These reductions result only from the matters covered in this report, and do not include other adjustments that were or may be considered by the AER, including other adjustments that we recommended in our review of the initial RP.

2.2.1 Capex

i. Reduction of $8m resulting from adjustment to WMTS cost to reflect a reasonable estimate of the net cost to SP AusNet, and

ii. Reduction of $19.5m resulting from a prudency adjustment[7].

2.2.2 Opex

i. Reduction of $29.8m arising from adjustments involving step changes, opex reductions resulting from past investment in strategic IT, and from using the most recent actual opex (2012/13) as the revealed cost base year for recurrent expenditure[8], and

ii. Reduction of $3.6m from the benefits arising from the proposed [redacted] project.

39. The aggregate implication of the opex adjustments (before escalation) is that they would produce an overall opex budget that is around $33.4m less than what SP AusNet has proposed. In its Draft Decision, the AER also allowed $1.5m less for group 3 roll-in costs than SP AusNet has now sought in its RRP. Combining these would indicate a reduction in the order of $35m.

40. SP AusNet has proposed opex (including escalation) of $270.7m. The adjustments above would imply a reasonable level of opex of the order of $236m.

[7] Note that SP AusNet has already made a capex efficiency adjustment of -1.44%, therefore no further adjustment is required

[8] The adjustments that we have calculated do not explicitly allow for escalation of the reduced amounts. Depending on AER's decision in regards escalation, EMCa's technical recommendations may lead to a slightly different implied reduction.

3 West Melbourne and other terminal station projects

3.1 Summary of RRP and matters arising since provision of the initial RP

41. SP AusNet's RRP revised Revenue Proposal includes capital expenditure of $67.8m from a West Melbourne terminal station (WMTS) total rebuild project capex projection of $163m[9]. As Table 1 below shows the RRP capex for WMTS is $38.6m lower than that proposed in the initial RP. The main reason for this is the deferral of the project timeline by one year. Subsequent to the RRP being submitted, SP AusNet advised the AER that the total project cost of $67.8 had been revised to $69.8m[10].

42. Other material changes to the proposed capex for WMTS are:

    i. The impact of the proposed East West Link roadway on the available land footprint; and

    ii. The addition of $11.4 million relating to the relocation of distribution assets[11].

Table 1: *Forecast capex for WMTS rebuild*

($m, real $2013/14)

	2014/15	2015/16	2016/17	Total
Original Proposal	33.6	35.5	37.2	106.3
Revised Proposal	11.2	32.8	23.8	67.8

[9] SP AusNet RRP, page 46
[10] Revised Proposal - Capex Model - FINAL (CONFIDENTIAL).
[11] These are covered as a 'new project' and are not included in the project costs in Table 1.

Source: SP AusNet RRP, Table 3.7 Section 3.4.2.2 p.46

43. SP AusNet attributes the one year delay to the need to undertake revised design and due to the reduced AEMO demand forecast.

44. SP AusNet has assumed the minimum land footprint will be available for rebuilding WMTS and redesign options have been considered in detail and reasonable cost estimates have been obtained. In the RRP, SP AusNet provide the following estimate of the additional costs of the WMTS project:

> *'revisions to the timing and design of the WMTS project have changed the expenditure profile of the project by deferring it a year, lengthening the project and increasing total estimated costs by $18m.'*[12]

45. Subsequent to our review and advice on the initial RP, on 22 July 2013 the Linking Melbourne Authority (LMA) informed SP AusNet that a part of the WMTS land footprint was impacted by the proposed construction of the East West Link roadway. SP AusNet advised the AER that this development would be likely to lead to a material revision of the project timing and costs set out in the original Revenue Proposal. At that time, SP AusNet advised the AER that the impact of the roadway in terms of project scope and cost would not be available in time for the Draft Decision.

46. Due to the uncertainty of the impact of the LMA notification on the WMTS project the AER was unable to make an assessment of the forecast capex for WMTS. In its Draft Decision the AER said that it would consider SP AusNet's revised proposal for the WMTS project prior to reaching its Final decision.

47. As the WMTS project contained in the RRP is a substantial redesign, much of our assessment of the original project in the initial RP and SP AusNet's comments on our assessment have been superseded by the revised project scope and costs. We have therefore assessed the RRP WMTS project from the perspective of it being a new project.

48. SP AusNet has stated that it expects the LMA to provide compensation for the additional costs incurred on the project due to the impact of the proposed roadway. However, our understanding is that the LMA has not yet offered to compensate SP AusNet, nor have the relevant negotiations commenced. Using the provisions of NER 6A.7.3(a1)(5) for Pass Through Events, SP AusNet has proposed that the LMA compensation is considered a pass through event and that it retains a 10% share of this compensation as an incentive to pursue such compensation, passing 90% of what is paid by the LMA through to consumers.

49. The Draft Decision also noted that SP AusNet had advised the AER that additional capex will be incurred due to the relocation of assets owned by distributors at WMTS, and that SP AusNet is liable to pay for such costs. SP AusNet has added $11.4m in the RRP for expenditure expected to occur in the next RCP out of a total expected expenditure of $26m for the total cost of relocating distribution assets at WMTS.

[12] SP AusNet RRP, page 46

3.2 Assessment

3.2.1 Need for the redesign

50. EMCa has reviewed the documentation provided by SP AusNet regarding the LMA's proposed roadway and the limitations that this will place on the rebuild of WMTS. The impact of the proposed roadway is significant and SP AusNet's action to undertake a substantial redesign is justified.

51. EMCa agrees with SP AusNet that the reduced footprint available for the rebuild has effectively removed any possibility of the AIS rebuild option and that it is not appropriate for this option to be considered further.

3.2.2 Process undertaken

52. SP AusNet considers that the final LMA decision on the roadway route and land requirement could take up to five years. The risk analysis for further deferral of the project was demonstrated to significantly increase risks due to the increased probability of failure of equipment and the associated Value of Customer Reliability (VCR) and risk to life.

53. Based on the input assumptions, EMCa considers that SP AusNet's assessment of risk demonstrates that the WMTS rebuild should be undertaken within the timeframe proposed in the RRP and should not be delayed to await the LMA decision.

54. SP AusNet engaged three consultants (Beca, Aurecon and Sinclair Knight Merz (SKM)) to undertake a reassessment of the WMTS rebuild and to identify and assess practically achievable options. SP AusNet then prepared cost estimates for the options, undertook an economic valuation of each option and established its preferred solution.

3.2.3 Reliability of cost estimates

55. SP AusNet has, in a relatively short period, undertaken a major rework of the WMTS project. This has included a comprehensive options assessment utilising the resources of three suitably-qualified engineering consultancies. Cost estimates have been produced at a sufficient level for options analysis and budgeting purposes.

56. EMCa considers that the process undertaken by SP AusNet to establish and assess the options was appropriate, as was the decision taken on the final design, and, that while further refinements of the estimates will occur, the cost estimates appear to be fit for the purpose of determining a revenue allowance.

3.2.4 LMA compensation

57. EMCa concurs with SP AusNet's opinion that:

> *'transmission customers and end use consumers should not be expected to bear the additional costs incurred by having to revise the project design for redeveloping the*

WMTS to accommodate the LMA's acquisition of part of the WMTS site for the East West Link'.[13]

58. EMCa considers that, as a framework for compensation is understood to exist, it is reasonable to expect that the LMA will pay compensation for the additional costs incurred in the WMTS rebuild above those that would have otherwise been incurred. As discussed above SP AusNet has undertaken reasonable process to establish suitable cost estimates, given the status of the project. The additional costs of the revised rebuild for the smaller land footprint can be reasonably established as the difference between the initial RP cost estimate and the RRP cost estimate (excluding the addition of the distribution asset location).

59. The reasonable costs that will be incurred by SP AusNet for the WMTS rebuild are the actual costs of the rebuild less the contribution to costs made by the LMA. In effect the LMA contribution will be expected to cover the incremental costs caused by the roadway acquisition.

60. SP AusNet has proposed that the allowable capex for WMTS is set at the full cost estimate that does not take into account the expected LMA compensation. Further, SP AusNet has proposed that the compensation is treated as a pass through event with 90% of any eventual compensation being returned to consumers.

61. EMCa disagrees with SP AusNet that the pass through event provision is reasonable to use in this case. We take this view because a reasonable basis for establishing the level of compensation is already available based on information already provided by SP AusNet, and from SP AusNet's information that it is likely to obtain such compensation. In EMCa's opinion it is straight forward and reasonable to utilise an assessed net cost to SP AusNet as the allowance for capex for revenue determination purposes, and a pass-through mechanism is not required.

62. Accordingly, we consider that the initial RP proposed cost of the WMTS project, which best represents the net cost to SP AusNet should be used in determining the capex allowance, albeit with a one-year deferral (as below).

3.2.5 One year deferral

63. In its report on the initial RP, EMCa recommended that the WMTS was deferred for one year to avoid concurrent peak activities on two terminal station rebuilds and one terminal station augmentation project. Whilst the reasons for SP AusNet's deferral on the project are different to those identified by EMCa, the deferral of one year is consistent with EMCa's recommendation.

64. At the onsite session, SP AusNet demonstrated the sensitivity of the timing of the rebuild on its cost/risk curve. EMCa considers that the increased probability of failure at the assumed cost of risk, excludes the possibility to further delay the rebuild.

[13] Section 10, SP AusNet RRP, p123

3.2.6 Additional costs of relocating distribution assets

65. SP AusNet has estimated the cost of the relocation of the distribution assets at West Melbourne Terminal Station (WMTS) during the RCP will be $11.4m out of an estimated project total of $26m.

Table 2: *Relocation of DNSP-owned assets at WMTS*

($m, real $2013/14)

	2014/15	2015/16	2016/17	Total
Capex for relocation of distributor-owned assets	1.5	5.7	4.2	11.4

Source: AusNet RRP, Table 3.8 Section 3.4.2.2 p.47

66. SP AusNet has estimated the cost of the relocation of the distribution assets at Richmond Terminal Station (RTS) during the RCP will be $9.2m.

Table 3: *Relocation of DNSP-owned assets at RTS*

($m, 2013/14)

	2014/15	2015/16	2016/17	Total
Additional RTS capex	0.2	9.1	0.0	9.2

Source: AusNet RRP, Table 3.6 Section 3.4.2.1 p.42

67. While we are concerned that these significant costs of the RTS and WMTS projects appear not to have been recognised and were not presented in the initial RP, we have reviewed the process through which these estimates were established, and the estimates themselves, and consider that they are reasonable.

68. We are satisfied that the additional work is necessary to enable the RTS and WMTS rebuilds to be completed. The costs relate to the unavoidable relocation and conversion of overhead 22kV and 66kV lines into underground cables.

69. We consider that it is reasonable that these costs should be included in the allowable capex. In taking this view we have assumed that the distribution businesses have not and will not include these costs in their capex forecasts submitted for revenue resets. This aspect falls outside the scope of this review.

3.3 Findings and recommendations

3.3.1 Summary of findings

WMTS

70. The costs that will be incurred by SP AusNet for the WMTS rebuild are the actual costs of the rebuild less the contribution to costs made by the LMA. Accordingly, we consider that the capex allowance for WMTS should be based on the reasonable net cost that will be incurred by SP AusNet and not the gross cost, as SP AusNet has done. We consider that a reasonable allowance for this is the original cost for the project contained in the initial RP.

71. EMCa acknowledges that SP AusNet has proposed to return 90% of any compensation received to electricity consumers. However, it is reasonable that electricity consumers should only be expected to pay the costs that they would have incurred had the land not been required by the LMA. Under SP AusNet's Pass Through proposal, network tariffs for the next RCP would not reflect any element of this compensation.

72. In the RRP, SP AusNet has proposed to defer WMTS by one year. This is consistent with our recommendation to the AER for the WMTS allowance, based on our review of the initial RP. Therefore the WMTS capex that SP AusNet has proposed in the RRP is reduced by $38.6m relative to the initial RP. Allowing for the net cost before redesign reduces the capex allowance by a further $8m relative to what SP AusNet has proposed in the RRP, leaving an allowance of $61.5m required within the next RCP.

Relocation of distribution assets

73. We consider that it is reasonable that the costs of relocating and converting the distribution assets should be included in the allowable capex.

74. We have found that it will be necessary to undertake the proposed relocation of distribution assets to enable the rebuild to be undertaken. The costs relate to costs relate to unavoidable relocation and conversion of overhead 22kV and 66kV lines into underground cables. It is reasonable that these costs should be included in the allowable capex.

3.3.2 Recommendations

WMTS

75. We recommend that:

    i. The allowance for WMTS for the RCP is $61.5m, being the initial RP proposed cost of the WMTS project with a one year deferral to the original project timeline.

Relocation of distribution assets

76. We recommend that

    i. An allowance as proposed by SP AusNet in its RRP for the relocation of distribution assets at WMTS is included in the allowable capex.

    ii. An allowance as proposed by SP AusNet in its RRP for the relocation of distribution assets at RTS is included in the allowable capex.

3.3.3 Implications of findings

77. The findings above would lead to an adjusted capex that is $8m less than SP AusNet has proposed in its RRP[14].

[14] This figure includes escalation and overheads

4 IT capex

4.1 Summary of the RRP

78. In the RRP, particularly Appendix O, SP AusNet provided significant dialog on the strategic and replacement (or tactical) costs of IT capex and the terminology through which it defines these costs. SP AusNet also reaffirmed that benefits, and in particular opex benefits, would generally only be attributable to the strategic investment.

79. SP AusNet rejected EMCa's assessment of the strategic and replacement costs of the proposed IT capex as SP AusNet advised in the RRP that the proposed expenditure included in the RRP is replacement capex only and, as such, it does not generate opex benefits. SP AusNet considered that reducing its IT capex would be imprudent because *it exposes customers to substantial potential risk (and therefore costs) in terms of network security, resilience and reliability*.[15]

80. On this basis, in the RRP SP AusNet:

- Criticised EMCa's basis for identifying strategic and replacement costs of the proposed expenditure;
- Rejected EMCa's approach for establishing an appropriate IT capex allowance, and
- Rejected the proposed IT expenditure allowance in the Draft Decision.

81. SP AusNet's revised IT capex set out in the RRP totals $47.1m (refer to the table below):

Table 4: Revised forecast IT capex

($m, real $2013/14)

	2014/15	2015/16	2016/17	Total
IT capex forecast	20.2	14.0	12.9	47.1

Source: AusNet RRP, Table 3.10 Section 3.5.2 p.50

[15] Section 3.5.2, SP AusNet RRP, p53

4.2 New and confirmed information

82. Relevant new information provided in the RRP, in subsequent responses to information requests, and identified/confirmed in on-site discussions with SP AusNet, included:

- Advice that both the initial RP and RRP IT capex did not in fact set out the full IT capex to be incurred by SP AusNet on its proposed [redacted] but only a proxy replacement cost for existing systems providing current functionality;
- [redacted]
- [redacted]
- Advice that benefits (opex and capex) are allocated to the strategic cost element of the IT expenditure and therefore minimal benefits accrue to the [redacted] capex included in the RRP, and
- Advice that SP AusNet is funding the strategic component of [redacted] capex (i.e. that portion not included in RRP) and is expecting to recover any benefits arising from this IT investment through the Efficiency Benefits Sharing Scheme (EBSS).

83. During the on-site sessions on 13-14 November 2013, SP AusNet provided the Business Case for [redacted]. The [redacted] Business Case includes options and benefits analysis with a Do Nothing option (Option 1) representing remediation of existing IT applications, and two IT enhancement options. Within the total proposed capex of [redacted], the [redacted]t project cost estimate included in the RRP only includes approximately [redacted], being in fact the "Do Nothing" remediation-only option rather than the project that SP AusNet intends to proceed with..

84. In its responses to further information requests SP AusNet has provided detailed documented information on its methodology for establishing the options contained in the business plan and, in particular its Do Nothing Option 1 (remediate existing applications).

85. The figures below provide the breakdown of SP AusNet's allocation of the total costs and benefits of [redacted]

[16] SP AusNet's gas, and electricity transmission and distribution businesses [redacted]

[redacted]

[redacted]

[redacted]

86. [redacted]

[redacted]

[redacted]

87. SP AusNet has proposed that the capex related to the replacement of existing applications is included in the regulated revenue but that SP AusNet does not (at least in the next RCP) seek to include the strategic element of the expenditure. SP AusNet has proposed that the benefits are accounted for under the provisions of the EBSS.

4.3 Assessment

4.3.1 Allocation of costs and benefits

88. Based on SP AusNet's IT expenditure forecasts in the initial RP and RRP, we understood that the expenditure was the total IT expenditure that SP AusNet proposed to spend on these systems. We have reviewed both the initial RP and RRP documentation, including Appendix O provided with the RRP. The review has reinforced EMCa's view that SP AusNet represented the [redacted] IT capex as the transmission component of the total [redacted], not just a component of it. On this basis it was logical that EMCa assumed that substantial benefits would have been identified to support this major investment. SP AusNet had only indicated expected benefits of $0.8m in the initial RP. Therefore, we did not support the proposed investment

89. In the absence of any information provided by SP AusNet on the division of the strategic and replacement elements of the costs we calculated the replacement cycle costs from an assessment of both the past and proposed future IT expenditure. This calculation provided the basis for our recommendations on the level of IT capex that should be allowed and the costs that should be omitted on the basis that insufficient benefits had been established to support the expenditure.

90. In Appendix O of the RRP, SP AusNet states that EMCa's analysis had *fundamental flaws* and demonstrated a *lack of understanding* about the IT industry's use of the term 'strategic' and in particular that this expenditure delivers operating cost savings[23]. Yet in the [redacted] business case SP AusNet demonstrates that, particularly for transmission, significant opex gains are achieved by the strategic investment. This is as we would have expected and, as we discuss below, these benefits are exactly the ones that SP AusNet is proposing to justify the investment. SP AusNet's criticisms of EMCa's assessment are unjustified and its own business case repudiates them.

91. Only at on-site sessions in November 2013 did SP AusNet reveal that the IT capex forecasts in the initial RP and RRP were not the full extent of the IT capex that SP AusNet was proposing to spend across the three businesses, and nor had the full benefits been disclosed. This meant that the information provided previously in the initial RP and RRP (e.g. IT Strategy) supported the overall IT expenditure and not the IT Capex proposed in the initial RP and RRP. Given the significance of SP AusNet's proposed use of the EBSS it is surprising that a clear and unambiguous explanation was not provided in the initial RP and the RRP documentation.

[23] Section 3.1, Appendix O, SP AusNet RRP, p9

92. Once SP AusNet provided this information, it became apparent that the basis on which the RRP capex was proposed had not previously been set out and justified in the initial RP or in the RRP. In other words, the IT strategy supporting the RP and RRP capex went over and beyond the proposed IT capex. It is now apparent that the IT capex proposed is only a proxy for replacement of existing systems, and there was therefore a need to assess its appropriateness as a proxy, as well as SP AusNet's proposal with respect to the benefits.

4.3.2 Replacement/remediation approach

93. SP AusNet has used the 'Do Nothing' option 1 as a proxy for what would be spent as an alternative to the preferred [redacted] option (option 3). Therefore, the [redacted] IT capex in the RRP is the estimated cost of the Do Nothing option, covering replacement or remediation of existing applications. We sought and reviewed information from SP AusNet to enable assessment of the reasonableness of the proposed replacement-only costs.

94. In response to information requests, SP AusNet has provided detailed descriptions of the process through which it established Option 1 including copies of the independent reports and analysis. This information included:

- An Ernst and Young assessment spreadsheet, and
- Advice received from Oakton and IBM on cost estimates.

95. We have reviewed the information and consider that it is sufficiently comprehensive and independent and that it provides a reasonable approach for establishing the remediation and/or replacement costs of a Do Nothing option. However, we note that the cost estimates are only at a high level and carry independent advisor caveats.

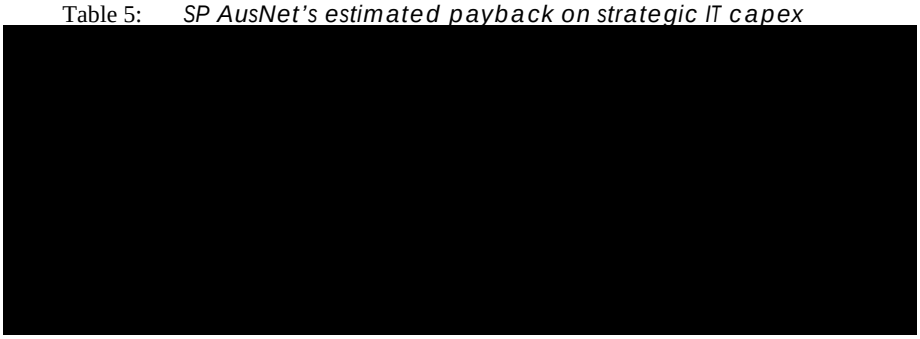
96. The use of a proxy introduces several issues when used in a regulatory revenue proposal. This is primarily because SP AusNet does not intend to and will not actually undertake the project that it has proposed to establish its expenditure forecast. Further, the standard RAB roll-forward methodology will lead to SP AusNet rolling in the actual cost of the (different) project that it actually undertakes, with the result that the full cost will be recovered in the subsequent RCP through network charges to consumers.

97. A further issue is that integrated projects such as the proposed [redacted] project cannot reasonably be split into definitive strategic and replacement elements, as SP AusNet has proposed. In Appendix O[24] SP AusNet discusses how 'strategic investment' introduces new capability and 'technical investment' maintains existing capability of IT services and the [redacted]t business case identifies how this project, as a whole, delivers these benefits. The business case does not identify specific cost components that only maintain existing capabilities or only deliver new capabilities, for the [redacted] option because they essentially do both.

98. The expected payback periods on the strategic expenditure are shown in the table below:

[24] Section 3.1, Appendix O, SP AusNet RRP, p9

Table 5: *SP AusNet's estimated payback on strategic IT capex*



99. Clearly under the proposed use of the EBSS, SP AusNet will secure significant financial gains from its relatively small contribution towards the overall [redacted] project costs. Given the short asset life cycles of IT assets, the longer term benefits that the EBSS[26] envisages would flow to consumers would require further replacement investment in order to realise them and our working assumption would be that SP AusNet would propose those replacement costs as part of a future regulatory proposal.

100. Given the above observations we consider that it is not reasonable to allocate the costs and benefits of the [redacted] project differentially, as SP AusNet has proposed.

4.3.3 Alternatives to SP AusNet's approach

101. The following alternatives for allocating the costs and benefits of the transmission [redacted] component of the [redacted] project have been considered:

1. SP AusNet funds the total cost of the [redacted] project and retains the benefits the project delivers.
2. Consumers fund the total cost of the [redacted] project (through inclusion in the regulatory capex allowance) and retain the benefits the project delivers.
3. SP AusNet and consumers fund the [redacted] on the basis that SP AusNet proposes and the benefits are shared between SP AusNet and consumers in the same proportions[27].

102. Option 1 avoids the problem of allocation of benefits but if SP AusNet retained all the benefits consumers would not gain a share of the benefits through the EBSS. Option 2 also avoids the allocation of benefits problem but does not provide SP AusNet with an incentive to ensure that benefits are delivered. Both of these options would appear to require mechanisms outside of the EBBS to be developed and agreed as part of the regulatory determination.

103. Option 3 shares the benefits and risks between SP AusNet and consumers. It may deliver a larger share of the benefits to SP AusNet than its proposed approach would if the solution continues to deliver benefits beyond the expected say 5 year economic life of the [redacted] without the need to invest in upgrade and replacement.

[25] RRP data in RP_SP_AusNet_Capex_Model
[26] The EBSS effectively includes a time lag of 6 years before customers actually start benefiting from lower tariffs. This period would exceed the typical economic life of IT capex.
[27] At least to the extent that the EBSS as applied in this and future regulatory periods achieves this outcome

104. EMCa considers that Option 3 is the most appropriate option for the sharing of benefits on short lifecycle projects such as the [redacted] project. It allows for acceptance of the expenditure that SP AusNet has proposed, but provides a less skewed allocation of benefits.

4.4 Basis for calculating adjustments

105. The methodology for the allocation of benefits sharing for short life-cycle projects is problematic especially if the projects are integrated in the sense that all components of the project contribute to the delivery of the benefits.

106. We consider that the most appropriate method of sharing benefits of short life-cycle projects is on the basis of the level of investment made by each party. This provides an incentive to the TNSP to ensure that benefits are delivered whilst, at the same time, sharing the benefits with consumers.

107. Taking the above observations into account, we consider that the [redacted] expenditure as proposed by SP AusNet should be allowed.

108. [redacted] based on the respective contributions of the parties to the [redacted] project capex. This allocation would produce an opex reduction in the final year of the RCP of $3.6m. The following tables provide the calculations.

[redacted]

109. Given that capex benefits are likely to be delivered subsequent to full deployment of the solution, we consider that the capex benefits are likely not to occur during the next RCP. Therefore no adjustment is recommended to take into account expected capex benefits.

[28] RRP data in RP_SP_AusNet_Capex_Model
[29] RRP data in RP_SP_AusNet_Capex_Model

4.5 Observations

4.5.1 Normal replacement cycles

110. In our report to the AER on the initial RP, an asset replacement cycle was used to calculate the basis for recommending an appropriate IT capex allowance. We calculated the replacement cycle costs from an assessment of both the past and proposed future IT expenditure and by making a judgement of the strategic and replacement costs. This calculation was made in the absence of any documentation (e.g. business case) that supported the proposed expenditure.

111. With SP AusNet's revelation of the 'hidden' strategic IT capex costs, the assessment shows that the Option 1 Do Nothing costs are much higher than our calculated replacement cycle costs. This suggests that for many of the costs, a straight replacement is not available and more expensive 'equivalent' applications will be required. It is also the case that the introduction of the [redacted] will require substantial design and planning work that would not otherwise be required by a straight replacement.

112. Given the independent cost estimates SP AusNet has obtained and the above deliberations, we consider that it is understandable that the proposed replacement costs will be higher than the replacement cycle costs calculated from historical expenditure values.

4.5.2 Benchmarking

113. In our report to the AER on the initial RP, an assessment of SP AusNet's level of IT expenditure against a selection of other TNSPs was provided. This indicated that SP AusNet's IT capex was at the upper end. We qualified this analysis and recommended care in placing reliance on it given the variability of conditions and inputs.

114. In the RRP SP AusNet provided an alternative benchmark that showed its IT capex was at the lower end of a selection of TNSPs.

115. [redacted]

116. Clearly SP AusNet does see a performance gap to be addressed as identified in independent benchmarking.

117. As with our assessment of the replacement cycle, we used benchmarking in the absence of any other available information (such as from a business case). However,

[redacted]

given our findings on the independent cost estimates and our assessment of the replacement only Option 1, the benchmarking issue can be set aside.

4.6 Overall findings on IT Capex

118. We recommend that:

i. SP AusNet's proposed IT capex of $47.1m is accepted, and

ii. Opex in the final year of the RCP is reduced by $3.6m.

5 Capex Prudency & Efficiency

5.1 Summary of RRP

119. In its Draft Decision, the AER adopted two portfolio capex adjustments that EMCa recommended should be applied to the aggregate capex portfolio (or relevant subsets):

   i. A prudency adjustment, which was applied only to uncommitted projects. Different factors were applied to site-specific projects and general programs of work, based on analysis of cost outcomes in the current RCP, and

   ii. An adjustment for cost estimation bias.

120. In addition, the AER accepted a portfolio-level capex efficiency adjustment which SP AusNet proposed in its initial RP.

121. In its RRP, SP AusNet has disagreed with the two adjustments that EMCa had recommended, on the grounds that:

   i. The prudency adjustment wrongly assumes that the accuracy of SP AusNet's capex forecasts for the forthcoming 3-year RCP will be the same as for the current 6-year RCP and should not be applied;

   ii. The prudency adjustment ignores the top-down challenge process that SP AusNet has already conducted in preparing its initial RP, and which resulted in some projects being deferred relative to an initially-proposed timing;

   iii. The adjustment for cost estimation bias double counts the efficiency adjustment that SP AusNet has proposed, and

   iv. The prudency adjustment has been calculated incorrectly.

5.2 New and confirmed information

122. For the most part, the RRP provides SP AusNet's arguments in regard to its points of disagreement above. A supplementary report was provided to put the case that prudency adjustments in a 3-year budget would not be identical to those in a 6-year budget[31]. In its RRP, SP AusNet listed the projects that had been deferred in the course of preparing its initial RP, and also provided an update of project and program approvals since February 2013.

123. While making the point that it does not consider a prudency adjustment is warranted, SP AusNet presented an updated analysis of portfolio underspend in the current RCP, resulting in a slightly lower historical prudency effect compared with our calculation in assessing the initial RP. SP AusNet also applied the updated factors to its updated project list, to estimate a prudency allowance for the next RCP of $19.5m, if based on this updated data. This compares with the EMCa (and Draft Decision) estimate of $30.4m.

124. In response to our information requests, SP AusNet provided a range of further information which has assisted us in our assessment. This includes:

- Workings to support SP AusNet's assessment of portfolio variances in the current RCP;
- Updated information on program and project status and levels of commitment;
- Asset management plans;
- Information on asset management processes, and improvement initiatives including PMO and EPMO;
- Information on its assessment of efficiency improvements in the current RCP and Post Implementation Reports (PIRs) for a number of projects, and
- Evidence to support SP AusNet's claim that, at the RCP budgeting stage, its projects and programs are more tightly prescribed than was the case in 2007.

5.3 Assessment

5.3.1 Definitions of prudency and efficiency

125. In its on-site presentation, SP AusNet proposed a straightforward definition of the distinction between prudency and efficiency, as follows:

- Prudency: Doing the right thing at the right time
- Efficiency: Delivering "prudent" projects or programs with minimum inputs (labour and materials).

126. This definition aligns with the concept that we have applied.

[31] Appendix I: SP AusNet RRP. *Commentary on Draft Decision Capex Adjustments*, Deloitte Access Economics

5.3.2 Prudency adjustments already made

127. While SP AusNet acknowledges that prudent management has contributed to spending less on capex than it had proposed for the current RCP, it claims that such adjustments are inherent in the budget that it has proposed for the next RCP. It points to certain projects for which initial analysis suggested a particular timing, but which it chose to defer after considering factors such as financing and deliverability.

128. While we acknowledge the challenge process that SP AusNet has undertaken in the course of preparing its initial RP, in the on-site meetings SP AusNet acknowledged that it undertook a similar process in 2007/08 in preparing its proposal for the current RCP. This is as we would expect. The prudency adjustment that we have recommended arises from the finding (which SP AusNet's own analysis confirms) that there was a significant net portfolio underspend relative to its current RCP budget. The conclusion that we have drawn from this is that it has resulted from the continuing application of prudent management, which is an ongoing process of any well-functioning business and is not applied only at the time of forecasting expenditure for a regulatory reset. SP AusNet has not challenged this conclusion.

129. We then sought evidence that might support a hypothesis that SP AusNet's budgeting process had improved to such an extent since 2007 that few if any further prudency opportunities will be identified over the next RCP. SP AusNet provided qualitative information on improvements to its planning and budgeting processes, but stated that:

> *SP AusNet has not claimed that the forecasting process has improved outcomes relative to the current RCP*[32]*.*

130. The qualitative improvements appear to be worthwhile and may lead to better budget accuracy, but the information provided did not show evidence that budgets have yet become more accurate (i.e. since 2007) to the extent, as SP AusNet has contended in the RRP, that no further prudency adjustment will arise. We do not consider the fact that SP AusNet has made adjustments to certain projects in its budgeting process obviates the need for an adjustment to recognise the likely effects on spending of continuing prudent management of its program. We stress that this does not imply that SP AusNet must further improve its processes or management; rather, the adjustment is intended to reflect the continued application of prudent management processes that already exist in the business and, by doing so, the RCP allowance will better reflect the capex that the business will actually incur.

5.3.3 Time-period of next RCP shorter than current RCP

131. SP AusNet has contended that its budgeting process does not require a portfolio-level prudency adjustment because the next RCP is three years, whereas the current RCP is six years. SP AusNet provides a supporting opinion that the adjustments between these two periods would not be identical.

132. The main evidence that SP AusNet has provided to support this contention is that there is a much greater level of project commitment now (59% of proposed expenditure) than was the case for the current RCP (7%). However EMCa's portfolio adjustment has been applied only to uncommitted projects. Table 3.2 in the RRP (which is reproduced from

[32] Response EMCa040

the Draft Decision) clearly shows that the prudency adjustments were applied only to a portion of the proposed capex, and SP AusNet has now provided updated information on project commitment status that reduces the proportion of expenditure that the prudency adjustment applies to.

133. At the on-site meeting we sought information as to whether SP AusNet considers that some other factor might further affect the application of the current RCP portfolio variance analysis to the next RCP. SP AusNet stated that the level of commitment was the primary difference. We therefore consider that we have already satisfactorily addressed the effect of the shorter RCP by applying the adjustment only to the uncommitted projects.

5.3.4 Cost estimation bias double-counts the proposed capex efficiency adjustment

134. We have reviewed SP AusNet's contention that the adjustment proposed by EMCa for cost estimation bias is in effect the same adjustment that SP AusNet has proposed for capex efficiency, in that they are both derived from the same source data.

135. Our analysis of the current RCP portfolio cost outcomes for all projects over this period found a considerable underspend relative to SP AusNet's originally-budgeted costs. Separately, SP AusNet had provided us with its assessment of the variance between the approved budget for a range of projects completed in the current RCP, and the cost outcomes for those projects and we reported on this analysis in our Technical Review. We were not provided with evidence that the variance (averaging 1.4%) resulted from efficiencies achieved on those projects. We were presented with evidence that suggested to us some shortfalls in the cost estimation process, the main one being that unit costs were not being converted into current year dollars but also that governance of the unit cost updating process and modelling of individual project costs was less controlled than we would expect. Our inclination was to therefore interpret this portion of the revealed variance as "cost estimation bias" and to attribute the remainder of the under-spend to prudent management.

136. SP AusNet has explained that it expects capex cost efficiencies to arise from the introduction of improved project management and associated project management systems, such as EPMO. We understand that EPMO is just being deployed. While the initiatives may have differed during the current RCP, information that SP AusNet has provided also demonstrates that other such initiatives have been deployed in the course of this RCP.

137. We consider it a moot point as to whether the variances that we have each observed (from the same data), with cost outcomes on average being less than budgeted, is indicative of over-budgeting (i.e. cost estimation bias) or of cost efficiencies. Whatever the origins of the supporting analysis, we acknowledge that SP AusNet has proposed a capex efficiency adjustment of 1.44% and we propose not to apply a specific cost estimation bias adjustment in assessing the RRP.

5.3.5 Incorrect assessment of prudency adjustment

138. SP AusNet has claimed that our assessment of the prudency rate was incorrect because it did not take account of project 'roll-ins'. Also that the application of this rate

to projects was incorrect because it did not take account of new project commitments that were made after the initial RP was submitted in February 2013.

139. We were at first concerned with the statement in the RRP that suggests that SP AusNet considered only that project roll-ins, and not roll-outs, should be taken into account. However after we requested SP AusNet's calculations, we found that SP AusNet had made a balanced adjustment that accounted for roll-ins and roll-outs.

140. On balance we consider that it is reasonable to include the net effect of roll-ins and roll-outs and we accept SP AusNet's recalculation of the prudency adjustment rates as reasonable indicators.

141. SP AusNet describes the application of such adjustments to projects that were approved since the initial RP was submitted, as a flaw in the Draft Decision. We consider it a result of commitments that SP AusNet made subsequent to its submission of the RP and our analysis that was used by the AER in making its Draft Decision.

142. In the RRP, SP AusNet has provided an assessment of a prudency adjustment that would apply, taking account of both (a) consideration of roll-ins and roll-outs and (b) the updated project commitment status that it has provided. We accept SP AusNet's analysis on both counts.

5.4 Implications of our assessment

143. SP AusNet's updated assessment of a prudency adjustment that would apply to its proposed capex forecast is as follows:

- Adjustment to uncommitted projects: -9.9% (previously -10.3%)
- Adjustment to uncommitted programs: -9.2% (previously -11.2%)
- Overall prudency adjustment to capex: -$19.5m (previously -$30.4m)

5.5 Observations

144. EMCa and Strata have undertaken five recent reviews of transmission and distribution capex budgets, as part of similar regulatory processes. We have analysed capex cost outcomes at a portfolio level, and we find that an under-spend against proposed budgets is the norm. In discussions with those businesses in the course of our reviews, this has generally been attributed to factors such as those that we described in our Technical Review[33] and which we have labelled with the catch-all term of prudent management or prudency[34]. The under-spend that we have found in SP AusNet is not the highest of the prudency variances that we have found from other analysis.

[33] Section 4.3, EMCa Technical Report – SP AusNet RP, August 2013

[34] For example, in a recent review of New Zealand DNSP Orion's Customised Price Path (CPP) application to the Commerce Commission, Orion substantially revised its originally submitted replacement capex forecasts to account for expected gains prior to and during the forthcoming RCP. The basis of the revisions related to the effects of prudent management and efficiency improvements.

145. With regards to the efficiency adjustment that SP AusNet has proposed, we note that this will be similar in nature and in magnitude to the adjustments that the AER applied in its Powerlink decision, and the adjustment that ElectraNet proposed (and which the AER accepted) in its ElectraNet decision.

5.6 Overall findings on Capex Prudency & Efficiency

146. We recommend that the AER:

i. Does not accept SP AusNet's proposition that no prudency adjustment should be made;

ii. Applies a prudency adjustment that reflects the updates that SP AusNet has made in its RRP, and which result in an adjustment of -$19.5m, and

iii. Continues to accept the -1.44% capex efficiency adjustment proposed by SP AusNet, and which applies to all projects.

6 Opex

6.1 Introduction

147. In this section we present our findings on the technical aspects of opex that are within the scope of EMCa's mandate as advisers to the AER[35]. We commence by providing a brief contextual summary of relevant aspects of the Draft Decision and the RRP. We then provide a focused assessment of those, together with our findings and a summary of the implications of those findings.

148. Greater detail on our assessment of the proposed Step Changes and the proposed Asset Works forecast, are provided in appendices A and B.

6.2 Summary of RRP

6.2.1 Draft Decision and EMCa's review scope

149. In its Draft Decision, the AER adjusted the controllable opex forecast to allow $228.5m of the $281m proposed by SP AusNet. In its RRP, SP AusNet disagrees with the Draft Decision. The main components of the adjustments that the AER made were to reduce proposed step changes by $28.3m and to reduce proposed Asset Works by $12.3m. These two adjustments together account for $40.6m of the aggregate $52.6m reduction that the AER applied to controllable opex.

150. In its Draft Decision, the AER re-categorised three proposed step changes with a combined value of $16m, to Asset Works and, after disallowing certain other step changes, allowed an amount of $2.9m for step changes compared with $31.2m sought

[35] This comprises advice on Non-recurrent Asset Works expenditure, System Recurrent expenditure excluding taxes, leases and insurance and Corporate Recurrent expenditure except for management fees. Our advice also excludes advice on cost escalators and, for the purposes of this report, SP AusNet's escalators have been assumed as working assumptions. Lack of coverage of any specific aspects of proposed expenditure in this report reflects prioritisation agreed with the AER and should not be construed as agreement with the RRP.

by SP AusNet. The AER did not accept SP AusNet's bottom-up build basis for forecasting its Asset Works requirements, and adopted a base step trend approach, trending from 2011/12, which was the base year that SP AusNet used in its initial RP for the remainder of opex and the most recent actual year at that time. This resulted in an Asset Works forecast of $12.3m (excluding Asset Works Support, for which SP AusNet's proposed amount was accepted).

151. EMCa has been asked to review the opex that SP AusNet has proposed in the RRP, with a primary focus on Step Changes and Asset Works.

6.2.2 Main reasons why SP AusNet disagrees with the Draft Decision adjusted opex forecast

152. SP AusNet states that it does not agree with the Draft Decision in regards to step changes because it considers that the decision applies the opex criteria inconsistently, has disregarded a number of recommendations that EMCa made as Technical Advisers to the AER and did not consider a number of step changes on their merits. SP AusNet also disagrees with the AER's re-categorisation of three of the proposed step changes to Asset Works.

153. SP AusNet does not agree with the Draft Decision in regards to Asset Works because it considers that the base year does not reflect an efficient revealed cost for Asset Works, it fails to analyse and consider SP AusNet's forecast and supporting information and it does not take into account EMCa's findings. SP AusNet accepts the AER's use of a base-step-trend approach, as opposed to the bottom-up build approach that SP AusNet had proposed in its initial RP, but disagrees with the AER's calculated forecast using that approach.

6.2.3 RRP

154. SP AusNet has proposed an RRP opex forecast with the following main characteristics:

- Forecast step changes of $27m. This includes two step changes that were not included in the initial RP (Fire Service Levy of $2.8m and AEMO Operating Agreement of $90,000);
- Maintaining its position that OHL Condition Assessment and OHL Corrosion Risk Mitigation (i.e. Tower Painting) should be considered as step increases in recurrent expenditure, rather than (as is the case currently) Asset Works programs, and
- Proposing a revised Asset Works forecast of $24.3m (before escalation, and before adding 'support' costs) that is based on the average annual expenditure from the six years of the current RCP[36]. SP AusNet has not re-proposed an asset works program of specific work items.

[36] This figure is as per SP AusNet's RRP and supporting model, and excludes escalation and support costs. The equivalent that SP AusNet proposed after escalation is $25m. On 29th November 2013 SP AusNet provided the AER with an opex model seeking to increase this to $26.1m after escalation, i.e. an increase of $1.1m. Half of this increase was to propose a non-expenditure EBSS allowance and was therefore not within our scope as advisers on forecast expenditure. The remainder results from SP AusNet changing an estimated value in its proposed averaging formula. We have assessed the proposed expenditure itself, and have not based our assessment solely on the application of SP AusNet's RRP estimation methodology.

155. In the RRP, SP AusNet has applied a base step trend approach to all components of controllable opex, except for insurance. While 2012/13 actual controllable opex information was available prior to the submission of the RRP, SP AusNet has applied the base step trend approach from a 2011/12 base year (as per the initial RP).

6.3 New and confirmed information

6.3.1 Step changes

156. SP AusNet has accepted the AER's Draft Decision to include the proposed step change for a controller training simulator and for the annual counter-terrorism exercise. SP AusNet has withdrawn its proposed step increases for additional expenditure to operate its communications network ($2.6m), on the proviso that the AER accepts its proposed averaging base for Asset Works, and has also withdrawn its proposed step increase to allow for additional Technological Innovation expenditure ($1.7m). SP AusNet has proposed two step increases that were not proposed in its initial RP: $2.8m Fire Service Levy (which we understand is offset by an equivalent fire service insurance levy reduction) and $0.09m for additional expenditure under the AEMO Operating Agreement and which we understand is offset (in terms of charges to end-consumers) by an equivalent reduction in AEMO charges.

157. In most other respects, the RRP submits arguments in support of the step changes proposed in the initial RP, and against the Draft Decision, albeit with some minor changes in individual step change amounts. Relevant additional information includes:

- Further information on the current status of the techniques making up the proposed OHL condition assessment work and the expenditure on each of these techniques in the current RCP, including proposed savings that were not proposed previously[37];
- A revised carbon price forecast (July 2013) and a correspondingly reduced proposed step change for a carbon price on SF_6. Subsequent to the RRP, SP AusNet advised[38] of a significant revision to information that it had provided in the RRP on the volume of SF_6 emissions, and in that information request has sought to increase this step change from $1m, to $1.7m;
- With regards to the proposed step for increased expenditure on security of critical infrastructure, SP AusNet newly identified opex savings of $1.5m that would partly offset its initial RP proposed step increase of $4.8m, leading to a net proposed step of $3.3m;
- Further information on its outage planning process and current resources; and
- A revised proposal for regulatory costs, now seeking an additional $3.6m, compared with $2.8m additional opex that SP AusNet estimated in the initial RP, based on its reassessment of the implications of the Better Regulation program.

158. Our assessment of the RRP proposed step changes is contained in section 6.4.1, with more detailed supporting analysis in Appendix A.

SP AusNet's change to one estimated value was not sufficiently material to alter our assessment of the expenditure allowance proposed in its RRP.

[37] Response to request EMCa050

[38] Response to request EMCa045

6.3.2 Asset works

159. In its RRP, SP AusNet has proposed an Asset Works forecast that is equivalent to the average annual expenditure in the current RCP. This forecast does not involve additional information at the program level, and in the RRP SP AusNet has not provided any significant additional information on the program itself. From a works program perspective, SP AusNet did advise in the RRP that it accepted that $3.3m of work proposed in the initial RP for transformer works associated with the RTS and WMTS capex projects, would be capitalised and therefore did not need to be allowed for in the Asset Works forecast.

160. In response to information requests[39] and through presentation at our on-site meeting, SP AusNet provided further information in regards to some aspects of the program. This included additional information on those asset works programs that AER found were in effect re-proposed works from the current RCP[40], and some further information on current RCP Asset Works expenditure (as reported in the next subsection)[41].

6.3.3 Update of actual expenditure

161. Since its initial RP, the 2012/13 regulatory accounts have been made available and these provide more recent information on actual operational expenditure, at a disaggregated level. They show a continuing decline in recurrent opex in particular, with recurrent system expenditure $2.6m less than in 2011/12. Recurrent corporate expenditure was $700,000 higher than in 2011/12; however SP AusNet incurred $1.4m of expenditure in 2012/13 on its regulatory reset, compared with $0.3m in 2011/12. Therefore, net of this regulatory reset cost difference of $1.1m, corporate recurrent expenditure also declined - in this case by around $0.4m. In aggregate therefore, SP AusNet incurred $3.0m less recurrent opex in 2012/13 than in 2011/12, after adjusting for regulatory reset expenditure differences between these years.

162. SP AusNet reported that tower painting costs of $0.23m were included in reported recurrent expenditure, and therefore need to be subtracted from base year recurrent expenditure to avoid double counting with the proposed step change for this same work

6.4 Assessment

6.4.1 Step changes

163. EMCa has re-assessed the step changes in recurrent expenditure that SP AusNet has proposed, taking account of the new information on previously proposed step changes and also considering the step changes that are newly proposed in the RRP. More detail on these assessments is contained in Appendix A.

[39] Response to requests EMCa051 and EMCa056

[40] SP AusNet "Asset Works Slides", presentation 8 November 2013. This was in response to EMCa Technical Report – SP AusNet initial RP (refer in particular to paragraphs 319 and 323, in conjunction with table 21).

[41] This provided actual expenditure on Asset Works for 2012/13 of $6.83m, which superseded the estimate (of $6.62m) provided in the initial RP. This is an increase from $3.98m incurred in 2011/12. These figures exclude "support" costs.

164. As with our assessment of the step changes proposed in the initial RP, we have sought to apply the AER's Guideline, with the main active clause being as follows:

> *'include any necessary adjustments for changes in responsibilities that result from compliance with a new or amended law or licence, or other statutory or regulatory requirement, including a requirement that can be demonstrated to arise directly from a recognised policy, practice or policy generally applicable to similar firms participating in the National Electricity Market'.*

165. Further to the interpretation of aspects of this clause[42] in our Technical Review report we have considered the following matters in our current review of each step change proposed in the RRP:

- Existence of an external statutory or regulatory driver that satisfactorily aligns, in timing and impact, with the proposed step change. We tend not to be persuaded of the validity of a step change that is claimed to result from a driver that is not 'new' or amended' , where SP AusNet has chosen not to respond to the claimed driver to date; and/or
- Existence of a driver that results from application of a recognized policy or practice generally applicable in electricity network businesses in similar circumstances. We consider that this can be taken to include the application of new and emerging techniques or the application of existing techniques to issues that are being newly found to exist in similar firms, provided they are supported by a satisfactory business case that takes into account SP AusNet's specific circumstances.

166. It is our view that these interpretations address the need for a particular step change, however they are not sufficient to accept a proposed amount for that step change. In this regard, we seek evidence of a reasonable assessment of the *incremental* expenditure involved, net of any offsets or savings. It is axiomatic that this cannot be assessed without the business having a clear understanding of existing expenditures on work relevant to the proposed step change and of the existing resources and processes that will be affected (whether by way of increase, decrease, or re-alignment).

167. From our application of these criteria (as explained in Appendix A), we consider that the aggregate step change expenditure that SP AusNet has proposed in the RRP is not reasonable, and we have made a series of adjustments in order to arrive at an estimated amount that we consider is reasonable. In summary, our conclusions on each of the proposed step changes are as follows[43]:

- **Impact of carbon price on SF6 top-ups ($1.0m).** Rejected. It is government policy to repeal carbon pricing legislation and this has already been repealed in the lower house. Pre-election carbon price forecasts that form the basis of this claim are no longer relevant for the next RCP and this amount is rejected on the balance of probabilities.
- **OHL condition assessment ($3.7m)**. We accept $3.2m of this as a step change, reflecting information that the relevant practices are being embedded in recurrent

[42] SP AusNet Revenue Determination, Technical Review, Findings on SP AusNet's Revenue Proposal, EMCa (August 2013). See section 7.2.1 and the application of this guideline in subsequent subsections of section 7.2

[43] Numbers in brackets are the amounts that SP AusNet has proposed. Where SP AusNet has proposed offsetting savings, the amounts shown are net of those proposed savings. Refer to Appendix A for further detail.

maintenance procedures, and this being a currently emerging standard practice. Information provided by SP AusNet indicates that the component relating to use of the Cormon technique is not yet sufficiently mature to be considered part of recurrent maintenance routines, and should remain in the Asset Works program. The proposed amount is net of benefits of $254,000 that SP AusNet has identified in its RRP.

- **Corrosion risk mitigation (tower painting ($8.8m))**. We accept that this is increasingly recognised as good industry practice. We also accept SP AusNet's assessment of the time in the lifecycle to paint, and that the business case for painting is strongly NPV positive and, while the true costs of complete tower painting at scale will emerge from the program, we consider that SP AusNet's estimates have been reasonably derived for the purposes of this regulatory proposal. We are not convinced that SP AusNet has justified the level at which it will continue tower painting on an ongoing basis, nor is there a well-established unit costs for doing so, nor do we see evidence of an established program that includes a committed delivery mechanism for this longer term. As we noted in our Technical Review report on the initial RP, SP AusNet similarly proposed an ongoing expenditure level for tower painting in the current RCP (of $7m[44]) but then largely failed to undertake the program, painting only 2 of the 20 steel towers proposed for that period, plus some steel poles, with total expenditure of $1.4m[45]. SP AusNet had also prominently proposed a tower painting program in its 2002 regulatory proposal. The painting of the proposed 17 towers in the next RCP will be the first whole-of-tower painting program at scale and we consider that those three years are best considered a proof of concept for delivery of ongoing programs beyond the next RCP. We do not consider that this work should be included as a recurrent maintenance step change until the ongoing annual level is established and stable with evidence of the work program actually being carried out as proposed. As with our advice on the initial RP, we recommend in the meantime that this expenditure remains under Asset Works, as it has been to date.
- **Fire Service Levy ($2.8m)**: This is accepted and is understood in effect to be a transfer from a similar levy that was included in insurance costs. It is understood that AER will confirm that this offsetting adjustment to insurance costs has been made.
- **AEMO outage planning requirements and IT reporting and operations ($0.6m + $0.8m)**: Both proposed step changes are rejected on the basis that, while changes are being made to the tools used for managing and communicating outages, the head requirement to maintain and communicate a rolling 13 month outage plan is not new. On the balance of probability, we are also not convinced that the incremental expenditure has been accurately assessed or that savings that should result from better planning and communications tools have been accounted for.

[44] $2013/14

[45] '*However, with the transmission assets now passing the halfway point of their technical lives, corrosion on the ageing tower network is becoming a significant maintenance expense. A comprehensive program of remedial works is currently underway and will extend into and beyond the 2003 to 2007/08 regulatory period. The program involves several elements:*
• *tower painting, particularly towers exposed to corrosive environments such as those situated near the coastline*; ……' (2002 RP, section 4.4.2). It is unclear how much was budgeted for this work, or whether the work was carried out in this previous RCP but, if it was, then we observe that it was largely halted subsequently in the current RCP.

- **Controller training simulator ($0.9m):** Accepted (as per Draft Decision). We have further reviewed this proposed step change against our criteria. We have accepted the overall IT capex proposal, which includes SCADA enhancements, one of which is the purchase of the training simulator. The proposed purchase is described in SP AusNet's ICT strategy document, which includes a tabulation of benefits and a risk assessment for the overall SCADA enhancement program. While the benefits are not quantified in that document, the experience of our team is that such investments are NPV-positive based on mitigating the consequences of low-probability but high consequence events. We also accept that an additional operating expense will be required to establish and maintain the simulator and SP AusNet's estimate for this appears reasonable. We do not consider that there will be any net change in the "training" resource itself.
- **AEMO Operating agreement ($0.09m):** Accepted as a change in funding source. We understand that this increase in transmission-related costs will be offset (in terms of end-consumer prices) by a corresponding reduction in AEMO charges.
- **Security of critical infrastructure ($3.3m):** The step increase for the annual counter-terrorism exercise is accepted (as per the Draft Decision, [redacted]
- **IT network and SCADA security ($0.8m + $0.6m):** Rejected. SP AusNet is already managing network and SCADA security and we would expect that in aggregate this is an important component of its ICT operating expenditure. The proposed step increases do not have external drivers but are presented as resulting from increased understanding of IT security threats. While we fully accept the reality of such threats, we consider that what is proposed is indistinguishable from overall churn in an existing activity of IT operating expenditure, which totals of the order of $20m over the period. We therefore reject this on the basis that the incremental expenditure amount has not been satisfactorily demonstrated.
- **Transitional arrangements ($3.6m):** This is not a strictly a 'step change' but rather a cyclical expenditure that is occurring according to a different cycle in the next RCP, compared with the current RCP. We do not accept the full amount proposed. In gross terms (i.e. including the amount that is implicit in the base year projection) SP AusNet has effectively proposed regulatory reset expenditure totaling $4.6m, compared with current reset expenditure of $2.9m. We consider that SP AusNet has not provided a satisfactory case for the magnitude of its proposed allowance for additional consultation nor for an additional $1.2m for the cost of analyzing

benchmarks. We recommend allowing $3.5m of the proposed $4.6m gross regulatory reset cost. Relative to a 2011/12 base year, this is equivalent to allowing a step change of $2.5m.

168. In aggregate we accept a step change (relative to a 2011/12 base year)[46] of $9.6m, including the transitional regulatory reset expenditure allowance of $2.5m. In terms of an ongoing recurrent expenditure amount, we therefore propose allowing for $7.1m (or $2.4m per year), with regulatory reset expenditure to be added to this according to future regulatory cycles.

169. While we have proposed transferring the tower painting program to Asset Works, we have accepted this program and its proposed cost as being reasonable allowances, albeit under a different expenditure category. Therefore on the basis of 'like' programs, we have in effect allowed for $18m of the $27m that SP AusNet has proposed.

6.4.2 Asset Works

170. EMCa has reviewed the Asset Works forecast that SP AusNet has proposed in the RRP, with consideration of the concerns that SP AusNet raises in the RRP against the AER's Draft Decision.

Concerns raised by SP AusNet in the RRP

171. SP AusNet claims that the AER has failed to take into account relevant information including SP AusNet's bottom up forecast and supporting information and that it has failed to take account of EMCa's recommendations without providing good reason.

172. While SP AusNet agrees with the AER using a base-step-trend approach to forecast Asset Works, it contends that the base year that SP AusNet proposed for its recurrent expenditure (i.e. 2011/12) is inappropriate as a base for forecasting Asset Works.

173. In taking a base-step-trend approach for Asset Works, we observe that the AER consistently applied the same methodology and in the same way as it did for those expenditure items that SP AusNet proposed on a base-step-trend basis (i.e. using the most recent actual expenditure as a base). This "top down" methodology did not involve consideration of specific asset works line items and, similarly, SP AusNet has now, in its RRP, not proposed a specific program of defined Asset Works nor has it addressed EMCa's findings on the Asset Works line items that SP AusNet proposed in its initial RP.

174. The resulting $16.1m allowance for Asset Works in the Draft Decision compares with an allowance of $27.8m proposed by EMCa based on our technical assessment of the bottom-up build approach that SP AusNet proposed in its initial RP[47]. In its Draft Decision the AER re-classified SP AusNet's proposed step changes for tower painting, OHL condition assessment and communications as Asset Works, to be managed within this lower budget amount; in our Technical Advice on the RP we recommended re-classifying only tower painting (which is the largest of these amounts) and we accepted the proposed condition assessment and communications step changes.

[46] Later in this section we propose that a more reasonable estimate of future expenditure is obtained by using a 2012/13 base year and, if so, then the step change (in particular the transitional arrangements step change) needs to be adjusted to reflect the amounts inherent in this base year.

[47] Both figures include SNR support

175. In order to address SP AusNet's concerns, we have undertaken the following further analysis:

- We have assessed Asset Works trends, in order to advise on the reasonableness of the proposed Asset Works expenditure in relation to current RCP expenditure, since (while using different bases) the AER and SP AusNet in its RRP have both based their forecasts on historical expenditure;
- We have reassessed the program that SP AusNet proposed in its initial RP, on a bottom-up build basis taking account of any further information that is available and re-assessing the reasonableness of the judgments inherent in our advice to the AER on that proposal.

Definition of non-recurrent works expenditure and use of a trending approach

176. In line with industry budgeting practice, SP AusNet has distinguished between its recurrent or routine expenditure and its expenditure that is non-recurrent. Recurrent expenditure tends to involve the application of a defined set of maintenance and operational procedures, according to defined time intervals. As SP AusNet pointed out in its initial RP, non-recurrent expenditure tends to be driven more by the revealed condition of the assets and tends to be more variable in nature. It is also more amenable to being brought forward or deferred based on priorities as typically determined by ongoing assessments of risk and of the lifecycle economic implications of doing so. Recurrent expenditure on the other hand tends to be driven by fixed procedures and time-intervals that are embedded in the maintenance policies and procedures of the business.

177. While the distinction between recurrent and non-recurrent work does not dictate the method that is best used to forecast expenditure, we consider that an understanding of the distinction can assist with the forecasting process. Generally, recurrent actual expenditure in any given year can be taken as a good indication of "revealed cost'. On the basis that the recurrent procedures have been prudently determined, reductions in expenditure can be considered to result from some combination of the application of ongoing improvements to prudent asset and business management procedures and to the efficient provision of the relevant services.

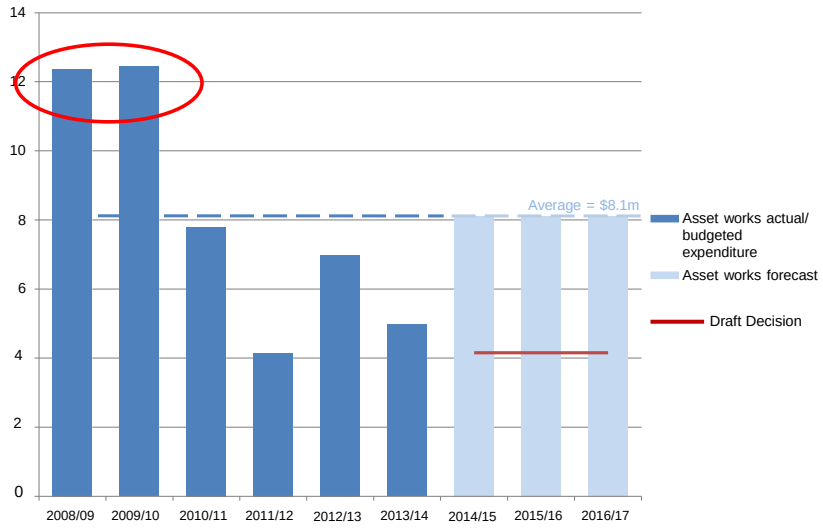
178. It is more difficult to interpret non-recurrent expenditure in a given year as revealing an ongoing prudent and efficient level of costs because of the considerable management discretion typically available to re-prioritise and time-shift non-recurrent works programs, as is evidenced by comparing SP AusNet's proposed and actual Asset Works expenditure in the current RCP. This movement in the level and timing of such works tends to have a relatively slow and incremental effect on the risks of the business and on the lifecycle economics of asset management.

Application of base-step-trend approach to Asset Works

179. With the above discussion in mind, we have considered the application of a base-step-trend approach. In particular we have considered SP AusNet's proposal that the appropriate future level of Asset Works is best estimated by projecting the average Asset Works expenditure over the current RCP, rather than using the same single base

year as is used to project recurrent expenditure. In its RRP, SP AusNet provides the following graph to illustrate actual and proposed expenditure[48].

Figure 3: *Asset works actual and forecast expenditure*



Source: SP AusNet RRP, Figure 4.6 Section 4.5.2.5 p.69 (Note – 2013/14 based on budget, figures exclude labour escalations)

180. Whilst the year 2011/12 is the lowest expenditure year in the current RCP, the two first years of the current RCP were considerably above the level that has been required for the remaining four years of the current RCP. They are also significantly above the level that SP AusNet has proposed for the next RCP, whether on a bottom-up build basis (per its initial RP) or on a base-step-trend approach as it now proposes in its RRP.

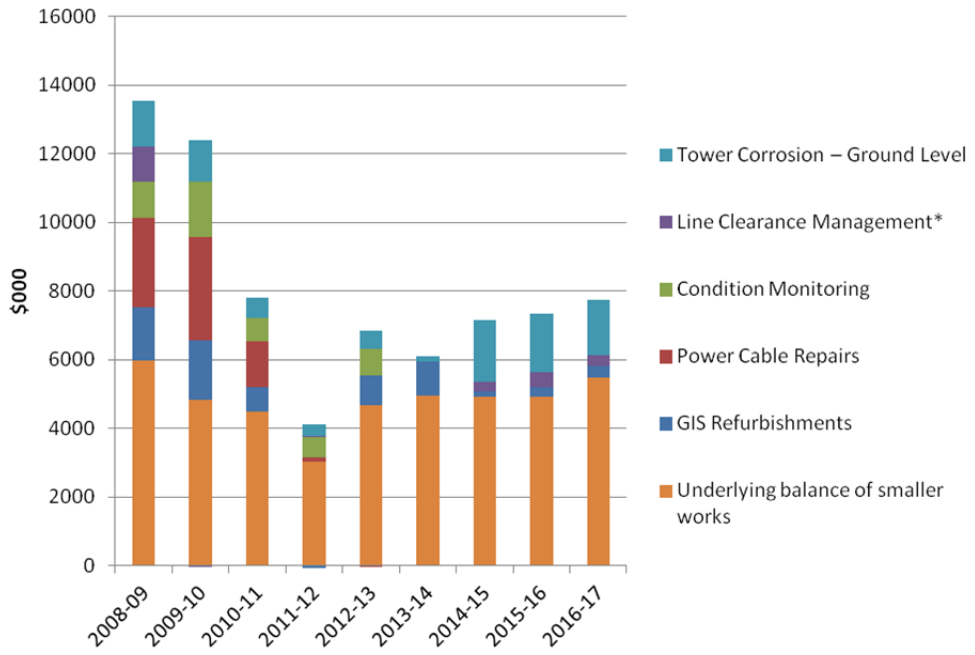
181. Given the variability in Asset Works expenditure, we further examined the nature of the program in the current RCP to see if this would assist in determining an appropriate base amount for a base-step-trend approach. We observed that just five specific programs of work were responsible for $15m of the $26m spent in the first two years (i.e. an average of $7.5m per year); that all of those programs were massively reduced from around 2010/11/12; and that, with the exception of ground level tower corrosion works, SP AusNet has proposed minimal further expenditure on those items. A reasonable interpretation is that the work on these programs has been done and does not recur at any scale for the foreseeable future.

182. This leaves an underlying core level of asset works expenditure which, as can be seen from the graph below, is far more stable and which averages $4.7m per year over the current RCP[49]. Based on SP AusNet's initial RP Asset Works program, we assess that the ongoing core expenditure (i.e. excluding the same major programs, to the extent that they remain) averages $5.1m per year with relatively little variability except in 2011/12, when it was $1.6m less than the average.

[48] SP AusNet subsequently advised an error in this graph and in its opex model provided with the RRP, in that the 2013/14 figure should be $6.1m rather than $4.9m as shown

[49] In response to request EMCa056, SP AusNet advised an error in its RRP opex model, with 2013/14 Asset Works understated. The analysis above uses corrected data. The proposed opex works is taken from the initial RP, but with the exclusion of $3.3m of transformer work as advised in the RRP.

Figure 4: *Current RCP and proposed Asset Works*



Source: EMCa analysis from information provided by SP AusNet in responses to requests EMCa015 and EMCa056

183. Over and above the core expenditure level, SP AusNet in its initial RP proposed specific major programs for the next RCP, with a major focus being on ground level tower corrosion mitigation. Relative to an underlying core Asset Works expenditure level of $4.7m (per the current RCP) a total Asset Works program averaging $8.1m per year (as SP AusNet has proposed in its RRP) would allow for $3.4m per year, or a total of $10.2m, to be spent on such 'non-core' works.

184. In its RRP, SP AusNet has proposed spending $8.8m over the next RCP on its tower painting program. As indicated in our assessment of Step Changes, we consider that this is best retained under the Asset Works category for the next RCP. In its initial RP, SP AusNet proposed spending $5.2m on ground level tower corrosion; however in our review of that proposal we recommended that only $1.2m of this would be required, in line with the average annual expenditure of $0.4m over the last four years of the current RCP. These major focus programs, adjusted as above, would therefore require $10m, which is approximately the amount available over and above the trended core expenditure level.

185. We consider that this more granular trend analysis, taken together with our previous findings on the major focus programs for the next RCP, indicates that an Asset Works program of around $8.1m p.a. ($24.3m in total) would be sufficient to cover underlying Asset Works requirements and to accommodate the major tower corrosion mitigation programs.

Consideration of the specific circumstances of the business

186. SP AusNet has contended in the RRP that the Draft Decision allowance for Asset Works does not take into account works program information that was provided and that it is insufficient to meet its works program requirements. Since it has chosen to switch the basis for its proposed expenditure to a base-step-trend approach, there is not an equivalent works program matching the expenditure proposed in the RRP. Nevertheless, we consider it is reasonable and necessary as part of assessing a program with such variable drivers and variability of expenditure, to undertake a bottom-up test of the proposed amount.

187. We therefore reviewed the Asset Works program line item adjustments that we made in assessing the program that SP AusNet put forward in its RP, with adjustments to update information as follows:

- We transferred the $8.8m tower painting proposed step change, into Asset Works consistent with our original and current advice, but with SP AusNet's updated cost;
- We deducted the $3.3m for "transformer and CT failure risk" that SP AusNet acknowledged in the RRP is related to the RTS and WMTS capex programs, and which should be capitalized; and
- We reviewed the remaining adjustments that we recommended in our technical review report on the initial RP. Our view is that no new information has been provided that would lead us to change these recommendations.[50, 51]

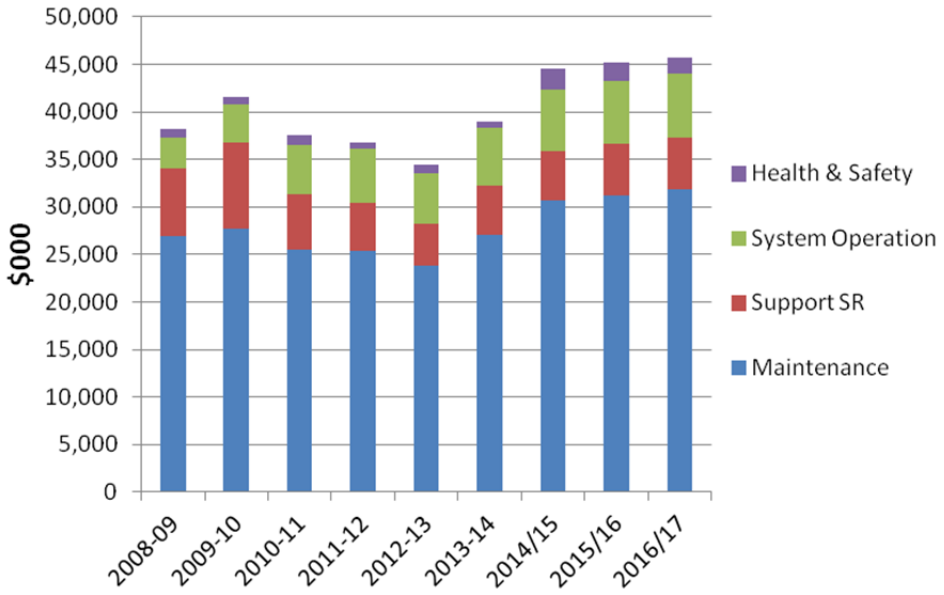
188. On this basis, our indicative bottom-up cross check estimate of Asset Works requirements results in an amount of $26.2m[52]. Taking account of prudent management practices, and being cognisant of SP AusNet's considerable lower spend in the current RCP relative to the 2007 regulatory reset allowance, we consider this to be a reasonable cross-check against the base-step-trend budget of $24.3m that SP AusNet has proposed in its RRP.

6.4.3 Recurrent expenditure and the base year

189. The following graph shows the steady decline in 'technical' recurrent maintenance[53] from 2008/09 to the latest actual expenditures in 2012/13[54]. The subsequent step increase to 2013/14 is partially driven by identified step changes of $1.4m, but the additional component of the increase from 2012/13 (and which amounts to $4.2m) is essentially a function of applying the escalation trend to a 2011/12 base, rather than the 2012/13 base.

[50] Some minor changes resulted from changes that SP AusNet made to its historical data.
[51] In its RRP, SP AusNet did not challenge EMCa's assessments in this regard, and its main contention is that the AER reached a different view
[52] Note that this includes tower painting.
[53] i.e. excluding taxes, leases and insurance
[54] With the exception of the increase in 2009/10, which can be seen to be largely driven by an allocation of 'support' costs applied in that year.

Figure 5: *Recurrent opex trend and proposed RRP recurrent opex*



Source: EMCa, from SP AusNet RRP opex model

190. We have sought information from SP AusNet on the reasons for the lower 2012/13 expenditure and for the subsequent increase from 2012/13 to 2013/14. No information has been provided that would indicate that the 2012/13 actual expenditure is not a valid representation of the true and current revealed cost of the business. Nor is there any information to demonstrate that, apart from the proposed step changes, there is any identifiable additional expenditure item that would justify the magnitude of the increase to 2013/14 and beyond that SP AusNet proposes. In other words, we do not consider that there is any material anomaly in this revealed cost that should be adjusted for, in using this as a base year amount.

191. We therefore conclude that a reasonable and prudent assessment of the recurrent 'technical' component of controllable opex that SP AusNet will incur is best based on revealed costs for 2012/13[55]. Any amounts that were included in that base year, and which are now proposed either as step changes or as asset works should be netted from this base.

192. Because of its cyclical nature, we recommend that the clearest way to account for regulatory reset expenditure in the next RCP is to net off the $1.4m incurred on regulatory costs in 201312/13 from the base, with the gross amount of forecast regulatory reset expenditure then added back in as a 'non-recurrent' step amount for the next RCP only[56].

193. As an observation, we note that SP AusNet's Management Fee for 2012/13 was $5.0m, compared with $6.3m in 2011/12. SP AusNet has nevertheless projected this

[55] As previously indicated, this assessment relates to all System Recurrent line items but excluding taxes/leases and insurance and Corporate Recurrent expenditure excluding the Management Fee

[56] See section 6.4.1 for the proposed gross regulatory reset expenditure allowance that is independent of the choice of base year

management fee into the next RCP at $6.3m p.a. (using a 2011/12 base) rather than the current revealed cost level of $5.0m p.a.

6.4.4 Efficiencies arising from past and proposed strategic IT expenditure

194. In our Technical Review of the initial RP, we recommended that the opex budget should allow for the efficiency benefits that would be expected to arise from significant expenditure in the recent past, on upgraded and strategic IT investments. We calculated a proxy benefit that should be at least of the order of $7.2m (i.e. $2.4m per year) over the next RCP[57]. In its RRP, SP AusNet did not explicitly disagree with this figure[58].

195. Subsequent to the RRP being provided, our investigations have found that SP AusNet's RP and RRP proposed capex for an upgraded [redacted] system which did not comprise the whole cost of this system, but rather a calculated proxy "replacement" element of the system[59]. SP AusNet proposed to classify the remainder as a "strategic" element of the investment, not to include it in the rolled-forward RAB for the next RCP and, on this basis, had chosen to include only a small portion ($0.8m) of the projected opex savings in the RP, and not to include any of these projected savings in the RRP.

196. As described in section 4, we do not consider it valid for SP AusNet to charge the majority of the cost to consumers (through inclusion in the rolled-forward RAB) while providing them with no material benefits, and investing a small portion of the cost outside of the regulatory process and reaping almost all of the opex benefits for the business.

197. In our Technical Review report on the initial RP, we did not accept the proposed capex investment in the [redacted] because insufficient benefits had been disclosed. For consistency, we therefore "added back" the $0.8m of opex benefits that SP AusNet had included. As described in section 4, since the information that SP AusNet has now provided indicates a positive business case overall for the [redacted] project, we now accept the proposed expenditure but we do not accept that the benefits should be attributed solely to the business, while the majority of the cost is borne by consumers through transmission prices. We have therefore proposed an allocation of the opex benefits that aligns with the proposed regulatory investment, and we have calculated this as a $3.6m opex benefit in the next RCP[60]. This amount should replace the benefit of $0.8m that SP proposed in its initial RP (noting that no opex benefit was proposed in its RRP).

198. We therefore consider that the opex budget should take account of the benefits that are expected and which result from investments that have been funded through capex incurred or to be incurred. These total $10.8m, with $2.4m in the first two years and then $6m benefit occurring in the final year of the RCP.

[57] This would be a continuation of opex efficiencies that are already evident, for example over the years 2010 to 2013 in the current RCP as is shown in figure 5.
[58] However we note that SP AusNet did not include such opex benefit allowance in its RRP
[59] Refer to section 4: IT capex, for further explanation and assessment of this information
[60] This calculation is based directly on information provided by SP AusNet, as described in section 4. In addition to the expected benefits, SP AusNet documentation indicates the opportunity for further "stretch" benefits.

199. We consider that AER's adjusted opex should take account of such expected opex cost reductions, whether explicitly or in comparing its total opex allowance (however derived) to the aggregate opex allowance that would be consistent with our technical review findings.

6.5 Risk considerations

6.5.1 SP AusNet's contention that the Draft Decision opex level is insufficient

200. In its RRP, SP AusNet has contended that opex levels allowed for in the Draft Decision are not consistent with the NEL and NER requirements, and do not take into account consequent network outcomes or risk implications. Examples of such statements in the RRP are as follows:

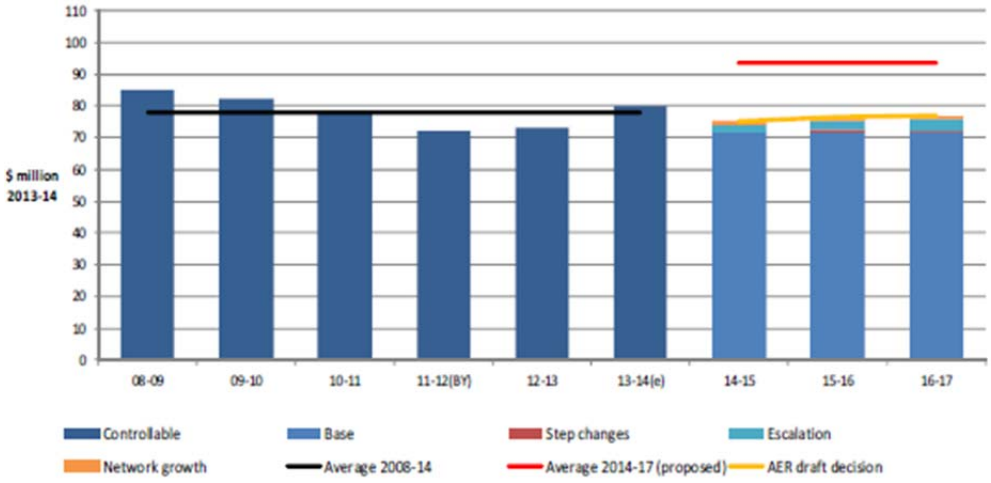
> *'[The Draft Decision] substitutes forecasts based on top-down analysis without regard to consequential risks to the reliability, safety and security of supply of transmission services' (page 10)*
>
> and
>
> *'….the AER's substitute forecast for asset works results in an opex allowance for asset works which is insufficient to meet expected asset works costs in the next regulatory period. The substitute forecast is not consistent with the NEO or the Revenue and Pricing Principles' (page 65)*
>
> and
>
> *'By failing to consider what the network outcomes of these projects will be, the AER is not accepting forecast opex that is consistent with the opex criteria and which it is required to accept under NER 6A.6.6' (page 71).*

201. We sought evidence for these assertions by considering SP AusNet's current opex level compared with the opex level in the Draft Decision, by reviewing information provided by SP AusNet on the risk implications for step changes and asset works that it has proposed and by considering SP AusNet's own assessment of its risk profile. We also considered SP AusNet's statements regarding the condition of its assets, and the role of SP AusNet's expenditure prioritisation processes in managing risk. To maintain the integrity of this review, we sought this evidence wherever possible from statements and analyses that SP AusNet had already provided and we have provided further examples of such statements in Appendix C.

6.5.2 SP AusNet aggregate opex level

202. The following figure shows the declining level of controllable opex that SP AusNet is incurring over the current RCP (to 2012/13). The allowance in the AER's Draft Decision can be seen to lie within the range of opex that SP AusNet has incurred in the most recent past, that is, since 2010/11.

Figure 6: *SP AusNet current RCP controllable opex, the Draft Decision allowance and SP AusNet's proposed allowance*



Source: AER Draft Decision (August 2013) Figure 8.2, page 36

203. The expenditure level that SP AusNet has proposed in the next RCP (shown in red) would represent a significant increase on current expenditure levels. It would appear that SP AusNet has judged that the current levels of opex are sufficient as we have been unable to find current disclosures to its Board or to the regulator to the contrary. Therefore in order to assess SP AusNet's contention, it needs to be demonstrated why such amount would become insufficient from the beginning of the next RCP.

6.5.3 Risk implications of proposed step changes and asset works amounts

Risk considerations in relation to the proposed Step Changes

204. In its RRP, SP AusNet identified the following Step Changes directed towards mitigating reliability, safety and/or security risk. We have considered the risk implications of these in relation to the amounts that we have recommended allowing in the current review.

i. **Ageing asset profile** – OHL condition assessment ($3.94m) and corrosion risk mitigation ($8.81m). This work is driven primarily by the benefit of deferring tower and conductor replacement (opex/capex trade-off), rather than immediate physical infrastructure risk. The condition assessment information should, *over time,* provide information that allows SP AusNet to reduce the risk of conductor failure and to optimise remedial and replacement investment; similarly, the tower painting program addresses a long term issue. EMCa has assumed the need for both of these works programs, in our assessment of a reasonable level of opex.

ii. **Changed compliance obligations** – security of critical infrastructure ($3.26m); SP AusNet advised that [redacted]

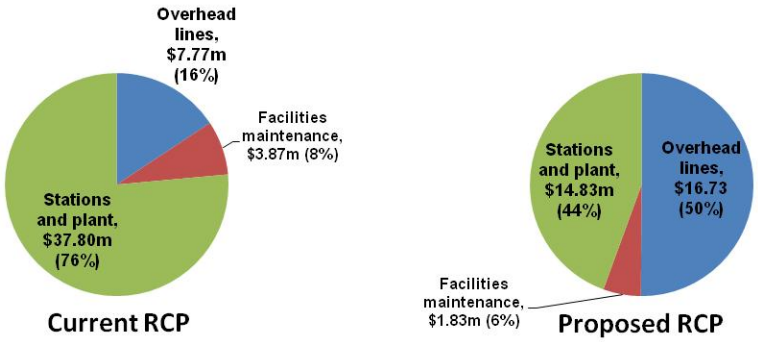
[61] Response to EMCa031

iii. **ICT capital works**: communications infrastructure ($2.55m), IT network security ($0.81m), controller training simulator ($0.92m), and SCADA security ($0.61m). The opex is for personnel to support new capex investments on an ongoing basis. These programs address operational risks that, if they manifest, could affect the reliability, safety and security of the network. SP AusNet has not proposed the communications infrastructure opex as a further step change in its RRP, and we have recommended including the controller training simulator. We have recommended not including a step change for additional SCADA security in the opex allowance, the implication being an overall opex level of $200,000 per year less than SP AusNet has proposed.

Risk considerations in relation to the proposed Asset Works program

205. In its initial RP, SP AusNet proposed a number of Asset Works programs in three categories, as is shown below, alongside the expenditures incurred in the current RCP. It can be seen that the Asset Works program that SP AusNet proposes represents a major shift in focus from stations and plant, to overhead lines such that proposed expenditure on overhead lines will be similar to that of the 'risk-stabilised' stations & plant.

Figure 7: *Categories of proposed Asset Works expenditure*[62]



Source: Initial RP & EMCa015 response

206. The proposed expenditure on Stations & Plant is designed to maintain the risk profile at the current level, noting that the focus of the Asset Works investment in the current RCP has been to reduce risk in this category. With the exception of SF_6 leakage[63], reducing reliability and safety risk (from asset failure) are the key objectives in this category. As discussed in Appendix B, the SF6 leakage mitigation work has not delivered the expected benefits and we consider it is likely that SP AusNet will need to revisit its strategy (including the forecast expenditure).

207. Consistent with the increasing risk from ageing overhead lines, SP AusNet has proposed allocating a greater proportion of Asset Works expenditure to overhead towers and conductors, compared with its past works allocation. The remedial work directed at overhead lines (such as the corrosion risk mitigation program discussed under "step

[62] For the pie chart showing the expenditure breakdown proposed for the next RCP, we have included SP AusNet's proposed step change for tower painting, both for reasons of comparability (since it is included in Asset Works in the current RCP figures) and because we recommend that it remains in Asset Works for the next RCP. It should be noted that current RCP figures are for 6 years, whereas the next RCP covers 3 years.

[63] SF_6 presents an environmental risk and a compliance risk; the SF_6 CB refurbishment program and, in part, the GIS refurbishment program, are designed to reduce SF_6 leakage

changes" in the sub-section above) is primarily designed to defer more expensive replacement work. We have accepted the rationale for this work to be done and have allowed for it in assessing a reasonable opex allowance. We would expect SP AusNet to direct its condition assessment works (and which we have also allowed for) towards safety and reliability risks such as can be caused by conductor or insulator failure. Tower failures are extremely rare, and the tower foundation works and tower painting works are primarily directed at improving lifecycle economics.

208. In assessing a reasonable opex allowance, we have accepted SP AusNet's proposed allowance for Asset Works. This amount is based on SP AusNet's annual expenditure in the current RCP. As per the current RCP, we consider that this allowance should also include the tower painting program which, in the overall program of works, is not additional but rather represents a change in works focus away from the risk-stabilised stations and plant.

6.5.4 Risk considerations and SP AusNet's expenditure prioritisation processes

209. As explained earlier in this section, SP AusNet has spent considerably less on Asset Works than it proposed as being necessary at the outset of the current RCP. It has provided three main reasons, two of which refer explicitly to prioritising expenditure on a risk basis:

i. Freeing-up funding to allow capex works to be undertaken: '…*demand for capital across the networks also required tough decisions to be made. Therefore SP AusNet prioritised expenditure in the following way:*

- *Safety related expenditure was and is non-discretionary and fully funded;*
- *Expenditure in the distributors to meet customer growth and customer connections was also non-discretionary (clear obligations to connect and meet planning standards); and*
- *Replacement capex and operating costs were reviewed and reassessed for risk trade-offs, with the networks accepting more risk given the adverse financial conditions.'*[64]

ii. Re-prioritisation due to better asset information and external drivers such as new legislation[65], and

iii. Operational constraints – such as dealing with unexpected asbestos.[66]

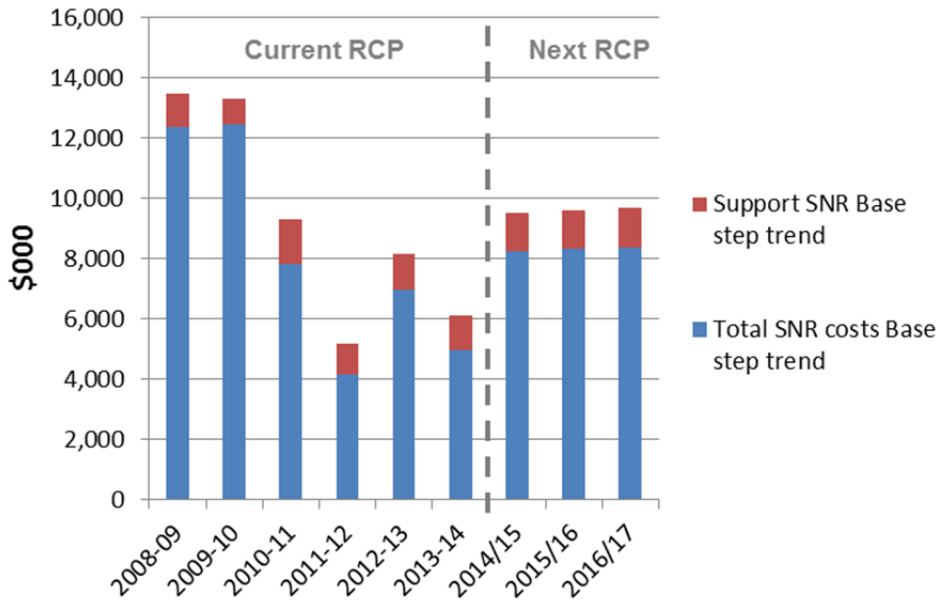
210. Assessment of the risk implications of the revenue allowance should be made on the basis of the reasonableness of that aggregate allowance and not on the risk implications of specific works being done, or not done. We have sought to establish a level of opex that is reasonable in aggregate. SP AusNet has demonstrated its ability to prioritise its works expenditure to direct its opex to first meet physical risks (safety, reliability and security of infrastructure) and then to make prudent investments in longer term opex/capex trade-offs driven by lifecycle economics. We assume that this capability will continue.

[64] Response to AER20
[65] SP AusNet, Transmission Asset Management Plan 2013/14 to 2017/18, p12
[66] Response to request EMCa021A

6.5.5 SP AusNet's assessment of its risk profile

211. We assessed the relationship between SP AusNet's expenditure levels in the recent past, and its risk profile. We consider that the most relevant opex component for this purpose is Asset Works expenditure, which is shown in Figure 8. This shows the significant drop-off in Asset Works that occurred from 2010/11, with a substantial portion of SP AusNet's Asset Works program deferred during the most recent four years of the current RCP. SP AusNet also reduced its recurrent opex and further deferred some significant capital works in this time.

Figure 8: *SP AusNet's current RCP and proposed next RCP expenditure on Asset Works*



Source: EMCa analysis, from SP AusNet RRP Opex Model [67]

212. At the time, in its 2011 Asset Management Plan, SP AusNet explained the works program deferral and its risk implications as follows:

> *'The expenditure profile for asset works was reduced in 2010/11 significantly from previous years and to allow this level to be sustained during 2011/12 and 2012/13, it is planned to defer works into future years. The major works to be deferred are tower corrosion mitigation works, station gantry structure repairs, transformer contingency CBD works, painting of towers, asbestos removal, removal of redundant plant to increase ratings and miscellaneous station repairs.* ***The immediate increase in technical risk in 2011 from these deferrals is minimal****, however without higher provisions for Asset Works in future years increases in risk in these areas will be material. In particular tower corrosion will be more progressed, more extensive repairs and mitigation works are likely to be required in the future years.'* [68]

[67] See footnote 48, regarding SP AusNet's correction of its 2013/14 Asset Works expenditure to $7.2m

[68] SP AusNet, *Transmission Asset Management Plan 2011/12 to 2015/16*, p10. Emphasis added

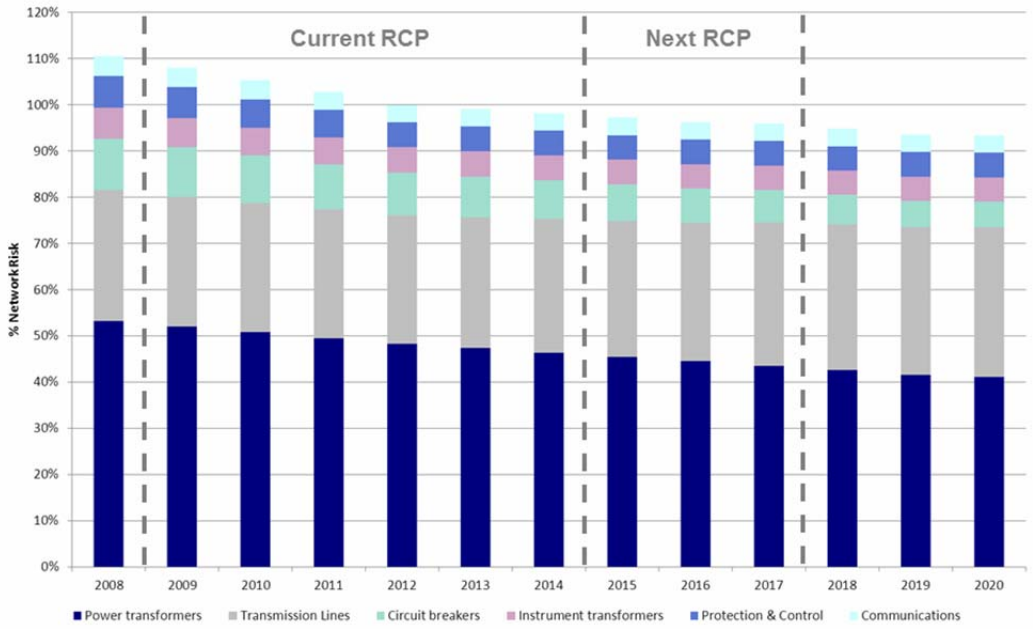
213. Figure 9 shows SP AusNet's assessment of its time-profile for transmission network asset risk, from 2008 – 2020. The scale of this graph is an index, and shows a declining risk level, including over the period from 2011 – 2014 in the current RCP when asset works expenditure was significantly reduced. This risk profile can also be set against the overall controllable opex profile, which shows a similar (though less prominent) expenditure reduction over the same period.

214. SP AusNet has described the risk profile and its drivers as follows:

> *A reduction in transmission network risk is evident over the period shown in Figure 4. This reduction is primarily the result of the large number of transformer replacements related to the CBD station rebuild projects. Asset classes other than transformers display a relatively flat risk profile with the exception of transmission lines, where risk is increasing due to deterioration of assets and a relatively small asset replacement program*[69]

215. The declining risk profile is consistent with SP AusNet's statement that the increase in technical risk from [the reduced expenditure] was minimal, with the risk shown as continuing to decline throughout this period.

Figure 9: *Transmission network asset risk*



Source: Figure 4, SP AusNet Transmission Asset Management Plan 2013/14 to 2017/18[70]

216. For the next RCP, our recommended level of opex includes the level of Asset Works opex that SP AusNet has proposed, and its proposed tower painting program that it deferred from the current RCP. The asset works expenditure and the overall controllable opex that results from our recommended adjustments are both higher than

[69] SP AusNet 2013 Asset Management Plan

[70] As this graph is reproduced from an SP AusNet document, its clarity cannot be improved. Top assist with its interpretation: Y-Axis reads % Network Risk, X-Axis reads year 2008 to 2020, Bars represent: (in the order shown) Power transformer, Transmission lines, Circuit breakers, Instrument transformers, Protection & Control, Communications.

they have been in the recent past, when the risk level has been falling. We consider that it is reasonable to infer from this that the level of adjusted opex that we have proposed will not lead to a deterioration in SP AusNet's transmission network assets risk level.

217. Moreover, as a significant proportion of SP AusNet's Step Change and Asset Works opex forecasts is directed at long term issues with an emphasis on economic opex/capex trade-off benefits, a lower level of opex than SP AusNet has proposed is unlikely to result in a significant or rapid or indeed any increase in risks to network reliability, safety or security over the three year duration of the next RCP. The deferral of works that are justified on an economic lifecycle basis would lead to higher capital expenditure being required in the future for tower and conductor replacement, as SP AusNet has noted (noting also that SP AusNet has already deferred this work, which has been proposed and allowed for in successive revenue determinations since 2002).

218. In Asset Management Strategy (AMS) documents provided as supporting documentation for its initial RP, SP AusNet has documented the condition of transmission line assets as follows:

> *Although [transmission line] structure assets are ageing primary inspection techniques indicate that they are generally in good condition. (AMS 10-77)*
>
> *At the present time structure foundations are generally in good condition (AMS 10-78)*
>
> *Although conductor and ground-wire assets are ageing primary inspection techniques indicate that they are generally in good condition…... (AMS 10-79)*

219. These statements are consistent with SP AusNet's assessment in the 2011 Asset Management Plan that the failure risk of transmission lines is increasing slowly (and linearly).[71] SP AusNet's AMS documents also state the extent to which works are required on these assets, and in our assessment we have taken account of the need for a greater proportion of transmission line works in its future asset works expenditure.

6.5.6 Conclusions on risk in relation to EMCa's findings

220. EMCa has considered the specific circumstances of SP AusNet's transmission business, including a 'bottom-up' assessment of the proposed step change and asset works programs.

221. For the reasons presented above, we consider that the adjusted overall opex that we have recommended to the AER is:

i. Sufficient to allow specific areas of risk to be addressed, assuming that safety, reliability and security of infrastructure will continue to be prioritised by SP AusNet;

ii. Sufficient to allow SP AusNet to progressively realise economic opex/capex trade-off benefits; and

iii. Unlikely to lead to increased risk relative to current levels for the duration of the next RCP.

[71] SP AusNet, Transmission Asset Management Plan 2011/12 to 2015/16, p4

222. We consider that the level of opex that we have allowed for is sufficient to allow SP AusNet to adequately address the risks that it has identified.

6.6 Observations

6.6.1 Interpretation of expenditure allowances

223. In the NEM regulatory regime, the opex allowance is not applied as a constraint on expenditure. Rather, it is an input to the AER's approval of a regulatory revenue allowance for its prescribed services, and our assessment of the proposed opex allowance is undertaken within that framework.

224. Therefore while, for practical and analytical reasons, our technical assessment refers to certain line items or certain specific aspects of the proposed expenditure, our over-arching objective is to advise on an allowance for an aggregate level of controllable opex, consistent with the requirements of the NER. Our findings are based on a balance of evidence and an unbiased balance of probability and are not provided as advice for 'approval' to incur expenditure, either in aggregate or in regards to particular items of expenditure put forward by the business in support of its revenue proposal.

225. At the on-site meetings that we attended as part of the RRP assessment process, SP AusNet advised that it has internal budget controls which appear to limit management expenditure discretion based on AER allowances at an expenditure category and even a line item level. SP AusNet has considerably underspent relative to the AER allowance used in determining revenues for the current RCP, in a number of categories and line items that SP AusNet proposed and which were accepted by the AER for the purposes of determining that revenue allowance. It would appear therefore that these strictures do not apply to underspend, but are being presented as limitations on the ability for line managers to respond to 'churn'-based variances at a category and line-item level. At the on-site meeting, we were advised, for example, that SP AusNet would not undertake certain work or certain business management initiatives, unless the AER allowed for them explicitly in its revenue determination process. Such statements are also evidenced in SP AusNet's responses to information requests. For example:

> *"However, if the [tower painting step change] project is unfunded, SP AusNet considers that the AER will have made a de facto decision to approve future tower replacement."* [72]

[redacted]

> *"A business case [for a controller training simulator] will not be developed until regulatory treatment of the investment is confirmed"* [74]

[72] Response to request EMCa044
[73] Response to request AER RRP12 – part 2 (amended)
[74] Response to request AER RRP021

226. While the ways in which SP AusNet chooses to maintain its internal budget discipline is not a matter for us to consider as technical advisers to the AER, equally we stress that technical advice that we provide to the AER in this and other reports to assist it in setting the total revenue allowance should not be construed as usurping the proper role of management in regards to budget prioritisation and approvals of specific items of work.

6.6.2 Double-counting and re-proposal of previously proposed expenditure

227. In our technical review report on the initial RP, we drew attention to SP AusNet having spent $45.8m, or 46%, less than it had proposed to spend in the current RCP (in $2013/14 terms)[75]. We also reported evidence of outcome metrics provided by SP AusNet that showed that significant volumes of work that underpinned the previous allowance, were simply not undertaken. This was part of a strategic deferral that SP AusNet has ascribed to "*financing constraints as a result of the GFC which led to a sacrifice of asset works opex to enable continued delivery of the capex program*" [76] The implications of this deferral are evidenced in its 2010 Transmission Asset Management Plan that has recently been provided to us:

> *"The expenditure profile for asset works was reduced in 2010/11 significantly from previous years and to allow this level to be sustained during 2011/12 and 2012/13, it is planned to defer works into future years. The major works to be deferred are tower corrosion mitigation works, station gantry structure repairs, transformer contingency CBD works, painting of towers, asbestos removal, removal of redundant plant to increase ratings and miscellaneous station repairs."* [77]

228. This is broadly as we had deduced. In our Technical Review report, we identified $13.9m of 'under-spend' relative to the allowance in the current RCP, for works that appeared to have been 're-proposed" for inclusion in the revenue allowance for the next RCP. In its on-site presentation[78], SP AusNet has acknowledged that the major components that we had identified, and which we calculate as comprising $11.2m of the $13.9m above, have been "possibly partially re-proposed". SP AusNet has disagreed that GIS is 're-proposed" as "different equipment is covered" and it considers that there is "no evidence of overlap" in regards to transformer and CT failure risk expenditure. It is difficult to accept these contentions, given that SP AusNet was unable to provide us with metrics for these programs of work, specifying measurable targets and outcomes, nor do such metrics appear either in its 2007 proposal or in its proposal for the next RCP. [79]

229. Given further information, we would now also tend to categorise tower painting as 're-proposed' work. The 2010 Asset Management Plan (as quoted above) specifically refers to deferring this work and the metrics that emerged in the course of our technical review of the initial RP showed that, whereas 19 repainted 'structures' were reported against a target of 20, only 2 of these were steel towers and the remainder were simpler

[75] Ibid paragraph 312
[76] Response to information request EMCa026, page 2
[77] Transmission Asset Management Plan 2011/12 to 2015/16, provided as part of response to request EMCa042, November 2013
[78] Asset Works slides, 8th November 2013
[79] Response to request EMCa021A

steel poles[80]. As a result of this deferral of the major work, SP AusNet spent $5.4m less than it had proposed for the current RCP, and the 17 towers proposed for the next RCP essentially align with the number of unpainted towers that were deferred. In its RRP, SP AusNet has proposed $8.8m for the repainting of these towers.

6.7 Overall findings on Opex

230. We find that:

i. The proposed step changes of $27m have not been demonstrated by SP AusNet to be reasonable and they should be reduced by $17.4m to $9.6m[81, 82]. The tower painting program is not yet ready to be considered a recurrent ongoing program, and the program should be considered as part of Asset Works, not as a step change in recurrent expenditure.

ii. Provided Tower Painting is included in the program, then we consider the proposed Asset Works budget of $24.3m is reasonable.

iii. The most recent actual recurrent opex amount, which is from 2012/13, provides a better indication of revealed cost for the next RCP than the 2011/12 recurrent cost. Excluding taxes, leases and insurance (which were not within our review scope) and excluding Asset Works (for which we have accepted the proposed amount) we estimate that use of 2012/13 as the base year would result in a $5.2m lower opex allowance than if the 2011/12 year is used.

iv. Consistent with the benefits now disclosed for its investment in [redacted], the controllable opex allowance should be reduced by $3.6m in the final year of the RCP. It should be noted that this figure updates and replaces the opex benefit of $0.8m resulting from deployment of this system, and which SP AusNet proposed in its initial RP.

v. Consistent with findings in our Technical Review of the initial RP, we consider that the opex that SP AusNet has proposed needs to be reduced by $7.2m ($2.4m per year) to allow for the benefits that should arise from its strategic investments in IT to date.

231. We recommend that:

i. The overall opex budget allowance is set at a level that reflects the technical adjustments above, comprising

   a. A reduction of $17.4m in recurrent expenditure step changes, and

   b. A reduction of $5.2m to account for the lower revealed cost of recurrent expenditure.

[80] EMCa Technical Review report – SP AusNet RP, August 2013, paragraphs 322 and 323
[81] This reduction includes the $8.8m proposed tower painting costs, moved to Asset Works
[82] For comparability reasons the step change is presented relative to a 2011/12 base year and must be adjusted if a different base year is used.
[83] See section 4

ii. The overall opex budget allowance should also be adjusted to reflect opex efficiency benefits of $7.2m arising from the benefits of past strategic IT expenditure, and $3.6m of opex benefits that SP AusNet has identified as arising from its investment in an upgraded [redacted] system.

232. The aggregate implication of these findings (before escalation) is that they would produce an overall opex budget that is around $33.4m less than what SP AusNet has proposed. In its Draft Decision, the AER also allowed $1.5m less for group 3 roll-in costs than SP AusNet has now sought in its RRP. Combining these would indicate a reduction in the order of $35m[84].

233. SP AusNet has proposed an allowance for controllable opex (including escalation) of $270.7m in total over the next RCP[85]. The adjustments above would imply a reasonable adjusted level of controllable opex of the order of $236m.

234. To the extent that the components of the controllable opex allowance are within the scope of our review, we consider that the adjusted amount above is a reasonable, prudent and efficient allowance that reflects the circumstances of the business and takes account of relevant information provided by SP AusNet. We consider that the adjusted amount is sufficient for SP AusNet, through the exercise of sound governance and sound management practices, to be able to discharge its obligations over the three years of the next RCP, without material change to its risk position or to asset health.

[84] The adjustments that we have calculated do not explicitly allow for escalation of the reduced amounts. Depending on AER's decision in regards escalation, EMCa's technical recommendations may lead to a slightly greater reduction, therefore supporting a slightly lower opex allowance.

[85] From the SP AusNet opex model provided with its RRP. Note that a figure of $274.1m is quoted in table 4.22 of the RRP. However inspection of the opex model shows that this includes a non-expenditure PTRM model adjustment. On 29th November 2013 SP AusNet provided the AER with an updated model with proposed controllable opex of $275.6m (before PTRM adjustment). We reviewed the changes in that model and found that (a) as noted in section 6.2.3 we did not consider that it warranted changing our assessment of the proposed Asset Works allowance, (b) a proposed increase in the step change for SF6 was not warranted on the basis that we rejected this proposed step change in its entirety, and (c) the remaining changes were for items not within EMCa's technical review mandate.

Appendices

A. Step Changes

Overall findings on Step Changes

235. The result of EMCa's bottom up review of the Step Changes proposed in SP AusNet's RRP, supplemented by information received via presentations and responses to information requests is summarised in the table below, noting that we support the $8.81m for corrosion risk mitigation as an Asset Works program (see Appendix B).

Table 8: *Summary of step changes* [86,87,88]

($m, real $2013/14)

SP AusNet Category	Project	RP	DD	RRP	EMCa review of RRP
Ageing asset profile	Overhead line condition assessment program	3.94	-	3.94	3.19
	Corrosion risk mitigation	9.50	-	8.81	-
Changed compliance obligations	AEMO outage planning requirements	0.61	-	0.61	-
	Security of critical infrastructure	4.79	[redacted]	3.26	[redacted]
Regulatory changes and government policy initiatives	Impact of carbon price on SF_6 top ups	2.45	-	1.04	-
	Transitional arrangements for the economic regulation of NSPs	2.78	1.90	3.60	2.47
Recurrent operating expenditure not reflected in base year	Communications infrastructure	2.55	-	-	-
ICT capital works	Enable market reporting and operations	0.46	-	0.46	-
	IT network security	0.81	-	0.81	-
	Controller training simulator	0.92	0.94	0.92	0.92
	SCADA security	0.61	-	0.61	-
Enhanced efficiency through technology improvements	Innovation program	1.74	-	-	-
New	Fire services levy	-	n/a	2.82	2.82
	AEMO operating agreement	-	n/a	0.09	0.09
	TOTAL	**31.17**	**2.97**	**26.97**	**9.61**

Sources: *RP - RP SP_AusNet_Opex_Forecast_Model-CONF.xls*

DD – Table D1, AER Draft Decision, SP AusNet, August 2013, p231

RRP – Section 4.8, SP AusNet RRP, pp77-92

[86] In the Draft Decision, OHL condition assessment, corrosion risk management and communications infrastructure were all categorised as Asset Works

[87] In Response to request EMCa045, SP AusNet revised the forecast SF_6 impact to $1.69m

[88] The Fire Services Levy and AEMO operating agreement were not assessed in the DD, as no opex for this was proposed in the initial RP

Approach

236. Through a series of questions to and responses from SP AusNet, we have reviewed our advice to the AER on the nine disputed step change components and provide new advice on the two proposed additional components.

OHL Condition Assessment Program

New and Confirmed Information

237. In the RRP, SP AusNet confirmed that:

- The proposed step change responded to two drivers: ageing asset (OHL) base and the requirements of the ESV, and a more accurate approach to line condition assessment commensurate with good industry practice;
- The programs are collectively designed to defer tower replacement at a substantial net present saving;
- SAIP, intrusive inspection of structure footings, and conductor joint replacement are new programs; the bolted connection repairs and corrosion quantity surveying are existing programs that will be increased in the next RCP[89];
- Trials of the new approaches have been carried out in the current RCP as part of the Asset Works program with $1.2m expenditure forecast in 2013/14[90];
- The CORMON technology trials have been encouraging but it 'is still at the development stages and there remain some doubts about its accuracy'[91], and
- The proposed OHL condition assessment opex forecast is $3.94m (per the initial RP).

238. In responses to questions and/or in presentations, SP AusNet also confirmed that:

- The majority of the programs are 'underway'[92], and
- There are offsetting savings of $254k over the three years of the next RCP.[93]

Assessment

239. With the exception of the CORMON technique, which has yet to be fully proven, the proposed program collectively represents an approach commensurate with good industry practice for the detection of overhead line defects.

240. The proposed program expenditure is recurrent and there has been sufficient experience through the trial period of new techniques to determine an efficient net cost for the program of work.

241. SP AusNet has identified OHL condition as a source of increasing risk[94] due to a relatively small asset replacement program. Investment in more accurate condition

[89] Appendix 5E, SP AusNet TRR, p9
[90] RRP opex model provided by SP AusNet
[91] SP AusNet, AMS – Victorian Electricity Transmission Network – Condition Monitoring, p13
[92] SP AusNet presentation, *Step Changes*, 8 November 2013, slide 4
[93] Response to request EMCa043
[94] SP AusNet Asset Management Plan 2013/14 to 2016/17, March 2013, p15

assessment to target operating and capital expenditure is a prudent approach to manage risk and replacement capex with a positive NPV.[95]

Findings

242. We support the inclusion of all but the CORMON overhead line detection technique as a step change. We also accept SP AusNet's aggregate savings of $0.254m over the 3 years. The table below shows the recommended step change provision.

Table 9: *Recommended OHL Condition Changes*

($m, real $2013/14)

Program	RP	RRP	EMCa review of RRP
Aerial photography conductor inspection (SAIP)	1.38	1.38	1.38
Cormon inspection and conductor sampling (OHLCD)	0.51	0.51	-
Intrusive inspection of structure footings	0.61	0.61	0.61
Conductor joint replacement & testing	0.43	0.43	0.43
Bolted connection repairs	0.06	0.06	0.06
Corrosion quantity surveying of structures	0.95	0.95	0.95
Savings	-	- 0.25	- 0.25
TOTAL	**3.94**	**3.69**	**3.18**

Sources: RP – Table 2.1, Appendix 5E, SP AusNet RP, p10

RRP – Savings – Response to request EMCa043

243. There is merit in SP AusNet continuing to trial the overall effectiveness of the CORMON technology and the extent of further OHLCD inspections.

Corrosion Risk Mitigation Program

244. In the RRP, SP AusNet confirmed that the entire corrosion risk mitigation program for 2014-17 involves painting 17 towers on two radial 220kV lines at a total cost of $8.81m. The reduction from the initial RP forecast of $9.5m is due to estimated savings of $231k p.a. from offsetting existing programs.

245. In a presentation[96] to EMCa and the AER on 13 November, SP AusNet provided a more detailed assessment of the tower painting requirements (from 2017/18 – 2028/29) comprising of 54 towers on radial 220kV lines.

246. For reasons discussed in our technical review of the initial RP, we do not consider that the tower painting program should be covered by a step change at this stage. Until the process and cost has been tested and refined through undertaking the work on a significant scale (ie. the first tranche of 17 towers in the next RCP), we consider that:

i. An efficient cost cannot be readily determined, and

ii. The work (the need for which we accept) should be classified under Asset Works. We therefore address the required expenditure in our review of the proposed Asset Works program.

[95] Response to request EMCa50

[96] Presentation, *Step Changes*, 8 November 2013, SP AusNet, slide 8

AEMO Outage Planning Requirements

New and Confirmed Information

247. In its RRP, SP AusNet questions the AER's findings that the B2B process required by AEMO to be followed from 2014/15 introduces outage planning efficiencies. SP AusNet stated that it has recruited an additional resource to optimise the outage plans. In an on-site presentation[97] we were advised that this person was currently working on other activities.

Assessment

248. NEMMCO commenced publishing 13 month network outage information in April 2003 and the B2B/NOS process has been available since that time. TransGrid and Transend have adopted the B2B approach[98]. Once the initial work required to move to the B2B/NOS platform is complete, SP AusNet should not incur significant ongoing additional costs.

249. The increased visibility of NOS data and the increased focus of market participants and the AER on the mismatches between transmission outages in the spreadsheet and NOS is noted. However, the requirement for SP AusNet (and other TNSPs) to submit their 13 month outage plans has not changed. Any increase in the quality of planned outage information which SP AusNet produces is a decision for SP AusNet. Based on our experience, it is reasonable to expect that SP AusNet's outage plan optimisation will release works program delivery efficiencies through improved work and workforce coordination.

Finding

250. Significant recurrent net expenditure for using the B2B/NOS platform for the existing 13 month planned outage notification will not be incurred by SP AusNet. Therefore the step change is rejected.

Security of Critical Infrastructure (Terminal Stations)

New and Confirmed Information

251. From information provided during the RP assessment, it has been established that the legislation and standards, with the noted exception of the requirement for an annual counter terrorism exercise, have existed since 2003[99].

252. [redacted]

[97] During discussion of *Step Changes* presentation, 13 November 2013
[98] Appendix 5E, , Attachment 1 – Briefing Note – AEMO's Network Outage Schedule (NOS), SP AusNet RP
[99] Section 4.8.4.1, SP AusNet RRP, p84
[100] *Ibid*, p84

[redacted]

Assessment

256. [redacted]

[101] *Ibid*
[102] *Ibid*
[103] AER Draft Decision - SP AusNet, August 2013, p235-236
[104] Table 2, Response to AER RRP12 part2
[105] [redacted]
[107] Response to request EMCa031

[redacted]

Finding

258. [redacted]

Impact of Clean Energy Future legislation on SF_6

New and Confirmed Information

259. In its RRP, SP AusNet:

- Provided advice that it has enough SF_6 to last until April 2014, an updated forecast of the carbon price[109], and its actual SF_6 emissions from 2009-10 to 2012-13[110];
- Initially confirmed that it expected that the net result of its asset management work (inspect, repair, replace, refurbish) on SF_6 equipment would offset the introduction of new SF6 equipment[111];
- Confirmed that it plans to spend on average 44% less per year on CB refurbishment and 73% less on GIS refurbishment over the next RCP compared to the current RCP, and
- Applied the latest available Treasury carbon price forecast (July 2013) to revise the projected cost impost over the three years of the next RCP to $1.035m.

260. After submitting the RRP, SP AusNet also provided a revised assessment of actual SF_6 emissions for 2011/12 and 2012/13, updating the forecast SF_6 emissions and related expenditure[112.] SP AusNet identifies that its SF_6 CB and GIS refurbishment programs in the current RCP did not achieve the expected reductions in SF_6 emissions and that the forecast now (ie. after the RRP) is for a 110% increase over the period 2009/10 – 2012/13, rather than a 30% increase. SP AusNet now 'expects that SF_6 emissions will continue to increase over time, consistent with the experience in the current period.'[113] Using the corrected SF_6 emissions data for 2012-13 as a base to forecast carbon price impacts on SF_6, SP AusNet in its information request response sought to increase its

[108] SP AusNet AMS Victorian Transmission Electricity Network, Infrastructure Security, 2013
[109] Table 4.13, SP AusNet RRP, p87
[110] Figure 4.12, SP AusNet RRP, p87
[111] Section 4.8.5.1,- SP AusNet RRP, p86
[112] Response to request EMCa045
[113] *Ibid*

RRP proposal to a revised step change expenditure forecast of $1.686m over the three year, an increase of 63% on its RRP position.

Assessment

261. The government's policy is to repeal the 'Clean Energy Future legislation, effectively eliminating the carbon tax from 01 July 2014. On 14 November 2013, the Senate referred the Clean Energy Legislation (Carbon Tax Repeal) Bill 2013 and related bills to the Environment and Communications Legislation Committee, commencing the repeal process.

262. On this basis, SP AusNet is only likely to be exposed to the impact of higher carbon prices for two months (May-June 2014). The volatility of SP AusNet's actual and forecast SF_6 emissions casts doubt on the accuracy of its current predictions.

263. SP AusNet's refurbishment program involving $2.228m over the last 5 years on CB and GIS equipment has not met target SF_6 reduction targets.

Observation

264. SP AusNet should revisit its SF_6 reduction strategy given the apparent inadequacy of its existing strategy to reduce, or at least sustain, SF_6 emissions.

Findings

265. The external driver represented by the carbon price levy is due to be removed from July 2014. On the balance of probabilities, SP AusNet will not be subject to a recurrent impost. Therefore we recommend no step change provision in this category.

Transitional Arrangements

266. In its initial RP, SP AusNet proposed a $2.8m step change for the transitional arrangements based on the addition of two regulation and 5 engineering resources for two years. The AER used a revealed cost approach to determine a $1.9m allocation.

New and Confirmed Information

267. In its RRP, SP AusNet advised that:

- It accepts the AER's approach of using the revealed corporate regulatory costs as an appropriate way to estimate the required step change, and
- In its opinion, the Draft Decision does not fully account for the increased length or requirements of the Economic Regulation of NSP's Rule Change. SP AusNet now proposes a step change of $3.6m. The tables below show the actual/estimated cost of the current revenue reset program and the components of SP AusNet's revised expenditure proposition[114]:

Table 11: *Incurred/estimated revenue reset cost*

($m, real $2013/14)

Component	2011/12	2012/13	2013/14	Total
Corporate – revenue resets	0.342	1.412	1.1	2.854

Source: Response to AER RRP 015

[114] Response to request AER RRP 015

Table 12: *SP AusNet proposed transitional arrangement opex*

($m, 2013/14)

Component	2014/15	2015/16	2016/17	Total
Apply historical additional reset costs to next period (AER's approved step change)	-	1.10	0.80	1.90
Impact of extended reset period (ie. submit 4 months earlier)	0.37	-	-	0.37
Additional FTE to undertake consumer engagement for 6 months in 2015/16	-	0.10	-	0.10
Additional 2 FTEs to provide benchmarking data	0.41	0.41	0.41	1.23
TOTAL	0.78	1.61	1.21	3.60

Source: Response to AER RRP 015

Assessment

268. We accept that SP AusNet will incur additional costs in managing the partially concurrent transmission and distribution regulatory reset 'projects', but not to the extent proposed by SP AusNet to cover the need for extra resources:

- Whilst additional community engagement is required, we believe that this is reasonably provided for in the $0.37m afforded by the extension of project time from 11 to 15 months; it is also reasonable to expect that SP AusNet would leverage off its existing community engagement resources to ensure the engagement requirements are met satisfactorily;

- Based on our experience, and cognisant of the requirements of the AER, we consider that one FTE for one year (rather than 6 person-years as proposed by SP AusNet) is sufficient to supplement the rest of the business' capacity to create a solid platform for ongoing benchmarking analysis and reporting.

269. The table below shows EMCa's derivation of the step change reasonably required by SP AusNet:

Table 13: *EMCa recommended revenue reset costs*

($m, real $2013/14)

Description		2014/15	2015/16	2016/17	Total
Draft Decision step change			1.10	0.80	1.90
Plus DD implicit in base		0.34	0.34	0.34	1.03
Implied DD gross cost		0.34	1.44	1.14	2.93
Plus extended reset		0.37			0.37
Plus 1 FTE year benchmarking		0.20			0.20
Gross regulatory reset costs		0.91	1.44	1.14	3.50
Implied step change net of base year					
2011/12 base year	0.34	0.57	1.10	0.80	**2.47**
2012/13 base year	1.41	- 0.50	0.03	- 0.27	**- 0.74**

Source: Draft Decision and EMCa analysis

Finding

270. We consider that SP AusNet has not provided a satisfactory case for an allowance for additional consultation or for an additional $1.2m for the cost of analyzing benchmarks. Accordingly, we recommend allowing $3.5m of the $4.6m gross regulatory rest cost. Relative to a 2011/12 base year, this is equivalent to allowing a step change of $2.5m.

Communications Infrastructure

New and Confirmed Information

271. In the initial RP, SP AusNet sought $2.55m as a transfer from asset works (in the 'miscellaneous' category) to recurrent base expenditure via the proposed step change. In its RRP, SP AusNet advised that *if* the AER accepts SP AusNet's proposed base year expenditure for Asset Works, the step change for communications is no longer required as it reallocated expenditure from asset works to base opex.[115]

Assessment

272. In our report on the initial RP, we considered information provided on the drivers for this expenditure. Whilst the expenditure is a reasonable reflection of SP AusNet's requirements, it is not a new business requirement. Given that the AER is substituting an opex forecast derived from a revealed cost approach, adding a step change for communications infrastructure would double count communications infrastructure opex. In regards to the caveat in the RRP, we have recommended accepting the proposed Asset Works allowance.

Finding

273. We recommend accepting the RRP's proposition that a communications infrastructure opex step change is not required.

Market Reporting & Operations

New and Confirmed Information

274. SP AusNet confirmed that the proposed step change relates to an additional IT resource to support additional system IT functionality.[116]

Assessment

275. SP AusNet has not provided compelling information to support the claim that the purported ICT support for a connection with NOS (to meet AEMO's existing, not new requirements) and an interface with MSS require an additional IT resource for the foreseeable future. It is plausible that there is a short term impost, but it is also reasonable to expect that the medium term impact of the change will not have a net cost impost.

Finding

276. We recommend that the AER does not approve this step change.

IT Network and SCADA security

New and Confirmed Information

277. SP AusNet confirmed that the proposed opex step changes for the QA/QC environment and IT network security program are to provide operational support for components of

[115] Section 4.5.2.6, SP AusNet RRP, p71
[116] Section 4.8.6.2, SP AusNet RRP, p90

the IT capex program and that as the related projects are not due to start until the next RCP, the step changes are not required now.[117]

Assessment

278. The work does not arise from an externally imposed obligation, but EMCa is satisfied that as technology evolves, the security threat to SP AusNet's network operations can and probably has increased. This threat has been recognised since at least 2009 but has only recently been taken into account in SP AusNet's IT strategy. We would expect that once recognised, SP AusNet should have been taking continuing steps to mitigate the risk.

279. What has not been shown to our satisfaction is the explicit link between this threat, the large and complex IT program of work (across three businesses) that is underway, and the extent to which the proposed additional resources are required – in the short and longer term. EMCa is still of the view that the new IT infrastructure and systems will allow SP AusNet to change the way it works with in-built additional security features, rather than a recurrent increased resource requirement.

Finding

280. We recommend that the AER does not approve the step changes for IT network security nor SCADA security.

Fire Service Levy

New and Confirmed Information

281. SP AusNet advises that the FSL will now be applied via council rates rather than through insurance premiums. It seeks a step change adjustment of $2.821M over the next RCP and we understand that it has adjusted its insurance forecast accordingly.

Assessment

282. The step change is required to comply with a regulatory obligation and it is based on council rates notices received in August 2013. This should be offset by the removal of such levy from insurance premiums.

Finding

283. We support the inclusion of the proposed $2.821m over the next RCP for the FSL as a step change.

AEMO Operating Agreement

New and Confirmed Information

284. Until August 2013, AEMO paid SP AusNet around $30k pa for certain power system security services provided by SP AusNet. Under the new AEMO Power System Security Functions Agreement (a deed of delegation), these functions are now treated as prescribed transmission services and represent an operating expense.

[117] Response to request EMCa047

Assessment

285. The deed represents a new external obligation on SP AusNet that imposes recurrent net costs on SP AusNet. We understand that there should be no net cost to electricity customers as a result of this change as SP AusNet advises that AEMO's levy is reduced by an equivalent amount.

Finding

286. The $90k submitted by SP AusNet to meet the costs of the AEMO Operating Agreement is reasonable and should be accepted as a step change.

B. Asset Works

287. Following the AER's lead, SP AusNet proposed moving to a base-trend approach for Asset Works in the RRP and it therefore did not provide detailed responses to the Draft Decision at a 'bottom-up' program level. However, to assist with the assessment of an appropriate base, we have reviewed the initial RP asset works program cognisant of new and confirmed information provided by SP AusNet in response to our questions. In this Appendix, only the technical aspects of the proposed Asset Works are considered.

Overall findings on Asset Works

General

288. The table below shows the comparison between the initial RP proposed detailed asset works program and the results of our updated bottom-up assessment, which we have undertaken by way of an indicative cross-check against the reasonableness of SP AusNet's proposed aggregate amount. Changes from the initial RP are highlighted.

Table 14: *Asset Works summary*

($000, real $2013/14)

Category	Asset Works	Initial RP	Draft Decision	RRP	EMCa cross-check
Stations & Plant	SF6 CB refurbishments	2,187	-	-	2,187
	GIS refurbishments	797	-	-	797
	Transformer & CT risk#	5,202	-	2,035	2,035
	Switchgear	601	-	-	601
	Oil CBs	1,645	-	-	1,645
	Reactive plant	1,582	-	-	1,582
	Civil infrastructure at stations	1,731	-	-	1,731
	Maintenance support	948	-	-	948
Overhead Lines	Ground level tower	5,154	-	-	1,197
	Corrosion risk management*	-	-	-	8,812
	Tramission line hardware	405	-	-	303
	Replacement of tower steelwork	1,399	-	-	1,049
	Line clearance (drop) management	962	-	-	962
	CORMON OHL condition assessment*	-	-	-	510
Other	Facilities maintenance - Yarraville	1,827	-	-	1,827
	TOTAL	24,440	12,361	24,352	26,186

Initial RP figure from Section 5.11, SP AusNet RP, p138

* Corrosion risk management (tower painting) and the Cormon project have both been re-categorised by EMCa from Step Change to Asset Works

Sources: *RP – Response to request EMCa021A*
DD – AER – Draft Decision – BST opex model – For SPA (CONFIDENTIAL).xls
RPP – Except for Transformer & CT risk, SP AusNet did not update its RP figures as it adopted a base-trend approach. The figures shown are therefore the "program-level" expenditures that we have inferred from a combination of the initial RP and SP AusNet's updated information on transformers and CT risk in the RRP

Corrosion Risk Mitigation

289. Tower foundation, ground level and painting are all discussed in this section as they collectively address tower corrosion risk mitigation.

New and Confirmed Information

290. Foundation work is now forecast to be underspent by $5.1m (-87%) in the current RCP with $0.66m expected to be spent in 2013/14. The average annual expenditure in the last 4 years of the current RCP is $0.18m. SP AusNet does not propose any expenditure in the next RCP.

291. Ground-level (SOX) work is forecast to be underspent by $7.4m (-64%) in the current RCP with only $0.15m expected to be spent in 2013/14. The average annual expenditure in the last 4 years of the current RCP is $0.40m. SP AusNet budgeted for 2,730 towers to be coated but only 1,330 were completed over the 6 years. The main reason for the lower work rate is safety issues with asbestos. The RRP proposes average annual expenditure of $5.1m ($1.7m pa on average) in the next RCP.

292. Tower painting – in the current RCP only 2 towers and 17 poles were painted at a total cost of $1.4m (underspent by $5.6m, 80% of the proposed program). SP AusNet estimates that the 17 towers proposed to be painted in the next RCP will cost on average $0.55m per tower. SP AusNet confirmed that the work in the current RCP is sufficient to determine a P50 cost estimate for the 17 proposed towers.

293. In its RRP and in recent site visits and presentations, SP AusNet no longer referred to tower foundation work or SOX, instead using the terms ‘corrosion risk management’ and ‘tower painting’ interchangeably. We infer from this that the foundation work has been suspended for the next three years.

Assessment

294. Ground level – given that there will not be a step change in risk over the next 12 months, we hold to the view that SP AusNet is likely to spend at approximately the rate achieved over the last four years ($0.4m pa).

295. Tower painting – We accept the rationale for the tower painting program as a prudent means of deferring tower replacement. We also accept that SP AusNet’s process by which it has targeted the highest risk towers on the network of 13,000 towers. However, we remain concerned with the poor progress with tower painting in the current RCP (leading to lack of experience with complex tower painting situations). SP AusNet advised that $0.25m pa was double-counted in its initial RP cost estimate and consequently has provided a lower program estimate of $8.81m. The average of $0.55m per tower is within the range of costs that we have sourced from other EHV tower painting programs in Australia and New Zealand. It is clear from our analysis that the cost per structure varies considerably with the extent of OHS&E preparation and monitoring work required.

Findings

296. Ground level – we recommend an allocation of $1.2m in place of the $5.2m proposed.

297. Tower painting – We endorse the proposed $8.8m and therefore the average of $0.55m per structure, as each one is in a residential area, requiring significant OHS&E work.

However, until sufficient information has been gathered to support the specific investment in the tower painting program (particularly with respect to cost), we recommend that the project remain in the asset work category.

Transmission Line Hardware

New and confirmed information

298. In the current RCP, SP AusNet is on track to underspend the budget provision of $2.5m by 85% ($2.1m) whilst achieving 60% of the target volume. SP AusNet proposes opex of $0.4m to replace 563 hardware elements over the 3 years of the next RCP.

299. No new information was provided in the RRP or subsequently, other than advice from SP AusNet that 'documents underpinning the replacement of transmission line hardware asset works program in 2007 are unavailable'[118]

Assessment

300. As discussed in our technical report on the initial RP, this new and confirmed information indicates a lack of maturity in the work type – both from the assessment (cost and need) and the delivery perspectives. SP AusNet spent an average of under $0.07m pa against a forecast of $0.42m pa in the current RCP. SP AusNet proposes spending $0.13m pa in the next RCP at more than double the average cost per element.

301. Whilst we accept the rationale for the project in that it forms an integral part of performance and life extension of overhead lines, we still consider that there is a 'provisional' element to the proposed budget and that the expenditure is likely to be less than requested.

Findings

302. We retain our position from our review of the initial RP by recommending reducing the proposed opex by 25%, a reduction of $0.1m to $0.3m.

Replacement of tower steelwork

New and confirmed information

303. In the current RCP, SP AusNet is on track to underspend the budget provision of $1.7m by 96% ($1.6m) whilst replacing 25% of the proposed 1,250 members. SP AusNet proposes opex of $1.4m to replace 1,604 members over the 3 years of the next RCP.

304. No new information was provided in the RRP or subsequently, other than advice from SP AusNet that 'documents underpinning the replacement of transmission line hardware asset works program in 2007 are unavailable.'[119]

Assessment

305. In addition to what was incurred in Asset Works, SP AusNet has advised that tower steelwork was being undertaken as part of routine maintenance but not tracked. Our assessment of the tower steelwork program is similar to the line hardware program.

[118] Response to request EMCa051
[119] *Ibid*

Findings

306. We retain our position from our review of the initial RP by recommending reducing the proposed opex by 25%, a reduction of $0.4m to $1.0m.

Transformer and CT risk

New and confirmed information

307. SP AusNet has accepted that the $3.3m proposed for replacing transformers and CTs at RTS and WMTS should be capitalised.[120] It has been removed from asset works opex.

Assessment

308. The remaining work ($2.0m over three years) appears to be a reasonable estimate of prudent expenditure.

Findings

309. The allocation for transformer and CT risk reduction should be reduced by $3.3m to $2.0m reflecting the capitalisation of the work to be undertaken at RTS and WMTS.

Other asset works

Findings

310. No adjustments to the opex expenditure proposed in the initial RP for the remaining programs/projects in asset works are recommended

[120] Response to request EMCa051

C. Step changes & Asset Works: risk-related statements

311. This Appendix contains extracts from SP AusNet documentation pertaining to the potential impact on risk of its Step Change and Asset Works programs. Section 6.5 draws from this information and discusses the risk implications of the AER's Draft Decision and EMCa's revised position on Step Change and Asset Works opex.

312. It is clear from these statements that SP AusNet:

i. Identifies ageing overhead line assets as the next asset management challenge;

ii. [redacted]

iii. Identifies that whilst the assets are generally in good condition, now is the time to start addressing the highest risk assets to defer costly asset replacement;

iv. Therefore is increasing the proportion of it opex on overhead line assets and reducing opex on stations & plant;

v. Is concerned that the AER's Draft Decision will compromise its investment program, increasing the need for expensive asset replacements earlier than would otherwise be the case; and

vi. Identifies that the short run increase in reliability, safety and security risk from having less than forecast opex (for step change and Asset Works programs) if the Draft Decision stands will be relatively small.

Source: RRP

Summaries

In broad terms, those aspects of the Draft Decision that raise concern include areas in which the AER:

- *…Substitutes forecasts based on top-down analysis without regard to consequential risks to the reliability, safety and security of supply of transmission services; (p10)*

Looking forward, SP AusNet identified a number of factors that will put upward pressure on opex requirements in the 2014-17 period including:

- *asset failure risks, and the consequential increase in maintenance activity – associated with the ageing asset base (p55)*

Asset Works

The AER has simply adopted the actual expenditure in 2011-12 without considering whether the chosen base year expenditure level is sufficient to maintain the reliability and safety of the transmission system. (p64)

There has been no assessment of the base year against SP AusNet's likely future asset works needs. This would have involved analysis of the forecast asset works

program submitted by SP AusNet to enable an assessment of whether the 2011-12 expenditure level is sufficient to maintain the reliability and safety of the transmission system. (p64)

SP AusNet's asset works program consists of non-recurrent expenditure that is required to manage operational risks on the transmission system within an acceptable band. The majority of these works are non-routine repairs and refurbishment activities which defer the need for replacement where this is economic. (p65)

For the above reasons, SP AusNet considers the AER's substitute forecast for asset works results in an opex allowance for asset works which is insufficient to meet expected asset works costs in the next regulatory period. The substitute forecast is not consistent with the NEO or the Revenue and Pricing Principles which state that NSPs should be provided with a reasonable opportunity to recover at least the efficient costs of providing network services (p65)

Setting an asset works allowance below a level which will allow SP AusNet to satisfy the opex objectives encourages asset works projects to be inefficiently deferred beyond the 2014-17 regulatory control period. In the worst cases this may result in the deterioration of asset condition to the extent that asset works projects are no longer an effective treatment to improve the assets' condition, and the assets instead need to be replaced. Such an outcome constitutes a sub-optimal opex-capex trade-off, increases expenditure over the lifetime of the assets' and is inconsistent with the NEO. (p67)

Step Changes

SP AusNet considers that the OHL condition assessment and the corrosion risk mitigation programs are required to meet the opex objectives in the 2014-17 regulatory control period. These programs aim to defer costly tower replacements, which promotes efficient investment in and use of the network, an outcome encouraged by the NEO. Expenditure for these programs is also directly required to maintain the reliability and safety of the transmission system. By failing to consider what the network outcomes of these projects will be, the AER is not accepting forecast opex that is consistent with the opex criteria and which it is required to accept under NER 6A.6.6. (p71)

…with no regard to the long-term impacts on the network. If the AER maintains this stance it will require consumers to bear additional costs to replace these towers in the future, rather than enabling consumers to benefit from efficient capex deferral. (p82) [OHL Condition Assessment]

…required to undertake to meet various legislative obligations. There are also significant public safety benefits from undertaking these activities. (p84) [Security of Critical Infrastructure]

Indeed, the proposed opex forecast is required to ensure SP AusNet is able to 'comply with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services'. (p84) [Security of Critical Infrastructure]

Source: Responses to RP questions

EMCa031 response: Therefore, it is unlikely that a significant change in the risk will be experienced due to the step change ***[Security of Critical Infrastructure].*** *Instead, the step change is required to meet legislated standards and mitigate the potential increase in risk due to external factors.*

EMCa037: At the engagement meeting of 30th May it was stated that the deferral of the opex and capex works programs, relative to the proposed programs put to the AER for the current RCP, had resulted in increased risk. Could you please provide any advice that was provided to the SP AusNet Board on this matter?

SP AusNet Response: We have not got any records of formal advice to the SP AusNet Board on this precise matter.

However we note that the Asset Management Plan of 2011 sets out the impact of the high level decisions made on capex investment across the three networks. This document is provided at Attachment SP EMCa37A – Asset Management Plan 2011/12 – 15/16. In particular, the "implications" discussion at section 2.3 (p. 6) states:

> *'As such, the priorities for FY2012 and FY2013 will be the safety programs in electricity and gas distribution, with highly targeted investments to manage the most pressing reliability and supply risks. Planned activity for FY2014 onwards, although reduced in financial terms, is then sufficient to allow stabilisation of technical risks (p. 6)'*

AER20 GFC opex vs capex response: However, demand for capital across the networks also required tough decisions to be made. Therefore, SP AusNet prioritised expenditure in the following way:

- *Safety related expenditure was and is non-discretionary and fully funded;*
- *Expenditure in the distributors to meet customer growth and customer connections was also non-discretionary (clear obligations to connect and meet planning standards); and*
- *Replacement capex and operating costs were reviewed and reassessed for risk trade-offs, with the networks accepting more risk given the adverse financial conditions.*

Source: Asset Management Plan (11/12 – 15/16)

4.2 Asset Condition

Continuing work to stabilise risk profiles through condition monitoring, refurbishments and replacements is focused on the lines, power transformers, instrument transformers and protection and control assets. Expenditures on station assets are expected to stabilise as the majority of 220kV asset renewals are complete and mid-life overhauls of 500kV assets are yet to assume importance.

Increased replacements are anticipated on transmission lines as assets, in particular at 220kV begin to exhibit end-of-life condition traits. Significant effort is currently underway on the condition assessment of insulators, conductors and line-hardware

components of transmission lines. This work is important to match appropriate replacement expenditures to the increasing failure risks of assets on older lines.

7.2 Non-recurrent opex

The expenditure profile for asset works was reduced in 2010/11 significantly from previous years and to allow this level to be sustained during 2011/12 and 2012/13, it is planned to defer works into future years. The major works to be deferred are tower corrosion mitigation works, station gantry structure repairs, transformer contingency CBD works, painting of towers, asbestos removal, removal of redundant plant to increase ratings and miscellaneous station repairs. The immediate increase in technical risk in 2011 from these deferrals in minimal, however without higher provisions for Asset Works in future years increases in risk in these areas will be material. In particular tower corrosion will be more progressed, more extensive repairs and mitigation works are likely to be required in the future years.

5.4 Asset Failure Risk

This AMP is focussed on maintaining asset condition and network risks within sustainable bounds. The table in Figure 4 below summarises trends in the failure risk for major asset classes based on the proposed programs and associated expenditure forecasts.

Asset Type	Failure Risk		
	Last Reset period	This Reset period	Next Reset period
Transmission Lines	Stable	Increase - linear	Increase – slow linear
Power Transformers	Stable	Increase - linear	Increase – slow linear
Circuit Breakers	Stable	Stable	Stable
Instrument Transformers	Increase – slow linear	Reduction – slow linear	Stable
Protection and Control	Increase – slow linear	Increase – slow linear	Stable
Communications	Stable	Stable	Stable

Figure 4 – Trends in Asset Failure Risk

Source: Asset Management Plan (12/13 – 16/17)

Section 6, p15:

This AMP includes programs, projects and planned expenditure aimed at stabilising the risks associated with the electricity transmission network. The trends in failure risk for major asset classes is summarised in Figure and is based on the proposed programs and associated planned expenditure.

A reduction in transmission network risk is evident over the period shown in Figure 4. This reduction is primarily the result of the large number of transformer replacements related to the CBD station rebuild projects. Asset classes other than transformers display a relatively flat risk profile with the exception of transmission lines, where risk is increasing due to deterioration of assets and a relatively small asset replacement program.

Source: Various Asset Management Strategy documents

AMS 10-63: Infrastructure Security

In acknowledging these obligations SP AusNet has integrated the security practices of its electricity transmission, electricity distribution, and gas distribution businesses to ensure that the diverse threats of unauthorised, malicious, criminal and terrorist intrusion upon assets are consistently identified and addressed. (p5)

AMS 10-77: Transmission line structures

The average age of structures is 43 years; the majority of the fleet were built prior to 1970. Although structure assets are ageing primary inspection techniques indicate that they are generally in good condition. However, some assets are showing signs of corrosion based deterioration and in order to avoid premature replacement require some remedial action. Structure painting is a maintenance program that seeks to arrest the deterioration of the structure by introducing a barrier system to prevent moisture from coming into contact with the steel members and bolts. (p4)

Transmission line easements traverse both public and private land where public access to the easement is not restricted. In many instances easements are shared or located next to other infrastructure such as roads, railway lines, pipes and fences. Functional failures of structures can present health and safety risks to members of the public, SP AusNet employees or SP AusNet contractors accessing the transmission line easements. (p19)

AMS 10-78: Transmission line structure foundations

At the present time structure foundations are generally in good condition. Approximately 80 per cent of structure foundations are displaying the first signs of rust and 17 per cent are exhibiting approximately 50 per cent surface rusting. These installations are not exhibiting metal section loss from leg members. It should be noted that these results reflect conditions at the foundations ground line and may not be representative of below ground conditions.

The remaining three per cent of the fleet are displaying signs of corrosion of varying maturity with metal loss that will need remedial attention in the next 2 to 10 years. (p8)

AMS 10-79: Transmission line structure conductors

The fleet of transmission line conductor and ground-wire is ageing. Approximately 20 per cent of the population has been in service for more than 50 years, this figure will increase to 48 per cent by 2020. Although conductor and ground-wire assets are ageing primary inspection techniques indicate that they are generally in good condition, however some assets are showing signs of corrosion based deterioration. Corrosion is most prevalent in areas exposed to coastal or industrial pollution. (p4)

Program of Works – Structure Corrosion Management

Although likelihood of structure failure is an important factor to consider, this risk assessment focuses sharply on the likelihood that costly and disruptive replacement of structures is likely within the planning horizon. The risk assessment displays the shift from left to right on the likelihood scale expected over a twenty year period if no corrosion management activities are undertaken over the next three years => see Figure 4 – SP AusNet Risk Matrix (p10)

Source: Responses to RRP questions

*The **tower painting program** has been scheduled to commence in the 2014-17 regulatory period. The delivery of this project is contingent on the funding for this step change being provided as part of future regulated revenue. The purpose of tower painting is to defer future tower replacement. This project is proposed as an efficient capex-opex trade-off. It should be noted that, as capex deferrals are a long way in the future, this opex is not self-funding through benefit sharing under the capex efficiency regime.*

However, if the project is unfunded, SP AusNet considers that the AER will have made a de facto decision to approve future tower replacement. (EMCa044)

*If the **condition assessment program** is deferred, the capex impact will be apparent in the next TRR submission. Unless the results from the OHL condition assessment program are available, it will be necessary for a capex replacement program to be specified based on a general understanding of conductor and tower condition. Given the consequences of conductor and tower failure and obligations under the Electricity Safety Act, the capex replacement program specified at the next TRR is likely to be greater than the program that would be specified if the results from the OHL condition assessment program were available. (EMCa050)*

The consequences of extending the cycle to 3 or 5 years are an increased risk of a conductor failing and falling to the ground. (EMCa050)

[redacted]

Therefore, the opex forecast for the 2014-17 period includes a step change to provide additional opex to that incurred in the opex base year (2011/12) to enable SP AusNet to implement proportionate security measures to ensure the physical security of key infrastructure. (AER RRP12 – part 2 (amended)).

D. Résumés

Paul Sell

Paul Sell is an energy economist, specialising in energy markets and market reforms. He has over 30 years' experience, which includes providing major advice on restructuring, on deregulation, on the design and implementation of electricity and gas markets and on network regulatory arrangements in Australasia. He has worked extensively with energy utilities, governments, energy regulators and energy market agencies.

Career summary

- Managing Director of Energy Market Consulting associates (EMCa), Sydney, NSW
- Vice President of Cap Gemini Ernst & Young, Global Services Unit (GSU), Sydney, NSW
- Partner of Ernst & Young Consulting, based in Sydney, NSW
- Consultant/Manager/Senior Manager/Principal of Ernst & Young Consulting , Wellington, New Zealand
- Economist in NZ Ministry of Energy, Planning and Forecasting Division Wellington, New Zealand

Expertise

- Electricity and gas utility network pricing, regulation and associated cost analysis
- Energy utility analyses including investment decisions and investment justification processes, energy forecasting and planning studies, and business modelling
- Electricity and gas wholesale markets design and operations
- Energy utility sector reform, restructuring and deregulation policies
- Retail competition in energy markets

Bill Heaps

Bill Heaps is Managing Director of Strata Energy Consulting Limited. He has over 30 years' experience in electricity utility engineering, management and consulting roles.

Bill is an electrical engineer with senior management experience in energy utilisation, distribution, retail, transmission and power generation. He has recently held three influential advisory group chairmanship roles for the New Zealand Electricity Commission and currently chairs the Investment Advisory Group for the Electricity Authority. Bill has also been Director of Orion Group Limited, one of New Zealand's largest electricity distribution businesses.

Career summary

- Managing director of Strata Energy Consulting
- General Manager (Commercial Services) at Transpower, New Zealand's electricity transmission and system operating company

- General Manager (Geothermal) of the Electricity Corporation of New Zealand (ECNZ)
- General Manager Energy Brokers New Zealand

Expertise

- **Wholesale electricity market** – Expertise in the design, governance, regulation and operation of electricity markets
- **Electricity Generation** – experienced in power generation plant management and investment planning
- **Electricity transmission networks** – experienced in the provision of transmission services, including pricing and revenue, contracts, asset management systems and performance
- **Electricity distribution** – Experienced in distribution company governance, strategy and policy development and distribution business processes
- **Retail electricity markets** – Expertise in retail market design and operation, including market processes, price risk management, metering, reconciliation and information systems regulation, rules and governance
- **Electricity Utilisation –** experienced in the use of load management techniques in major industrial manufacturing plants and commercial buildings

Mark de Laeter

Mark de Laeter is an electrical engineer with 30 years' experience in all aspects of the electricity industry, ranging from executive to line management positions in Western Power, a Top 500 Australian company with over 5,000 personnel.

Mark has strong affinity with the needs and desires of customers and is able to bring his deep technical knowledge to bear to help safely and affordably serve customers of all types and sizes.

Mark joined EMCa in May 2013.

Career Summary (all at Western Power)

- General Manager Networks at Western Power, the government trading enterprise responsible for managing the distribution and transmission network in the south west of Western Australia.
- General Manager Customer Service which, in addition to his responsibilities as the GM Networks, included accountability for all service offerings to Western Power's 1 million customers and for engineering design
- General Manager Asset Management – transmission & distribution
- Manager Asset Integration - responsible for transmission asset management, engineering design, and project management
- Manager Regional Power Procurement - securing Power Purchase Agreements with private generators
- Construction Services Manager – responsible for transmission substation and line construction and maintenance

Expertise

- Electricity transmission and distribution planning
- Electricity network access
- Asset management practices
- Project management
- Advanced metering infrastructure
- Electricity operations management
- Customer service and community engagement

Glossary

AARR	Aggregate Annual Revenue Requirement
AER	Australian Energy Regulator
AEMO	Australian Energy Market Operator
AIS	Air Insulated Switchgear
BLTS	Brooklyn Terminal Station
CAPEX	Capital Expenditure
CBD rebuilds	Central business district rebuilds
DD	Draft Decision
DNSP	Distribution Network Service Provider
[redacted]	[redacted]
EBSS	Efficiency Benefit Sharing Scheme
EDPR	Electricity Distribution Price Review
EMCa	Energy Market Consulting associates
GAAR	Gas Access Arrangements Review
GIS (SF6)	Gas Insulated Switchgear
HWPS	Hazelwood Power Station
ICT	Information and Communications Technology

IT	Information Technology
KTS	Kyneton Terminal Station
LMA	Linking Melbourne Authority
MAR	Maximum allowed revenue
NCIPAP	Network Capability Incentive Parameter Action Plan
NZIER	New Zealand Institute of Economic Research
NER	National Electricity Rules
OPEX	Operating Expenditure
PB	Parsons Brinkerhoff
RAB	Regulatory Asset Base
RCP	Regulatory Control Period
RCM	Reliability Centered Maintenance
RIT-T	Regulatory Investment Test for transmission
RP	SP AusNet's initial Revenue Proposal
RRP	SP AusNet's Revised Revenue Proposal
RTS	Richmond Terminal Station
SCADA	Supervisory Control and Data Acquisition

STPIS	Service Target Performance Incentive Scheme
SVTS	Springvale Terminal Station
Strata	Strata Energy Consulting Limited
TOR	Terms of Reference for Technical Consultants
TNSP	Transmission Network Service Provider
WMTS	West Melbourne Terminal Station
VCR	Value of Consumer Reliability