Appendix O:

SPI PowerNet Pty Ltd

Transmission Revenue Reset (TRR) 2014/15 – 2016/17

Response to Draft Decision on IT Capex

Public Version

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Contact

This document is the responsibility of the Asset Management Division, SP AusNet. Please contact the officer below with any inquiries.

Anh Mai
Transmission Revenue Reset (TRR) Lead
SP AusNet
Level 31, 2 Southbank Boulevard
Melbourne Victoria 3006
Ph: (03) 9695 6627

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Executive Summary

The Draft Decision rejected $16.8 million of SP AusNet's proposed total forecast capex on the basis that SP AusNet has not adequately demonstrated and quantified the benefits of this component of its "strategic IT investment".[1] In reaching this conclusion, the AER has substantially relied upon the findings of its consultant, EMCa.

SP AusNet does not agree with the Draft Decision, or the reasoning that underpins it. In particular, it is unreasonable to expect all strategic IT investment to achieve reductions in controllable opex. Furthermore, SP AusNet submits that it is not open to the AER to only allow strategic investments in IT systems if there are "clear quantifiable benefits" in the form of controllable opex reductions. Not only is this approach inconsistent with the AER's task under NER 6A.6.7(c), it would be imprudent because it exposes customers to substantial potential risk (and therefore costs) in terms of network security, resilience and reliability of supply.

In SP AusNet's case, investment is largely directed at ensuring the resilience (security, reliability and quality) of IT systems to support the transmission system and the services that it delivers. Maintaining transmission system resilience depends increasingly on enabling technology, in particular computer systems and networked communications. The environment for these technologies is dynamic and the threats to the integrity of that environment are increasing. Accordingly, ongoing capital investment is required to maintain existing resilience levels, and to avoid the severe consequences if that resilience is not maintained.

The EMCa report, on which the AER relies, has significantly overestimated the portion of forecast IT capex which could be reasonably viewed as 'strategic' and underestimated the portion which is replacement. Based on this error, the Draft Decision incorrectly reduces the forecast by over a third.

Similarly, the EMCa report also relies on benchmarking analysis that does not provide a like-for-like comparison of IT capex between TNSPs. This Appendix contains revised benchmarking analysis undertaken by SP AusNet, which provides normalised comparators across a common scope of services. Contrary to EMCa's findings, the corrected benchmarking analysis shows that SP AusNet's capital spend on IT as a proportion of overall capex and total revenue is consistent with the other Australian TNSPs.

[1] Draft Decision, page 87.

1 Introduction

1.1 Scope and purpose of this document

The Draft Decision, and EMCa's report that supports it, has made incorrect inferences about the nature and type of SP AusNet's actual and forecast IT expenditure. This Appendix explains why these inferences are incorrect. The Final Decision must remedy these errors in order to provide SP AusNet with a reasonable opportunity to recover its efficient IT capex costs.

This Appendix:

- explains the materiality of the error of classifying IT investment as "strategic" and assuming that substantial operating expenditure savings will flow from that investment;
- provides evidence that maintaining and improving IT resilience in a dynamic environment constitutes a prudent investment, even if it does not necessarily result in opex reductions;
- correctly quantifies the opex savings attributable SP AusNet's IT capex in the current period and forecast for the forthcoming period, and demonstrates that the Draft Decision significantly overestimates the portion of the capex forecast which should lead to such savings; and
- corrects EMCa's high level benchmarking of IT costs, and demonstrates that SP AusNet's forecast IT capex is consistent with that of comparator TNSPs.

1.2 Structure of this document

The Appendix is structured as follows:

- Section 2 sets out the Draft Decision and the reasons provided for the reductions to forecast IT capex;
- Section 3 details the benefits that result from different types of IT investments and the extent to which they are "strategic" in the sense that term is used in the Draft Decision;
- Section 4 discusses SP AusNet's IT priorities for the current and forthcoming regulatory periods, correctly quantifies the portion of the forecast IT capex which could be expected to provide efficiencies and sets out the supporting information provided to the AER to explain and justify the forecast;
- Section 5 addresses the material flaws in EMCa's benchmarking analysis of SP AusNet's forecast IT capex and provides a normalised comparative analysis; and
- Section 6 concludes with the implications for the Draft Decision, in particular the areas where the Draft Decision has rejected SP AusNet's forecasts.

2 Overview of the EMCa Report and Draft Decision

The principal reason given by the AER for its decision to reduce of SP AusNet's forecast IT capex is that SP AusNet failed to "demonstrate and quantify the benefits of its strategic IT investment as part of an efficient and prudent forecast for its transmission business".[2] According to the Draft Decision a prudent TNSP would not incur the costs of a strategic investment without evidence that the benefits outweigh the costs.[3]

The Draft Decision appears to rely heavily on the assessment undertaken by its consultant, EMCa, which is that:

> "The proposed strategic investments in IT systems should only be made if there are clear and quantifiable benefits that will be derived from the investment. SP AusNet has not adequately identified where these benefits lie."[4]

However, the EMCa Report, and therefore the Draft Decision, are based on fundamental misunderstandings about the nature of SP AusNet's forecast IT capex, the IT initiatives that the expenditure relates to, and the impact of those initiatives on SP AusNet's business.

2.1 EMCa's assessment methodology

The EMCa Report only provides a limited explanation of the methodology used to assess SP AusNet's forecast IT capex. For clarity, SP AusNet sets out what it understands EMCa's approach to be. EMCa explains that its job was to undertake a high level governance-focussed review, which does not engage in the detail of the bottom-up forecast:

> "EMCa has considered transmission related components of the proposed IT capex from a governance viewpoint, by reviewing the business needs and strategic considerations identified and presented in the business case. Our review was not required to include an assessment of IT delivery options, including IT platform requirements or the scope and cost of proposed applications software/middleware and their licensing and integration requirements."[5]

EMCa's analysis of appears to be based on an assumption that all IT capital expenditure can be categorised into one of three categories:

- Replacement cycle expenditure;
- Strategic investment expenditure; and
- A combination of replacement cycle and strategic expenditure.[6]

EMCa allocated each IT initiative included in SP AusNet's historic IT capex to one of these three categories. It uses a colour-coding system (dark green for strategic investment, light green for replacement cycle investment and mid-green for combined expenditure) to reflect the classification of projects undertaken in the completed five years of current regulatory control period (2008-13).[7] Figure 28 of the EMCa Report shows that EMCa considers:

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2 Draft Decision, page 89.

3 Draft Decision, page 89.

4 EMCa, paragraph 265.

5 EMCa, paragraph 242

6 EMCa, paragraph 266.

7 EMCa, pages [75-76]. Figures 28 and 29 are labelled as such in the EMCa Report but are referred to in the explanatory text preceding the figures (particularly paragraph 266) is referred to as Figures 27 and 28.

- the Asset & Works Management (EAM/ERP) upgrade and the Enterprise Application Integration (EAI) replacement wholly constitute strategic IT investment;
- Network management automation (NMA), Operational Lifecycle Enhancements and Mobile Computing Upgrades were classified as a combination of replacement cycle and strategic investment expenditure; and
- the remaining programs and projects were classified as replacements.[8]

Figure 29 of the EMCa Report shows that the only project it considers to be strategic in the four years spanning 2013/14 to 2016/17 is the EAM/ERP upgrade.[9]

EMCa assumes that expenditure classified as "strategic" will always deliver savings in controllable operating expenditure:

> "The proposed strategic investments in IT systems should only be made if there are clear quantifiable benefits that will be derived from the investment … To estimate the expected benefits of strategic IT investments it is necessary to identify those strategic investments."[10]

Further, EMCa's expectation is that it should see:

> "…clear efficiency and performance gains occurring across the business from the introduction of this level of expenditure. For the IT expenditure relevant to the next RCP we have not seen adequate business case justification for the proposed level of expenditure or for the large asset and works management upgrade."[11]

In essence, EMCa's classification of a proportion of SP AusNet's forecast IT capital expenditure as "strategic" is what leads it to recommend a $17m reduction in the allowed forecast.[12] However, the quantification of the reduction is not explained, and the EMCa Report simply states:

> "The allowance for IT capex should be reduced by $17m, from $48.5m to an adjusted amount of $31.5m[39]. This would bring SP AusNet broadly into line with other TNSPs on a revenue benchmarking basis, would cover for ongoing IT lifecycle refresh and for version upgrades. It would not allow for the EAM system on the basis that this investment has not been subject to appropriate governance and quantified benefits have not been presented in the RP. The adjusted IT capex nevertheless exceeds the annualized IT capex incurred in the current RCP."[13]

From this SP AusNet understands that the $17m reduction is comprised of:

- disallowance of the forecast capex for the EAM upgrade project ($12m); and
- disallowance of non-specific IT capex to enable total IT capex to align SP AusNet's IT capex-revenue benchmarking results with those of other TNSPs under EMCa's benchmarking analysis (presumably the remainder of the cut, $5m).[14]

8 EMCa, page 76

9 EMCa, page 76

10 EMCa, paragraph 265.

11 EMCa, paragraph 260.

12 EMCa, paragraph 270.

13 EMCa, paragraph 270

14 SP AusNet notes that it is also possible that EMCa has quantified its recommended cut of $17m (35% of the total forecast capex for the next regulatory period) based on the value of the EAM/ERP project over the four year period spanning 2013/14 -2016/17 (which is 35% of total capex in those four years). However this approach would be completely invalid, and akin to an ex-post prudency adjustment in that it would seek to disallow capex in a prior regulatory period, a regulatory function which is not applicable to this regulatory review. As such, SP AusNet has interpreted the cut as set out in section 2.1.

2.2 Draft Decision

The Draft Decision largely accepts EMCa's assessment of SP AusNet's IT capex forecast.[15] In doing so, the Draft Decision appears to adopt EMCa's classification of expenditure as replacement or strategic (or a combination of the two), and the attendant assumption that strategic investment must be supportable by quantifiable and documented opex savings and/or benefits.

The Draft Decision applies the full $16.8m cut recommended by EMCa. It bases the reduction wholly on the view that SP AusNet has failed to quantify sufficient benefits to justify 'strategic' investment and does not recognise that a component of the $16.8m is underpinned by EMCa's benchmarking. The Draft Decision states:

> "We do not consider SP AusNet adequately quantified and demonstrated the benefits of its forecast $16.8 million strategic IT capex. So, we do not consider SP AusNet justified that component of its forecast IT capex.59 SP AusNet should quantify and demonstrate the benefits of its strategic IT investment as part of an efficient and prudent forecast, because otherwise:
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> - customers underwrite strategic costs without seeing the benefits quantified
> - the timeframe for recovering benefits is unknown
> - customers bear the risk of benefits not being realised because an ex post analysis may reveal no benefits were achieved.
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> A prudent TNSP would not incur the costs of strategic investment without evidence that the benefits outweigh the costs."[16]

[15] Draft Decision, page 89. The exception is the allocation of shared IT capex among SP AusNet's three regulated businesses. While EMCa questioned the allocation of shared costs to transmission, the AER is satisfied that the forecast IT costs have been allocated in accordance with SP AusNet's approved cost allocation method: see Draft Decision, page 229.

[16] AER, Draft Decision, page 33

3 Understanding capital expenditure in IT

3.1 Improper use of IT terminology

One of the fundamental flaws in EMCa's analysis is its classification of part of SP AusNet's forecast IT capital expenditure as "strategic", and the consequent assumptions it makes about the benefits and savings that should flow from the investment.

In the IT context, "strategic investment" is typically used to describe an investment which introduces new capability. This is in contrast to "tactical investment", which is required to maintain existing capability is often necessitated by technology becoming obsolete or vendors withdrawing support for older versions of applications or hardware. Strategic investment in IT can result in operating cost reductions but is more commonly used to improve resilience: the security, reliability and quality of IT services.

By repeatedly stating that "strategic" IT investment is investment that delivers operating expenditure savings, EMCa demonstrates its lack of understanding about the industry's use of the term. To then recommend a reduction of approximately 35% to SP AusNet's forecast IT capex based on this misunderstanding constitutes a material error.

For the avoidance of doubt, it must be noted that "upgrade" also has a particular meaning in the IT context. IT assets (hardware and software) are upgraded to current versions as older versions cease to be supported by their vendors and become obsolete. Established industry practice is to limit the scope of such upgrades to deliver equivalent functionality, principally to simplify the testing required to confirm the change has been successfully implemented. While an upgraded version may provide some further capability, it does not generally introduce new or enhanced functionality. Therefore, upgrades are rarely expected to change a business's working environment or yield opex savings. In this way, an IT upgrade is more akin to a replacement in the regulatory context.

As set out above, the Draft Decision adopts EMCa's recommendation to completely disallow the EAM/ERP upgrade as it has not been justified through quantified benefits.

However SP AusNet's "Asset & Works Management (EAM/ERP upgrade)" initiative is a technical upgrade of SP AusNet's existing asset and works management systems to ensure their continued security, quality and reliability.

To be clear, the forecast IT capex proposed in the original Revenue Proposal and Revised Revenue Proposal does not provide for further investment to develop the systems deployed as part of the EAM/ERP upgrade, and thus will not deliver the sort of opex savings that EMCa envisages. To deliver opex reductions would require not only an increase in the scope of the IT projects proposed to deliver new technical capability, but also a comprehensive business transformation, including changes to business processes and the capability and organisation of the people running them, as well as to the IT systems themselves. None of these expenditures have been included in SP AusNet's forecast capex or opex.

3.2 Reasons for investing in IT

IT investment is typically undertaken for one of three major purposes:

- Enabling business change;
- Replacing or upgrading existing IT infrastructure (including software and hardware); and
- Maintaining the resilience of IT infrastructure.

Business change is the only category that typically results in opex savings, but investment in all three categories is necessary (and prudent) to manage overall IT risk. While some IT assets are a catalyst for wider business change, they are also tools on which 'steady state' service delivery relies. In some cases it is necessary to increase investment in IT systems in order to maintain current levels of service delivery, for example as a result of changes to the operating environment. This is both efficient and strategic, but it does not necessarily result in reductions to controllable opex.

Therefore, IT capex incurred for any of these reasons can be expenditure that a prudent TNSP incurs to achieve the capital expenditure objectives. Certainly, proposed forecast expenditure cannot automatically be discounted as not reflecting the capital expenditure criteria simply because it is not does not realise operating expenditure savings.

3.2.1 Enabling business change

A business which makes investments in IT to improve its operating efficiency will typically realise efficiency gains that at least partially offset the investment expenditure. One of the ways efficiency gains are realised is through a reduction in operating expenditure. SP AusNet believes this kind of business change is what EMCa expects from the IT expenditure it classifies as "strategic" IT investment.

The two most likely ways that business change expenditure can reduce operating expenditure is by effecting business transformation or by achieving enterprise synergies (or a combination of the two). It is useful to comment on each in turn.

3.2.1.1 Business transformation

In some situations modern business applications, such as those forming part of the Enterprise and Asset Management (EAM) program, may support advanced asset management techniques that would result in operating cost savings as part of a wider business transformation.

EMCa observes that the majority of SP AusNet's forecast IT capex is part of a much larger IT initiative at the group level:

> "In the 2014/17 financial years the IT whole of business focus will shift to 'Asset & Works Management (EAM/ERP Upgrade)' which accounts for $71m (32%) of IT expenditure across the three regulated businesses."[17]

As noted above, IT upgrade projects are more like electricity network replacement works: they do not normally introduce new capability but are undertaken to maintain resilience. This is the case for SP AusNet's proposed EAM/ERP Upgrade. It is possible that EMCa has misunderstood the purpose of the forecast expenditure to be for business transformation. Figure 1 in section 4.2 lists the applications due for replacement within scope of the forecast EAM/ERP upgrade in the next regulatory control period. The forecast included in SP AusNet's Revenue Proposal (and this Revised Revenue Proposal) is for equivalent replacement functionality only.

In effect, EMCa is asserting that that the EAM/ERP upgrade is a strategic investment in IT that will result in reductions to opex. While there are certainly examples of EAM and ERP IT systems being used to enable business transformation in asset management resulting in opex reductions, that is not the case here.

3.2.1.2 Enterprise synergies

SP AusNet manages its three regulated businesses as a group with an objective to exploit synergies which would not be available to any individual business in isolation. To date, the focus for realising IT synergies has been in FTE requirements and processes, such as merging the control rooms for all three networks to a single control room, and introducing the PAS-55 whole-

[17] EMCa, paragraph 245.

life asset management system for all physical assets. IT operations have been merged at the infrastructure level (servers, storage, networking, IT management processes and tools and data centres), rather than the application (business software) level.

Controllable opex is not necessarily lower as a result of this integration, but the resilience of SP AusNet's IT systems has improved, in accordance with the objectives of its Risk Management Framework. SP AusNet has achieved like-for-like operating cost reductions by exploiting enterprise synergies, which have offset some of the increased costs of improving resilience.

Once work to consolidate its applications is complete, SP AusNet may be in a position to extract greater enterprise synergies from its IT investment, but investment of the kind that would achieve such benefits is not currently proposed for the forthcoming regulatory control period.

3.2.2 Replacement

Capital investment, whether in IT or other categories, typically includes provision for the replacement of existing capacity. EMCa acknowledges this in its discussion of SP AusNet's IT expenditure forecasts:

> "IT expenditure forecasts can be considered to have both a strategic and replacement cycle component." [18]

In stable and mature industries the level of replacement capital would generally be similar to depreciation because each year roughly the same amount of capital is invested as falls out of use through redundancy or obsolescence. With innovation, the cost of replacing assets with a modern equivalent often falls and so replacement capital may be lower than depreciation for a constant level of service delivered.

This is not always true of IT investment. While the cost of replacing assets with equivalent capability has fallen dramatically in certain technologies[19], the trend is for IT services to depend on an increasingly large number of technical inputs. This in turn increases the number, dependence, complexity and type of potential risks to delivering IT services. Over the past decade, SP AusNet has invested in "IT Service Management" tools and processes for this reason. The standalone costs of IT availability management, capacity management, incident management, problem management and change management have increased as a result of these investments but the risk of failure in the IT services delivered by SP AusNet has fallen.

EMCa assume that SP AusNet's proposed increased in IT capex is because SP AusNet is making "strategic IT investments". However, the reality is that most investments are "replacement".

3.2.3 Ensuring Resilience

In the IT context, "resilience" is a measure of the ability of a firm's IT systems to withstand, recover from, or adjust easily to misfortune or (unwanted) change. IT systems are an important enabler of resilience since they are the tools that support the planning, management, monitoring and control of electricity transmission systems and services. Because the delivery of IT services is becoming increasingly dynamic and disaggregated, the cost of maintaining resilience is increasing, but investment does not necessarily reduce operating costs. Investments in IT for resilience are nonetheless efficient and prudent because they mitigate the risk of high consequence, low probability events which could compromise power system security, quality or reliability.

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[18] *Ibid*, paragraph 266.

[19] For example, Moore's Law: the observation that the number of transistors on integrated circuits doubles approximately every two years

SP AusNet submits that investments to maintain IT resilience (security, reliability and quality) are strategic in the sense that they are not replacements of existing assets but they do not necessarily result in opex reductions.

3.2.3.1 Power system security

Chapter 4 of the NER sets out AEMO's obligations to maintain power system security. As explained in Chapter 4 of the Revised Revenue Proposal, AEMO and SP AusNet recently concluded a Power System Security Functions Agreement (formerly called the AEMO Operating Agreement) under which AEMO delegates certain of its power system security functions to SP AusNet. These include load shedding, load restoration and system restart services. NER 4.3.3(d) requires SP AusNet to carry out the rights, functions and obligations in respect of which it has been engaged or appointed by AEMO.

A resilient IT system is critical to SP AusNet's ability to discharge the power system security functions delegated to it. By way of example, a temporary system failure during a period of peak demand may prevent SP AusNet from monitoring demand and load, and may preclude it from issuing instructions to shed load in sufficient time to avoid compromising power system security. Similarly, failing to restore load as soon as possible may expose customers to unnecessary expense and inconvenience.

SP AusNet's forecast capital expenditure includes proposed IT expenditure that is necessary to enable it to carry out the rights, functions and obligations delegated to it under the Power System Security Functions Agreement. Such expenditure is required to meet each of the four capital expenditure objectives, specifically:

- meeting network demand
- complying with regulatory obligations or requirements
- maintaining reliability and security of supply; and
- maintaining reliability, safety and security of the transmission system.

3.2.3.2 IT security

The nature, frequency, scale and consequence of threats to IT security[20] are increasing exponentially. Around the world, governments are placing increasing requirements on the providers of Critical Infrastructure services to demonstrate the sustained resilience of their operations to evolving and dynamic threats.

Expenditures related to IT security and resilience are increasing with new and evolving risks. A recent report to the US Congress details the rate and scale with which IT security threats to electricity transmission and distribution are changing:

> "The last few years have seen the threat of a crippling cyber-attack against the U.S. electric grid increase significantly. Secretary of Defense Leon Panetta identified a "cyber-attack perpetrated by nation states or extremist groups" as capable of being "as destructive as the terrorist attack on 9/11."
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> A five-year old National Academy of Sciences report declassified and released in November 2012 found that physical damage by terrorists to large transformers could disrupt power to large regions of the country and could take months to repair, and that "such an attack could be carried out by knowledgeable attackers with little risk of detection or interdiction."
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> On May 16, 2013, the Department of Homeland Security testified that in 2012, it had processed 68% more cyber-incidents involving Federal agencies, critical infrastructure, and other select industrial

[20] In the context of SP AusNet's categorisation of costs, this includes real-time systems such as SCADA.

> entities than in 2011. It also recently warned industry of a heightened risk of cyber-attack, and reportedly noted increased cyber-activity that seemed to be based in the Middle East, including Iran". [21]

In stable and mature operating environments it is possible to plan management interventions years, even decades into the future. This is not true for IT security where the nature of threats is constantly evolving and disruption of electricity transmission services is potentially vulnerable to hackers and terrorists.

The *2012 Cyber Crime and Security Survey: Systems of National Interest* was designed and conducted to obtain a better understanding of how cyber incidents are affecting the Australian businesses that form part of Australia's systems of national interest, including critical infrastructure. It notes that 52% of organisations had increased expenditure on IT security in the previous 12 months[22] and that of those organisations; energy and utilities companies had increased their IT security investment by over 45%.[23]

The analyst firm Gartner estimate that IT security spend in 2012 is 6.1% of total IT spend for utilities, higher than the industry average of 5.2%.[24] This assessment includes not only the cost of explicit "security initiatives" such as the SCADA security proposals included in SP AusNet's TRR budgets but also the "measures built into the development process to prevent the unauthorized theft, modification, or erasure (of) sensitive data through the unauthorized manipulation of applications".[25]

This is a specific example of the general trend for IT security to be embedded within components of the IT environment: most IT elements contain features that facilitate IT security management yet these costs are not priced separately but factored into the costs of supply for those elements. For example, contemporary substation components are routinely shipped with digital communication and control capability. This capability could be used to monitor and control network elements with greater precision and in a more timely fashion than is possible with analogue SCADA. Such a change would effectively extend the perimeter of the IT organisation beyond SP AusNet's offices to the perimeter of its transmission system. Before digital networking and the digital instrumentation of substation equipment, an IT security strategy that relied on the physical isolation of IT elements in datacenters and company offices was sound. Today such a strategy would expose SP AusNet to the risks of cyber security breach in the field. The costs of monitoring and managing cyber security that have resulted from this change are entirely new.

IT security is an increasingly 'embedded' cost of components of delivered IT services, and a cost that is increasing despite advances in technology. The security threats that it is managing are dynamic and increasingly serious.

IT security supports power system security by protecting information and information systems against unauthorized access or modification. It includes the security of both computers and communications. If the security of SP AusNet's IT systems was compromised in this sense, it would be unable to meet its obligations to AEMO because these IT systems are the means by which system operators monitor the real-time state of the power system and control it if a contingency event arises.[26]

For instance, the Network Management program includes implementing a quality control and software patch regime to minimise external security threats. One of the results of the IT Infrastructure and Operations program will be to implement robust security and intrusion

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21 *Electric Grid Vulnerability*, Congressmen Edward J. Markey and Henry A. Waxman, May 2013

22 *Cyber Crime and Security Survey Report 2012*, Australian National Computer Emergency Response Team and Centre for Internet Safety, Commonwealth of Australia, 2012. page. 25

23 *Ibid*, page 26. Note that this percentage is lower than banking and finance (75% increase) and communications (65%)

24 *2012 IT Security Summary Report*, Gartner Inc., 2012, pages 5 and 6

25 *Ibid.* page. 4

prevention, and identity and access management capabilities.[27] The security benefits of the proposed projects for the forthcoming regulatory control period, which are outlined in Confidential Appendix 4H to the Revenue Proposal, demonstrate that expenditure on IT security is also required to achieve the capital expenditure objectives.

3.2.3.3 Reliability and quality of supply

The reliability and quality of the transmission system, and the prescribed services provided using the system, is dependent on properly functioning IT equipment and systems. For example, transmission SCADA is the tool that provides monitors and controls line voltage, current, and power through remote terminal units attached to physical substation equipment, for example metering , circuit breakers, switches and transformer tapchangers. Without such IT systems and digital communications it is not possible for a TNSP to meet its obligations under the Power System Security Functions Agreement, for example to monitor load on transmission lines within technical constraints, give effect to load shedding orders, etc.

The increasing demands and related costs of managing IT systems and security are probably the most dramatic example of how the tools, assets and techniques to ensure the reliability and quality of IT services are evolving to meet changes in the IT operating environment as it becomes increasingly complex and interdependent.

A good example of this type of cost increase is the investment that SP AusNet has made in formal IT service management. These tools do not necessarily run IT services at lower cost but actively manage the reliability and quality of IT services to the levels of service specified by their users.

It is a direct consequence of SP AusNet's Risk Management Framework that it has invested in formal IT service management processes: the processes are the means by which IT-related activities and the interactions of IT technical personnel can be coordinated and their resources calibrated to meet the needs of business customers and users.

SP AusNet's corporate risk register from July 2004 identifies that "Many .. systems are unsupported" resulting in an amber risk that "Critical IT Systems .. fail to perform satisfactorily".[28]

The steps SP AusNet has taken to address this risk are set out in the "Implementation of Network Mgmt, Asset Mgmt and Metering Mgmt Systems Strategy in 2004 and 2005". These strategies resulted in the investment programmes undertaken by the company between 2007 and 2012. The outcomes of these investments include improved resilience in the form of reduced risk of deviations from power system security, quality or reliability as a result of IT system or communications failure[29].

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27 SP AusNet, Revenue Proposal, Appendix 4H: Information and Communications Technology Strategy FY2014/15 – FY2016/17 Electricity Transmission Network, 28 February 2013, pages 35- 36

28 SP AusNet Risk Register, July 2004.

29 *Risk & Control Self Assessment Form "RCSA July04 ver1 1.xls"*, SP AusNet, July 2004, Risk 37.

4 SP AusNet's IT capital expenditure in context

The NER requires the AER to assess SP AusNet's forecast IT capital expenditure for the forthcoming period in accordance with NER 6A.6.7. Relevantly, the AER must satisfy itself that the forecast expenditure reasonably reflects the efficient costs of achieving the capital expenditure objectives, that the costs are prudent, and are a realistic expectation of the demand forecast and cost inputs. In deciding whether or not it is satisfied, the AER must have regard to the capital expenditure factors, being the matters listed in NER 6A.6.7(e).

The Draft Decision criticises SP AusNet for not quantifying sufficient benefits to justify that part of the forecast IT capex that was expected to achieve opex savings. It asserts that a prudent TNSP would not incur the costs of such investment without evidence that the benefits outweigh the costs.[30]

As part of the SP AusNet group, the transmission business consistently uses a formal Risk Management Framework to structure, discipline and align decisions and priorities to business objectives. The framework is based on the international standard, ISO 31000, and has been specifically tailored to SP AusNet, its risk profile and the types of decisions, changes and plans that it has to make.[31] The application of the Risk Management Framework in the IT context ensures that the costs of its IT projects are efficient, and are of the kind that a prudent TNSP in its position would require to achieve the capital expenditure objectives.

SP AusNet's Risk Management Framework directs decisions about the management of IT, both in terms of operations and investment. As explained in detail below, the IT priorities in the current regulatory control period have focussed, and in the forthcoming period will continue to focus, on managing IT risk by promoting resilience rather than reducing controllable opex.

4.1 IT investment priorities in 2008/09 – 2013/14

During the current regulatory control period (2008/09 – 2013/14), IT investment has been directed to support SP AusNet's overall asset management aims:

- Create sustainable asset and network risk-profiles to underpin future performance
- Meet reliability and availability performance targets
- Improve health, safety, environment and infrastructure security performance
- Comply with codes and regulations
- Minimise life-cycle costs.[32]

The Risk Management Framework prioritises expenditure to replace ageing infrastructure to support reliability. During the current regulatory period, the benefits derived from the majority of SP AusNet's IT investments were in the form of improved security, increased reliability and greater resilience of IT services. Details of the nature of these types of IT investments are provided in section 3. The expenditure is dominated by the modernisation of the technology infrastructure (servers, storage and networking and the data centres that house them) and the management systems that control the technology infrastructure.

EMCa's assertion that these investments should result in reductions to controllable opex[33] implies that they resulted in business transformation. While SP AusNet did achieve increased

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30 Draft Decision, page 89.

31 See *Risk Management Policy & Framework,* SP AusNet, March 2013 for the current detail of this approach and how it is deployed in the business.

32 *Asset Management Strategy - Victorian Electricity Transmission Network*, SP AusNet, 23/02/2007, P.7.

operational efficiency across the business between 2008 and 2013, this was accomplished through changes to people, processes and culture (for example, merging the control rooms and implementing PAS 55 asset management system) and not IT-enabled business transformation.

SP AusNet's investment in business applications during this period (for example, those that support the business processes of work and asset management) was largely focused on maintaining the integrity of existing capability by replacing obsolete systems and applications, rather than deploying new functionality.

4.2 IT investment priorities for 2014/15 – 2016/17

Having stabilised the infrastructure platform on which SP AusNet's IT services are based, the forecast IT capex for the next period (2014/15 – 2016/17) is focussed on consolidating the applications that run on it. Figure 1 below documents the age, forecast end of life and current support status for the main IT systems that support the business processes of work and asset management.

Figure 1 SP AusNet Transmission: age and supportability of core applications supporting work and asset management business processes, 2013

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Each one of these applications will cease to be supported by the vendor during the forthcoming regulatory control period. Some of the applications are already unsupported. Even though some of these applications were commissioned during the current period, the relatively short economic life of IT components explains why they are due for replacement during the upcoming regulatory period.

In the Draft Decision in the Victorian distribution determination process, the AER acknowledged the impact that the economic life of IT components can have on IT capex forecasts:

[33] EMCa et al., *op cit*, paragraph 46.

> "The AER considers the variability of the capex amounts in this category [Non-network IT] relates to the periodic need to upgrade and/or replace assets. That is, although it may be desirable to upgrade IT hardware and software every 5 years, businesses may continue to utilise these assets as long as they are able to be operated and maintained without compromising customer service. As such, the historic trend cannot completely determine future requirements. …
>
> The AER considers it appropriate to allow adequate funding to implement and operate business IT systems supporting customer service and the operation and management of the network in accordance with good electricity industry practice."[34]

SP AusNet uses its Risk Management Framework to optimise the timing and sequencing for upgrading and replacing these business applications.

Forecast IT capex in the forthcoming period largely relates to upgrading business applications such as those supporting works and asset management to current and vendor-supported versions, consistent with SP AusNet's Risk Management Framework. The proposed expenditure does not provide for new business functionality of the sort that might be expected to enable wider business transformation and result in further reductions in controllable opex. Once the business applications have been upgraded to current versions and their integrity is assured, it may be possible to develop such new business functionality. However, SP AusNet's forecast IT capex does not provide for any such initiatives.

This does not mean that SP AusNet's forecast IT capex is inconsistent with the capital expenditure objectives. The information provided as part of the Revenue Proposal and as set out in this Revised Revenue Proposal demonstrates that the forecast expenditure reasonably reflects the capital expenditure criteria. In particular, it shows that a prudent TNSP would require the forecast expenditure to ensure its IT systems possess the resilience necessary to deliver and maintain power system security and IT security. A prudent TNSP would not allow its IT applications to become obsolete and/or unsupported because this would jeopardise its ability to provide the prescribed transmission services required to meet demand. The benchmarking analysis set out in section 5 of this Appendix demonstrates that SP AusNet's forecast reflects the efficient costs of delivering the projects.

4.3 Quantifying opex savings from IT capex

4.3.1 The 2008/09-2013/14 regulatory control period

In response to the EMCa Report, SP AusNet has reviewed the IT capital expenditure projects and programs already completed in the current regulatory control period, or forecast to be completed in the forthcoming regulatory control period. For the initiatives which EMCa categorised as being (or partially constituting) "strategic" investment, SP AusNet has provided the estimated opex costs (or savings) expected to flow from these investments according to the business cases of the completed projects.

The results of this review, which are set out in Figure 2 below, indicate there is little in the nature of these projects that materially reduces operating expenditure. This is because the projects were generally initiatives to retire obsolete technologies and replace them with current and supportable technical equivalents.

[34] Australian Energy Regulator *Draft Decision, Victorian electricity distribution network service providers, Distribution determination 2011-2015*, (public version), pages 419, 420.

Figure 2 – Estimated Opex Costs / (Savings) from current period IT Capex by investment type

Program / Project Title	Nature of work undertaken	Outcomes and implications for Opex	Total Estimated Opex Costs / (Savings) in Current RCP $m	Total Estimated Opex Costs / (Savings) in next RCP $m
Enterprise Application Integration EAI Replacement	• Upgrade & Integration of EAI to newer versions: Sun Java 5.0.3 to 5.0.5, Oracle 8i to Oracle 10G and Solaris 8i to Solaris 10. All current apps are 8 years old • Perform the migration of 452 integration points from the existing SUN JCAPS platform to the new WebMethods platform • Implement iServer for MS Visio to centralise repository to manage Visio drawings (minor enhancement) • Migration of EAI Solution, webMethods from Oracle M9000 server to x86 Blades / Linux	Technical modernisation of "integration" software – that exchanges information between applications. No new functionality: no opex reductions. Improved supportability of old but critical enabling features of SP AusNet's wider business systems.	(0.10)	(0.11)
Enterprise Project Management Systems Upgrade	• Replacement of Transmission Project Execution Tracking (PET) with Microsoft Enterprise Project Server • Implement EPM for Project Reporting and enhanced scheduling of Programs and Projects • Primivara Upgrade P3 to P6 • Upgrade Objective drawing management system to current version • Reconfigure Expert Estimation software enabling estimation to configure with SAP • Maintenance and enhancement of Capital Portfolio Database (Lotus Notes Project Database - PET)	Largely replacing aged point solutions for project management with modern and more integrated solutions. Improved integration with accounting systems. Improved resilience. Improved useability and integration of systems for project management reporting and analysis.	(0.10)	(0.05)
Mobile Computing Upgrades	• Replace SP AusNet's Asset inspections platforms, which are inconsistent, outdated, unreliable and unsupported, manually intensive and inefficient with one common solution provided by Geomatic Technologies • Replace Survey Field Computers to tablet computers - current field computers are second generation Panasonic Toughbooks, over 3 years old, out of warranty and are beginning to fail • Deploy GPS devices to SP AusNet Maintenance Contractor Vehicle fleets to aid locating SP AusNet assets across the network, replacing Melway's (road map)	Modernisation of old in-house solutions and devices – less risk of failure. Improved productivity replacing paper with electronic maps.	(0.26)	(0.21)

Program / Project Title	Nature of work undertaken	Outcomes and implications for Opex	Total Estimated Opex Costs / (Savings) in Current RCP $m	Total Estimated Opex Costs / (Savings) in next RCP $m
Network Mgt Automation (NMA) Phase 1	• Replacing ageing Transmission GIS system with GE Smallworld GIS	Technical upgrade of dated tool for supportability risk reduction.	0.22	0.21
Operational Lifecycle Enhancement	• Ad hoc replacement of Desktops, Laptops, Printers, Servers and maintenance of small system change requests • Provision of small system change requests to business applications including break/fix • Minor enhancement or small system change requests • Implement Flexera Manager Platform Software (Software Asset Management Tool) • Implement single sign on for 6 key business applications • Development of Data Historian (OSI-Pi) to report on Asset Management and operations of various plant and equipment	Improved supportability and usability of IT assets. Improved security through single-sign on. Reporting controls in asset management risk assessment	(0.01)	(0.13)
Total			(0.25)	(0.29)

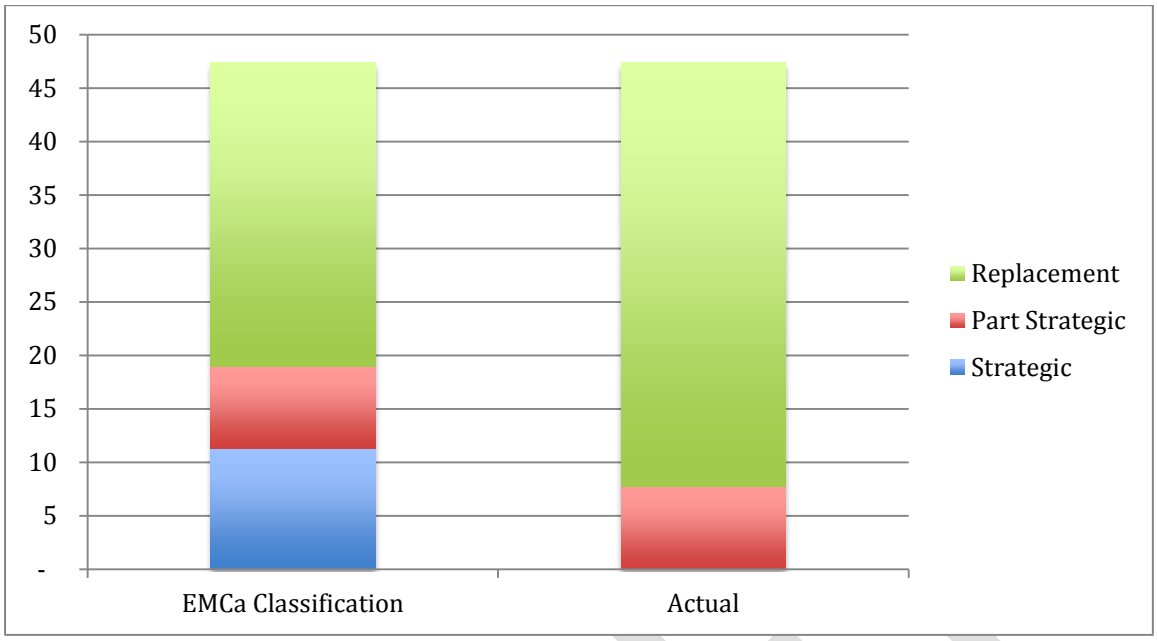
Note: The above figure are estimated Costs / (Benefits) per the Business Case of completed projects

The above table shows that these projects were driven by replacement needs rather than expected efficiencies, and were estimated to provide $0.25m in opex savings in the current period, and a further $0.29m in the forthcoming period. This is in stark contrast to EMCa's view that these types of works are 'strategic' and would therefore deliver opex savings.

Figure 28 of the EMCa Report indicated that EMCa had categorised 40% of the total IT capex over 2009-13 as strategic or partly strategic.

Using EMCa's definition of strategic IT capex as capex which will yield opex savings, SP AusNet has reviewed the project justifications and business cases of its actual IT capex in the current period, and classified those that were expected to provide opex savings (regardless of the magnitude of these expected benefits) as strategic or partly strategic. A comparison between the actual 'strategic' capex as a proportion of total IT capex, and EMCa's view of what was 'strategic' is shown in the Figure below.

Figure 3 - SP AusNet IT Capex 2008/09–12/13 by investment type



Note- costs include overheads

The chart above shows that for the period 2008/09 - 2012/13, IT capex with any expected opex benefits totals $8m, or 16% of total IT capex for that period, in contrast with EMCa's calculation of $19m (or 40%), which is incorrect.

4.3.2 2014/15-2016/17 regulatory control period

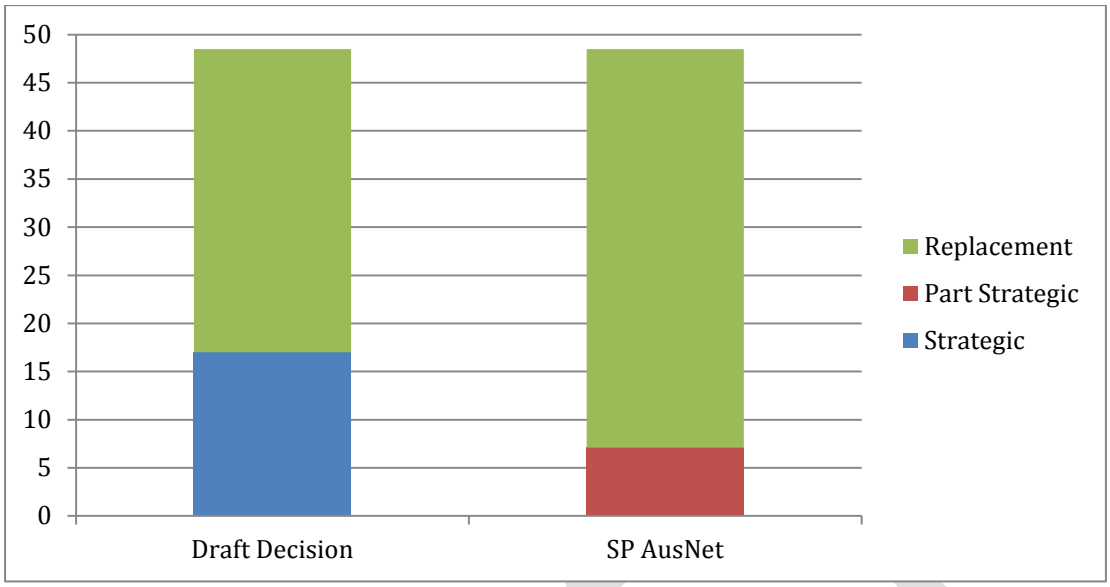
The initiatives to be completed in the forthcoming regulatory control period remain focused on renewing aged assets with a view to maintaining the resilience of IT systems. Four of the IT capex programs forecast to be completed in the next period deliver some degree of opex savings. These are set out in the table below

Figure 4 - Forecast IT Capex with potential opex savings

C-I-C	**C-I-C**
C-I-C	C-I-C
C-I-C	C-I-C
C-I-C	C-I-C
C-I-C	C-I-C

The Figure below shows the difference between the Draft Decision's estimate of forecast strategic investment using EMCa's expectation that strategic projects should yield opex benefits, and the actual strategic value of those projects.

Figure 5 - SP AusNet IT Capex 2014/15-16/17 by investment type



All of the projects SP AusNet has categorised as part strategic have replacement and resiliency benefits: none are entirely strategic as suggested by the Draft Decision.

The above data shows that the total amount of part strategic IT capex totals $7m, or 15% of total IT capex, rather than the $17m, or 35%, which is categorised as strategic by the Draft Decision.

4.4 Documenting IT investment benefits

SP AusNet notes EMCa's concern that the forecast strategic IT capex has not been subject to appropriate governance and is not supported by quantified benefits. As has been repeatedly stated throughout, the majority of SP AusNet's forecast is replacement expenditure and, consequently, while there are benefits in the form of improved resilience, there are limited expected savings. As such, it is not possible to justify the forecast projects through opex savings.

In any event, EMCa's concerns are unfounded because:

- IT businesses cases are usually prepared not more than 6 months in advance of an IT initiative commencing, and are generally not available at the time regulatory determination is made; and
- as shown in figure 5 above, more than 85% of the forecast expenditure is driven by replacement, consistent with NER 6A.6.7(a)(3) and (4).

4.4.1 Business cases

SP AusNet's approval processes of IT capital expenditure mean it does not have approved businesses cases for its IT initiatives until approximately 6 months before the project commences. The AER has previously acknowledged that electricity distribution businesses adopt a similar process for writing IT business cases. This was explicitly the case in the 2010 Victorian Electricity Distribution Price Determination where the AER stated:[35]

> "In assessing the Victorian DNSPs' proposed capex for the forthcoming regulatory control period, the AER sought to understand the reasons for the variation from historical capex

[35] Australian Energy Regulator, *Draft Decision, Victorian electricity distribution network service providers, Distribution determination 2011-2015*, (public version), June 2010 p. 421.

> trends. The AER requested additional supporting information from each DNSP, including cost drivers, changes in functions or legislative obligations and available information on projects included in the DNSPs' 'bottom-up' capex forecast cost build up. **The DNSPs provided their indicative project lists to the AER. They explained they had relied upon technical engineering experience to derive the proposed project cost estimates because detailed business cases were typically prepared closer to the date of project implementation. Therefore, the AER considered whether the proposed indicative projects were linked to larger documented strategies/programs of work including an economic assessment of the need for the overall work program and the scale and timing of the proposed works.**" (emphasis added).

Further, the forecast expenditure includes a number of small-scale projects for which business cases are generally not prepared, because the costs of preparing the case outweigh the benefits.

However, SP AusNet has submitted to the AER its comprehensive ICT Strategy, together with its IT project justifications for its forecast programs/projects, as part of the Revenue Proposal. Despite this material giving detailed reasons and identifying the drivers for the forecast project, it is not clear whether EMCa and the AER had any regard to this information.

4.4.2 Maintenance case

SP AusNet's IT capex forecast is based on a maintenance case, consistent with the capex objectives at Rule 6A.6.7 which state that a Revenue Proposal must include forecast capex required to achieve each of the following objectives:

- Meet the expected demand for prescribed transmission services;
- Comply with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services;
- Maintain the quality, reliability and security of supply of prescribed transmission services; and
- Maintain the reliability, safety and security of the transmission system through the supply of prescribed transmission services.

This means SP AusNet is only seeking to retain existing levels of IT functionality so it can maintain the existing quality, reliability and security of supply of prescribed transmission services, and maintaining the existing reliability, safety and security of the transmission system.

In the case of the forecast EAM/ERP project, the forecast being sought is limited to the costs of replacing current functionality and not more. SP AusNet's forecast does not include any capex costs related to future business transformation in line with the capex objectives above. In so much as SP AusNet invests in such transformation in the next regulatory period, it is not seeking this additional cost be funded by transmission customers through the forecast ex ante capex allowance.

5 Benchmarking IT capital expenditure

The EMCa Report included a basic benchmarking assessment of SP AusNet's IT expenditure relative to similar transmission businesses in Australia (including one TNSP from outside the NEM). EMCa's benchmarking analysis in relation to IT capex is reproduced below[36]:

Table 18: Benchmarks

IT capex/ Revenue	
SP AusNet (2015 - 2017)	**3.2%**
Western Power (2013 - 2017)	1.4%
Transgrid (2010 - 2014)	2.6%
Powerlink (2013 - 2017)	1.7%
ElectraNet (2009 - 2013)	2.5%

IT capex/ Total capex	
SP AusNet (2015 - 2017)	**8.5%**
Western Power (2013 - 2017)	2.5%
Transgrid (2010 - 2014)	3.9%
Powerlink (2013 - 2017)	2.4%
ElectraNet (2009 - 2013)	4.6%

It should be noted that EMCa's analysis examines the data proposed by other TNSPs in their Revised Revenue Proposals, rather than using data from the AER's final determinations.

EMCa comments that the above benchmarks should be treated with caution as there are a number of differences between the businesses that need to be taken into account. For example, EMCa notes that when looking at 'IT capex/total capex' it needs to be noted that for SP AusNet this excluded augmentation capex whereas for others this is included.

Notwithstanding the need to exercise caution, EMCa concluded that the comparison shows that "SP AusNet is one of the larger investors in IT".[37] EMCa relies on the benchmarking analysis to conclude that SP AusNet's IT capex should be reduced by $17m:

> *"The allowance for IT capex should be reduced by $17m, from $48.5m to an adjusted amount of $31.5m. This would bring SP AusNet broadly into line with other TNSPs on a revenue benchmarking basis, would cover for ongoing IT lifecycle refresh and for version upgrades."*[38]

By its own admission, EMCa advises treating the results of its own analysis with caution because of the differences between the TNSPs that need to be taken into account.[39] Despite this warning, EMCa proceeded to rely on this analysis to support its recommendation that SP AusNet's IT capex be reduced by $17m, thereby bringing it 'broadly into line with other TNSPs on a revenue benchmarking basis.' In applying this recommended reduction to forecast IT capex, the Draft Decision endorses this view.

SP AusNet submits that a flaw of EMCa's benchmarking analysis is that it uses data from other TNSPs Revised Revenue Proposals, rather than from the AER's final decisions for those

36 EMCa Report, Table 18.

37 EMCa Report, paragraph 251.

38 EMCa Report, paragraph 270.

companies. The AER's task is to assess SP AusNet's IT capex against the requirements set out in the NER. The appropriate benchmark for this assessment is either:

- TNSPs' actual expenditure and revenue data, if the benchmark is to be based on historic data; or
- The AER's final determination for each TNSP, if the benchmark is to be based on forward-looking data.

Instead of adopting one of the approaches set out above, EMCa has employed data from other TNSP's Revised Revenue Proposals. However, unless these Revised Revenue Proposals were accepted by the AER, it follows that the data contained in those proposals was found by the AER not to conform with the NER requirements. As the task is to assess whether SP AusNet's IT capex proposal conforms with the NER requirements, no legitimate purpose is served by establishing benchmarks that are inconsistent with the NER requirements.

To the extent that the TNSP's Revised Revenue Proposals included total revenue requirements or total capex requirements that the AER considered to be too high, EMCa's benchmarks will be systematically biased downwards.

In addition to this systematic bias, EMCa's benchmarks contain a material error because they fail to establish consistent categories of IT capex. In section 5.1 below, SP AusNet shows that corrected benchmark data illustrates that the AER's Draft Decision has inappropriately reduced SP AusNet's proposed IT capex.

5.1 Comparison with other Australian TNSPs

EMCa acknowledge that its benchmarking analysis should be 'treated with caution as there are a number of differences between NSPs that need to be taken into account'.[40] However, EMCa provide no indication of the materiality of these differences in its report.

Benchmarking of electricity businesses is difficult, largely because of the difference between the scope of the companies and how they categorise their costs. The principal difference between TNSPs' IT costs relate to real time systems and communications – SCADA, DMS, OMS etc. SP AusNet includes these costs in non-system IT capex, while other TNSPs generally treat them as part of core transmission network capex. SP AusNet has confirmed the scope of IT capex for TransGrid, Powerlink, ElectraNet and Transend. All four NEM comparators exclude Ops WAN costs (categorising them as "network" capex). Three of the other NEM TNSPs exclude SCADA and IT Security costs – again categorising them as network capex. Western Power categorises SCADA and communications, and IT security as network capex, so these costs are excluded from its IT capex forecasts.

Figure 6 – TNSP categorisation of IT System costs

IT System Category	Categorised as IT capital expenditure?					
	SP AusNet	TransGrid	Powerlink	ElectraNet	Transend	Western Power
SCADA	✓	✓	✗	✗	✗	✗
IT Security	✓	✓	✗	✗	✗	✗
Ops WAN	✓	✗	✗	✗	✗	✗

Source: Relevant revenue proposals and determinations

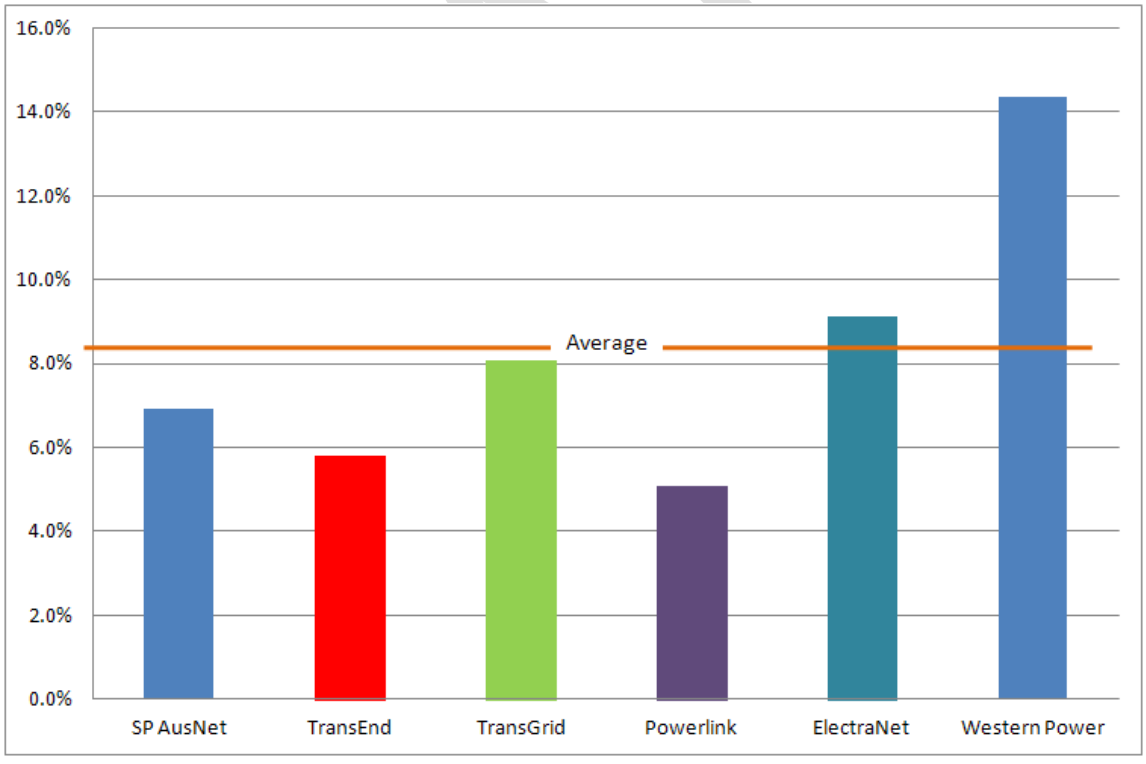
[40] EMCa, paragraph 250

The Figures below provide benchmarks that reflect adjustments to capex data to enable a like-for-like comparison of IT capex costs. These adjustments are:

- Network and transmission connection augmentation capex is excluded from the total capex of all other TNSPs, given SP AusNet's total capex excludes augmentation.
- SP AusNet's IT Capex has been reduced by 22% to exclude SCADA (15%), IT Security (5%) and Ops WAN (2%) which other TNSPs (ElectraNet, Powerlink and Transend) do not include in their non-system IT capex. This allows for comparison across a common scope of IT services for the TNSPs.
- TransGrid's IT capex has been reduced by 20% to reflect the fact that TransGrid excludes Ops WAN capex but includes SCADA and related security costs in non-system IT capex. As TransGrid's detailed costs of these IT cost categories are not available to SP AusNet, an assumption regarding the proportion of IT costs has been made based on SP AusNet's cost proportions and identical percentage reductions applied to TransGrid. While this is an imperfect estimate, it enables a more valid comparison of costs.

The results of the benchmarking - summarised in the two Figures below - show that SP AusNet's IT capex, as a proportion of non-augmentation capex, is below the average, and is the fourth largest expenditure of the six TNSPs. When considered as a proportion of total revenue, SP AusNet's IT capex is slightly above the average.[41]

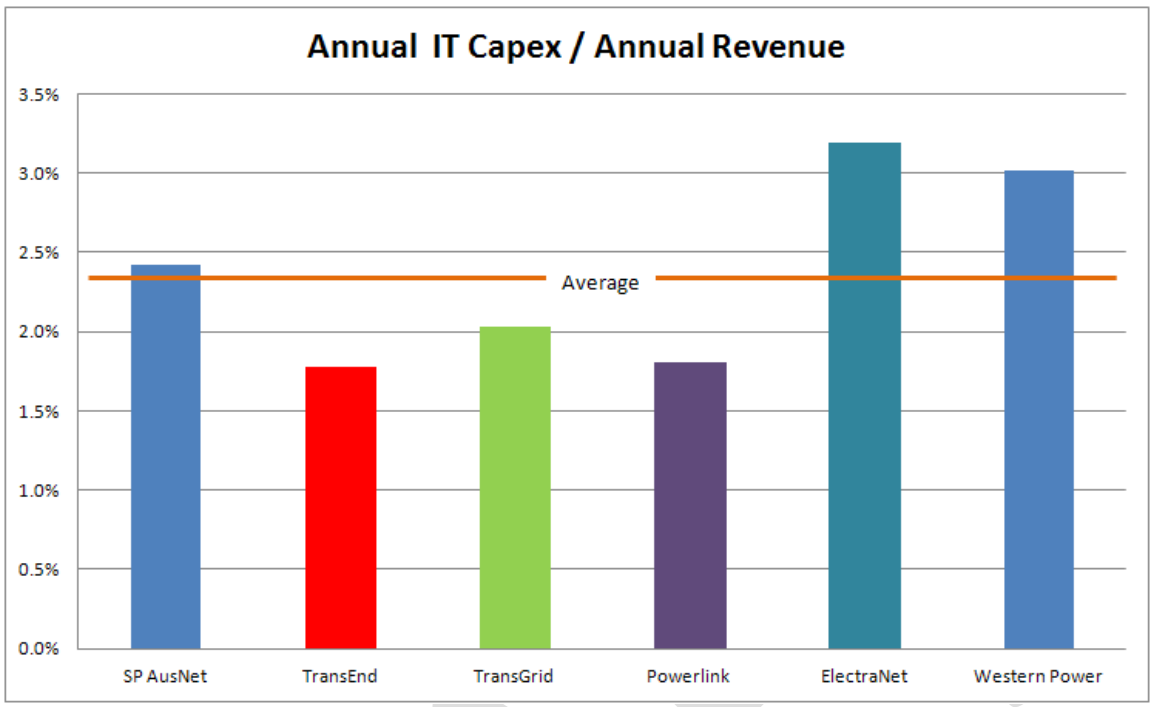
Figure 7 - Normalised IT capex/total non-augmentation capex across Australian TNSPs



Source: SP AusNet revised Revenue Proposal, AER current final determinations for all other NEM TNSPs, ERA current determination for Western Power

[41] The detailed results underpinning the averages shown in the charts, is provided at Figure 9, Attachment 1 to this Appendix.

Figure 8 - SP AusNet normalised IT capex/revenue relative to Australian TNSPs



Source: SP AusNet revised Revenue Proposal, AER current final determinations for all other NEM TNSPs, ERA current determination for Western Power

After the adjustments described above, which take into account cost categorisation differences, SP AusNet's benchmark results are largely consistent with its cohort, and it cannot be said to be one of the larger investors in IT. It should be noted that Western Power's benchmarking results differ markedly from those presented by EMCa. It appears that EMCa has not apportioned IT capex across the transmission and distribution businesses in accordance with the regulator's final decision[42]. In addition, EMCa appears to have made no adjustment to remove augmentation capex in order to enable a valid comparison of the data across the TNSPs on a consistent basis.

EMCa recommends that SP AusNet's allowance for IT capex be reduced to 'bring SP AusNet broadly into line with other TNSPs on a revenue benchmarking basis'. It is important to note that the IT capex to revenue benchmarking analysis is materially affected by the cost of capital, which is reflected in the revenues. The following rates of return applied in each determination differ significantly:

- ElectraNet (2013-18) = 7.50% (nominal vanilla WACC)
- Powerlink (2012-17) = 8.61% (nominal vanilla WACC)
- Transend (2009-14) = 10.00% (nominal vanilla WACC)
- TransGrid (2009-14) = 10.05% (nominal vanilla WACC)
- SP AusNet (2014-17) = 7.43% (nominal vanilla WACC in revised Revenue Proposal)
- Western Power (2013-2017) = 5.78% (expressed on a nominal after tax basis).

As ElectraNet, Western Power and SP AusNet have the lowest WACC allowances, the IT capex to revenue benchmark will appear to be higher than other TNSPs. The cost of capital is a

[42] Economic Regulation Authority, Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network, 5 September 2012, paragraph 983.

significant determinant of allowed revenues (the denominator in the above ratio analysis) which would materially impact results. Any interpretation of these results would therefore need to take this factor into account.

5.2 Invalid reduction of forecast using EMCa benchmarking

EMCa recommend that SP AusNet's allowance for IT capex be reduced to 'bring SP AusNet broadly into line with other TNSPs on a revenue benchmarking basis'. However, the conclusion is based on a false premise that SP AusNet is out-of-line with its peers. The analysis presented here illustrates that EMCa's conclusions and recommendations are not substantiated.

The materiality of the limitations of EMCa's benchmarking analysis is such that it is not a sound basis for EMCa's recommendation–or the Draft Decision's acceptance of the recommendation–to reduce SP AusNet's IT capex forecast.

6 Conclusion

SP AusNet does not agree with the Draft Decision on forecast IT capex because:

- the assumption that the merits of forecast strategic IT capex should be assessed solely on the basis of expected reductions in controllable opex is flawed;
- the quantification and analysis of forecast investment as "strategic" is incorrect and unreliable;
- the benchmarking results which underpin EMCa's recommendations and the Draft Decision are inaccurate and unreliable; and
- the Draft Decision has not adequately taken into account the supporting information provided to the AER and EMCa to explain the forecast bottom up build.

The capital expenditure criteria specifically refer to the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the capital expenditure objectives.

The AER must consider whether a prudent TNSP would only invest in IT systems if there are "clear quantifiable" reductions in controllable opex. SP AusNet's position is that it would not. To limit IT expenditure to only those projects that promised capex savings is, in fact, irresponsible. It would expose customers to substantial potential costs in terms of security, quality and reliability, and jeopardise power system security and the provision of prescribed transmission services. Importantly for the AER, it would exclude a substantial proportion of forecast capital expenditure that is required to achieve the capital expenditure objectives and reasonably reflects the capital expenditure criteria.

Attachment 1- Benchmarking analysis data

Figure 9 – Normalised benchmarking results

A	IT Capex	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
	SP AusNet							15.8	10.9	10.1	
	TransEnd		2.7	5.2	3.6	2.4	3.1				
	TransGrid		13.8	17.9	15.9	10.3	16.7				
	Powerlink					15.8	14.9	16.1	15.6	15.7	
	ElectraNet						10.9	10.8	11.4	7.2	5.5
	Western Power					13.8	14.6	6.0	6.9	8.4	

B	Total Capex	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
	SP AusNet							156.9	191.4	198.4	
	TransEnd		64.7	57.6	38.0	82.7	90.7				
	TransGrid		226.6	218.1	175.7	146.0	168.0				
	Powerlink					395.3	350.9	312.6	277.0	245.3	
	ElectraNet						127.2	108.9	126.6	105.3	48.6
	Western Power					63.0	64.5	70.4	81.0	82.1	

C	Revenue	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
	SP AusNet							503.0	509.9	504.3	
	TransEnd		172.9	182.5	192.6	203.2	214.4				
	TransGrid		673.8	705.2	738.0	772.4	808.4				
	Powerlink					813.8	838.5	863.8	889.9	916.8	
	ElectraNet						261.5	277.3	296.2	312.8	317.7
	Western Power					407.7	346.9	315.0	287.7	261.7	

A/B	IT Capex / Total Capex	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	Average
	SP AusNet							10.0%	5.7%	5.1%		6.9%
	TransEnd		4.2%	9.0%	9.5%	2.9%	3.4%					5.8%
	TransGrid		6.1%	8.2%	9.1%	7.1%	9.9%					8.1%
	Powerlink					4.0%	4.2%	5.2%	5.6%	6.4%		5.1%
	ElectraNet						8.6%	9.9%	9.0%	6.8%	11.3%	9.1%
	Western Power					21.9%	22.6%	8.5%	8.5%	10.2%		14.3%
	Average											8.2%

A/C	IT Capex / Revenue	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	Average
	SP AusNet							3.1%	2.1%	2.0%		2.42%
	TransEnd		1.6%	2.8%	1.9%	1.2%	1.4%					1.8%
	TransGrid		2.0%	2.5%	2.2%	1.3%	2.1%					2.0%
	Powerlink					1.9%	1.8%	1.9%	1.8%	1.7%		1.8%
	ElectraNet						4.2%	3.9%	3.8%	2.3%	1.7%	3.2%
	Western Power					3.4%	4.2%	1.9%	2.4%	3.2%		3.0%
	Average											2.4%