



Preliminary View
Advanced metering infrastructure review
SPI Electricity Pty Ltd
2012–15 budget and charges applications

Amendments pursuant to the Australian Competition
Tribunal's Orders

August 2012

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Contents

Contents	i
1 WiMAX communications	1
1.1 AER preliminary view	1
1.2 AER approach	4
1.3 Reasons for preliminary view	5
1.4 Revisions	33

1 WiMAX communications

This chapter sets out the AER's further consideration of SP AusNet's "WiMAX communications" expenditure¹ as required by the Tribunal.² The combined amount of that expenditure rejected by the AER in its final determination totals \$72.2 million and comprises the following categories:³

- meter supply capex: \$54.3 million
- maintenance opex: \$10.9 million
- IT opex: \$7.0 million.

1.1 AER preliminary view

The AER's preliminary view is that the commercial standard a reasonable business in SP AusNet's circumstances would have exercised would have been to fully reconsider its Submitted Budget, and, in so doing, would have decided to switch to mesh radio. By deciding not to switch, incurring the additional expenditure associated with WiMAX communications as proposed by SP AusNet involves, a substantial departure from that standard.⁴

This differs from SP AusNet's Reconsideration Submission, which considered that the lowest cost option would have been to retain WiMAX as the primary communications solution. Accordingly, the outcome of the reconsideration from SP AusNet's perspective would have been to decide to retain WiMAX, rather than switch to mesh radio.

Key reasons for the difference in opinion are:

- a reconsideration date of 28 February 2011 rather than 19 May 2011
- examination of the costs of WiMAX and mesh radio over a 15 year timeframe as at 28 February 2011 rather than for the 2012–15 period only
- analysing only those costs that would be affected by the change in the communications solution rather than the entire rollout costs
- commencement of the switch to mesh radio on 1 March 2011 rather than 1 January 2012
- the assumed coverage of mesh radio and hence the extent of reliance on a secondary 3G communications solution
- costs to switch from WiMAX to mesh radio.

The AER has found that by analysing the costs that would have changed, depending on the communications solution over a 15 year period from 2011–25, the net present value (NPV) of WiMAX

¹ This further consideration only applies to the WiMAX communications expenditure under review in the Tribunal.

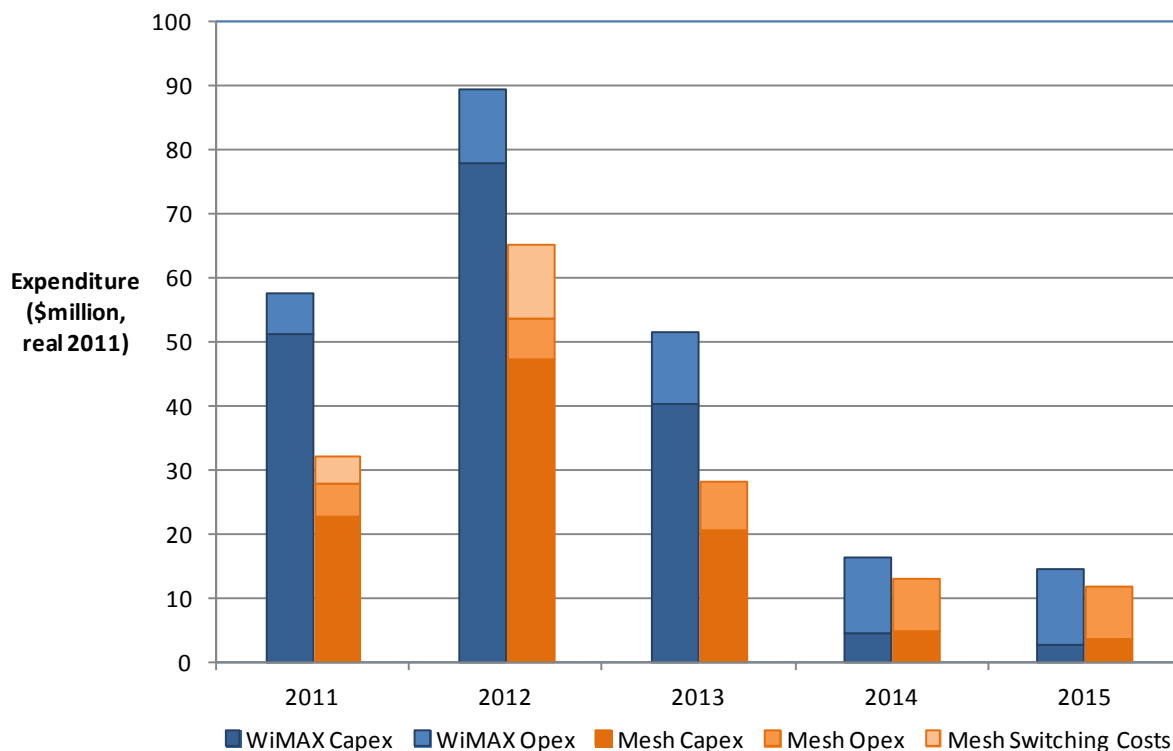
² Tribunal Reasons, paragraphs 136-139.

³ AER, *Final Determination*, October 2011, pp. 75, 103, 115.

⁴ AMI Order, clause 5C.3(b)(iv).

is approximately 58 per cent higher than for mesh radio, including switching costs.⁵ The AER considers such switching costs would amount to \$15.9 million, rather than the \$107.2 million submitted by SP AusNet.⁶ Figure 1.1 compares the costs of WiMAX and mesh radio over 2011–15 and identifies these switching costs.

Figure 1.1 Comparison of WiMAX and mesh radio costs for 2011–15 (\$million, real 2011)



Source: AER analysis.

The detailed reasons for the difference in the AER's estimate of switching costs compared to SP AusNet's estimate are discussed in section 1.3. However, by way of summary, the AER's estimate is lower mainly due to avoidance of delay in commencing the mesh radio rollout, and ceasing the WiMAX rollout immediately. For example, this significantly reduces the amount of WiMAX communications cards that would need to be replaced with mesh radio communications cards and the need to incur additional manual meter related expenditure.⁷

The AER also considers a reasonable business in SP AusNet's circumstances could use its project and technical resources that it would otherwise have used for its WiMAX solution to manage the market delivery of its mesh solution without a significant increase in cost. For example, this would eliminate the need for additional IT integration and project management costs.⁸ Table 1.1 compares the estimates of SP AusNet and the AER of the switching costs a reasonable business in the circumstances would incur if it abandoned WiMAX in favour of mesh radio.

⁵ Energeia, *Review of SP AusNet's WiMax Related Expenditure*, August 2012 (*Energeia Report*), p. 19.

⁶ SP AusNet, Reconsideration Submission, 5 June 2012, p. 24.

⁷ *Energeia Report*, pp. 22-25, 27-30.

⁸ *Energeia Report*, pp. 22-25, 27-30.

Table 1.1 Comparison of mesh switching costs (\$million, real 2011)

	SP AusNet (2012-15)	AER (2011)	AER (2012-15)
Capex			
Meters	44.3	–	11.7
Communications	9.0	4.2	–
Information technology	16.2	–	–
Total capex	69.5	4.2	11.7
Opex			
Meter reading, meter data management, overheads	13.5	–	–
Project management office	10.2	–	–
Industry PMO/Audit/Regulatory Submissions	1.9	–	–
IT opex	2.7	–	–
Total opex	28.2	–	–
Other business stream costs	9.5	–	–
Total switching costs	107.2	4.2	11.7

Source: SP AusNet, Reconsideration Submission, 5 June 2012, p. 24; AER analysis.

As Figure 1.1 and Table 1.1 show, \$4.2 million of the switching costs would be incurred in 2011. The prudent amount under the AMI Order for the purposes of the 2012–15 period is therefore \$11.7 million. This is because the AMI Order does not allow SP AusNet to recover 2011 costs in the 2012–15 budget period.⁹

Had SP AusNet reconsidered its commitment to WiMAX communications as at 28 February 2011 and decided to switch to mesh radio – what the AER expects a reasonable business in the circumstances would have done – SP AusNet would have incurred only an additional \$11.7 million above its Approved Budget for 2012–15. Instead, by not switching to mesh radio and continuing its AMI rollout with its WiMAX communications solution, SP AusNet is proposing to incur an additional \$72.2 million above its Approved Budget.

Therefore, by proposing to incur significantly more than \$11.7 million (that is, \$72.2 million) SP AusNet has substantially departed from the commercial standard of a reasonable business in its circumstances.¹⁰

Therefore, of the \$72.2 million of expenditure remitted back to the AER by the Tribunal for further consideration, the AER's preliminary view is that \$60.5 million does not meet the commercial standard, and is therefore not prudent. Consistent with clause 5C.8 of the AMI Order, this amount

⁹ See section 1.3.4.

¹⁰ AMI Order, clause 5C.3(b)(iv).

should be removed from SP AusNet's 2012–15 Approved Budget.¹¹ The AER's reasons for its preliminary view are discussed in section 1.3.

1.2 AER approach

The AER's preliminary view has determined the likely amendments to its final determination in accordance with the Tribunal's reasons and the AMI Order. The Tribunal required the AER to reconsider SP AusNet's Submitted Budget in relation to the prudence of incurring WiMAX communications expenditure. This is because part of the commercial standard that a reasonable business in SP AusNet's circumstances would have exercised would have been to reconsider its commitment to WiMAX communications.¹² In doing so, the AER has considered whether SP AusNet should have switched from WiMAX to mesh radio.

The Tribunal concluded that the AER had not made a material error of fact in determining that SP AusNet had departed from the commercial standard in so far as a reasonable business in SP AusNet's circumstances would have undertaken a serious and thorough reconsideration of the use of WiMAX technology and the possibility of using an alternative.¹³

The Tribunal also accepted that the benchmarks determined by the AER were reflective of the costs of an AMI rollout using mesh radio if SP AusNet had chosen that technology from the outset.¹⁴ However, the Tribunal stated that because SP AusNet had already embarked on its AMI rollout using WiMAX as its communications technology, its circumstances were different.¹⁵ The AER therefore made an error of fact in determining that a reasonable business in SP AusNet's circumstances would incur no more than the benchmark expenditure.¹⁶

The AER's preliminary view of the approach to revising its final determination and Approved Budget for SP AusNet is to determine, in light of the Tribunal's reasons and the AMI Order:

- whether, at the date of SP AusNet's serious and thorough reconsideration of its Submitted Budget for the 2012–15 period, a reasonable business in SP AusNet's circumstances would have switched from WiMAX technology to mesh radio technology
- if so, whether SP AusNet substantially departed from that standard
- the adjustment, if any, to SP AusNet's Approved Budget by no more than the expenditure the AER has established as being not prudent .

To do this, the AER has considered the quantitative and qualitative factors relevant to recreating a hypothetical decision to switch communications technology. The AER's approach is necessarily hypothetical in nature because the AER is required to consider what a reasonable business in SP AusNet's circumstances would have done, had it reconsidered its commitment to WiMAX communications in 2011.¹⁷

¹¹ AMI Order, clause 5C.8.

¹² Tribunal reasons, paragraphs 137, 139.

¹³ Tribunal reasons, paragraph 131.

¹⁴ Tribunal reasons, paragraph 129.

¹⁵ Tribunal reasons, paragraph 129.

¹⁶ Tribunal reasons, paragraph 130.

¹⁷ Tribunal reasons, paragraphs 137-138.

It is important to note that this is not a consideration of whether a reasonable business would have switched from a fully functional WiMAX-based AMI rollout. As noted in the AER's final determination, SP AusNet's WiMAX-based solution has been subject to cost increases and performance issues over several years. As discussed in section 1.3, there are several occasions prior to 2011 where a reasonable commercial business with appropriate internal governance would have reassessed its commitment to WiMAX.¹⁸

SP AusNet's internal governance and the state of its WiMAX-based rollout are important factors that inform its circumstances for the purposes of clause 5C.3(b)(iv) of the AMI Order. On the basis of the information available to it, the AER has determined what a reasonable business would have done in the circumstances. Where SP AusNet has not provided information on its governance processes, the AER has had regard to information that a reasonable business in SP AusNet's circumstances ought to have known at the time. The AER's use of information is discussed further in section 1.3.

The AER's quantitative analysis compares the forward looking costs likely to be incurred by SP AusNet in implementing a mesh radio solution (including switching costs) with SP AusNet's WiMAX solution. The AER has focussed on the key cost elements that would differ depending on the communications solution chosen, rather than the cost of an entire rollout.¹⁹ The AER has then considered the non-cost factors that a reasonable business in SP AusNet's circumstances would have had regard to at the time SP AusNet was reconsidering its Submitted Budget.

In conducting its quantitative and qualitative analysis, the AER has taken into account and given fundamental weight to SP AusNet's circumstances and the factors listed in clause 5I.8 of the AMI Order²⁰ as evidenced by information provided by SP AusNet in its Reconsideration Submission, its information responses and Energeia's report.

This methodology enables the AER to determine the commercial standard and whether incurring the expenditure of \$72.2 million involves a substantial departure from that standard. If SP AusNet in proposing to incur \$72.2 million substantially departed from that standard, the AER must reduce SP AusNet's Approved Budget by not more than expenditure it has established is not prudent.²¹

1.3 Reasons for preliminary view

The AER has concluded from its quantitative and qualitative analysis that the commercial standard that a reasonable business would have exercised in SP AusNet's circumstances would have been to fully reconsider its Submitted Budget on 28 February 2011. The result of this reconsideration would have been to switch to mesh radio. By deciding to incur the proposed WiMAX communications expenditure after this time, SP AusNet substantially departed from this standard.²²

The AER's quantitative analysis shows that over a 15 year period from 2011–25 the cost of WiMAX as at 28 February 2011 is approximately 58 per cent higher than for mesh radio, including the costs to

¹⁸ *Energeia Report*, pp. 16-17.

¹⁹ *Energeia Report*, pp. 25-26.

²⁰ AMI Order, clause 5C.4.

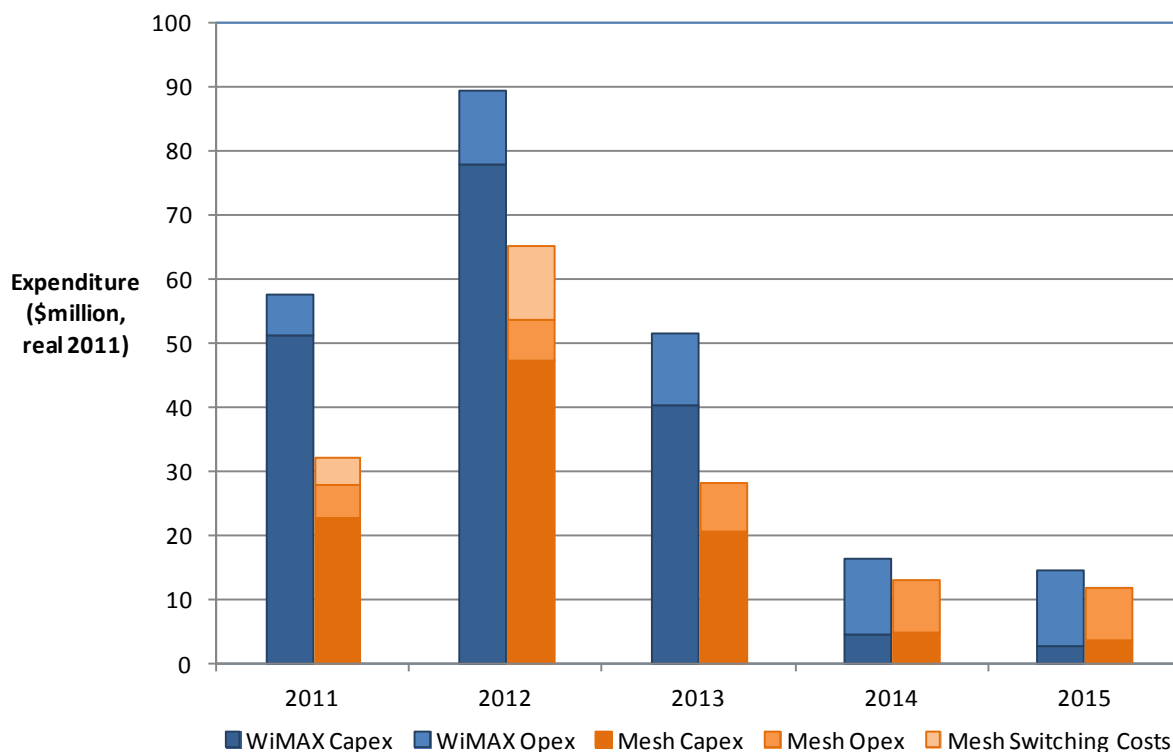
²¹ AMI Order, clauses 5C.3, 5C.8(b); Tribunal reasons, paragraphs 133, 138.

²² AMI Order, clause 5C.3(b)(iv).

switch.²³ Over the 2012–15 budget period, this difference is approximately 46 per cent.²⁴ This is shown in Figure 1.2.

Figure 1.2 also demonstrates the AER's estimate of the costs that a reasonable business in SP AusNet's circumstances would incur to switch to mesh radio. The AER considers such switching costs would amount to \$15.9 million over 2011–15, rather than the \$107.2 million submitted by SP AusNet.²⁵ However, since some of these switching costs would be incurred in 2011, the amount of switching costs that would be incurred in 2012–15 is \$11.7 million.

Figure 1.2 Comparison of WiMAX and mesh radio costs for 2011–15 (\$million, real 2011)



Source: AER analysis.

Had SP AusNet reconsidered its commitment to WiMAX communications as at 28 February 2011 and decided to switch to mesh radio – what the AER expects a reasonable business in the circumstances would have done – SP AusNet would have incurred only an additional \$11.7 million above its Approved Budget for 2012–15. Instead, by not switching to mesh radio and continuing its AMI rollout with its WiMAX communications solution, SP AusNet is proposing to incur an additional \$72.2 million above its Approved Budget.

²³ *Energeia Report*, p. 19.

²⁴ *Energeia Report*, p. 34.

²⁵ SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 24.

Therefore, by proposing to incur significantly more than \$11.7 million (that is, \$72.2 million) SP AusNet has substantially departed from the commercial standard of a reasonable business in its circumstances.²⁶

Accordingly, of the \$72.2 million of expenditure remitted back to the AER by the Tribunal for further consideration, the AER's preliminary view is that \$60.5 million is not prudent.²⁷ Consistent with clause 5C.8 of the AMI Order, this amount should be removed from SP AusNet's 2012–15 Approved Budget.²⁸ The AER's reasons and analysis are discussed in the sections that follow.

1.3.1 Should SP AusNet have switched to mesh radio?

The AER's approach to comparing the costs of WiMAX and mesh radio solutions differs in some respects to SP AusNet's. These points of difference are reflected in the AER's quantitative analysis and are discussed in the sections that follow.

Relevant costs

In its Reconsideration Submission, SP AusNet compared estimates of full rollout costs for both WiMAX and mesh radio solutions. However, the AER focussed only on the key cost elements that would differ depending on the communications option.²⁹ Accordingly, the AER removed all costs that it considered would be the same under either a WiMAX solution or a mesh radio solution.

Such costs include the cost of meters, installing meters, AMI and IT program management costs and all post-2015 opex that is not related to the communications solution.³⁰ SP AusNet used the same assumption regarding meters and post-2015 opex, although it included the full meter costs in its cost-benefit analysis.³¹ The AER also included additional capex after 2014 to account for ongoing network expansion, and a full replacement of the complete IT system after 7 years, which SP AusNet did not.³²

Date of reconsideration

In its reasons, the Tribunal referred to "costs already incurred to the date of the new Submitted Budget being reconsidered."³³ The AER considers this date is 28 February 2011. This is the date by which SP AusNet was required under the AMI Order to submit its 2012–15 Submitted Budget to the AER. In the months preceding this date, a reasonable business in SP AusNet's circumstances would have assessed its forecast expenditure for the 2012–15 period and reconsidered its commitment to proceed with WiMAX in accordance with that part of the commercial standard accepted by the Tribunal.³⁴

In its Reconsideration Submission, SP AusNet submitted that the relevant timeframe for reconsideration is the "months leading up to 19 May 2011" and "about mid 2011" is the date a

²⁶ AMI Order, clause 5C.3(b)(iv).

²⁷ AMI Order, clause 5C.3.

²⁸ AMI Order, clause 5C.8.

²⁹ *Energeia Report*, pp. 25-26.

³⁰ *Energeia Report*, pp. 25-26.

³¹ SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 19.

³² *Energeia Report*, pp. 25-26.

³³ Tribunal reasons, paragraph 138.

³⁴ Tribunal reasons, paragraph 131.

decision would have been made on the choice of technology.³⁵ Note this is well after a considered budget proposal for the 2012-15 period was provided to the regulator under the OIC.

On 19 May 2011, several problems associated with WiMAX were presented at SP AusNet's AMI Executive Steering Committee.³⁶ SP AusNet considered:

- this period for the reconsideration best accorded with the AER's determination and the Tribunal's reasons because:³⁷
 - the AER referred to this information in its final determination to demonstrate that SP AusNet had departed from the commercial standard of a reasonable business in SP AusNet's circumstances³⁸
 - the Tribunal agreed that the identified problems supported the AER's view that SP AusNet's proposed WiMAX communications expenditure ought to have been reconsidered³⁹
- the Tribunal's reference to the number of meters installed as at 23 September 2011 supported its view.⁴⁰

In response to a request for further information from the AER,⁴¹ SP AusNet later submitted, on 29 June 2012, that the date of the new Submitted Budget could alternatively be the date of the AER's draft determination of 28 July 2011.⁴² SP AusNet referred to the wording of clause 5C.5(a) of the AMI Order, which states if the AER rejects the Submitted Budget in its draft determination it must state what "new Submitted Budget" it would determine to approve.⁴³ SP AusNet further submitted that the Tribunal's reasons could be interpreted as suggesting that the AER's adverse draft determination would have prompted SP AusNet's reconsideration.⁴⁴

The AER does not agree with SP AusNet's submissions. The AER considers 28 February 2011 is the reconsideration date and has conducted its analysis on this basis because:

- the commercial standard accepted by the Tribunal necessarily implies that a reasonable business in SP AusNet's circumstances would have undertaken a full reconsideration of the use of WiMAX prior to submitting its new Submitted Budget for the 2012–15 regulatory period. This is because the commercial standard was based on corporate governance procedures and practice.⁴⁵ Increases in the costs of SP AusNet's AMI rollout were known prior to 28 February 2011⁴⁶ and the Tribunal accepted they were related to WiMAX to the extent that "the choice of technology was crucial to the program structure and cost."⁴⁷

³⁵ SP AusNet, *Reconsideration submission*, 5 June 2012,, p. 15.

³⁶ SP AusNet, *Re-planning Analysis & Recommendations*, 19 May 2011 (confidential).

³⁷ SP AusNet, *Reconsideration submission*, 5 June 2012, p. 15.

³⁸ AER, *Final determination*, October 2011, pp. 78, 79, 81, 117.

³⁹ Tribunal reasons, paragraphs 119–124, 131.

⁴⁰ SP AusNet, *Reconsideration submission*, 5 June 2012, p. 15.

⁴¹ AER, *Covering email to information request 2*, sent 12 June 2012.

⁴² SP AusNet, *Response to information request 2 of 12 June 2012*, received 29 June 2012, pp. 1–2.

⁴³ AMI Order clause 5C.5(a)

⁴⁴ SP AusNet, *Response to information request 2 of 12 June 2012*, received 29 June 2012, pp. 1–2.

⁴⁵ Tribunal reasons, paragraph 134.

⁴⁶ For example, in July 2010, SP AusNet's Board was aware that the cost of the AMI program estimate had increased 19 per cent from the July 2008 business case due to WiMAX issues. SP AusNet, AMI Program Business Case Update, 13 July 2010 (confidential).

⁴⁷ Tribunal reasons, paragraph 121.

- It follows that a full reconsideration would have occurred prior to that time in line with proper governance procedures and practice.⁴⁸ Indeed, the AER considers February 2011 would be the latest date a reconsideration should have occurred as there were several opportunities prior to this date:⁴⁹
 - in July 2008 following the assessment of the responses received to the RFT 2008/T15 tender process by the consultant managing the process, which showed mesh radio to be 70 per cent cheaper than WiMAX
 - in September 2009 before signing the WiMAX meter contracts, when it became clear that the meter costs were substantially higher than initially submitted to the AER in the 2009–11 Budget and Charges process
 - in July 2010 when the Board was made aware that AMI rollout costs had increased 19 per cent from the July 2008 business case
 - any other time up to submitting its 2012–15 budget proposal in February 2011 following the developments in WiMAX and mesh radio cost and performance over the period to December 2010. Mesh radio was successfully deployed by the four other Victorian DNSPs at significantly lower cost than SP AusNet's WiMAX solution during this time.
- 28 February 2011 is the date by which SP AusNet was required to submit its new Submitted Budget for 2012–15 to the AER. SP AusNet would have had to evaluate its rollout program in the preceding months to the extent that it had prepared its budget based largely on WiMAX technology.
- 28 February 2011 is also the date SP AusNet submitted a Revised Budget application (RBA) for the 2009–11 period, which requested additional WiMAX-related expenditure. The RBA indicated that SP AusNet had been aware of significant costs increases since September 2009 when it entered into meter supply contracts.⁵⁰
- the evidence before the Tribunal revealed that no full reconsideration had occurred since the 2008 Business Case. There is no basis on which to select 19 May 2011 as a date for when the reconsideration should have occurred merely because that was the date when SP AusNet chose to undertake a Management Review that the Tribunal accepted was not even a full reconsideration.⁵¹ As such, this date is not relevant to the regulatory timeframe for the preparation of SP AusNet's new Submitted Budget for 2012–15.
- there is a logical inconsistency in SP AusNet's preferred reconsideration date because SP AusNet has assumed the cost of an AMI rollout using WiMAX in its Option 1 scenario as at 28 February 2011, not 19 May 2011.⁵² In contrast, SP AusNet's costs for its Options 2 and 3 scenarios are as of May 2011, which would not lead to a like for like comparison between its own options. If the AER were to consider SP AusNet's proposed reconsideration date, SP AusNet would need to update its Option 1 estimate to incorporate the higher WiMAX costs known on 19 May 2011.
- despite the language of the AMI Order, there is no suggestion in the Tribunal's reasons that SP AusNet's reconsideration would only have been prompted by the AER's draft determination. Such

⁴⁸ *Energeia Report*, pp. 16-17.

⁴⁹ *Energeia Report*, pp. 16-17.

⁵⁰ See, for example, SP AusNet, Revised budget application for 2009-11, pp. 38–39.

⁵¹ Tribunal reasons, paragraph 131.

⁵² SP AusNet, *Reconsideration submission*, 5 June 2012, pp. 20-21.

a view would also be at odds with good governance practices, which the Tribunal noted were the basis of the AER's commercial standard⁵³ because under any concept of a commercial standard, companies would not rely on regulators to act before complying with good governance procedures and practices.

- the Tribunal's reasons do not suggest that the number of meters rolled out as at 23 September 2011 supports a reconsideration date of 19 May 2011. The AER considers the Tribunal referred to meter numbers only to demonstrate (using the information available to it⁵⁴) that, having embarked on its rollout using WiMAX, SP AusNet's circumstances were different to those of the other DNSPs.⁵⁵

A reconsideration date of 28 February 2011 implies that the earliest date a switch of communications technology could feasibly commence would be 1 March 2011.⁵⁶

Information relevant to the reconsideration

SP AusNet submitted that the commercial standard must be determined using accurate, relevant and current information, and must treat with caution any speculative or uncertain information or analysis.⁵⁷ It considered the only relevant information is information known at the time of the reconsideration, and it is therefore not appropriate to conduct analysis with the benefit of hindsight.⁵⁸ SP AusNet further submitted that any "behavioural" information or information about its governance procedures and practice is not relevant because the Tribunal resolved the issue of whether there should have been a reconsideration of WiMAX.⁵⁹

The AER agrees that the issue of whether WiMAX should have been reconsidered has been resolved by the Tribunal. The AER also agrees that only accurate and relevant information should be utilised, and has accordingly conducted its analysis based on information.⁶⁰

- known to be available to SP AusNet as at the reconsideration date for both WiMAX and mesh radio
- that would have been obtainable by a reasonable commercial business in the circumstances
- from the AER's October 2011 final determination that is relevant to the reconsideration.

SP AusNet has used the AER's final determination for Powercor to estimate the communications capex required to build a mesh radio network and based some of its IT capex on Jemena Electricity Networks (JEN)'s estimates.⁶¹ Similarly, the information the AER has relied on from its final

⁵³ Tribunal reasons, paragraph 134.

⁵⁴ The Tribunal did not have meter installation numbers as at February 2011 before it.

⁵⁵ See, for example, Tribunal reasons, paragraph 129.

⁵⁶ *Energeia Report*, p. 21.

⁵⁷ SP AusNet, *Reconsideration Submission*, pp. 12-13.

⁵⁸ SP AusNet, *Reconsideration submission*, 5 June 2012, p. 13.

⁵⁹ SP AusNet, *Response to AER email of 9 July 2012*, Received 17 July 2012, pp. 3-4.

⁶⁰ *Energeia Report*, pp. 22-25, 28.

⁶¹ *Comparative costs of Mesh alternative solution -050612.xls* (confidential), Comms cost of switching tab and IT cost of switching tab, attachment to SP AusNet, *Reconsideration Submission*, 5 June 2012. In its final determination (pages 73–74), the AER noted that IF differences in topography and geography between the networks of Powercor and SP AusNet had a quantifiable effect on costs, the category of expenditure most likely to be affected would be communications capex. However, since SP AusNet developed its communications capex estimate from a Powercor benchmark, the AER considers the issue of whether or not communications capex can be benchmarked is moot.

determination primarily relates to mesh radio costs for Powercor and IT solution costs⁶² for JEN.⁶³ Where appropriate, the AER has also used final determination information for SP AusNet such as for meter numbers. Therefore, the AER considers SP AusNet and the AER are in agreement that these estimates reflect cost information that would have been obtainable in the circumstances.

While the AER's final determination was not known as of 28 February 2011, it represents the AER's view of prudent mesh radio costs from 28 February 2011 because the final determination adjusted Powercor and JEN's 28 February 2011 Submitted Budgets to ensure the expenditure was in scope and prudent.⁶⁴ The AER considers that "behavioural" information and information about SP AusNet's governance is relevant to assessing the reconsideration of "the prudence of proceeding with WiMAX compared with an alternative."⁶⁵ Such information informs SP AusNet's circumstances if it was information available to SP AusNet as at 28 February 2011.⁶⁶ For example, SP AusNet assumed that Option 1 would not result in any delays to the delivery of the AMI program.⁶⁷ It is necessary for the AER to assess this assumption.

Furthermore, the Tribunal refers to the reconsideration leading to a "commercial decision" to either incur the WiMAX expenditure or not.⁶⁸ The AER considers that a commercial decision to switch communications technology could only be made with regard to the status of SP AusNet's AMI rollout and such information would likely have been provided to its Board. Thus, the AER requested certain information from SP AusNet⁶⁹ that would have informed such a "commercial decision" to incur the WiMAX expenditure or "to go down some other route."⁷⁰ Such information informs SP AusNet's circumstances at the time, which clause 5l.8 of the AMI Order requires the AER to take into account and give fundamental weight.⁷¹

The AER notes that SP AusNet initially submitted it would be too onerous to provide some of the internal governance information requested by the AER.⁷² SP AusNet later stated that such information is not relevant to the scope of the AER's assessment because the Tribunal had already resolved the question of whether SP AusNet should have reconsidered its commitment to WiMAX.⁷³

The AER maintains the view it expressed in correspondence with SP AusNet that such information is relevant as any reconsideration would necessarily have taken into account SP AusNet's internal governance processes and the state of its rollout as these are relevant circumstances.⁷⁴ The AER

⁶² SP AusNet's estimate of the IT capex required for the mesh radio NMS and MMS is based on JEN's build costs for these systems. *Comparative costs of Mesh alternative solution -050612.xls* (confidential), IT costs of switching tab, attachment to SP AusNet, *Reconsideration Submission*, 5 June 2012.

⁶³ *Energeia Report*, pp. 27-30.

⁶⁴ *Energeia Report*, pp. 27-30.

⁶⁵ SP AusNet, *Response to AER email of 9 July 2012*, Received 17 July 2012, pp. 3-4.

⁶⁶ AMI Order, clause 5l.8(d).

⁶⁷ SP AusNet, *Reconsideration submission*, 5 June 2012, p. 19.

⁶⁸ Tribunal reasons, paragraph 138.

⁶⁹ Despite repeated requests from the AER (AER, Information request 2 (12 June 2012), email of 25 June 2012, email of 26 June 2012, email of 9 July 2012, email of 19 July 2012, Letter from AGS of 25 July 2012), SP AusNet did not provide this information. SP AusNet, *Response to information request 2*, received 29 June 2012, 6, July 2012, 17 July 2012, and letter from JWS received 23 July 2012.

⁷⁰ Tribunal reasons, paragraph 138.

⁷¹ AMI Order, clause 5C.4.

⁷² SP AusNet, *Response to AER information request 2 of 12 June 2012*, received 29 June 2012.

⁷³ SP AusNet, *Response to AER information request 2 of 12 June 2012*, received 17 July 2012.

⁷⁴ AER, *Response to SP AusNet's response of 17 July 2012*, sent 19 July 2012; AGS, Letter to JWS of 25 July 2012.

also reiterates that SP AusNet is not precluded from providing such information for the purposes of the AER's final determination.⁷⁵

The AER has had regard to information known to SP AusNet as at 28 February 2011 where possible. Where SP AusNet has not provided information requested by the AER to inform its assessment, the AER has relied on the information available to it. This includes documents that relate to the status of the AMI rollout and associated costs, for example, the July 2010 Business Case,⁷⁶ and other information that SP AusNet would have access to if it had enquired or ought to have known as at 28 February 2011.

For this purpose, the AER has had regard to the 19 May 2011 *Re-planning Analysis & Recommendations*⁷⁷ document for information about possible implementation timeframes and the problems associated with WiMAX but only to the extent that this information would have been apparent to SP AusNet as of 28 February 2011. The AER considers that a reasonable business in SP AusNet's circumstances would have undertaken a full analysis at an earlier date given the events prior to 2011. That this reconsideration did not occur earlier does not mean that such information was not available at an earlier date.

Expenditure timeframe

In its Reconsideration Submission, SP AusNet assumed that the material differences in costs between the three options would occur over the 2012–15 period, so costs beyond 2015 would be common for all options.⁷⁸ On this basis, SP AusNet limited its quantitative analysis to the 2012–15 period.

The AER agrees that costs not related to the communications solution will be the same regardless of the option chosen. However, the AER does not agree with this assumption for the primary communications-related capex and opex.⁷⁹ This is because the decision to implement a new technology should consider the relevant costs, benefits and risks over time.⁸⁰ Indeed, SP AusNet has previously assessed the cost of AMI communications solution options using this method.⁸¹ SP AusNet has examined the "ongoing operations and maintenance impacts" over what appears to be approximately 15 years, given the 7 year opex and total O&M figures.⁸²

The decision to switch communications technology would be influenced by the higher initial costs inherent in doing so, but a reasonable commercial business would also consider the ongoing costs over the life of the assets. For example, after switching, it would consider whether the ongoing capex and/or opex costs of one communications solution would be higher than the other. Despite analysing the costs of WiMAX and mesh radio over the short term only, SP AusNet appears to recognise this:⁸³

⁷⁵ AMI Order, clause 5.6.

⁷⁶ SP AusNet, AMI Program Business Case Update, 13 July 2010 (confidential).

⁷⁷ SP AusNet, *Re-planning Analysis & Recommendations*, 19 May 2011 (confidential).

⁷⁸ SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 19.

⁷⁹ This includes telecommunications network operational costs, IT operational costs for the NMS, MMS and MDMS, and backhaul costs. *Energeia*, p. 22.

⁸⁰ *Energeia Report*, p. 14.

⁸¹ See SP AusNet, *AMI Communications Program, Executive Brief, Key Recommendations of Technology Choice Analysis June – Dec 2007*, April 2008, pp. 4-5 (confidential).

⁸² *Energeia Report*, p. 14.

⁸³ SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 12.

The commercial standard must have regard to any long term implications arising from the selection of a preferred option. It is not appropriate to adopt an approach that delivers a short-term benefit but introduces higher costs or service issues in the longer term.

Accordingly, the AER has examined the relevant expenditure over a 15 year timeframe (2011 to 2025), discounted to the reconsideration date. The AER considers this timeframe is what a reasonable business in the circumstances would use because 15 years is the assumed meter asset depreciation schedule under the AMI Order and therefore represents a full rollout cycle.⁸⁴ The AER has then determined the proportion of this expenditure that a reasonable business in SP AusNet's circumstances would incur in the 2012–15 period.

Implementation timeline for mesh radio

SP AusNet submitted that if it were to implement a mesh radio solution, it would commence in May 2011 and complete the rollout in June 2014. This timeline assumes SP AusNet would continue to roll out its WiMAX solution until 1 January 2012.⁸⁵

The AER considers SP AusNet's proposed timeline is not consistent with a standard industry project planning approach and has based its schedule on the assumption that it has taken the other Victorian DNSPs two to two and a half years to build and integrate their mesh solutions. The AER considers this timeline could be condensed to 10 months.⁸⁶ This would allow SP AusNet to meet the 1 January 2012 AMI services target⁸⁷ and reduce costs that would arise from delay such as project management, overhead, metering reading and data management, WiMAX remediation and network interface card (NIC) retrofitting costs.⁸⁸ The AER considers based on expert advice that the implementation timeline can be reduced because:⁸⁹

- SP AusNet's timeline did not reflect the relevant time required by other DNSPs such as JEN and United Energy Distribution (UED) to deliver daily interval data to market, or take into account the proven end-to-end functionality of, and market experience with, mesh radio.⁹⁰
 - According to AMI industry steering committee reports, the start to finish time for JEN and UED was approximately 9.5 months, based on receipt and installation of technology on 1 September 2009 and delivering daily interval data to market on 14 June 2010.⁹¹
 - This timeframe does not include mobilisation, procurement or delivery of the technology. However, the AER considers SP AusNet would use a proven solution, such as JEN's, and commence the project on an immediate, high priority basis, given the significance of the decision and the requirement to deliver daily interval data to market from 1 January 2012. SP AusNet assumed Silver Spring Networks (SSN) would be used for any switch to mesh radio⁹² so procurement timeframes should be able to be reduced.⁹³

⁸⁴ AMI Order, clause 4.1(g); *Energieia*, p. 12.

⁸⁵ SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 19.

⁸⁶ *Energieia Report*, pp. 22-24.

⁸⁷ AMI Service level specifications, clause 4.3 requires routine remote reads from 1 January 2012.

⁸⁸ *Energieia Report*, pp. 22-24.

⁸⁹ *Energieia Report*, pp. 22-24.

⁹⁰ *Energieia Report*, p. 23.

⁹¹ *Energieia Report*, p. 23.

⁹² SP AusNet, *Reconsideration submission*, 5 June 2012, p. 17.

⁹³ *Energieia Report*, p. 23.

- SP AusNet's 19 May 2011 Replanning Analysis and Recommendations document included a proposed 10 month timeline to implement required functionality and performance levels for WiMAX.⁹⁴ This period is from the time the master integrator would be engaged to the "Release 1 go-live" and includes comprehensive, end-to-end changes from the meter to the upstream IT applications.⁹⁵ The AER considers the complexity and risk for WiMAX is higher than that of implementing the proven mesh radio solutions adopted by the other Victorian DNSPs, so a 10 month timeframe to implement mesh should be reasonable.⁹⁶ The AER considers this information would have been obtainable by a reasonable commercial business in SP AusNet's circumstances.
- the procurement, design and implementation of a field proven mesh based solution should have been relatively straight forward given that most upstream systems in the market communicate with the MDMS and MMS through the Service Oriented Architecture standard. This means that it would be possible to change from a WiMAX integrated MMS and MDMS without major reconfiguration of each of these interdependent systems. The main changes required would occur in the integration layer in the enterprise service bus, which is connected between and acts as the information broker for all the other systems.⁹⁷
- international experience suggests that it is possible to switch to mesh radio in a relatively short timeframe. Pacific Gas & Electricity (PG&E) in California commenced a switch to a SSN mesh solution in July 2008 after installing 740,000 meters with its initial communications solution. PG&E commenced installing mesh meters just over two months after signing contracts and was billing SSN metered points (which demonstrates end-to-end integration of the production IT systems) in February 2009 – six months after signing contracts. Other AMI functionality, including disconnections and meter checks, was deployed on an ongoing basis every two to three months from February 2009.⁹⁸
 - PG&E is deploying AMI to 5.1 million electricity and 4.7 million gas customers in a territory that covers most of northern California, including the Sierra Nevada mountains. It therefore shares similarities with SP AusNet, albeit on a much larger scale. The AER considers a reasonable business in SP AusNet's circumstances would take such relevant experience into account in planning a switch to mesh radio.⁹⁹
- a reasonable business in SP AusNet's circumstances would deploy meters without a NIC from 1 March 2011 rather than continuing to roll out meters with a WiMAX NIC until the end of 2011. This would allow SP AusNet to meet the 30 June 2011 target of 25 per cent of meters installed and reduce switching costs. Importantly, it would also not delay the provision of meter data to market relative to the WiMAX solution option¹⁰⁰
- the WiMAX solution would be dismantled from 1 March 2011 following the decision to switch rather than delaying until 1 January 2012¹⁰¹
- a reasonable business in SP AusNet's circumstances would have discussions with government prior to making a decision to switch due to the significance of the decision, given the opportunities prior to 2011 to reconsider the appropriateness of WiMAX.¹⁰²

⁹⁴ SP AusNet, *Re-planning Analysis & Recommendations*, 19 May 2011, p.40 (confidential).

⁹⁵ *Energeia Report*, p. 23.

⁹⁶ *Energeia Report*, p. 23.

⁹⁷ *Energeia Report*, p. 24.

⁹⁸ *Energeia Report*, p. 24.

⁹⁹ *Energeia Report*, p. 24.

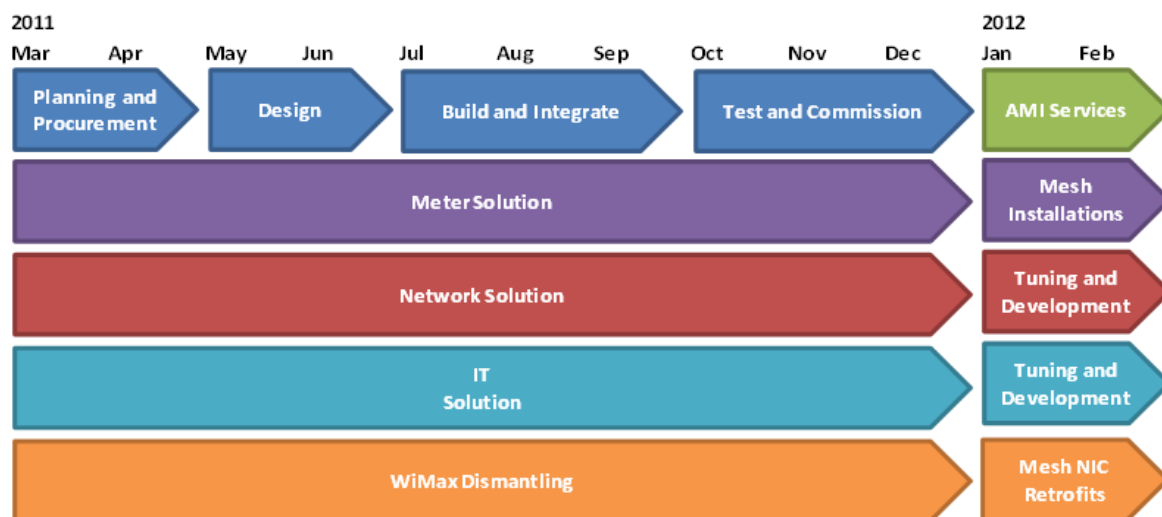
¹⁰⁰ *Energeia Report*, p. 25.

¹⁰¹ *Energeia Report*, p. 24.

¹⁰² *Energeia Report*, p. 25.

On this basis, the AER has conducted its analysis using a 10 month timeline for implementation as shown in Figure 1.3. As Figure 1.3 shows, the AER's 10 month timeframe includes discrete stages for planning, procurement, design, building, integration, testing and commissioning of a field proven mesh based communications solution. The AER has assumed that SP AusNet could concurrently roll out meters with no communications card, commence building its network and IT solutions and start dismantling its WiMAX infrastructure.¹⁰³

Figure 1.3 AER implementation timeline for mesh radio



Source: *Energeia Report*, p. 24.

Feasible technology options

SP AusNet considered mesh radio to be the only feasible primary technology alternative to WiMAX and did not consider other technologies.¹⁰⁴ However, SP AusNet also considered a combination of WiMAX and mesh radio as the primary communications solution for its Option 2 scenario.¹⁰⁵ For each of its three alternatives, SP AusNet assumed a secondary 3G solution would be required for 15 per cent of meters due to the inability of WiMAX and mesh radio to service the whole of its territory.¹⁰⁶

Feasible technology options

The AER's quantitative analysis compares only two technology options – WiMAX and mesh radio – because it considers these two technologies are the only feasible solutions in the relevant timeframe. In reaching this conclusion, the AER considered SP AusNet's submitted options as well as other emerging possibilities such as the National Broadband Network (NBN), Long-term Evolution (LTE) and Power-line Intelligent Metering Evolution (PRIME).

The AER considers mesh radio (Option 3) was the only feasible alternative to WiMAX as at 28 February 2011 and has not conducted quantitative analysis for the other solutions because:

¹⁰³ *Energeia Report*, p. 24.

¹⁰⁴ SP AusNet, *Reconsideration submission*, 5 June 2012, p. 16.

¹⁰⁵ SP AusNet, *Reconsideration submission*, 5 June 2012, p. 22.

¹⁰⁶ SP AusNet, *Reconsideration submission*, 5 June 2012, p. 6.

- NBN, LTE and PRIME would not have been feasible due to their relatively high risk and cost profiles in the timeframe under consideration¹⁰⁷
- four out of five Victorian DNSPs were committed to mesh radio and were successfully deploying it at the time, so mesh radio is proven technology¹⁰⁸
- a WiMAX-mesh radio-3G hybrid solution (Option 2) would be a world-first attempt, and therefore relatively high risk¹⁰⁹
- although SP AusNet considered the 2012–15 costs of Option 2 would be lower than Option 3, the opex associated with maintaining two network solutions over a 15 year timeframe would be relatively higher¹¹⁰
- SP AusNet itself considered a combination of WiMAX and mesh radio was likely to be more uncertain, complex to implement and riskier than mesh radio, which by the reconsideration date was known to be a more mature technology.¹¹¹

Secondary 3G communications solution

SP AusNet's WiMAX-based rollout would require a secondary 3G communications solution for 15 per cent of its meters, and SP AusNet assumed the same for a mesh radio solution.¹¹² SP AusNet could not adequately substantiate this assumption when requested by the AER.¹¹³ The supporting documentation identified by SP AusNet was dated 10 February 2009 or earlier,¹¹⁴ and did not in all cases specifically identify a 15 per cent 3G requirement for a mesh radio solution.¹¹⁵

However, on 28 February 2011, Powercor submitted its 2012–15 budget application with 97 per cent mesh radio coverage.¹¹⁶ The AER, SP AusNet¹¹⁷ and the Tribunal¹¹⁸ all agree that Powercor is a suitable comparator for SP AusNet. In particular, the Tribunal considered (noting the limited information provided by SP AusNet) that Powercor was an appropriate benchmark given the nature and size of SP AusNet's business.¹¹⁹

Given the lack of recent evidence or substantiation by SP AusNet, and the general acceptance that Powercor is a suitable benchmark, the AER considers a reasonable business in SP AusNet's

¹⁰⁷ *Energeia Report*, pp. 21-22.

¹⁰⁸ *Energeia Report*, pp. 21-22.

¹⁰⁹ *Energeia Report*, pp. 21-22.

¹¹⁰ *Energeia Report*, pp. 21-22.

¹¹¹ SP AusNet, *Reconsideration Submission*, 5 June 2012, pp. 31-32.

¹¹² SP AusNet, *Reconsideration submission*, 5 June 2012, p. 6.

¹¹³ SP AusNet, *Response to information request 2 of 12 June 2012*, received 29 June 2012; SP AusNet, *Response to information request 2 of 12 June 2012 and further request of 9 July 2012*, received 17 July 2012, p. 8.

¹¹⁴ *Response to information request 2 of 12 June 2012 and further request of 9 July 2012*, received 17 July 2012, p. 8.

¹¹⁵ See, for example, SP AusNet, *AMI WiMAX coverage strategy overview*, 10 February 2009 (confidential). This document notes that mesh radio will have "coverage holes" but does not provide an estimate of how much of SP AusNet's territory would be affected.

¹¹⁶ *Energeia Report*, p. 28.

¹¹⁷ For example, SP AusNet developed its communications capex and backhaul opex estimates from Powercor benchmarks. See *Comparative costs of Mesh alternative solution -050612.xls* (confidential), Comms cost of switching and Comms opex cost of switching tabs, attachment to SP AusNet, *Reconsideration Submission*, 5 June 2012.

¹¹⁸ Tribunal reasons, paragraphs 129, 179-182.

¹¹⁹ Tribunal reasons, paragraphs 180-181.

circumstances would have assumed mesh radio coverage of 97 per cent rather than 85 per cent.¹²⁰ The AER has conducted its quantitative analysis on this basis.

Costs of WiMAX and mesh radio solutions

SP AusNet examined WiMAX and mesh radio costs over the 2012–15 period only, and compared the entire AMI program costs over this timeframe. SP AusNet identified sunk costs, but it is not clear how SP AusNet used them in its quantitative or qualitative analysis. The AER's quantitative analysis differs to that of SP AusNet due to contrasting opinions on the appropriate costs for each solution. This is discussed below.

Costs already incurred

The Tribunal noted that the costs SP AusNet has already incurred for its investment in WiMAX are a relevant consideration for determining whether SP AusNet should have switched communications technology.¹²¹ The AER acknowledges that SP AusNet has commenced its AMI rollout using WiMAX and has considered costs related to this previous investment decision that occur as a consequence of the current investment decision to switch communications technology.¹²² For example, if SP AusNet switched to mesh radio, it may incur WiMAX-related contract exit costs.

However, the AER does not consider any costs already invested up to the point of the decision (sunk costs) are relevant to the decision to switch. This does not mean that such costs would be removed from the regulatory asset base; they are just not relevant to the decision to switch because they have already been invested.¹²³ In any event, the AMI Order already provided SP AusNet with the ability to recover these costs through its 2009–11 Approved Budget, and any charges that are revised to take account of expenditure in excess of that budget for that period.¹²⁴

However, it is not apparent that SP AusNet and the AER disagree on sunk costs. In its Reconsideration Submission, SP AusNet stated that its quantitative analysis "has examined the forward-looking costs that would be incurred under each option."¹²⁵ While SP AusNet quantified estimated sunk costs it did not explain how they impacted on its conclusion that if it had undertaken a full reconsideration in May 2011, it would have chosen to continue with its WiMAX solution.¹²⁶

SP AusNet noted that if it switched to mesh radio, "customers pay twice for the functionality associated with the sunk WiMAX investment."¹²⁷ However, regardless of the communications solution, the AMI Order allows SP AusNet to recover its past investment from customers through metering charges. If switching to mesh radio reduces the overall cost of the AMI rollout compared to staying with WiMAX, the metering charges will be lower. The prudent option is therefore that which minimises the total costs to be recovered from customers.

¹²⁰ *Energeia Report*, p. 22.

¹²¹ Tribunal reasons, paragraph 138.

¹²² *Energeia Report*, p. 14.

¹²³ *Energeia Report*, p. 14.

¹²⁴ For example, AMI Order, clauses 5D and 5I.

¹²⁵ SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 6.

¹²⁶ SP AusNet, *Reconsideration Submission*, 5 June 2012, pp. 6, 25.

¹²⁷ SP AusNet, *Reconsideration Submission*, 5 June 2012, pp. 6, 25.

Other business stream costs

In its Reconsideration Submission, SP AusNet identified costs that are allocated to other regulated business activities in accordance with its cost allocation methodology (CAM). These costs do not form part of the AMI budget but are passed on to customers. SP AusNet contended these costs would be incurred in other business streams as a result of the AMI rollout.¹²⁸

SP AusNet's WiMAX-based rollout estimate contains \$10.2 million of other business stream costs, and SP AusNet has assumed that implementing a mesh radio solution will further increase these costs by \$9.5 million.¹²⁹ It submits that changing technology would result in additional IT integration costs in relation to its regulated electricity and gas networks.¹³⁰ SP AusNet therefore considered that these additional costs are relevant to its circumstances, despite not being part of the AMI budget.¹³¹

In its Reconsideration Submission, SP AusNet quoted the Tribunal at paragraph 51:¹³²

The interface between WiMAX and SP AusNet's NMS is through the MMS. The data derived through that interface impacts on a number of other business systems of SP AusNet, such as its Meter Data Management System, customer information system, enterprise application integration and data warehousing.

The AER considers this does not substantiate the nature or accuracy of SP AusNet's proposed costs (either for WiMAX or mesh radio),¹³³ or why switching technology will further increase the costs in other business streams.¹³⁴

The AER acknowledges that if switching communications technology resulted in increased costs in other areas of SP AusNet's business, such costs would be a relevant consideration in deciding whether to switch. However, in the absence of any substantiation, it is not apparent to the AER why switching to mesh radio will increase these costs beyond those already (unsubstantiated costs) associated with SP AusNet's WiMAX solution. The AER has therefore not considered them in its quantitative analysis.

WiMAX costs

To conduct its analysis, the AER has developed an estimate of the relevant WiMAX costs over a 15 year period based on SP AusNet's 28 February 2011 Submitted Budget. In its final determination, the AER assessed WiMAX costs for 2012–15 as submitted by SP AusNet but concluded that mesh radio benchmarks reflected the commercial standard for some expenditure. Therefore, the AER considers it would not be appropriate to use its final determination expenditure to estimate WiMAX costs as at 28 February 2011.

The AER has accepted SP AusNet's 28 February 2011 Submitted Budget contains the appropriate inputs that a reasonable business in SP AusNet's circumstances would have used to estimate the

¹²⁸ SP AusNet, *Reconsideration Submission*, 5 June 2012, pp. 21-22, 24.

¹²⁹ SP AusNet, *Reconsideration Submission*, 5 June 2012, pp. 21, 24.

¹³⁰ SP AusNet, *Reconsideration Submission*, 5 June 2012, pp. 13, 24; *Comparative costs of Mesh alternative solution - 050612.xls* (confidential), IT costs of switching tab, attachment to SP AusNet, *Reconsideration Submission*, 5 June 2012.

¹³¹ SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 13.

¹³² SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 13. The AER sent an information request asking for substantiation of the higher costs associated with mesh, but did not receive any further information.

¹³³ *Energeia Report*, p. 30.

¹³⁴ The AER sent an information request asking for substantiation of the higher costs associated with mesh, but did not receive any further justification. SP AusNet, *Response to AER information request 2 of 12 June 2012*, received 29 June 2012.

costs of a WiMAX solution as at 28 February 2011. However, the AER considers SP AusNet's Submitted Budget requires adjustment to appropriately compare with the AER's estimate of the cost of mesh radio.

First, as explained above, the AER examined the costs of WiMAX over a 15 year period, rather than limiting its analysis to the 2012–15 period. This is so the ongoing costs can be taken into account.

Second, the AER considers not all of the cost categories in SP AusNet's Submitted Budget are relevant to its quantitative analysis. Not all expenditure should be affected by switching from WiMAX to mesh radio.¹³⁵ The AER therefore limited its analysis to expenditure that would be affected by switching communications technology. The relevant costs from the AER's perspective are:¹³⁶

- communications modules and accessories, but not meters
- retrofitting costs
- communications network and backhaul capex
- NMS and MDMS (IT) capex and opex
- communications and backhaul opex.

The AER also included additional opex for communications module installation in 2011 and additional capex after 2014 to account for ongoing network expansion, which SP AusNet did not.¹³⁷ Further, the AER has assumed the full IT system will be completely replaced after seven years over a two year period.¹³⁸

For communications module costs, the AER used its final determination meter numbers and the percentage split between the number of SP AusNet's WiMAX meters and its 3G meters to estimate communications module costs separately from total meter costs. This was necessary because SP AusNet's submission aggregated the cost of communications modules with the cost of the meters.

The AER's estimate of the relevant costs of WiMAX over the 2012–15 budget period and over the 15 year timeframe discounted back to 2011 are presented below in Table 1.2.

Table 1.2 AER estimate of WiMAX-related costs (\$million, discounted 2011)

	15 year NPV (2011–25)	2012–15
Capex	208.5	114.3
Opex	110.1	39.8
Total	318.6	154.1

Source: AER analysis.

¹³⁵ *Energeia Report*, pp. 24-26.

¹³⁶ *Energeia Report*, p. 25.

¹³⁷ *Energeia Report*, pp. 24-26.

¹³⁸ *Energeia Report*, p. 26.

Mesh radio costs

SP AusNet's submission analysed the costs of mesh radio over the 2012–15 period only, and estimated the cost of an entire mesh radio rollout.

The AER considers SP AusNet's mesh radio estimate overstates costs and should be adjusted to reflect a 15 year timeframe. As noted above, certain costs will be the same regardless of a WiMAX or a mesh radio solution, so the AER has excluded them. Such costs include meter costs, meter installation costs, AMI and IT program management costs, meter reading, maintenance and data management costs, overheads, industry, audit and regulatory costs, customer service costs and debt raising costs.

The AER's estimate also differs further from SP AusNet's estimate due to several other factors mentioned above that would minimise costs:

- the earlier reconsideration date of 28 February 2011
- delivery of a mesh solution in 10 months
- greater coverage of the mesh network.

The AER considers, taking these factors into account, that the 2012–15 costs of a mesh radio rollout of a reasonable business in SP AusNet's circumstances would be lower than SP AusNet's estimate because:¹³⁹

- the cost of a mesh NIC assumed by SP AusNet is higher than the AER's estimate. SP AusNet also assumed the cost of retrofitting mesh NICs into meters was based on the mid-point of the cost of installing a WiMAX NIC and a full meter installation, but did not provide sufficient evidence to support why the retrofit cost of a mesh NIC should be significantly different to that of a WiMAX NIC. Further, due to timing differences, and consequently the lower number of WiMAX NIC replacements required, the AER's estimate is approximately \$18.9 million lower than SP AusNet's.
- SP AusNet's estimate of the cost of a mesh network deployment is based on Powercor's 2012–15 Approved Budget costs. The AER accepts this approach, but SP AusNet's estimate does not take into account its lower customer numbers. The AER's estimate is approximately \$14.5 million lower than SP AusNet's.
- SP AusNet estimated IT capex for its NMS and MMS based on JEN's costs, but assumed it would retain its current MDMS rather than replace it with a system similar to JEN's, which is lower cost. Installing a proven MDMS at the same time as a proven NMS would reduce integration costs and the risk of delay so the AER's estimate is approximately \$11.6 million lower.
- SP AusNet's estimated costs for integrating the mesh NIC, NMS, MMS and MDMS into the existing metering and IT integration platform is double counted because its 28 February 2011 WiMAX budget already includes integration costs for its 3G secondary solution. Further, IT integration costs have already been included in JEN's estimates. As such there should be no material differences in integrating a WiMAX solution and a mesh radio solution as at 28 February 2011, which results in an additional reduction of \$ [REDACTED] million.

¹³⁹ *Energieia Report*, pp. 28-31.

- SP AusNet has assumed that it would save on WiMAX spectrum and radio costs if it switched to mesh radio, but this is offset with increased communications opex and backhaul expenditure. Consistent with the approach taken in its final determination, the AER has adjusted these categories to be based on Powercor's cost estimates, taking into account SP AusNet's relatively smaller customer base. This results in a reduction of approximately \$29.2 million.
- an assumed 1 March 2011 start and a 1 January 2012 AMI services target¹⁴⁰ eliminates SP AusNet's assumed relative increase in meter reading, meter data management, project management, industry program, audit and regulatory costs and overheads. This is because the resources otherwise used to roll out WiMAX could instead be used for the mesh radio rollout. The AER has reduced these categories to its final determination allowances. This results in a reduction of \$38.0 million.
- SP AusNet assumed IT opex costs to switch to mesh based on 10 per cent of rollout IT opex, but did not justify its estimate. The AER's estimate of IT opex costs is based on JEN's NMS, MMS and MDMS opex pro-rated to SP AusNet's network size because SP AusNet has also used JEN's estimates for IT capex costs. This results in a reduction of \$12.1 million.
- SP AusNet has not justified its non-AMI other business streams costs, apart from noting that they relate to IT system integration. The AER considers SP AusNet will not incur any additional IT system integration costs. As these costs are outside the scope of the AMI Order, the AER has excluded additional business stream costs from its estimate. This results in a reduction of \$19.7 million.
- the AER's estimated switching costs are lower than SP AusNet's (discussed below).

In addition, the AER's mesh radio estimate includes ongoing capex to account for network expansion and a full replacement of the complete IT system after seven years, while SP AusNet's does not.¹⁴¹ The AER considers the net present value of mesh solution costs over a 15 year timeframe (2011–2025) is \$201.1 million. For 2012–15 this equates to \$105.8 million as shown in Table 1.3.

Table 1.3 AER estimate of mesh-related costs (\$million, discounted 2011)

	15 year NPV (2011–25)	2012–15
Capex	126.8	80.5
Opex	74.4	25.4
Total	201.1	105.8

Source: AER analysis.

Switching costs

The AER considers a reasonable business in SP AusNet's circumstances would not incur all of the estimated costs to switch from WiMAX to mesh radio estimated by SP AusNet. Primarily this is due to the AER's view that costs could be minimised by reducing the delay in commencing the rollout, shorter rollout duration and lower capital costs.¹⁴² The AER's view on SP AusNet's proposed switching costs is:

¹⁴⁰ AMI Service level specifications, clause 4.3 requires routine remote reads form 1 January 2012.

¹⁴¹ *Energeia Report*, p. 30.

¹⁴² *Energeia Report*, pp. 22-25.

- WiMAX NIC replacement and mesh NIC retrofit—SP AusNet's estimate of \$44.3 million assumed WiMAX NICs would be rolled out to the end of 2011, and assumed higher replacement costs due to higher mesh NIC unit costs and 85 per cent mesh radio coverage. SP AusNet's estimate therefore assumed replacement of more WiMAX NICs with mesh radio NICs at a higher cost. SP AusNet also considered the delay in commencing the rollout would result in extra training costs. The AER's estimate of \$11.7 million assumes significantly less WiMAX NIC replacement due to commencing the mesh rollout from 1 March 2011. The AER's approach is also to install meters without communications cards until the end of 2011, and later retrofitting them with mesh communications cards, which saves on additional WiMAX card capital costs. The AER has also assumed 97 per cent mesh radio coverage and lower NIC unit costs.¹⁴³
- WiMAX contract termination costs—the AER agrees with SP AusNet's estimate of \$■ million, but considers these costs would be incurred in 2011 as a result of commencing the mesh radio rollout in March 2011 rather than January 2012.¹⁴⁴
- WiMAX tower demolition costs—the AER agrees with SP AusNet's estimate of \$■ million, but due to the AER's earlier date of reconsideration, less towers would need to be demolished. The AER's estimate is \$■ million, and these costs would also be incurred in 2011.¹⁴⁵
- IT system integration costs (IT capex)—SP AusNet considered it would incur \$■ million of system integration capex, as well as \$■ million in NMS and MMS capex, less \$■ million of avoided WiMAX costs. As noted above, the AER considers any system integration costs are already included in the build costs for the new NMS and MDMS, so the \$16.2 million of IT capex switching costs would be avoided.¹⁴⁶
- Meter reading, meter data management and overheads—due to the AER's earlier reconsideration date and shorter rollout duration, there should be no delay in delivering AMI services (meter data to market), so these switching costs of \$13.5 million could be avoided.¹⁴⁷
- Project management office— the experience of the other Victorian DNSPs and expert technical advice suggest that the project and technical resources that would otherwise have been used for SP AusNet's WiMAX-3G solution could have managed the market delivery of a proven mesh-3G solution without a significant increase in cost. The AER considers this \$10.2 million can be avoided.¹⁴⁸
- Industry PMO/Audit/Regulatory submissions—SP AusNet did not explain why switching to mesh radio would result in it incurring an additional \$1.9 million of this opex when this same amount forms part of its Submitted Budget using WiMAX.¹⁴⁹ Absent any justification, the AER considers the amount attributed to its WiMAX rollout should be sufficient for the mesh radio rollout.
- IT opex—SP AusNet calculated \$2.7 million of IT opex switching costs from a percentage of IT capex switching costs. SP AusNet did not explain this opex other than that it would support the rollout of a new CNMS and MMS.¹⁵⁰ Since the AER considers a reasonable business in SP

¹⁴³ *Energeia Report*, pp. 27-30.

¹⁴⁴ *Energeia Report*, pp. 27-30.

¹⁴⁵ *Energeia Report*, pp. 27-30.

¹⁴⁶ *Energeia Report*, pp. 27-30.

¹⁴⁷ *Energeia Report*, pp. 22-24.

¹⁴⁸ *Energeia Report*, pp. 22-24.

¹⁴⁹ *Comparative costs of Mesh alternative solution -050612.xls* (confidential), 2012-15 Comparison tab, attachment to SP AusNet, *Reconsideration Submission*, 5 June 2012.

¹⁵⁰ *Comparative costs of Mesh alternative solution -050612.xls* (confidential), 2012-15 Comparison tab, attachment to SP AusNet, *Reconsideration Submission*, 5 June 2012.

AusNet's circumstances would not incur any IT capex switching costs, it considers SP AusNet will not incur supporting opex switching costs either.

- Other business stream costs—as noted above, SP AusNet has not justified these non-AMI costs, apart from stating that they relate to IT system integration. The AER also considers SP AusNet will not incur any IT system integration switching costs, so other business stream costs will not result in additional costs to switch to mesh radio. This results in a reduction of \$9.5 million.¹⁵¹

Table 1.4 compares SP AusNet's estimate of the switching costs a reasonable business in the circumstances would incur if it abandoned WiMAX in favour of mesh radio, with the AER's estimate. The AER considers its switching costs over 2011 to 2015 would amount to \$15.9 million, compared to SP AusNet's estimate of \$107.2 million.

¹⁵¹ *Energieia Report*, pp. 27-30.

Table 1.4 Comparison of mesh switching costs (\$million, real 2011)

	SP AusNet (2012-15)	AER (2011)	AER (2012-15)
Capex			
Meters	44.3		11.7
Communications (contract termination and tower demolition)	9.0	4.2	
Information technology	16.2		–
Total capex	69.5		11.7
Opex			
Meter reading, meter data management, overheads	13.5		–
Project management office	10.2		–
Industry PMO/Audit/Regulatory Submissions	1.9		–
IT opex	2.7		–
Total opex	28.2		–
Total AMI switching costs	97.7	4.2	11.7
Other business stream costs	9.5		–
Total switching costs	107.2	4.2	11.7

Source: SP AusNet, *Reconsideration Submission*, 5 June 2012, p. 24; AER analysis.

1.3.2 Results of quantitative assessment

The AER's quantitative analysis reveals that the costs a reasonable business in SP AusNet's circumstances would incur to switch from WiMAX to mesh radio following reconsideration on 28 February 2011 would be substantially lower than if it continued its rollout with WiMAX. The AER's net present value analysis (summarised in Table 1.5) shows that (for communications solution related costs) WiMAX would be \$117.5 million (58 per cent) higher than mesh radio over the 15 years from 2011 to 2025.

Table 1.5 15 year NPV comparison of WiMAX and mesh radio (\$million, discounted real 2011)

	WiMAX (2011–25)	Mesh radio (2011-25)	Difference	% difference
Capex	208.5	126.8	81.8	65%
Opex	110.1	74.4	35.7	48%
Total	318.6	201.1	117.5	58%

Source: AER analysis.

The key drivers of the higher costs of WiMAX compared to mesh are:

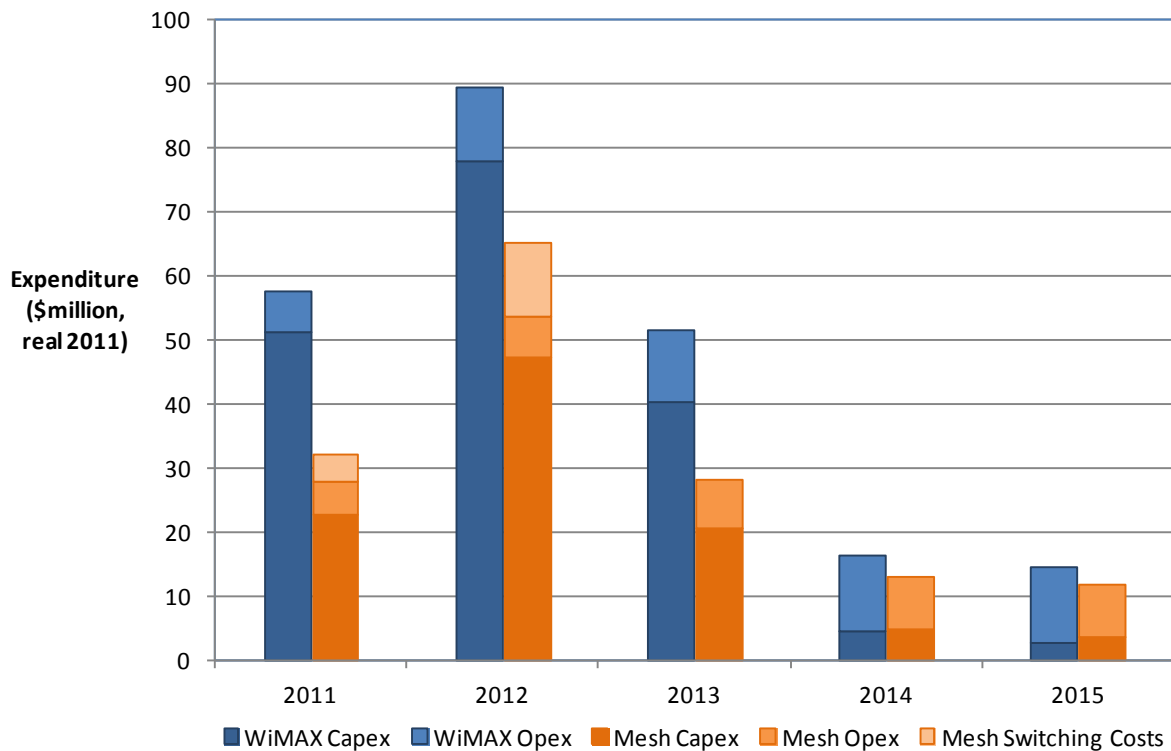
- communications cards are more costly for WiMAX than for mesh, and the relatively poorer coverage of WiMAX means that there is greater reliance on the secondary 3G solution. 3G

communications cards and antennas are even more expensive than for WiMAX. A greater reliance on 3G therefore results in a significantly higher capital outlay.

- similarly, WiMAX IT infrastructure is more costly. For example, SP AusNet's estimate of the cost to replace a WiMAX IT system is more than double that of JEN's estimate to replace a mesh IT system, scaled up to SP AusNet's customer numbers.
- the IT opex costs associated with WiMAX as proposed by SP AusNet are also significantly higher than those proposed by JEN to support its mesh IT solution, adjusted for SP AusNet's customer numbers.

Figure 1.4 compares the discounted costs of WiMAX and mesh radio over the 2011-15 period.

Figure 1.4 Comparison of WiMAX and mesh radio costs for 2011–15 (\$million, real 2011)



Source: AER analysis.

However, the AER must also have regard to the relevant qualitative factors as they inform SP AusNet's circumstances in order to determine:

- whether the commercial standard a reasonable business would have exercised in the circumstances would have been to switch to mesh radio following a reconsideration on 28 February 2011
- whether SP AusNet substantially departed from that standard.

1.3.3 Qualitative factors

The AER has considered the key qualitative factors relevant to what a reasonable business in SP AusNet's circumstances would consider by focussing on those raised by SP AusNet in its Reconsideration Submission.¹⁵² The AER has found its qualitative analysis supports its quantitative analysis. Consequently, the commercial standard a reasonable business in SP AusNet's circumstances would have exercised would have been to switch mesh radio after reconsidering its commitment to WiMAX on 28 February 2011.¹⁵³

Compliance with obligations

SP AusNet submitted that the commercial standard must have regard to the company's compliance obligations, including regulatory and contractual commitments. An option that would expose a reasonable business in the circumstances to unacceptable or unmanageable risks would be not be consistent with the commercial standard.¹⁵⁴ In particular, SP AusNet raised concerns about its rollout obligations under the AMI Order and compliance with the AMI Functionality Specifications.¹⁵⁵

The AER agrees that compliance obligations are relevant to SP AusNet's circumstances under clause 5I.8 of the AMI Order.¹⁵⁶ However, the AER does not agree with SP AusNet's concerns for the following reasons.

AMI Functionality Specifications

SP AusNet raised a concern about mesh radio's inability to comply with the AMI functionality specifications. SP AusNet also stated that in February 2010 the other Victorian DNSPs had formally requested a review on the obligation requiring the provision of meter data to market in order to lower the requirement based on the limitations of mesh radio technology.¹⁵⁷

The AER considered that both WiMAX and mesh radio were compliant technologies under the AMI Order when it made its 2009–11 Approved Budget determination and when SP AusNet made the business decision to proceed with WiMAX. The AER has not received any evidence to suggest that mesh radio is not compliant, and considers both technologies capable of meeting the performance service level obligation.

Rollout obligations

SP AusNet considered a reasonable business in its circumstances would not switch to mesh radio if it would result in failure to meet its obligation to install meters in accordance with clause 14 and Schedule 1 of the AMI Order. SP AusNet considered it could be exposed to significant penalties or loss of its distribution licence.¹⁵⁸

The AER agrees that rollout obligations are a relevant consideration, but does not agree that they would be an impediment to making a decision to switch where mesh showed to be a lower cost option because:

¹⁵² AMI Order, clause 5I.8.

¹⁵³ *Energeia Report*, p. 30.

¹⁵⁴ SP AusNet, *Reconsideration Submission*, pp. 11-12.

¹⁵⁵ SP AusNet, *Reconsideration Submission*, pp. 12-13, 27-29.

¹⁵⁶ AMI Order, clause 5I.8(f) and (j).

¹⁵⁷ SP AusNet, *Reconsideration Submission*, pp. 27-29.

¹⁵⁸ SP AusNet, *Reconsideration Submission*, pp. 27-29.

- the AER's assessment of a 10 month transition program commencing 1 March 2011 would allow SP AusNet to meet its regulatory obligations under the AMI Order for 25 per cent of meters rolled out by 30 June 2011 and AMI data to market from 1 January 2012. Given this timeframe is consistent with industry benchmarks and is for a relatively mature and proven solution, the AER believes it does not reflect unacceptably risky behaviour¹⁵⁹
- the obligation upon SP AusNet under the AMI Order is to use its "best endeavours" to meet the milestones set out in Schedule 1. As to what constitutes "best endeavours" is a matter for the AER to determine on a case by case basis in accordance with the relevant requirements of the AMI Order¹⁶⁰
- a reasonable business in SP AusNet's circumstances would have implemented risk mitigation strategies to manage these risks¹⁶¹
- a reasonable business would mitigate the risks of potential non-compliance with the AMI Order by advising the (Victorian) Government and the AER at an early stage on these possibilities that may result from a decision to switch communications technology.¹⁶² If SP AusNet did fall behind in the rollout schedule, it could make representations to the regulator on matters the AER should have regard to in determining whether SP AusNet used its "best endeavours" to comply with the rollout obligations.¹⁶³

Uncertainty and risk

SP AusNet stated that the commercial standard must have regard to risk, particularly technology and project risk. SP AusNet considered the unexpected difficulties with WiMAX would have led a reasonable business in SP AusNet's circumstances to require a high level of confidence in its telecommunications solution moving forward. A robust case for change would therefore be required before a reasonable commercial business would accept it in the circumstances.¹⁶⁴

SP AusNet submitted that switching to mesh radio would result in uncertainties around contract exit costs, technical specifications and competitiveness of bids. It also considered the immature state of AMI technology means that changing technology increases uncertainty and risk, and also could result in implementation, performance and project management issues.¹⁶⁵

The AER agrees with SP AusNet's view that risk and uncertainty is relevant to its circumstances under the AMI Order.¹⁶⁶ However, the AER also considers that a reasonable commercial business in the circumstances would have established a robust governance process to mitigate the significant risk that its expectations of the costs or benefits turned out to be incorrect. This is particularly important given the high technology and market risks involved due to both WiMAX and mesh radio being relatively unproven at the time.¹⁶⁷

The AER does not agree that uncertainty and risk would be an impediment to making a business decision to switch technology where mesh radio showed to be a lower cost option because:.

¹⁵⁹ *Energieia Report*, p. 31.

¹⁶⁰ AMI Order, clause 14.2.

¹⁶¹ *Energieia Report*, p. 16.

¹⁶² *Energieia Report*, p. 24.

¹⁶³ AMI Order, clause 14.2.

¹⁶⁴ SP AusNet, *Reconsideration Submission*, pp. 12-13, 30-33.

¹⁶⁵ SP AusNet, *Reconsideration Submission*, p. 32.

¹⁶⁶ For example, AMI Order, clauses 51.8(e), (f), (g), (h), (i) and (j).

¹⁶⁷ *Energieia Report*, p. 16.

- the AER's assessment has recognised SP AusNet's obligations under its contracts for its WiMAX network deployment, spectrum and metering solution. The AER's quantitative analysis included SP AusNet's costs for exiting the WiMAX network and spectrum contracts, and has assumed the current metering contract with Landis & Gyr is maintained, which is consistent with SP AusNet's assumption¹⁶⁸
- while there may be some uncertainty surrounding contract break costs, the AER considers a reasonable business in SP AusNet's circumstances would have established appropriate internal governance to properly manage its investment risks¹⁶⁹
- although technical specifications may be difficult to specify if implementing mesh radio over an existing WiMAX solution, the AER does not consider this problem would be as pronounced if SP AusNet switched to mesh radio, given the successful implementation of the other Victorian DNSPs¹⁷⁰
- while uncertainty and risk is inherent in changing technology, the AER considers the relative technology, implementation and performance risks of the proven mesh radio solution are considerably less than the unproven and increasingly problematic WiMAX solution as at 28 February 2011:¹⁷¹
 - on the one hand, mesh radio was being successfully deployed by the other four Victorian DNSPs and one of the largest overseas AMI deployments as at February 2011 was a mesh radio rollout¹⁷²
 - conversely, SP AusNet was experiencing problems and cost increases with WiMAX. For example, in July 2010, SP AusNet's Board was aware that the cost of the AMI program estimate had increased 19 per cent from the July 2008 business case due to WiMAX issues.¹⁷³
- as noted above, the AER considers switching to mesh radio at the appropriate time would not materially delay the AMI project
- SP AusNet's assertion that it is unusual to change technology for an IT project is unsubstantiated. From a commercial perspective, it would be expected that any business acting reasonably would change technology if it became evident that the original decision was manifestly incorrect and the consequences of continuing with the original technology were unacceptable. The AER's quantitative analysis suggests that SP AusNet's original decision to implement WiMAX was manifestly incorrect due to the significantly higher costs of which SP AusNet would be aware of by February 2011 as compared to the 2008 business case and the mesh radio alternative.

Shareholder value

SP AusNet submitted that the commercial standard adopted must be consistent with maximising long-term value for shareholders. It considered an option that would damage the company's reputation and its share price as being inconsistent with that standard. In particular, SP AusNet raised concerns

¹⁶⁸ *Energeia Report*, p. 31.

¹⁶⁹ *Energeia Report*, p. 16.

¹⁷⁰ *Energeia Report*, p. 31.

¹⁷¹ *Energeia Report*, p. 31.

¹⁷² Pacific Gas and Electricity Company in California, USA had deployed a mesh solution to 3.8 million customers as at January 2011. *Energeia Report*, p. 31.

¹⁷³ SP AusNet, *AMI Program Business Case Update*, 13 July 2010 (confidential).

about the impact that sanctions for non-compliance with the AMI Order would have on shareholders and creditors.¹⁷⁴

The AER considers its approach and findings do not contradict the principle of maximising long term shareholder value and support its quantitative analysis:¹⁷⁵

- the AER's approach identifies good corporate governance, cost benefit assessments and the use of appropriate benchmarks as essential elements of a process to minimise its costs and establish a budget, above which the expenditure would be not prudent under the terms of the AMI Order¹⁷⁶
- the application of these good governance and industry standard commercial practices has led the AER to conclude that a reasonable business in SP AusNet's circumstances would not incur more than the cost of a mesh radio solution to meet its in-scope activities, which is consistent with maximising its capital value.

As noted above, the AER considers SP AusNet's concerns about sanctions for non-compliance with the AMI Order are not well founded, in part because they do not factor in risk mitigation strategies. The AER considers that switching to mesh radio would not result in delays, and SP AusNet could have met its obligation under the AMI Order to use its "best endeavours" to comply with the rollout schedule.

Conversely, by continuing its rollout using WiMAX and incurring expenditure that may not be considered prudent by the AER could also damage its reputation. The AER does not consider a reasonable commercial business would continue to incur higher costs just to avoid the potential embarrassment that may result from switching technology.

Customer price and service

SP AusNet submitted that the commercial standard should have regard to customer concerns related to price and service impacts. In particular, SP AusNet raised concerns about cost, delay and inconvenience of working on customer premises.¹⁷⁷

The AER agrees these are relevant to SP AusNet's circumstances under AMI Order.¹⁷⁸ However, the AER does not agree that they would be an impediment to making a decision to switch where mesh showed to be a lower cost option:¹⁷⁹

- the AER's analysis considered that all other things being equal, a reasonable business in SP AusNet's circumstances would select an option that would not delay the offering of AMI services, or increase the cost of those services, relative to an option that would
- the AER's quantitative analysis found that a reasonable business in SP AusNet's circumstances would consider the mesh radio option as delivering significantly lower prices with the same or lower risk as the WiMAX option, and no delay.

¹⁷⁴ SP AusNet, *Reconsideration Submission*, pp. 12-13, 33-35.

¹⁷⁵ *Energeia Report*, pp. 31-32.

¹⁷⁶ AMI Order, clause 5C.3.

¹⁷⁷ SP AusNet, *Reconsideration Submission*, pp. 12-13, 35-36.

¹⁷⁸ For example, AMI Order, clause 5I.8(e), (f), (g), (h), (i) and (j).

¹⁷⁹ *Energeia Report*, p. 33.

The AER agrees that potentially, some customers may be inconvenienced due to the requirement of a site visit to change the WiMAX NICs to mesh radio NICs. However, the AER considers this inconvenience should be outweighed by the significantly lower costs of mesh radio.

Longer term implications

SP AusNet submitted that the commercial standard must have regard to the longer term implications of selecting a particular option. SP AusNet considered it would be inappropriate to select an option that delivers a benefit in the short term but results in higher long term costs or service issues.¹⁸⁰ In particular, SP AusNet raised concerns about the implications for contractor relationships and the impact on intellectual property.¹⁸¹

The AER agrees that longer term implications are relevant to SP AusNet's circumstances under the AMI Order.¹⁸² The AER has explicitly considered long term implications as part of its quantitative analysis:¹⁸³

- the AER has specified a 15 year timeframe as appropriate for the consideration of costs and benefits of mesh radio and WiMAX solutions
- the AER's quantitative analysis found that due to the relatively higher ongoing capex and opex, the cost of WiMAX was 51 per cent higher over the 2012–2015 timeframe and 60 per cent higher over the 2011–2025 period than mesh radio.

However, the AER does not agree with SP AusNet's concerns about contractor relationships or the perceived impact on intellectual property for the following reasons.

Contractor relationships and pricing

SP AusNet submitted that by terminating or modifying contracts with service providers, its ability to establish and maintain relationships with future external service providers would be adversely affected. This could affect the willingness of contractors to participate in tenders and reduce the quality of responses to requests for services in the future.¹⁸⁴

The AER considers a reasonable business should do what is in its best interests, including exiting contracts where necessary.¹⁸⁵ Indeed, some of the contracts SP AusNet entered into with service providers gave SP AusNet the right to terminate at any time, or if the provider breached a clause of the agreement.¹⁸⁶ The AER considers it unlikely that other service providers would interpret SP AusNet's decision to terminate a contract in such circumstances negatively.

¹⁸⁰ SP AusNet, *Reconsideration Submission*, pp. 12, 14, 36-37.

¹⁸¹ SP AusNet, *Reconsideration Submission*, pp. 14, 36-37.

¹⁸² In particular, AMI Order, clauses 51.8(e), (g), (h) and (i).

¹⁸³ *Energeia Report*, p. 34.

¹⁸⁴ SP AusNet, *Reconsideration Submission*, p. 37.

¹⁸⁵ *Energeia Report*, p. 13.

¹⁸⁶ For example, the contract for SP AusNet's communication network (confidential).

Intellectual property and in-house skills

SP AusNet submitted that switching technologies could result in it losing intellectual property and in-house skills because the resulting delay would force the need to put program resources on hold or be temporarily let go.¹⁸⁷

The AER considers that SP AusNet would need its program resources to implement the mesh solution, particularly given the AER's view that the timeline could be shortened and delays minimised. However, even if a smaller delay led to some resources being put on hold, the AER does not agree that this would be an impediment to making a decision to switch where mesh showed to be a lower cost option.

1.3.4 Adjustment to 2012–15 Approved Budget

The AER's quantitative and qualitative analysis of SP AusNet's Reconsideration Submission in the context of the Tribunal's reasons and the AMI Order lead the AER to the conclusion that the commercial standard that a reasonable business would have exercised in SP AusNet's circumstances would have been to fully reconsider its Submitted Budget. The outcome of that reconsideration would have been to switch from WiMAX to mesh radio.

For the reasons above, the AER considers that any concerns relating to qualitative matters, while relevant to making the decision to switch, are ultimately outweighed by the significantly lower cost of mesh radio compared to WiMAX. A reasonable commercial business should do what is in its commercial interests, which involves taking corrective action if its investment is not providing the promised benefits at the promised costs.¹⁸⁸

As identified in Table 1.4, the prudent costs that a reasonable business would incur in 2012–15 to switch to mesh radio would be \$11.7 million. Had SP AusNet reconsidered its commitment to WiMAX communications as at 28 February 2011 and decided to switch to mesh radio – what the AER expects a reasonable business in the circumstances would have done – SP AusNet would have incurred only an additional \$11.7 million above its Approved Budget for 2012–15. Instead, by not switching to mesh radio and continuing its AMI rollout with its WiMAX communications solution, SP AusNet is proposing to incur an additional \$72.2 million above its Approved Budget.

Therefore, by proposing to incur significantly more than \$11.7 million (that is, \$72.2 million) SP AusNet has substantially departed from the commercial standard of a reasonable business in its circumstances.¹⁸⁹

Accordingly, of the \$72.2 million of expenditure remitted back to the AER by the Tribunal for further consideration, the AER's preliminary view is that \$60.5 million is not prudent.¹⁹⁰ Consistent with clause 5C.8 of the AMI Order, this amount should be removed from SP AusNet's 2012–15 Approved Budget.¹⁹¹

¹⁸⁷ SP AusNet, *Reconsideration Submission*, p. 37.

¹⁸⁸ *Energieia Report*, p. 13.

¹⁸⁹ AMI Order, clause 5C.3(b)(iv).

¹⁹⁰ AMI Order, clause 5C.3.

Table 1.4 above shows that total costs to switch to mesh radio would be \$14.9 million. However, the AER considers SP AusNet is not able to recover all of this expenditure in its 2012–15 budget, given that some of the switching costs would be incurred in 2011.

Treatment of 2011 switching costs

The AER considers that any switching costs incurred in 2011 would not be recoverable by SP AusNet in the 2012–15 period. The AMI Order clearly separates budget and charges applications and determinations into "initial" and 'subsequent' periods. The initial period ends on 31 December 2011 and the subsequent period spans 1 January 2012 to 31 December 2015.¹⁹²

While clause 5F.1 of the AMI Order allows a DNSP to submit a revised budget "at any time" after the AER makes a determination, the AER considers the charges revision process limits such revisions within the defined budget period, or at the very latest, until mid-year of the following year.¹⁹³

The charges revision process requires actual expenditure for the previous year to be submitted to the AER on 31 August of the current year to determine the charges to apply for the next year. However it allows actual expenditure for that previous year only.¹⁹⁴ For example on 31 August 2012, actual 2011 expenditure is required to determine revised 2013 charges. For the 2014 charges revision process, actual expenditure from 2012 is required; actual expenditure for 2011 is no longer considered. The AER therefore considers the AMI Order does not allow a DNSP to recover incurred 2011 expenditure in the 2012-15 period.

This does not mean that the AMI Order does not provide for DNSPs to adjust their budgets outside the initial and subsequent budget periods. The AMI Order allows DNSPs to vary the budgets set in these periods by lodging revised budget applications, and DNSPs have an additional opportunity to recover costs in the charges revision process.

The consequence of this for the current matter before the AER is that switching costs that SP AusNet would incur in 2011 would not be provided for as they fall outside the subsequent budget period (2012–15). However, the AER considers that a reasonable business in SP AusNet's circumstances that made its decision to switch to mesh on 28 February 2011 would have had more than one opportunity to recover any switching costs incurred in 2011 under the AMI Order.

Submit a revised 2009–11 budget to the AER

The AER considers that a reasonable business in SP AusNet's circumstances would have submitted a revised budget application for any mesh-related switching costs it would conceivably incur in 2011. SP AusNet could have done so any time in 2011, and arguably up to July 2012. In fact, SP AusNet did submit a revised 2009–11 budget application on 28 February 2011 for increased costs associated with WiMAX. The AER did not approve the revised budget sought by SP AusNet.

Recovery in excess of the Approved Budget through the charges revision process

Pursuant to clause 5I.2 of the AMI Order SP AusNet can automatically recover actual 2011 expenditure up to 120 per cent of its 2009–11 Approved Budget through the 2013 charges revision

¹⁹² See, for example, AMI Order clauses 2, 5A, 5B, 5C.

¹⁹³ Arguably, a DNSP could submit a revised budget application for the 2009-11 period as late as (approximately) 1 July 2012. This would still allow the AER to assess it in 40 business days and make a determination in time for the DNSP to lodge its charges revision application on 31 August 2012.

¹⁹⁴ AMI Order, clause 5G.

process. The 2013 charges revision application is due on 31 August 2012. If SP AusNet had switched to mesh radio in 2011, as long as the actual expenditure incurred in doing so was within scope and certified in an audit report, the AMI Order would allow SP AusNet to recover it without review by the AER.¹⁹⁵

In addition, clause 5l.5 of the AMI Order would potentially provide SP AusNet with the opportunity to recover in excess of 120 per cent of its 2009–11 Approved Budget through the 2013 charges revision process. Clause 5l.5 requires the AER to assess any expenditure above 120 per cent of the 2009–11 Approved Budget as an expenditure excess. The AMI Order, as drafted at 28 February 2011 required expenditure excesses to be assessed by the AER using the same scope and prudent tests as apply when determining the approved budget.¹⁹⁶

This would mean that if SP AusNet could demonstrate that its expenditure excess was prudent, it would be able to recover it. For example, if SP AusNet entered into competitively tendered contracts for a mesh solution in 2011, clause 5l.7(a) of the AMI Order would deem the expenditure prudent.

The AER considers these opportunities under the AMI Order would be important considerations that a reasonable commercial business would have factored into its investment governance process in the circumstances.¹⁹⁷

Switching costs recoverable in 2012–15

The AER's quantitative analysis identified \$15.9 million in switching costs. However, of this figure, the AER considers \$4.2 million (for WiMAX contract break costs and tower removal) would be incurred in 2011, rather than 2012. Accordingly, the AER's preliminary view is that switching costs that are prudent and recoverable in 2012–15 amount to \$11.7 million. This expenditure is in the "meter capex" category, and therefore falls within the scope of the Tribunal's remittal and the AER's amended determination.

1.4 Revisions

The AER's preliminary view results in revisions that would increase its final determination Approved Budget for SP AusNet by \$26.5 million for:

1. Foreign exchange contracts - \$15.8 million
2. Project management labour - \$1.7 million
3. Mesh radio switching costs - \$11.7 million

¹⁹⁵ The 2013 charges revision process will be conducted under the AMI Order as revised in December 2011. Although this changes the AER's assessment approach, the 120 per cent threshold remains for the 2009-11 period.

¹⁹⁶ The AMI Order as revised in December 2011 changes the assessment approach, but this would not have been known at the time.

¹⁹⁷ *Energeia Report*, pp. 15-16.