

**SPI Electricity Pty Ltd**

**Advanced Metering Infrastructure**

**Revised Budget Application**

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**Draft Determination Response**

Monday 18 April 2011

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## AMI Revised Budget Application - Draft Determination Response

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### About SP AusNet

SP AusNet is a major energy network business that owns and operates key regulated electricity transmission and electricity and gas distribution assets located in Victoria, Australia. These assets include:

- A 6,574 kilometre electricity transmission network indirectly servicing all electricity consumers across Victoria;
- An electricity distribution network delivering electricity to approximately 620,000 customer connection points in an area of more than 80,000 square kilometres of eastern Victoria; and
- A gas distribution network delivering gas to approximately 572,000 customer supply points in an area of more than 60,000 square kilometres in central and western Victoria.

SP AusNet's purpose is 'to provide our customers with superior network and energy solutions.' The SP AusNet company values are:

- Safety: to work together safely. Protect and respect our community and our people.
- Passion: to bring energy and excitement to what we do. Be innovative by continually applying creative solutions to problems.
- Teamwork: to support, respect and trust each other. Continually learn and share ideas and knowledge.
- Integrity: to act with honesty and to practise the highest ethical standards.
- Excellence: to take pride and ownership in what we do. Deliver results and continually strive for the highest quality.

For more information visit: [www.sp-ausnet.com.au](http://www.sp-ausnet.com.au)

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## AMI Revised Budget Application - Draft Determination Response

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### Table of Contents

<b>Executive Summary</b>	<b>4</b>
<b>1 Introduction</b>	<b>6</b>
<b>2 Summary of AER Draft Determination</b>	<b>7</b>
<b>3 AER Obligations under the Amending Order</b>	<b>8</b>
3.1 Requirements of the Amending Order	8
3.2 Errors in the AER's application of the Amending Order	9
3.3 Procedural Fairness	11
<b>4 Competitive Tendering of Contracts</b>	<b>12</b>
4.1 AER Position	12
4.2 SP AusNet Response	12
4.3 Independent Expert Opinion	14
4.4 Summary	16
<b>5 Commercial Standards Test</b>	<b>17</b>
Introduction (Erratum)	17
5.1 AER Position - Decision to Proceed with the Selected Solution	17
5.2 SP AusNet Response to Revision of Selected Solution	18
5.3 Independent Expert Opinion	20
5.3.1 <i>KEMA Australia Pty Limited Opinion</i>	20
5.4 AER Position on Alternative Solutions	22
5.5 SP AusNet Response to Alternative Solutions	22
5.6 AER Position on Regulatory Obligations	24
5.7 SP AusNet Response – Regulatory Obligations	25
5.8 Requirement for a Compliant Solution	25
5.9 Retrospective Assessment	25
5.10 Summary	27
<b>6 Metering Costs</b>	<b>28</b>
6.1 AER Position on Lower WiMAX Operating Costs	28
6.2 SP AusNet Response on Lower WiMAX Operating Costs	28
6.3 AER Position on Higher Metering Costs	29
6.4 SP AusNet Response on Higher Metering Costs	29
6.5 Independent Expert Opinion	29
<b>7 Conclusion</b>	<b>31</b>
<b>Appendix A – KEMA</b>	
<b>Appendix B - PwC</b>	

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## AMI Revised Budget Application - Draft Determination Response

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### Executive Summary

SP AusNet notes and welcomes the AER's acceptance:

- that all expenditure variances to the Approved Budget are within scope for the purposes of the Amending Order, including building fit-out costs for office space in Berwick (Non-IT expenditure); and
- of the following variances sought to the Approved Budget, and the substitution of SP AusNet's proposed cost variances for:
  - Communications variation.
  - Information and control service variation.
  - Non IT variation.

However, SP AusNet does not support the AER's determination to reject the variances sought to the Approved Budget for Metering costs and the proposed substitution of new cost variances based on unit costs approved in the 2009 determination.

The key finding from SP AusNet's RFT was that there were three vendors who proposed to make meters available for Q3 2009. Therefore, SP AusNet progressed with a WiMAX solution on the understanding that a competitive selection of three meter providers would be available in time for the first rollout.

There is no evidence available to SP AusNet that the metering unit costs associated with:

- AMI meters for single phase, single element and single phase two element customers; and
- communications modules for single phase, single element and single phase two element customers
- involve a substantial departure from the commercial standard that a reasonable business in the circumstances would exercise.

SP AusNet submits that this Draft Determination from the AER is a retrospective assessment of the decisions made by SP AusNet with the AER now using the benefit of perfect hindsight to inform this Draft Determination.

The AER now contends that the response to SP AusNet's Request For Tender (RFT) should have signalled to SP AusNet that it would be prudent to review the decision to rollout a WiMAX solution. The AER also contends that the meter procurement process was not competitively tendered.

SP AusNet conducted a rigorous and competitive 2008 tender process to access robust and reliable meter and solution costs. The Best and Final Offer part of that process was conducted in July 2009 and was a continuation of the 2008 competitive tendering process.

The decision to proceed with the WiMAX solution was based on a commercially prudent and responsible decision making process in order to meet the Victorian Government's mandated requirement which was that 5% of SP AusNet's customers would have an AMI meter installed by 30 June 2010.

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## **AMI Revised Budget Application - Draft Determination Response**

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The AER's Draft Determination includes the statement that there was no other regulatory obligations or requirements to prevent SP AusNet from reviewing its decision to proceed with an AMI technology solution that included a WiMAX communication solution.

SP AusNet did review and carefully consider all aspects of its AMI program prior to fully committing to the AMI technology solution that included a WiMAX communication solution.

The decision to proceed with the WiMAX communication solution recognised that it was the only technology solution that could deliver the functionality and service levels mandated by the Victorian Government. In addition a switch to an alternate solution would mean that SP AusNet would be unable to meet the Victorian Government's mandated targets for at least two years and that a failure to meet SP AusNet's regulatory obligation to install AMI meters in accordance with clause 14, and by reference Schedule 1, of the Order in Council would expose SP AusNet to a very significant penalty (currently up to \$597,250 for the contravention and a further penalty of up to \$59,725 per day for a continuing contravention) and, ultimately, loss of its distribution licence.

SP AusNet provides expert opinions in this response to the AER's Draft Determination to demonstrate that the decision

- is based on a failure to correctly understand Clauses 5C and 5.1.8 of the Order in Council
- there were no other alternative solutions that would meet the regulatory obligations or requirements within the required timeframes, and
- the AER's position is a retrospective assessment and cannot be applied as an appropriate test for commercial prudence given the information now available was not available at the time the commitment was made.

It is clear the Draft Determination is unsound and the Final Determination needs to fully recognise that

- SP AusNet applied a rigorous and competitive tender process that resulted in committing to a contract to purchase meters
- The AER Determination is based on an invalid comparison of SP AusNet's revealed costs against out of date historical information and unrevealed costs from the other Victorian DNSPs, and
- SP AusNet made commercially prudent decisions that a reasonable business should have made based on the available information at the time the commitment was made.

As such, SP AusNet contends that the AER should revise its Determination to reject the variances sought to the Approved Budget for Metering costs and the proposed substitution of new cost variances based on unit costs be approved in the Final Determination.

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## AMI Revised Budget Application - Draft Determination Response

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### 1 Introduction

The Order in Council<sup>1</sup> (the Amending Order) published in November 2008, and subsequent amendments<sup>(2)(3)(4)</sup> regulate the setting and recovery of prices, fees and charges relating to the Advanced Metering Infrastructure (AMI) program to roll-out interval metering to electricity consumers across Victoria. In October 2009, the Australian Energy Regulator (AER) in its Determination<sup>5</sup> established SP AusNet's Approved Budget<sup>6</sup> for the Initial AMI Budget Period to 31 December 2011.

Clause 5F of the Amending Order provides for a Distribution Business to seek a variation to an Approved Budget at any time. The AER is required to consider whether a variation is outside the scope or is not prudent in accordance with the requirements set out in clause 5C of the Amending Order.

In the Revised Budget Application<sup>7</sup> lodged in February 2011, SP AusNet has sought to vary the Approved Budget for the Initial AMI Budget Period. The AER has published for comment its Draft Determination<sup>8</sup> in response to SP AusNet's Revised Budget Application. In the Draft Determination the AER has determined to reject some of the variances to the Approved budget as proposed in the Revised Budget Application.

This submission sets out SP AusNet's response to the AER's reasons for rejecting the Revised Budget as documented in the Draft Determination.

The decision to reject is based on the AER's view that the variances sought, in particular the variance to the costs associated with single phase, single element and single phase two element meters and their associated communications modules involve a substantial departure from the commercial standard that a reasonable business in the circumstances would exercise.

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<sup>1</sup> Victorian Government Gazette, **'Order in Council No S 314'**, 25 November 2008.

<sup>2</sup> Victorian Government Gazette G4, **'Notice pursuant to Clause 14B.1 of the AMI Cost recovery Order'**, 22 January 2009, page 143.

<sup>3</sup> Victorian Government Gazette G14, **'Advanced Metering Infrastructure Order in Council 2009'**, 2 April 2009, page 856.

<sup>4</sup> Victorian Government Gazette G42, **'Advanced Metering Infrastructure Order in Council 2010'**, 21 October 2010, page 2570.

<sup>5</sup> AER, **'Final Determination, Victorian AMI review, 2009-11 AMI budget and charges applications'**, October 2009.

<sup>6</sup> Approved Budget has the meaning defined in clause 2.1 of the revised order.

<sup>7</sup> SP AusNet, **'Revised Budget Application'**, 28 February 2011.

<sup>8</sup> AER, **'Draft Determination SP AusNet AMI Revised Budget Application 2009-11'**, April 2011.

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## AMI Revised Budget Application - Draft Determination Response

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### 2 Summary of AER Draft Determination

The AER has assessed the expenditure variances proposed in the Revised Budget Application against the relevant tests set out in the Amending Order, namely whether expenditure included in the Application is not within scope or is not prudent.

In summary, the AER has determined that:

- All of SP AusNet's proposed expenditure variances to the Approved Budget are within scope for the purposes of the Amending Order, including building fit-out costs for office space in Berwick (Non-IT expenditure) not previously considered.
- All of the contracts signed with AMI service providers since the 2009 Approved Budget determination, have been tendered competitively or let in accordance with a competitive process, with the exception of SP AusNet's meter supply contracts<sup>9</sup> foreign exchange hedged contracts and related party IT contracts.
- SP AusNet's meter supply costs are contract costs not let in accordance with a competitive tendering process and incurring them is a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances.

The AER has therefore determined to accept the following variances sought to the Approved Budget and has substituted SP AusNet's proposed cost variances for:

- Communications variation.
- Information and control service variation.
- Non IT variation.

SP AusNet welcomes the AER's acceptance of these variances.

The AER has determined to reject the variances sought to the Approved Budget for metering costs and has substituted new variances based on the metering unit costs approved in SP AusNet's Approved Budget, as determined in the AER's October 2009 Determination.

The decision to reject is based on the AER's view that the variances sought, in particular the variance to the costs associated with single phase, single element and single phase two element meters and their associated communications modules involve a substantial departure from the commercial standard that a reasonable business in the circumstances would exercise.

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<sup>9</sup> The AER uses the term "meter supply contracts" to refer to meters, communications modules and other add ons and SP Ausnet adopts that use in this submission.

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## AMI Revised Budget Application - Draft Determination Response

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### 3 AER Obligations under the Amending Order

#### 3.1 Requirements of the Amending Order

The Order in Council<sup>10</sup> (the Amending Order) published in November 2008, and subsequent amendments<sup>(11)(12)(13)</sup> regulate the setting and recovery of prices, fees and charges relating to the Advanced Metering Infrastructure (AMI) program to roll-out interval metering to electricity consumers across Victoria. In October 2009, the Australian Energy Regulator (AER) in its Determination<sup>14</sup> established SP AusNet's Approved Budget<sup>15</sup> for the Initial AMI Budget Period to 31 December 2011.

The relevant clauses of the Amending Order for the AER's consideration of SP AusNet's Revised Budget Application are 5F, 5C and 5I.8.

In the Revised Budget Application<sup>16</sup> lodged in February 2011, SP AusNet has sought to vary the Approved Budget for the Initial AMI Budget Period. The AER has published for comment its Draft Determination<sup>17</sup> in response to SP AusNet's Revised Budget Application. In the Draft Determination the AER has determined to reject some of the variances to the Approved Budget as proposed in the Revised Budget Application as the AER's view is that the rejected variances are a substantial departure from the commercial standard that a reasonable business would exercise.

Clause 5F of the Amending Order provides for a Distribution Business to seek a variation to an Approved Budget at any time. The AER is required to consider whether a variation is outside the scope or is not prudent in accordance with the requirements set out in clause 5C of the Amending Order. Also under clause 5C the AER must approve the variation unless it can establish that the expenditure variance is outside the scope or is not prudent.

Under clause 5C the AER must approve the variance unless it establishes that the variance is outside the scope or is not prudent. As to prudence, the variance is prudent and must be approved unless the AER establishes certain defined matters.

Under clause 5F.3 the AER's discretion is limited to approving or rejecting the variance. Under clause 5F.4, the permitted scope of the AER's determination is whether 'some or all of the variance is approved'.

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<sup>10</sup> Victorian Government Gazette, **'Order in Council No S 314'**, 25 November 2008.

<sup>11</sup> Victorian Government Gazette G4, **'Notice pursuant to Clause 14B.1 of the AMI Cost recovery Order'**, 22 January 2009, page 143.

<sup>12</sup> Victorian Government Gazette G14, **'Advanced Metering Infrastructure Order in Council 2009'**, 2 April 2009, page 856.

<sup>13</sup> Victorian Government Gazette G42, **'Advanced Metering Infrastructure Order in Council 2010'**, 21 October 2010, page 2570.

<sup>14</sup> AER, **'Final Determination, Victorian AMI review, 2009-11 AMI budget and charges applications'**, October 2009.

<sup>15</sup> Approved Budget has the meaning defined in clause 2.1 of the revised order.

<sup>16</sup> SP AusNet, **'Revised Budget Application'**, 28 February 2011.

<sup>17</sup> AER, **'Draft Determination SP AusNet AMI Revised Budget Application 2009-11'**, April 2011.



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## AMI Revised Budget Application - Draft Determination Response

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SPA's primary contention is that the AER has erred in rejecting the proposed variance. However, in the alternative, SPA submits the AER has now power to reduce the Approved Budget by the proposed amount of \$4,627,000.

Clause 5C applies, with all necessary changes being made, to the determination of whether some or all of the variance is approved. There would be no need for any changes to be made to clause 5C for the purpose of a determination under clause 5F is the Approved Budget was under review.

The AER has power to reject a proposed variance and determine a new variance but it has no jurisdiction to determine a new Approved Budget. There is no proposed new Approved Budget before it; clause 5F is clear that the matter before it is the proposed variance. The AER may reduce a proposed variance to zero, but there it must stop.

### 3.2 Errors in the AER's application of the Amending Order

The relevant clauses of the Amending Order for the AER's consideration of SP AusNet's Revised Budget Application are 5F, 5C and 5I.8.

In considering whether the SP AusNet's meter supply costs are contract costs which were not let in accordance with a competitive tendering process the AER has not satisfied the burden it carries to establish that the contracts were not let in accordance with a competitive tendering process. This is discussed further in section 4.2.

In concluding that SP AusNet incurring the meter supply costs is a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances the AER has

- made a number of assertions about the state of the market, but as these are unsubstantiated by any evidence the AER has failed to satisfy the burden it carries to establish that the expenditure is not prudent; and
- misconstrued the requirements of the Amending Order and had regard to irrelevant considerations.

The unsubstantiated assertions appear at pages 19 to 20. The AER asserts that there was a "comparatively improved market for mesh radio meters and solutions at the time SP AusNet went out to tender for the supply of meters" and that "a more tested, less expensive market based solution where competition for the supply of meters is more prevalent, such as mesh radio, exists which meets the AMI specifications and as the AER understands, can be readily implemented".

SP AusNet takes issue with these assertions as a matter of fact<sup>18</sup> and notes that the AER provides no evidence that establishes its position (in contrast, in one instance, it relies on its "understanding") and fails to establish the market circumstances it describes were current at the time SP AusNet entered into the market supply contracts (as is required by clause (5I.8).

The AER relies on "an appearance" that there is a real risk that the costs associated with proceeding to implement WiMAX are substantially higher than forecast and says that "there were no other regulatory obligations or requirements that prevented SP AusNet from revising its

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<sup>18</sup> See section **Error! Reference source not found.** of this submission.

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## AMI Revised Budget Application - Draft Determination Response

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decision to roll out WiMAX”, apparently ignoring the a very significant penalties and loss of business risks arising from clause 14 and Schedule 1 of the OIC.

The AER has misapplied the OIC when it has sought to test the conduct of SP AusNet by reference to the expenditure of the other Victorian distribution businesses (or, in the alternative by “general industry knowledge” unsupported by any objective evidence). However, the relevant commercial standard is what a reasonable business would have done faced with SP AusNet’s circumstances. That is a qualitative matter. The task is to compare SP AusNet’s conduct against that standard to see if there was a substantial departure: again a qualitative matter.

Cost information available to SP AusNet at the relevant time is one (but only one) relevant circumstance to consider when determining qualitatively the commercial standard that a reasonable business would exercise. The average costs of the other distribution businesses, that are not available to SP AusNet, are irrelevant to a consideration of the commercial standard that a reasonable business in SP AusNet’s circumstances would exercise.

Not only is this the logical position, it is made explicit by clause 51.8 which states that the AER shall give fundamental weight to “the circumstances of the distributor...at the time the commitment was made ... including...the information available at that time”.

In concluding that

*“the commercial standard against which SP AusNet’s proposed expenditure variances to its Approved Budget can be assessed.....is the average of that expended by other Victorian DNSPs”,*

as it does at pages 20 and 23, the AER:

- confuses a test of conduct with a test of expenditure;
- in fact relies upon cost information to address the question of whether any departure is “substantial” without first having established whether there has been a departure from the commercial standard that a reasonable business would exercise in the circumstances;
- does not give fundamental weight to the circumstances of SP AusNet at the time the commitment was made to incur the meter supply costs as is required by clause 51.8 but, instead, incorrectly places weight on the circumstances of the other Victorian distribution businesses;
- does not consider whether the circumstances of the other Victorian businesses were, at the relevant time, comparable to the circumstances of SP AusNet;
- does not consider whether the treatment of costs, for example by way of capitalisation policies and the categorisation or allocation of management and supervisory costs by the other Victorian distributors is comparable to the treatment of costs by SP AusNet; and
- assumes that the circumstances of SP AusNet at the relevant time included knowledge of the costs expended by other Victorian distribution businesses which it did not.

In a fundamental misapplication of the Amending Order, the AER has looked beyond the circumstances of SP AusNet at the relevant time to test its conduct by reference to the circumstances of other Victorian distribution businesses without establishing that those circumstances are comparable and relevant to the circumstances of SP AusNet at the time it committed to incur the expenditure for the meter supply costs.

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## AMI Revised Budget Application - Draft Determination Response

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The departure from the commercial standard required by the Amending Order to be established by the AER before expenditure is not prudent is a departure which is a very serious deviation, not simply one which is considerable.

### 3.3 Procedural Fairness

In its Draft Determination the AER relies on information which is not available to SP AusNet in the form of the costs expended by the other Victorian distribution businesses. In the alternative, it relies on “general industry knowledge”, the basis for which is not sourced and is unsubstantiated.

SP AusNet submits that information is irrelevant at law. In the alternative, SP AusNet contends that a breach of the rules of natural justice will arise from the making of a final determination in circumstances where SP AusNet does not know and is unable to test the case sought to be made against it and is denied a proper opportunity to make submissions on the draft determination prior to the AER making a final determination as required by clause 10 of the Amending Order.

The procedural fairness requirement was summarised by Mason J of the High Court in *Kioa v West* as follows:

[i]t is a fundamental rule of the common law doctrine of natural justice expressed in traditional terms that, generally speaking, when an order is to be made which will deprive a person of some right or interest or the legitimate expectation of a benefit, he is entitled to know the case sought to be made against him and to be given an opportunity of replying to it”.<sup>19</sup>

.....

[t]he law has now developed to a point where it may be accepted that there is a common law duty to act fairly, in a sense of according procedural fairness, in the making of administrative decisions which affect rights, interests and legitimate expectations, subject only to the clear manifestation of a contrary statutory intention.”<sup>20</sup>

SP AusNet has been denied the opportunity to know the source of the data relied upon by the AER, the validity of its methodology to manipulate that data to arrive at the average cost or whether the circumstances in which those costs were incurred by the other Victorian distribution businesses are comparable to the circumstances of SP AusNet at the relevant time. SP AusNet does not know the source of the “general industry knowledge” and is unable to consider its validity and whether the circumstances which are relevant to that “general industry knowledge” are comparable to the circumstances of SP AusNet at the relevant time.

SP AusNet seeks access to the costs expended by the other Victorian distribution businesses and the evidence that supports the “general industry knowledge”, including the source of that knowledge, and a proper opportunity to make submissions in relation to that material prior to the AER making a final determination.

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<sup>19</sup> *Kioa* at 582 (Mason J)

<sup>20</sup> (1985) 159 CLR 550 at 584 (Mason J)

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## AMI Revised Budget Application - Draft Determination Response

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### 4 Competitive Tendering of Contracts

#### 4.1 AER Position

The AER's Draft Determination states that the processes adopted by SP AusNet in entering into contracts for the supply of WiMAX meters and communications modules with two vendors in 2009 were not the result of a competitive tender process.

*'In early 2008 SP AusNet conducted a request for tender (RFT) for its WiMAX enabled AMI meters.<sup>36</sup> The tendering process revealed that only one vendor, contractor 4, was able to supply SP AusNet a WiMAX meter and a WiMAX enabled meter management system. After the tender process had concluded, two other vendors, contractors 5 and 6, approached SP AusNet, stating that they were willing to develop WiMAX meters for SP AusNet's metering solution.'*

*'In March 2009, SP AusNet decided not conduct an RFT for the supply of meters or the meter management system because it considered that the market did not have any mature offerings. The probity report stated that '(the decision) to go to tender was considered to be a waste of time, money, effort and would not generate the best result required for the business.' Instead, SP AusNet entered into negotiations with contractors 4, 5 and 6 through a request for information (RFI) process. The probity report stated that the RFI process was carried out as a '...follow up refresh discovery and validation exercise... Therefore the formal rules of tending were not applied.<sup>21</sup>'*

#### 4.2 SP AusNet Response

SP AusNet does not agree with the AER's Draft Determination. Although the AER has cited specific quotes from the BDO probity auditor report<sup>22</sup>, to support their case, SP AusNet believes that the selective use of quotes does not fully represent the total picture in relation to the WiMAX meter solution procurement process for the following reasons:

The key findings of the 2008 RFT did conclude that there was only one vendor able to supply a WiMAX meter at that immediate point in time. However, it is not correct to conclude that *after* the tender process had concluded, two other vendors approached SP AusNet, stating that they were willing to develop WiMAX meters. The key findings from the 2008 RFT clearly stated that 'AMPY Email and PRI Australia have WiMAX meters proposed for Q3 2009,' which would still have allowed sufficient time to conduct production trials prior to the first obligation under Schedule 1 of the Amending Order. Therefore, SP AusNet progressed with WiMAX meters on the understanding that a competitive selection of three meters providers would be available in time for the first roll-out.

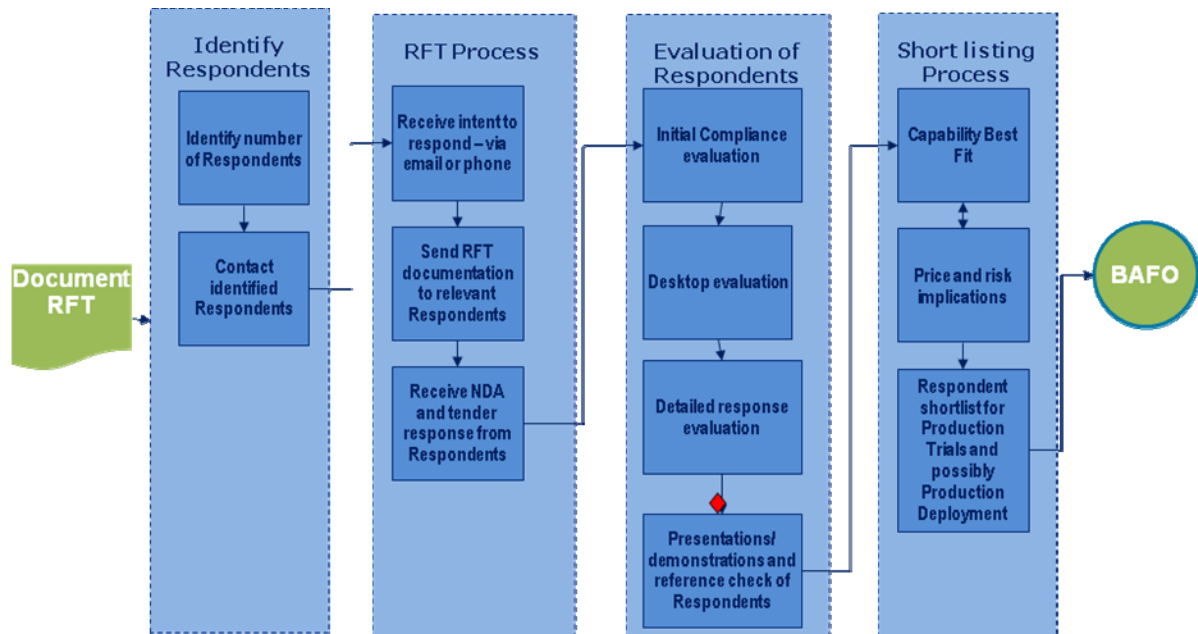
The 2008 RFT was the initial phase of the competitive tender process and the 2009 'RFI' was an extension of that initial phase. It should not be seen as a separate 'non competitive' process.

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<sup>21</sup> AER, '*Draft Determination SP AusNet AMI Revised Budget Application 2009-11*', April 2011 p13  
<sup>22</sup> BDO Kendalls Probity Audit Report for SP AusNet AMI Metering Solution 2009

## AMI Revised Budget Application - Draft Determination Response

The 2008 RFT tender process is shown as per the diagram below:



This diagram articulates that the next phase of the tender process (after the 2008 RFT but part of the sourcing process) was to enter into detailed Best And Final Offer (BAFO) negotiations with the shortlisted vendors, which SP AusNet did in 2009. It must be noted that the document sent to metering solution vendors in 2009 was clearly titled as “AMI Metering Solution BAFO FINAL.xls”. As such, SP AusNet contends that the 2009 metering solution process, which the BDO report<sup>23</sup> refers to as an RFI, was in fact, the BAFO stage of the agreed original tender process.

SP AusNet maintains that the commercial process continued throughout and that there were several options available at the end of the first phase of the RFT

1. ‘Develop Best and Final Offer (BAFO) negotiation strategy;
2. Go back to market with a more specific RFT (if required); and
3. Commence detailed SOW and contract development for production deployment.

These options were documented in the ‘future next steps’ section of the 2008 RFT Executive summary presentation.<sup>24</sup>

SP AusNet selected the most sensible option from the commercial options available and proceeded to Develop Best and Final Offer (BAFO) negotiation strategy for the production trial. SP AusNet then continued the procurement process based on the outcome of the production trial

<sup>23</sup> BDO Kendalls **Probity Audit Report for SP AusNet AMI Metering Solution 2009**  
<sup>24</sup> SP AusNet Response to AER Questions Lodged 22 June 2009

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## AMI Revised Budget Application - Draft Determination Response

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by contracting vendors for meter solutions for the first 5% of meters in order to meet the mandated milestone dates.

The words 'if required' are important as in SP AusNet's opinion, and for the reasons documented in the probity auditor's report<sup>25</sup>, the decision to proceed to another RFT for the initial rollout, was not required. SP AusNet believes that the decision not to spend money on another RFT, which would have significantly increased the risk of SP AusNet not meeting the milestone as required by the Amending Order and incurring both increased costs and reputational damage shows prudent business sense.

SP AusNet notes that attempts by other DNSPs to renegotiate meter prices through additional proposals to the market have not been met with reduced meter unit prices from vendors and the requests to market were subsequently withdrawn.

An initial order for meters was made with meter vendors in order to meet the 5% milestone date, however, the contract for meter supply was NOT awarded in its entirety to any single vendor but was specifically set out such that there would be a panel of suppliers to provide suitable meters once those meter vendors had confirmed production of supply later in the program. This approach was made deliberately to ensure competitive supply of meters to the AMI Program whilst at the same time as providing SP AusNet with the best possibility of meeting the deadline for the 5% rollout milestone.

### 4.3 Independent Expert Opinion

SP AusNet has sought the expert opinion of Mr Simon Mathis and Dr Martin Gill of KEMA Australia Pty Limited on four matters in relation to SP AusNet's ("SPAN") Advanced Metering Infrastructure ("AMI"), Revised Budget Application 2009-11 to the Australian Energy Regulator ("AER") and the AER's Draft Determination of the 4<sup>th</sup> April 2011.

The full report and terms of reference are attached as Appendix A. The extracts below provide a brief synopsis of the report.

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<sup>25</sup>

BDO Kendalls Probity Audit Report for SP AusNet AMI Metering Solution 2009



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## AMI Revised Budget Application - Draft Determination Response

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### Terms of Reference 1

*Were the meter supply contracts entered into by SPAN after RFT 2009/T04, RFT 2009/T05 and RFI 2009/T15 not let in accordance with a competitive tender process?*

### Opinion 1

In 2009 the Australian Energy Regulator (“AER”) reviewed and approved SP AusNet’s proposed AMI WiMAX communications solution. In so doing the AER considered a number of arguments presented by SPAN to support its rationale for selecting the WiMAX communications solution in contrast to the other Victorian distributors.

The arguments important to this opinion were:

*Standards and vendor choice – the WiMAX solution does not lock SPAN into a particular meter or communications vendor for a 7-15 year time horizon, unlike mesh radio solutions which have limited communications vendor choices.*

*Meter adoption – WiMAX is now being promoted as a solution by 3 key meter vendors, meaning communications parts are available through numerous providers, promoting competition.*

*Rf. Page 79, Section 2.3.2, Victorian Advanced Metering Infrastructure Review.*

In forming this opinion we have assumed that the look forward position in 2009 is accurately reflected in these arguments and that the AER was supportive:

*The AER recognises that in the 2009 final determination it approved SP AusNet’s decision to implement WiMAX technology as a primary AMI communications technology on the basis that it was within scope and the associated expenditure was prudent.*

*Rf. Page 17, Section 3.4.3.3, Draft determination, AMI revised budget application 2009-11.*

In considering whether the meter supply contracts were entered into through a competitive tender process we have reviewed the contact management summaries for RFT 2009/T04, RFT 2009/T05 and RFT 2008/T15, RFI 2009/T15 and taken into account the associated BDO Kendalls, Probity Audit Reports. We have also reviewed the detailed descriptions of the procurement policies in the AMI Revised Budget Application, RFT 2009/T15 Event Summary and the Metering Solution Development Plans Guidelines and the Best and Final Offer document.

In our opinion the process of procurement starting with RFT 2008/T15 (early 2008) appropriately enabled SP AusNet to identify the short-list of three suppliers with WiMAX AMI meter solutions. The very detailed RFI 2009/T15 (9 April 2009) issued to the three shortlisted suppliers (subsequently opened to 2 additional suppliers, only one of which responded) and subsequent Metering Solution Development Plans Guidelines to solicit pricing and then the Best and Final Offer process with all three of the bidders was a competitive tender process.

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## AMI Revised Budget Application - Draft Determination Response

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We have not identified any circumstances where conditions were imposed that would favour one bidder over another or that might result in non-competitive pricing.

### 4.4 Summary

SP AusNet's response to the AER is that:

- That the metering solution contracts were let in accordance with a competitive tender process
- That the AER is incorrect in concluding that RFT was the only stage of competitive tendering process.
- SP AusNet appropriately continued commercial negotiations through the RFI stage based on Best and Final Offers in 2009.
- That the AER cannot retrospectively determine that the tender process was not conducted according to commercial process, having previously considered that the decision to select WiMAX was appropriately considered and approved.<sup>26</sup>

That independent experts have provided their assessment of the tendering process and concluded that process was conducted in a fair and equitable manner and was commercially prudent.

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<sup>26</sup>

AER Draft Determination – Initial AMI Budgets and Charges 2009



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## AMI Revised Budget Application - Draft Determination Response

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### 5 Commercial Standards Test

#### Introduction (Erratum)

The Draft Determination of the AER contends that the meter tender process was not let in accordance with the competitive tender requirements which we have demonstrated to be incorrect.

The Draft Determination also contends that the meter supply contracts have failed the commercial standard test.

*“The AER has established that SP AusNet’s proposed expenditure variances involves a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances...”<sup>27</sup>*

The Draft Determination of the AER provides two lines of reasoning for this rejection:

- that SP AusNet should have reviewed their choice of technology solution once it became aware of the market response to the WiMax RFT process;
- that the ongoing costs of the WiMAX solution were expected to be lower than alternative solution proposals and that SP AusNet will directly incur and manage the expenditure thus absorbing the additional cost increase requested by SP AusNet.

SP AusNet responds to these contentions in sections below.

#### 5.1 AER Position - Decision to Proceed with the Selected Solution

The Draft Determination of the AER proposes that SP AusNet should have revised the proposed WiMAX solution after receiving market responses from the tendering process, given the limited response to its RFT process and that given the subsequent significant cost variance at the time of the entering contracts, AER suggests that it would have been prudent for SP AusNet to review the WiMAX solution and adopt a different approach.

The Draft Determination of the AER sets out four points to support this position.

- *despite SP AusNet’s claim that WiMAX is supported by many vendors with experience in the design and deployment of wireless networks, the fact that only one supplier was able to properly respond to its RFT should have signalled to SP AusNet that it would have been prudent to review the decision to roll out a WiMAX solution, given the possibility that the WiMAX meter may be uncompetitive and immature and the likely impact that this would have on the costs of the AMI roll out*

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## AMI Revised Budget Application - Draft Determination Response

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- *notwithstanding the initial expectation of lower ongoing costs, SP AusNet should have revisited its decision to deploy a WiMAX solution especially given:*
  - *the lack of or insufficiently developed market for the supply of WiMAX meters and the comparably improved market for mesh radio meters and solutions at the time SP AusNet went out to tender for the supply of meters*
  - *a more tested, less expensive market based solution where competition for the supply of meters is more prevalent, such as mesh radio, exists which meets the AMI specifications and as the AER understands, can be readily implemented*
- *it appears that there is a real risk that the costs associated with proceeding to implement WiMAX are substantially higher than forecast*
- *there were no other regulatory obligations or requirements that prevented SP AusNet from revising its decision to rollout WiMAX once it became apparent that the costs were substantially higher than forecast and the level of competition in the supply of WiMAX meters was very limited.*<sup>28</sup>

### 5.2 SP AusNet Response to Revision of Selected Solution

The key findings of 2008 RFT did conclude that there was only one vendor able to supply a WiMAX meter at that particular time. However, it is not correct to conclude that *after* the tender process had concluded, two other vendors approached SP AusNet, stating that they were willing to develop WiMAX meters. The key findings from the 2008 RFT clearly stated that 'AMPY Email and PRI Australia have WiMAX meters proposed for Q3 2009,' which would still have allowed sufficient time to conduct production trials prior to the Amending Order scheduled requirements. Therefore, SP AusNet progressed with WiMAX meters on the understanding that a competitive selection of three meters providers would be available in time for the first rollout.

The Draft Determination of the AER contends that SP AusNet should have reverted to an alternative solution after market responses to the RFT were received. SP AusNet rejects this assertion for the following reasons:

- The market for AMI meters based on Wireless Mesh technology did not score highly out of the RFT tender process conducted in 2008. Indeed at the time the government mandated the implementation of the AMI program there were very few implementations of smart metering in the world. The market overall for AMI solutions at the time was immature and still developing. It was therefore, not apparent to SP AusNet at the time that there were suitable proven alternative solutions which were more mature and competitive and could meet a guarantee of functionality, cost and timeline as required by the Amending Order in conjunction with various other requirements SP AusNet is obliged to comply with.

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## AMI Revised Budget Application - Draft Determination Response

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- As highlighted SP AusNet continued BAFO negotiations with a number of vendors for the supply of meters for the proposed WiMAX solution. The decision to proceed with the WiMAX solution was based on a number of factors, inclusive of this was the fact that the base meters are capable of operating with different communications protocols including wireless mesh radio and SP AusNet continued negotiations on this basis.
- However the ability to implement a wireless mesh protocol over the top of the existing meter solution is not straight forward. Such a proposal requires the integration of the Meter Management System (MMS) with the Meter Data Management system, upgrade of backhaul and switching communications, provision of and testing of a wireless mesh communications card with the meter and the mesh network, integration and testing of the end to end solution, revision to business processes - procurement, contracting and supply and storage, and the increased cost and complexity of managing a multiple protocol solution.
- Notwithstanding the fact that under the Amending Order the AER does not have the mandate to prescribe particular technology solutions to be imposed upon a DNSP [reference], the AER has previously endorsed the WiMAX solution proposed by SP AusNet:

*"The AER considers that SP AusNet's decision to select WiMAX was appropriate in the circumstances, given the state of the technology relevant to the provision of AMI communication services and the information available to SP AusNet at the time of its decision."*<sup>29</sup>

In providing advice to assist the AER's 2009 Draft Determination, the AER's consultant, Energeia, found that:

- *'the activities associated with the WiMAX technology do not appear to be outside scope*
- *while some of the technical criteria were above the minimum specifications defined in the revised Amending Order, these were largely required to support the overall AMI system performance levels, and to lower the related costs*
- *a wide range of alternative AMI communications solutions was considered by SP AusNet*
- *WiMAX was not over specified to support activities outside scope, and bandwidth requirements were necessary to allow the technology to fit to the AMI communications profile*
- *the total cost of ownership of WiMAX is not significantly more than a mesh radio solution, based on the findings of independent experts*
- *the decision to select WiMAX was appropriately considered and approved.'*<sup>30</sup>

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<sup>29</sup>  
<sup>30</sup>

AER Draft Determination – Initial AMI Budgets and Charges 2009  
AER Draft Determination- SP AusNet Revised Budget Application 2009-11

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## AMI Revised Budget Application - Draft Determination Response

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In conclusion, given the additional cost and risk to the SP AusNet AMI program at the time of the decision to proceed with WiMAX it was not deemed to be a reasonable or commercially prudent option to pursue alternative solutions.

### 5.3 Independent Expert Opinion

#### 5.3.1 KEMA Australia Pty Limited Opinion

SP AusNet has sought the expert opinion of Mr Simon Mathis and Dr Martin Gill of KEMA Australia Pty Limited on four matters in relation to SP AusNet's ("SPAN") Advanced Metering Infrastructure ("AMI"), revised budget application 2009-11 to the Australian Energy Regulator ("AER") and the AER's Draft Determination of the 4<sup>th</sup> April 2011.

The full report and terms of reference are attached as Appendix B. The extracts below provide a brief synopsis of the report.

#### Terms of Reference 2

*At the time SPAN committed to contract for AMI meters with WiMAX enabled communications modules on 20 September 2009 was it open to SPAN to revisit its decision to deploy a WiMAX solution?*

#### Opinion 2

In considering whether SPAN was open to revisit its decision to deploy a WiMAX solution prior to its contractual commitment we have reviewed RFI 2009/T51, the Revised Order in Council and the various documents provided outlining the technical solution, drivers and the Meter to MMS – Delivery Risk Planning report. We have also reviewed the AMI contingency planning documents.

From our experience in other AMI procurement programs we estimate that such a decision could have caused a delay in initiating the rollout of between 15 and 18 months. Such a delay would have meant at least the first two milestones detailed in Schedule 1 of the revised Order in Council would not have been met. It is also likely all subsequent milestones, including the final milestone, would have been missed.

#### Terms of Reference 3

*If it was open, was it a substantial departure from the commercial standard that a reasonable business would have exercised in SPAN's circumstances at that time for SPAN to enter into the meter supply contracts?*

#### Opinion 3

As in our opinion, the decision to deploy or not to deploy the WiMAX solution was still technically open on 20 September 2009, you have asked whether the decision to enter into the meter supply contracts for the WiMAX solution was a substantial departure from the commercial standard that a reasonable business would have exercised at that time.

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## AMI Revised Budget Application - Draft Determination Response

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In our opinion for SPAN to revisit its choice of the WiMAX solution on 20 September 2009, would have been a substantial departure from the commercial standard that a reasonable business would have exercised at that time because:

- a) At that time SPAN was dealing with three meter vendors including suppliers to the other Victorian distribution businesses. There was no reason for SPAN to assume that repeating the tender (with a different communications solution) would result in a different meter cost outcome;
- b) For SPAN to change its decision at this late stage (in the rollout schedule) would have resulted in significant delays to the delivery of advanced meters and preparation of the associated systems;
- c) SPAN would have been at high risk of failing to meet their rollout obligation;
- d) SPAN considered that the use of proprietary communications technologies in class licensed spectrum as utilised by RF Mesh, represented a larger performance risk than their chosen solution WiMAX.<sup>31</sup>  
AMI Budget and Charges Applications, AER, July 2009;
- e) The substantial amount of work completed had reduced the risk of the rollout of the WiMAX solution, work which would have to be repeated if a different solution was chosen with an uncertain outcome;
- f) With four other advanced metering rollouts there was competition for available resources which would likely have disadvantaged SPAN if they were to subsequently select the same solution as the other Victorian distributors; and
- g) As part of the rollout SPAN needed to undertake in house testing that the selected meters fitted with the communications option complied with all relevant metering standards. Changing the meter and/or communications technology would necessitate repeating this acceptance testing.

Furthermore, and for the reasons outlined above, in our opinion it was not a substantial departure from the commercial standard that a reasonable business would have exercised in SPAN's circumstances at 20 September 2009 for SPAN to enter into the meter contracts.

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<sup>31</sup>

rf. Pg 79, **Victorian Advanced Metering Infrastructure Review**, 2009-11

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## AMI Revised Budget Application - Draft Determination Response

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### 5.4 AER Position on Alternative Solutions

The Draft Determination of the AER contends that SP AusNet should have rejected WiMAX and adopted an alternative solution such as wireless mesh :

*notwithstanding the initial expectation of lower ongoing costs, SP AusNet should have revisited its decision to deploy a WiMAX solution especially given:*

- *the lack of or insufficiently developed market for the supply of WiMAX meters and the comparably improved market for mesh radio meters and solutions at the time SP AusNet went out to tender for the supply of meters*
- *a more tested, less expensive market based solution where competition for the supply of meters is more prevalent, such as mesh radio, exists which meets the AMI specifications and as the AER understands, can be readily implemented<sup>32</sup>*

### 5.5 SP AusNet Response to Alternative Solutions

In relation to alternative metering solutions such as wireless mesh radio, the 2008 RFT Executive summary <sup>33</sup> concluded that: “RF Mesh communication vendors generally scored poorly – this was predominantly due to the security, coverage and planning requirements within AMI and SP AusNet requirements, favouring other technologies such as WiMAX and 3G.” This is consistent with SP AusNet's representation to the AER that it believed that WiMAX was the most appropriate communications solution and that wireless mesh would not be able to fully meet DPI's minimum AMI functionality specifications. As per our June 2009 response to the AER's questions, following the outcomes of RFT 2008/T15, the intention was to trial both Mesh Radio and WiMAX. However, at the time the decision to proceed with trials was made (late 2008), there were no suitable Mesh solutions available. Furthermore, there were a number of key concerns raised regarding the Mesh solution including:

1. Cost certainty; wireless mesh radio planning and design tools are immature and the potential risk of cost increases may be significant to achieve the minimum performance specifications
2. Significant concerns regarding wireless mesh security in proprietary solutions
3. A significant concern of being locked into a proprietary technology that may limit SP AusNet's ability to procure infrastructure or meters in the future
4. Concerns around spectrum reliability and availability as wireless mesh radio operates in an unlicensed band with interference
5. Increased complexity of operations due to large volume of infrastructure components to be managed
6. Underground power supplies increase the deployment cost of wireless mesh radio. Also needing to be factored are agreements with local councils for light pole access.

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<sup>32</sup>

<sup>33</sup>

AER Draft Determination- SP AusNet Revised Budget Application 2009-11  
SP AusNet Response to AER Questions Lodged 22 June 2009



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## AMI Revised Budget Application - Draft Determination Response

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7. Mesh solutions designed to operate at 1W EIRP have no flexibility in poor RF areas through mechanisms such as external antennas as they are at the limit of the ACMA regulations”

As such, the decision was made to proceed solely with WiMAX production trials. However, ongoing analysis of Wireless Mesh vendors was maintained to provide an ongoing view of potential contingency options should the WiMAX trials not be successful’.

It was the opinion of SP AusNet that the additional time and cost of re-specifying and re-tendering for a wireless mesh solution could not have been reasonably undertaken whilst maintaining commitment to the milestones mandated under Amending Order November 2008.

SP AusNet examined numerous contingency options throughout the program in case the WiMAX solution did not pass the trial stage or proved not to be cost effective. This was noted by the AERs advising consultant Energeia in July 2009

***Options analysis considered a wide range of communication solution alternatives*** – The options considered during the initial options analysis were wide ranging. While WiMax was preferred following the initial options analysis, SP AusNet continued to monitor and invest in maintaining an alternative communications solution fall-back plan. SP AusNet considered the costs and benefits of various design, build, own and operate scenarios in their decision making process.<sup>34</sup>

These options included the following:

1. Wireless Mesh Solution (eg Silverspring Networks (SSN) ) for which the following risks were identified:
  - increased costs to business scope and processes
  - costs to update IT systems e.g. EnergyIP adaptor
  - supplier may not have been able to manufacture sufficient quantities due to commitments to other DBs on the same timeline
  - an approach would need to be formulated to ensure that a competitive procurement process was undertaken to ensure costs are fully recoverable
  - ability to meet milestone dates for AMI rollout under Amending Order obligations
  - re-submit regulatory submissions.
2. Engage another solution provider for other MMS solutions for which the following risks were identified:
  - similar product immaturity of other vendors
  - increased costs to revise business scope and processes
  - increased meter costs for PRI and EDM
  - product and eMeter adaptor availability for PRI
  - SSN solution is largely still unknown
  - ALL services providers need to develop their WiMAX solution
  - throw away costs if proposed manufacturers were to deliver on time
  - additional costs to update IT systems e.g. EnergyIP adaptor

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<sup>34</sup> Energeia, **Review of Victorian Distribution Network Service Provider’s Advanced Metering Infrastructure Budget Applications 2009-11**. 2009.

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## AMI Revised Budget Application - Draft Determination Response

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- additional design, development and testing costs
  - additional effort required to develop two MMS i.e. Grid Net and EDM
  - additional build and test effort
  - pressure on meeting release date
  - re-submit regulatory submissions
3. Other options considered but ruled out as being nonviable to meet 5% rollout milestone or cost considerations:
- manual reads
  - GPRS meters
  - 3G meters
  - advise DPI and delay rollout
  - Contract with another DNSP to utilise their solution

SP AusNet's decision to select WiMAX as the preferred solution was ultimately endorsed by the AER in July 2009 :

*"The AER considers that SP AusNet's decision to select WiMAX was appropriate in the circumstances, given the state of the technology relevant to the provision of AMI communication services and the information available to SP AusNet at the time of its decision."*<sup>35</sup>

And as is noted in this AER draft determination that AER's advising consultant Energeia considered that :

*"the decision to select WiMAX was appropriately considered and approved"*<sup>36</sup>

As previously stated SP AusNet held the opinion that alternative technology solutions would not meet SP AusNet's obligations under Amending Order (in addition to other stakeholder requirements such as DPI and AMI Industry Steering Committee) which SP AusNet were required to implement and that this was a key determining factor in proceeding with the proposed WiMAX solution as opposed to alternative solutions.

### 5.6 AER Position on Regulatory Obligations

The Draft Determination of the AER contends that there are no other regulatory obligations or requirements to prevent SP AusNet from reviewing its decision

*there were no other regulatory obligations or requirements that prevented SP AusNet from revising its decision to rollout WiMAX once it became apparent that the costs were substantially higher than forecast and the level of competition in the supply of WiMAX meters was very limited .*<sup>37</sup>

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<sup>35</sup> AER Draft Determination – Initial AMI Budgets and Charges 2009  
<sup>36</sup> AER Draft Determination- SP AusNet Revised Budget Application 2009-11  
<sup>37</sup> AER Draft Determination- SP AusNet Revised Budget Application 2009-11



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## AMI Revised Budget Application - Draft Determination Response

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### 5.7 SP AusNet Response – Regulatory Obligations

SP AusNet was under obligation to meet the 5% and 10% meters deployed milestone set out by Schedule 1 of the Amending Order.

It is SP AusNet's contention that at the time meter supply contracts were being negotiated in July 2009 and entered into (in September 2009) that it was not feasible to revise the proposed solution and retender for a Wireless mesh based solution whilst still maintaining a commitment to the Amending Order obligation to meet the 5% milestone and the relevant requirements and specifications.

Under clause 22.1(a) of its distribution licence SP AusNet is obliged to comply with the Order in Council. A failure to do so exposes SP AusNet to the issue of an enforcement order under section 53 of the *Essential Services Commission Act 2001*. A failure to comply with such an order exposes SP AusNet to an offence and a very significant penalty (currently up to \$597,250 for the contravention and a further penalty of up to \$59,725 per day for a continuing contravention). Under clause 3.4 of its licence, a failure to comply with an enforcement order may also lead to the revocation of that licence and with that, the loss of SP AusNet's business.

### 5.8 Requirement for a Compliant Solution

It was SP AusNet's belief that WiMAX provided the best fit to the Amending Order and the performance and service level obligations. SP AusNet note and bring to the attention of the AER that in February 2010 other Victorian DNSPs had formally requested a review of the obligation requiring the provision of meter data to market in order to lower the requirement based on limitations of the wireless mesh radio technology. SP AusNet did not join the request for a reduction of the required Service Levels as the WiMAX solution is able to meet the original requirements as defined in the AMI Functional Specification.

### 5.9 Retrospective Assessment

SP AusNet contends that the AER has erred in revisiting the decisions of SP AusNet and that the AER has made this draft determination with the benefit of hindsight which was not available to SP AusNet at the time.

SP AusNet has sought the expert opinion of Mr Jeff Balchin of PwC. Mr Balchin is a regulatory economist. His full expert opinion is attached as Appendix B. The Letter of Instruction dated 14 April 2011 to Mr Balchin sought his opinion on the following question:

#### **Terms of Reference**

In applying the test in clause 5C.3 of the AMI Order in Council and taking into account and giving fundamental weight to the matters referred to in clause 5I.8 as required by clause 5C.4, is it appropriate for the AER to have regard to information that was not available to SP AusNet when it committed to incur the expenditure?

Mr Balchin uses the term 'original decision' to the decision that SP AusNet made on 20 September 2009 to enter into the contracts referred to above.

#### **Summary of Mr. Balchin's Opinion**

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## AMI Revised Budget Application - Draft Determination Response

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*In my view, while Clauses 5.C.3 and 5.I.8 refer to the AER assessing actual or proposed expenditure, these clauses in practice require an assessment of the decisions that have given rise to the expenditure. This means that, when the AER is assessing expenditure that is incurred under a contract entered into in the past involved a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances, then the AER must apply this test to the decision to enter into that contract.<sup>38</sup>*

*I think this is clear from the explicit terms of the Order in Council and also from the fact that the existence of a contract is an important component of the context which the Order requires to be taken into account when assessing the expenditure.*

*The relevant question when assessing these decisions is the information that the AER should take into account. In my view, the terms of the Order in Council appear explicit that it is inappropriate for the AER to have regard to information not available to SP AusNet at the time when it made the decision to commit to incur the relevant expenditure. I note, however that this reflects how I would read those provisions as an expert regulatory economist; legal advice is beyond my area of expertise.*

### **Intention is to create a prudence test**

*In addition, to a regulatory economist Clauses 5.C.3 and 5.I.8 clearly are intended to invite the AER to apply what is referred to as a test of the 'prudence' the relevant expenditure<sup>39</sup>*

*This test has a well accepted meaning in regulatory economics which is that the regulator must place itself in the shoes of the decision maker when the relevant decision was made when testing whether the decision was appropriate.*

*In addition, support for the fact that 'new information' is not to be taken into account when testing the original decision is to be found in the remainder of the Order in Council. In particular, I consider it well accepted in regulatory economics that where a regulatory regime permits a regulator to take account of new information when testing the appropriateness of a decision, this capacity is acknowledged as creating an asymmetric risk for the regulated entity, for which compensation must be provided in advance. I cannot find a provision in the Order in Council that would authorise such compensation."*

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37 I note that the question could be also asked whether it remained appropriate to seek to exit a contract, either by repudiating the contract and paying damages or seeking to negotiate out of the contract. In considering whether such an action was appropriate, however, it would be necessary to consider the costs associated with exiting from the existing contract as well as the new costs that would be incurred under replacement arrangements. I do not address this option in detail in this opinion.

38 The term 'prudency' is often substituted for the term 'prudence'. Nothing turns on the choice of terminology

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## AMI Revised Budget Application - Draft Determination Response

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### 5.10 Summary

It is SP AusNet's assessment that a WiMAX solution was deemed as the most suitable candidate solution for SP AusNet in order to meet the requirements of the Amending Order in relation to security, privacy, bandwidth, capacity, reliability of connectivity and coverage and total overall cost whilst meeting Amending Order milestones and that with the knowledge available at the time of these decisions the most prudent course of action was maintained by SP AusNet.

SP AusNet's Response to the AER is that:

- The AER has made a draft determination on the basis of cost comparison data and information not available to SP AusNet to make similar comparisons and that this has led to the AER revising its previous 2009 determination that the capex submission was prudent and the decision to select WiMAX appropriate.
- This Draft Determination from the AER is a retrospective assessment of the technology decisions made at the time but informed with the benefit of hindsight.
- This retrospectivity cannot be applied as an appropriate test for commercial prudence using information available now given the subsequent maturing of the smart meter market in the four years since the decision was made.
- Consideration of information not available to SP AusNet to determine the prudence of a decision is an inappropriate assessment for a governing regulatory body.
- The decision to select WiMAX has been considered by independent experts and assessed as an appropriate technology selection to meet the requirements set out under Order in Council
- It was not feasible to meet the milestones and obligations by reverting to an alternative solution in 2009.
- The proposed solution was selected based on compliance with functional requirements and specifications under obligation of the Order in Council.
- The decision to select and implement a WiMAX solution was conducted fair and equitably according to commercial prudence.
- The AER has previously determined that the "decision to select WiMax was appropriately considered and approved".
- The AER errs in its rejection of the SP AusNet budgetary submission

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## AMI Revised Budget Application - Draft Determination Response

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### 6 Metering Costs

#### 6.1 AER Position on Lower WiMAX Operating Costs

The AER has applied a 'commercial standard test' to metering component costs (meter and communications module) where the commercial standard is considered to be the average costs expended by the other Victorian Distribution Businesses.

For the meter component, the AER considers that irrespective of the technology (WiMAX or mesh) the basic meter cost should be comparative. AER suggests that SP AusNet's proposed expenditure variance is considerable greater for single phase, single element meters (50%) and single phase two element with contactor meters (35%), than the costs of the other businesses and 10% greater in the case of other meter types. While the cost variance for other meter types are considered within reason, the cost variances for single phase, single element and single phase two element meters are deemed to be a substantial departure for the purposes of the commercial standard test.

In the case of the communications module, the AER has again adopted the average costs expended by the other Victorian Distribution Businesses as the commercial standard and deemed the proposed cost variance to be a substantial departure for the purposes of the commercial standard test.

The AER has supported its view to reject both the meter and communications module cost variances by reference to information and opinion supplied by Impaq Consulting.

The AER contends that one of the benefits of SP AusNet's proposed WiMAX solution was to lower operating costs and that SP AusNet would incur and manage the expenditure where it is in excess of the submission.

*First, the surrounding conditions and circumstances of SP AusNet at the time it entered into the relevant contracts include that:*

- *the AER accepted SP AusNet's WiMAX communications solution in 2009 on the basis of lower on-going operating costs compared to other communications solutions.*
- *SP AusNet will directly incur and manage the expenditure.*<sup>40</sup>

#### 6.2 SP AusNet Response on Lower WiMAX Operating Costs

SP AusNet has submitted a revised budget application to increase the CAPEX costs associated with SP AusNet's AMI meter rollout. This revised budget application is to review our revised capital costs and does not consider or address the operating costs associated with the maintenance and operation of the solution. However, the AER has rejected the request to revise capital costs despite previously accepting that the SP AusNet WiMAX solution is intended to lower the total operating costs

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<sup>40</sup>

AER Draft Determination- SP AusNet Revised Budget Application 2009-11

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## AMI Revised Budget Application - Draft Determination Response

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*“the AER accepted SP AusNet’s WiMAX communications solution in 2009 on the basis of lower on-going operating costs compared to other communications solutions.”<sup>41</sup>*

The AER has not compared the total operating cost of the SP AusNet solution and has made an inappropriate comparison of metering costs relative to other DNSP’s without due consideration to total operating costs of the WiMAX solution.

### 6.3 AER Position on Higher Metering Costs

The Draft Determination of the AER contends that:

*it appears that there is a real risk that the costs associated with proceeding to implement WiMAX are substantially higher than forecast*<sup>42</sup>

The Draft Determination of the AER proposes that a direct comparison of the meter costs relative to other DNSPs indicates that the SP AusNet meter rollout is higher per unit meter cost and that the comparison is valid.

*In relation to the AMI meters themselves, excluding communications modules or other add-ons, it is apparent that the expenditure proposed by SP AusNet substantially exceeds that of the other Victorian DNSPs*<sup>43</sup>

### 6.4 SP AusNet Response on Higher Metering Costs

The revised estimates which we have recently submitted in August 2010<sup>44</sup> were not available to SP AusNet at the time the decision to proceed with the WiMAX solution was made. The commercial standard test cannot be applied retrospectively to determine the reasonableness of a decision which was made with the best information available at the time.

SP AusNet again draw attention to the fact that AER has previously confirmed that the SP AusNet WiMAX solution was considered appropriately suitable and that previously submitted budgets provided to AER have been determined as prudent.

*“The AER recognises that in the 2009 final determination it established that SP AusNet’s proposed 2009–11 AMI metering capex was prudent.”<sup>45</sup>*

### 6.5 Independent Expert Opinion

SP AusNet has sought the expert opinion of Mr Simon Mathis & Dr Martin Gill of KEMA Australia Pty Limited on four matters in relation to SP AusNet’s (“SPAN”) Advanced Metering Infrastructure (“AMI”), Revised Budget Application 2009-11 to the Australian Energy Regulator (“AER”) and the AER’s Draft Determination of the 4<sup>th</sup> April 2011.

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<sup>41</sup> AER Draft Determination- SP AusNet Revised Budget Application 2009-11

<sup>42</sup> AER Draft Determination- SP AusNet Revised Budget Application 2009-11

<sup>43</sup> AER Draft Determination- SP AusNet Revised Budget Application 2009-11

<sup>44</sup> SP AusNet, AMI Charges Revision Application August 2010

<sup>45</sup> AER Draft Determination- SP AusNet Revised Budget Application 2009-11

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## **AMI Revised Budget Application - Draft Determination Response**

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The full report and terms of reference are attached as Appendix A. The extracts below provide a brief synopsis of the report.

### **Terms of Reference 4**

The commercial standard unit cost for a single phase single element meter to support AMI and, in particular, the price range of US\$60 to US\$85 quoted on page 4 of the Impaq Consulting report to the AER of 31 March 2011?

### **Opinion 4**

From our broad industry exposure we consider that the suggested price range would not include all the functionality or meet the performance levels detailed in the Order in Council. Prices for meters and communications meeting these requirements start closer to AU\$200 per unit. We are unable to provide a substantiation of this value due to confidentiality commitments.

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## AMI Revised Budget Application - Draft Determination Response

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### 7 Conclusion

SP AusNet does not support the AER's determination to reject the variances sought to the Approved Budget for Metering costs and the proposed substitution of new cost variances based on unit costs approved in the 2009 determination.

SP AusNet contends that the AER's Draft Determination to reject the variance to the budget submission is a misapplication of the Amending Order and is based on a retrospective assessment of the technology and procurement decisions made at the time but informed with the benefit of hindsight and that this cannot be applied as a commercial prudence test.

SP AusNet insists that the process followed in tendering and entering into contracts with metering solution vendors was commercially prudent, an integral part of a robust competitive tender process and that the outcomes achieved were both fair and equitable.

Furthermore, SP AusNet submits that the AER has made a Draft Determination on the basis of cost comparison data and information (not available to SP AusNet to make similar comparisons) and that this has led to the AER rejecting the budget variation.

SP AusNet assertions are supported by independent experts who have provided their assessment of the tendering process and concluded that:

- the process was conducted in a fair and equitable manner and was commercially prudent
- the decision to proceed with WiMAX was prudent and that the expenditure does not represent a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances.
- that a departure from the proposed solution would have resulted in a 15-18 month delay with the subsequent failure to achieve the first two milestones required under Schedule of 1 of the Amending Order.

It is clear the Draft Determination is unsound and the Final Determination needs to fully recognise that

- SP AusNet applied a rigorous and competitive tender process that resulted in committing to a contract to purchase meters
- The AER Determination is based on an invalid comparison of SP AusNet's revealed costs against out of date historical information and unrevealed costs from the other Victorian DNSPs, and
- SP AusNet made commercially prudent decisions that a reasonable business should have made based on the available information at the time the commitment was made.

SP AusNet requests that the AER revise its Determination to reject the variances sought to the Approved Budget for Metering costs and be approved in the Final Determination.

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## AMI Revised Budget Application - Draft Determination Response

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## **APPENDIX A – KEMA OPINION**



To: Rohan Madders  
Partner  
Johnson Winter & Slattery  
530 Collins St, Melbourne, VIC 3000

To: Mr Patrick Murphy  
Manager Economic Regulation, Networks Strategy and Development Division  
SP AusNet  
Level 30, 2 Southbank Boulevard, Southbank VIC 3006

To: Mr Chris Pattas  
General Manager, Network Operations and Development  
Australian Energy Regulator  
Level 35, The Tower, 360 Elizabeth St, Melbourne Central, Melbourne, VIC 3000

## **Expert Opinion**

Johnson Winter & Slattery have sought the opinion of Mr Simon Mathis & Dr Martin Gill of KEMA Australia Pty Limited on four matters in relation to SP AusNet's ("SPAN") Advanced Metering Infrastructure ("AMI"), revised budget application 2009-11 to the Australian Energy Regulator ("AER") and the AER's draft determination of the 4<sup>th</sup> April 2011.

In forming this opinion we have relied on our industry knowledge and experience and the documents provided by SPAN that are listed in the section "Documents reviewed in forming this opinion".

## **Terms of Reference 1**

***Were the meter supply contracts entered into by SPAN after RFT 2009/T04, RFT 2009/T05 and RFI 2009/T15 not let in accordance with a competitive tender process?***

## **Opinion 1**

In 2009 the Australian Energy Regulator ("AER") reviewed and approved SPAN's proposed AMI WiMAX communications solution. In so doing the AER considered a number of arguments presented by SPAN to support its rationale for selecting the WiMAX communications solution in contrast to the other Victorian distributors.

The arguments important to this opinion were:

*Standards and vendor choice – the WiMAX solution does not lock SPAN into a particular meter or communications vendor for a 7-15 year time horizon, unlike mesh radio solutions which have limited communications vendor choices.*

*Meter adoption – WiMAX is now being promoted as a solution by 3 key meter vendors, meaning communications parts are available through numerous providers, promoting competition.*

Rf. Page 79, Section 2.3.2, Victorian Advanced Metering Infrastructure Review.

In forming this opinion we have assumed that the look forward position in 2009 is accurately reflected in these arguments and that the AER was supportive:

*The AER recognises that in the 2009 final determination it approved SP AusNet's decision to implement WiMAX technology as a primary AMI communications technology on the basis that it was within scope and the associated expenditure was prudent.*

Rf. Page 17, Section 3.4.3.3, Draft determination, AMI revised budget application 2009-11.

In considering whether the meter supply contracts were entered into through a competitive tender process we have reviewed the contact management summaries for RFT 2009/T04, RFT 2009/T05 and RFT 2008/T15, RFI 2009/T15 and taken into account the associated BDO Kendalls, Probity Audit Reports. We have also reviewed the detailed descriptions of the procurement policies in the AMI Revised Budget Application, RFT 2009/T15 Event Summary and the Metering Solution Development Plans Guidelines and the Best and Final Offer document.

In our opinion the process of procurement starting with RFT 2008/T15 (early 2008) appropriately enabled SPAN to identify the short-list of three suppliers with WiMAX AMI meter solutions. The very detailed RFI 2009/T15 (9 April 2009) issued to the three shortlisted suppliers (subsequently opened to 2 additional suppliers, only one of which responded) and subsequent Metering Solution Development Plans Guidelines to solicit pricing and then the Best and Final Offer process with all three of the bidders was a competitive tender process.

We have not identified any circumstances where conditions were imposed that would favour one bidder over another or that might result in non-competitive pricing.

## **Terms of Reference 2**

***At the time SPAN committed to contract for AMI meters with WiMAX enabled communications modules on 20 September 2009 was it open to SPAN to revisit its decision to deploy a WiMAX solution?***

## **Opinion 2**

In considering whether SPAN was open to revisit its decision to deploy a WiMAX solution prior to its contractual commitment we have reviewed RFI 2009/T51, the Revised Order in Council and the various documents provided outlining the technical solution, drivers and the Meter to MMS – Delivery Risk Planning report. We have also reviewed the AMI contingency planning documents.

From our experience in other AMI procurement programs we estimate that such a decision could have caused a delay in initiating the rollout of between 15 and 18 months. Such a delay would have meant at least the first two milestones detailed in Schedule 1 of the revised Order in Council would not have been met. It is also likely all subsequent milestones, including the final milestone, would have been missed.

We note that SPAN's AMI contingency planning documents suggest that adopting RF Mesh in early September 2009 would still have allowed them to meet the first milestone in June 2010. However, it is our opinion that the rushed nature of the first milestone implementation carried a high level of delivery risk, and even if successful would have had follow on consequences for achieving later Revised Order in Council Schedule 1 milestones.

The basis for our assessment is as follows:

Assuming that RFT 2008/T15 could still be used to short list vendors to be approached in much the same way as the WiMAX only procurement process then the following activities would be required:

1. Preparation of the new RFI/RFT (1 month assuming reuse the 2009 RFI removing the WiMAX solution)
  2. Approval to release the new RFI/RFT (2 weeks)
  3. Response time for vendors (1 month)
  4. Evaluation of the responses including gap analysis (1 month)
  5. Meetings with vendors to address the gaps (2 weeks)
  6. Prepare final documentation for Best and Final Offer (2 weeks)
  7. Response time for vendors (2 weeks)
  8. Preparation of final purchase contract and internal supporting processes (1 month)
  9. EAC approval of final purchase contract (2 weeks)
- Total approximately 7 months

Due to the technical nature of the tender and assuming the results led to the selection of an RF Mesh solution consistent with the choice of the other Victorian distributors it would also be necessary to repeat in-house testing of the offered solutions to determine the fit to SPAN's requirements. To give an indication of the scope of this testing the RFI 2009/T15 lists approximately 1000 requirements. Even abbreviated testing could take 3 months.

The detailed design work necessary to integrate the associated network management system into existing back office systems can only commence once a solution has been selected. There are a number of parties that are involved in the delivery of back office systems with detailed design and delivery of an interim solution taking at least 3 months.

Due to the fundamental differences between RF Mesh and WiMAX very little of the existing communications network planning could be reused. This planning is necessary to ensure that Data Concentrators are positioned in optimal locations. Locating appropriate areas to install the Data Concentrators is a time consuming exercise.

Finally electronic component ordering times mean that it likely that any meter provider would require 3 to 6 month lead time to increase manufacturing capacity for a substantial order.

In our opinion whilst it was technically open for SPAN to revisit its decision to deploy the AMI WiMAX solution at the 20 September 2009, much of the existing detailed planning and design work would have been redundant. Such a change would cause major disruption to planned business changes, at significant commercial cost and the first meter deployments would have likely been delayed by 15 to 18 months.

### **Terms of Reference 3**

***If it was open, was it a substantial departure from the commercial standard that a reasonable business would have exercised in SPAN's circumstances at that time for SPAN to enter into the meter supply contracts?***

### Opinion 3

As in our opinion, the decision to deploy or not to deploy the WiMAX solution was still technically open on 20 September 2009, you have asked whether the decision to enter into the meter supply contracts for the WiMAX solution was a substantial departure from the commercial standard that a reasonable business would have exercised at that time.

In forming this opinion you have instructed us that SPAN was unaware at that time of the other Victorian distributors' costs.

Section 51.8 of the Revised Order requires that for the purpose of making such a determination the regulator take into account and give weight to the circumstances of the distributor or other person incurring or managing the expenditure at the time that the commitment was made to incur or manage the expenditure or the expenditure excess (as applicable) including:

- information available to the business or other person;
- the nature of the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;
- the nature of the roll out obligation;
- the state of the technology relevant to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;
- the risks inherent in a project of the type involving the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;
- the market conditions relevant to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems; and
- any metering regulatory obligation or requirement.

In our opinion for SPAN to revisit its choice of the WiMAX solution on 20 September 2009, would have been a substantial departure from the commercial standard that a reasonable business would have exercised at that time because:

- a) At that time SPAN was dealing with three meter vendors including suppliers to the other Victorian distribution businesses. There was no reason for SPAN to assume that repeating the tender (with a different communications solution) would result in a different meter cost outcome;
- b) For SPAN to change its decision at this late stage (in the rollout schedule) would have resulted in significant delays to the delivery of advanced meters and preparation of the associated systems;
- c) SPAN would have been at high risk of failing to meet their rollout obligation;
- d) SPAN considered that the use of proprietary communications technologies in class licensed spectrum as utilised by RF Mesh, represented a larger performance risk than their chosen solution, WiMAX rf. Pg 79, Victorian Advanced Metering Infrastructure Review, 2009-11 AMI Budget and Charges Applications, AER, July 2009;

- e) The substantial amount of work completed had reduced the risk of the rollout of the WiMAX solution, work which would have to be repeated if a different solution was chosen with an uncertain outcome;
- f) With four other advanced metering rollouts there was competition for available resources which would likely have disadvantaged SPAN if they were to subsequently select the same solution as the other Victorian distributors; and
- g) As part of the rollout SPAN needed to undertake in house testing that the selected meters fitted with the communications option complied with all relevant metering standards. Changing the meter and/or communications technology would necessitate repeating this acceptance testing.

Furthermore, and for the reasons outlined above, in our opinion it was not a substantial departure from the commercial standard that a reasonable business would have exercised in SPAN's circumstances at 20 September 2009 for SPAN to enter into the meter supply contracts.

#### **Terms of Reference 4**

*The commercial standard unit cost for a single phase single element meter to support AMI and, in particular, the price range of US\$60 to US\$85 quoted on page 4 of the Impaq Consulting report to the AER of 31 March 2011?*

#### **Opinion 4**

From our broad industry exposure we consider that the suggested price range would not include all the functionality or meet the performance levels detailed in the Order in Council. Prices for meters and communications meeting these requirements start closer to AU\$200 per unit. We are unable to provide a substantiation of this value due to confidentiality commitments.

The authors of this report have read the Expert Witness in the Federal Court of Australia (Federal Court's Practice Note CM 7) and agree to comply with it,

The authors declare that they have made all enquiries which we believe are desirable and appropriate and that no matters of significance which we regard as relevant have to our knowledge been withheld from the report.



Signed

A handwritten signature in black ink, appearing to read "S Mathis", written in a cursive style.

.....  
Mr Simon Mathis, MA Cantab, MBA  
Principal Consultant  
KEMA Australia Pty Limited

15<sup>th</sup> April 2011  
Date .....

A handwritten signature in black ink, appearing to read "M. Gill", written in a cursive style.

.....  
Dr Martin Gill, PhD, MSc, BE, BSc  
Principal Consultant  
KEMA Australia Pty Limited

15<sup>th</sup> April 2011  
Date .....

## **Documents reviewed in forming this opinion**

1. Draft Determination, SP AusNet, Advanced Metering Infrastructure, Revised budget application 2009-11, AER, April 2011;
2. Electricity Industry Act 2000, ORDER UNDER SECTION 15A AND SECTION 46D, Order in Council;
3. Report to AER on SP AusNet AMI Meter and Communications Module Unit Costs, Impaq Consulting, March 2011;
4. Victorian Advanced Metering Infrastructure Review, 2009-11 AMI Budget and Charges Applications, AER, July 2009;
5. Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure Budget Applications 2009-11, Energia, July 2009;
6. SP AusNet internal document, AMI Contract Summaries;
7. SP AusNet, Request for Information, AMI Metering Solution
8. SP AusNet, Advanced Metering, Price Structure Revised Pricing, 8 September 2008;
9. SP AusNet, internal document, Meter to MMS – Delivery Risk Planning Paper;
10. SP AusNet, Advanced Metering Infrastructure, Initial Budget Application, 27 February 2009 (Revised 3 March 2009);
11. SP AusNet, internal document, RFI 2009/T15 Summary of Events;
12. SP AusNet, internal document, RFI 2009/T15 supplier invitation emails;
13. SP AusNet, Advanced Metering Infrastructure, Revised Budget Application, 10 December 2010;
14. SP AusNet internal document, AER/AMI Questions & Answers, 16 June 2009;
15. SP AusNet internal document, AMI Contingency Plan, 29 June 2009
16. SP AusNet internal document, AMI Program Second Wi MAX Go/No, 2 September 2009
17. SP AusNet, Metering Solution Development Plan Guidelines, 29 May 2009
18. SP AusNet, RFI 2009/T15 AMI Metering Solution, Best and Final Offer document, 7 July 2009





## ***Simon Mathis MA Cantab, MBA***

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<b>Profession:</b>	Principal Consultant
<b>Years of Finance Experience:</b>	20+
<b>Education:</b>	Master's Degree in Business Administration/1990/Sydney University, Sydney, Australia  Master of Ars Cantab/1982/Cambridge University, Cambridgeshire, England  Bachelor of Arts (Hons) Cantab/1979/Natural Sciences/Cambridge University, Cambridgeshire, England
<b>Years with KEMA:</b>	<1

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### **Key Qualifications**

Simon Mathis has over 20 years of finance and market trading experience (including 5+ years as a senior project financier) maintaining primary focus in the following areas:

- Regulated Utilities and Integrated Energy Service Companies – Risk Management, Business Development, arranger/underwriter of finance;
- Renewable Energy Projects – Arranger/underwriter of project finance;
- Waste and Water Recycling Projects – Adviser and arranger/underwriter of project finance;
- Energy & Carbon Trading - Policy advice, portfolio management, pricing and product development.

### **Professional Experience**

#### **KEMA Consulting, Sydney, Australia: From October 2010**

*Principle Consultant*

#### **Strategy Advice Energy & Carbon, Sydney, Australia: 2009 to 2010**

*Strategy Consultant*

- Business development & tendering for large Chinese Wind Turbine Manufacturer;
- Bid strategy, consortium identification and formation, preparation of board papers, appointment of technical, legal and financial advisers for the proposed purchase of a publicly owned asset;
- Confidential assignment to source 20yr coal supply for Asian Power Station;
- Confidential assignment on strategy & business planning for major fund raising;
- Retained by ASX listed Waste Technology company to advise on business development and project implementation strategy

#### **Societe Generale, Sydney, Australia: 2007 to 2009**

*Senior Banker*

- Restructure and workout of the Babcock & Brown International loans;
- Negotiation of secondary market loan sales for bulk of portfolio;
- Loan portfolio re-alignment to recognize changed parent focus and restructure of business along geographical lines. This included exiting existing relationships through maturing loans and negotiating secondary market sales;
- Industry leadership for the Utilities, Energy and Renewable's sectors;
- Manage key client relationships across utility and financial investors to originate opportunities in three key product segments, Eurobonds, Structured Finance and Derivatives;

## **Commonwealth Bank of Australia, Sydney, Australia & London, England: 1999 to 2007**

### *Executive Manager, Energy & Utilities, Sydney, Australia (2006-2007)*

- Bid support for the Camellia Water Recycling Project (currently in procurement)
- Bid support for the acquisition of NRG Gladstone Senior
- Debt provider for acquisition of a US Water Utility (subject to regulatory approval)
- Senior Debt provider for acquisition of the Hawaiian Gas Company
- Senior Debt (leverage) provider for the acquisition of BIS Cleanaway
- Senior Debt provider for the development of the Kupe Gas Field
- Senior Debt provider to the German Creek Waste Mine Gas Generation Project
- Director Environment Business Australia

### *Industry Head, Environmental Initiatives, Project & Infrastructure Finance, London, England (2004-2007)*

- Joint Lead Arranger of Senior Debt Facilities for a 950,000 tonne/pa Municipal Solid Waste processing facilities;
- Renewable Adviser to Global Renewables Lancashire Waste PFI bid;
- Senior Debt provider for Project Aquatrone a Ministry of Defence Water and Waste Water PFI;
- Senior Debt provider to Macquarie European Infrastructure Fund for the acquisition of 49% of NRE Holdings;
- Senior Debt provider to International Power for acquisition of Saltend Co-generation Limited;
- Senior Debt provider to Challenger Infrastructure Fund for the acquisition of Inexus Ltd; and

### *Head of Environmental Initiatives, Project & Infrastructure Finance, Sydney, Australia (2002-2004)*

- Managed BP Australia's implementation of BP Global Choice II
- Developed four Greenhouse Gas Emission Reduction Projects as manager of the BP Global Choice Program
  - Coolaroo Eco-Gasifier
  - Bradmill Fuel Switching Project
  - Southern Waste Landfill gas Flare
  - Whitwood Road Landfill gas Flare
- Established a Joint Initiative with Swiss Re to develop Greenhouse Neutral Products for Europe
- Active participant in the Renewable Generation Project Finance market
  - Lake Bonney I Windfarm [Sub-underwriter of construction, term debt and working capital facilities]
  - Cathedral Rocks Windfarm [underbidder for Underwriter/Lead Arranger construction and term debt facilities]
  - Alinta Windfarm [Joint Underwriter/Lead Arranger of construction, term debt and working capital facilities]
- Active participant in the Alternative Waste Treatment Project Finance market
- Early stages of establishing strategy in regard to trading Environmental Assets

### *Head of New Products, Global markets (2000-2002)*

- Established a pricing/hedging/trading capability in Australian Electricity Derivatives
- Established a pricing/hedging/trading capability in Oils
- Established a pricing/hedging/trading capability in Agricultural Commodities
- Developed four Greenhouse Gas Emission Reduction Projects as manager of the BP Global Choice Program
  - Riverstone Rendering Plant Fuel Switching Project
  - South Cardup Landfill Gas Flare
  - Yellowbank Waste Methane Gas Flare
  - Eastern Creek Alternative Waste Treatment Facility

*Senior Specialist, Structured Solutions Group, Global Markets (1999-2000)*

- Initiated and developed the Greenhouse Friendly product for BP Australia;
- Developed and ran an interactive Emission Trading Simulation for EcoCarbon;
- Provided advice to the Murray Darling Commission on attracting private sector investment to large scale afforestation of the Murray Darling Basin;
- Speaker at the South Australian Premier's Forum on Water and Salinity.

#### **Queensland Electricity GOC's, Brisbane: 1997 to 1999**

*Energy Trading and Portfolio Manager, CS Energy, Brisbane (1998 to 1999)*

- 
- Introduced a Mark to Forecast benchmark for Electricity Derivative trading;
- Segregated Electricity Derivative portfolio into core hedging and trading activities;
- Developed electricity price model for valuing many standard derivatives;
- Introduced a new probabilistic framework for risk management and investment decisions;
- Initiated development of a risk quantification system in MATLAB;
- Developed substantial retailer relationships in a highly illiquid environment, by providing consistent, quality support;
- Transacted Queensland's first green electricity derivative.

*Manager Wholesale Trading, NORTHERN ELECTRICITY RETAIL CORPORATION, Brisbane; 1997 to 1998*

- Oversaw the wholesale purchase of electricity;
- Reported to CEO and Board on market and risk position;
- Maximize price competitiveness, through purchasing, cost control, and product innovation;
- Provide pricing information and levels for sales function;
- Develop trading processes, systems and IT to support the Wholesale Trading Unit;
- Provide leadership in the establishment of an effective business unit;
- Developed an approved Risk Management Policy;
- Developed a suite of wholesale trading systems, including pricing, settlements, risk management and forecasting;
- Negotiated bi-lateral contracts to satisfy the Risk management Policy for the start of the Queensland wholesale electricity market on 18th January 1998.



## Languages

	<i>Speaking</i>	<i>Reading</i>	<i>Writing</i>
English:	Excellent	Excellent	Excellent
French	Fair	Fair	Fair

## Professional Publications

- Paper titled “Trend back to vertical integration in the NEM” published by Infrastructure magazine, May 2008.

## Professional Activities

- At 2004 BP Helios Award Ceremony London - as the creator of BP Global Choice whilst an employee of the Commonwealth Bank of Australia, awarded the Green award and the top award the Human Energy award ahead of 1589 other projects;
- Independent Chair of the Green Electricity Market, Sydney from 2000 to 2003;
- Speaker at the South Australian Premier’s 2001 Forum on Water and Salinity;
- Speaker at the NSW Forests 2001 Environmental Products off-site.

## ***Martin Gill Ph.D.***

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<b>Profession:</b>	Principal Consultant
<b>Years of Experience:</b>	26
<b>Position on Team:</b>	Subject Matter Expert on Smart Metering and Communications Systems
<b>Nationality:</b>	Australian
<b>Education:</b>	PhD Information Technology University of South Australia M.Sc Military Electronic Systems Engineering Royal Military College of Science, Shrivenham, UK Post Graduate Diploma Electronic Systems University of South Australia Post Graduate Certificate of Management Management and Resource Centre Salisbury Campus University of South Australia B.E. (Honours) Electrical and Electronic Engineering University of Adelaide B.Sc. Applied Mathematics and Computing University of Adelaide
<b>Joined KEMA Consulting:</b>	2008

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### **Key Qualifications**

Dr Martin Gill is an engineer with first-hand experience in the specification, design, development and deployment of Smart Metering Infrastructure and Systems. This experience builds on his specialist knowledge gained from many years working with Meters, Metering Products and Communications Systems.

Dr Gill is currently serving as the Business Requirements Work Stream Leader on Australia's National Smart Meter Program for the Ministerial Council on Energy (MCE). Dr Gill was selected for his extensive subject matter expertise across most areas of Smart Meter Infrastructure (SMI). In this role he is required to facilitate the development of a Minimum Functional Specification to be met by future Australian Smart Meter deployments. The Functional Specification covers the Smart Meter, Home Area Network, Communications System and Management System. It details required functionality and infrastructure performance levels to meet the MCE policy objectives. The facilitation has required Dr Gill to prepare a considerable number of technical discussion papers presenting smart meter functions to non-technical audiences.

Recently Dr Gill has been involved in the preparation of detailed cost benefit models for a number of Australian distribution utilities looking to deploy smart grid technologies. He has also prepared a summary of possible services offered by the smart grid for Australian regulators.

The first deployments of smart metering infrastructure has already commenced in Australia. Dr Gill has been involved in the preparation of Request for Proposal documentation, assisted in the review of vendor responses and conducted detailed technical comparisons of vendor technologies. He has also performed high level due diligence reviews of utility SMI programs.

Dr Gill offers extensive hands on experience of many critical components of SMI gained from numerous trials of Smart Meter technology developed by his team. This includes: (i) Voluntary demand response schemes based on Time of Use and Critical Peak Pricing tariffs, some systems including In Home Displays; (ii) Direct load control schemes offering utilities greater control and predictability of demand reduction (using a range of communications options including ripple, RF Mesh, long haul PLC and cellular technologies) (iii) Prepayment systems, with the meters calculating and displaying real-time pricing and capable of offering validated disconnection from the back office (iv) Back office systems allowing consumers to view their electricity bill via the internet and supporting export to third party Billing systems via standard formats and web-service interfaces and (v) the communications networks required to support SMI.

During the development of metering products Dr Gill has gained an intimate knowledge of metrology measurements and the various testing procedures detailed in metering standards. Uniquely he has developed meters suitable for measurement of both low voltage and direct connection to high voltage lines.

In summary: Dr Gill's subject matter expertise covers metering, demand reduction and communications. He is able to present technical topics in non-technical terms, develop system requirements, prepare and evaluate tender documentation, prepare cost benefit analysis reports and do this for many components of the smart grid.

## **Professional Experience**

Dr Gill started his career working for the Department of Defence specialising in the design and deployment of communications systems. This background has provided him with knowledge of all the communications systems required to support the rollout of Smart Metering infrastructure. For example he worked with radio frequency (RF) mesh a decade ago while developing a system to replace land mines at the Rockwell Science Center in Los Angeles California. This experience proved invaluable in the deployment of the StatSignal® RF mesh for the Victorian Advanced Interval Meter Rollout (AIMRO) trials.

Military communications systems are designed to work in the presence of strong interference. This knowledge provides Dr Gill with an understanding of the challenges presented by power line communications. He has personally developed ripple control and distribution line carrier (DLC) systems and deployed the Hunt® power-line carrier (PLC) system for the Victorian AIMRO trials. His Doctoral thesis explored a similar modulation to that used in broadband over power line (BPL) systems.

His knowledge of metering, communications and software systems was integral to the success of the first domestic demand response trial, Country Energy's Home Energy Efficiency Trial (HEET). This system introduced in home displays to Australian consumers and reliably demonstrated a 33% reduction in electrical demand whilst simultaneously offering consumers a 15% saving on their total energy bill. This system was recognised with the Green Globe award.

After receiving customer feedback on the in home display used in the HEET deployment Dr Gill's team developed the Generation II system. Behind the full graphics in home display lies highly cost effective point-to-point GPRS communications. This system also introduced the MeterPoint back office offering customers secure web access to view their energy consumption and interfaces to commercial meter data systems (including Landis+Gyr's Command Center and Itron's MV-90). The Generation II system and MeterPoint was awarded



Best New Product in the software category by Australian Electrical and Electronic Manufacturers Association (AEEMA).

The MeterPoint system was also utilized for pre-payment metering, in which the in-home display showed the remaining credit. Remote connect and disconnect was supported with all disconnections being validated at the back office. The system used the existing utility billing and credit processing systems to provide updates to customer meters.

The Generation II system was selected by South East Water for a field deployment presenting consumers with their water, gas and electricity usage. For this deployment the in-home display and MeterPoint back office were modified to show all metered values. Low power radio was used to integrate gas and water meters. The system received considerable consumer interest and was used in the production of two television series, Carbon Cops and The Eco-House Challenge and was nominated (twice) for the Banksia Award.

Dr Gill became a member on the Standards Australia committee defining a standard for automated demand response (AS4755). This built on his experience with ripple control receivers, remote connect/disconnect and several communications standards.

Dr Gill led a major change in Email Metering's design department with the introduction of a new range of intelligent metering products. These changes covered the complete meter life cycle from specification and design through to production and compliance testing. The introduction of several fully automated metrology test boards to Email provided Dr Gill first-hand knowledge of the IEC metering standards. This experience was enhanced when he personally used the test boards to develop and fully test the metrology and ripple control algorithms utilised in Email's electricity meters.

Most SMI deployments require the integration of different technologies and protocols. Dr Gill has successfully supported open protocols via low level protocol translators including ANSI C12.19, Chinese DLT-645 and recently DNP3 for a SCADA system interface.

Understanding Quality of Supply measurements built on Dr Gill's earlier military experience analysing communications signals. He utilized these skills when he personally developed the Network Analyser offering Ripple Control and Power Quality analysis (PQA). His involvement in the PowerMonic™ PQA and high voltage LineTracker™ series of fault monitors have added to this knowledge.

Throughout his career Dr Gill has been involved in the specification and subsequent development of software systems. Projects include an automated test system for hydraulic valves used in the F-111 fighter aircraft, a burglar alarm offering an interface to existing central security control systems, Ethernet based meter reading system using automated email processing and a secure website allowing consumers to view their energy usage.

#### **CHK GridSense Pty Ltd, Engineering Manager**

A company offering specialist grid monitoring equipment to energy utilities including Power Quality Analysis and Fault Measurement





### Email Metering, Engineering Research Leader

A company offering a comprehensive range of metering products

Projects included:

Generation I and II domestic demand response systems

Victorian AIMRO trials of Hunt's PLC and StatSignal's RF Mesh technologies

Back office development supporting several communications and third party billing systems

Ripple Control receiver design and signal analysis

Fully automated testing to international metrology standards

Ethernet meter reading system using email to avoid customer firewalls

### Rockwell Science Center (California, USA), Senior Researcher

Diverse research organisation. Project focussed on the development of a multi-sensor using RF mesh communications

### Vision Systems (now Tenix), Software Team Leader

Diverse engineering organisation. Project focussed on the development of a remotely monitored (video) surveillance system

### Defence Science and Technology Organisation, Number of positions including Head of Group

Worked in the Communications Division of the Australian Department of Defence.

### Languages

	<i>Speaking</i>	<i>Reading</i>	<i>Writing</i>
English:	Excellent	Excellent	Excellent

### Technical Papers

1. Gill M.C. "An efficient coding scheme for digitised ionograms" – DSTO internal report 1984
2. Quick A.G. & Gill M.C. "Algorithms for Three Antenna Interferometric Direction Finders" Australian Telecommunications Research (ATR) Vol 22, No 1, 1988, pp 61-69.
3. Gill M.C. & Quick A.G. "Implementation of Direction Finding with Three Antennas - Parts 1 and 2" Australian Telecommunications Research (ATR) Vol 24, No 2, 1990, pp 19-40.
4. Gill M.C. "Software Demodulation of Phase Modulated Signals" Masters Thesis, Royal Military College of Science, Shrivenham, UK, 1988
5. Gill M.C. "A New Symbol Timing Recovery Scheme for BFSK Receivers" Australian Telecommunications Research (ATR) Vol 25, No 2, 1991, pp 37-44.
6. Gill M.C. "Symbol Timing Recovery Schemes for Software Demodulation of BPSK/QPSK Signals" Australian Telecommunications Research (ATR) Vol 26, No 1, 1992, pp 41-52.
7. Gill M.C. & Sabel L.P. "On the use of Interpolation in Digital Demodulators" Australian Telecommunications Research (ATR) Vol 27, No 2, 1993, pp 25-32.
8. Scholz J.B., Giles T.C. & Gill M.C. "A Unique Robust Low-Rate HF Radio Modem", Proceedings IEEE Conference on Military Communications (MILCOM '93), Boston USA, October 1993, Vol 1, pp 333-337
9. Giles T.C., Scholz J.B. & Gill M.C. "Radio Communications Modem for Adverse Channel Environments" Draft Patent - embodiment to earlier patent.
10. Gill M.C. "A Unique Robust Medium-Rate Parallel-Tone HF Modem" Proc 2nd International Symposium on DSP for Communication Systems (DSPCS-94), University of South Australia, SPRI, April 94.
11. Cook S.C., Giles T.C., Vyden B. & Gill M.C. "Error-Control Options for Parallel-Tone HF Modems", Proc IEEE MILCOM '93, Boston USA, October 1993, pp 933-938
12. Cook S.C., Giles T.C. & Gill M.C. "Trellis-Coded Modulation for HF Sixteen-Tone Modems" Proc 2nd UK-CIS (formerly UK-USSR) International Symposium on Communications Theory and

- Applications, Lake District, UK July 1993, pp282-289
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  18. Zhang W, Zhang L, Ball J.T & Gill M.C, "A frame synchronisation scheme for turbo codes", 4<sup>th</sup> UK/Australian International Symposium on DSP for Communications Systems, Perth WA, Sept 96
  19. Morris S and Gill M, "Coded Modulation Enhancements to an HF Single-Tone Modem", Conference Proceedings HF Radio Systems and Techniques '97, Nottingham UK, 7-10 July 1997, pp 85-89
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  21. Scholz J , Gossink D , Gill M, "Communication Architecture to Support Distributed Sensors", Conference, Monterey USA, 1998
  22. Gill M.C. "The use of Cyclic Redundancy Checks for integrity checking of Interval Data storage", Landis + Gyr report, 2004.
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  24. Gill M, "Technical Design of the CableTracker underground fault indicator", Milestone 1 report for AusIndustry, 2008.
  25. National Smart Metering Program: Smart Metering Infrastructure Functionality Specification (<http://share.aemo.com.au/smartmetering/Pages/BRWG.aspx>) Associated discussion papers:
    - a. Voltage Measurement
    - b. Interval Energy Channels
    - c. Current Transformers and Meter Resolution
    - d. Measurement Resolution
    - e. Power Factor Measurement
    - f. Function 11 Import and Export
    - g. Function 5 Communications and Data Security
    - h. Physical Load Control Options
    - i. Function 8 14 Dedicated Load Control
    - j. Supply Contactor
    - k. Supply Capacity Limiting
    - l. Outage Reporting
    - m. Interoperability of meter protocols
    - n. Use of the HAN to support Function 24
    - o. Function 23 and 24 Interoperability

**JOHNSON WINTER & SLATTERY**  
L A W Y E R S

Partner: Rohan Madders +61 3 8611 1313  
Email: rohan.madders@jws.com.au  
Our Ref: A5927  
Doc ID: 60955705.1

15 April 2011

Dr Martin Gill and Mr Simon Mathis  
Principal Consultants  
KEMA Consulting  
L9, 189 Kent Street  
SYDNEY NSW 2000

Dear Dr Gill and Mr Mathis

**SP AusNet**

We act for SP AusNet (**SPAN**) in relation to the AER's review of SPAN's revised budget application concerning the Advanced Metering Infrastructure (AMI) roll out in Victoria.

SPAN wishes to engage you to prepare an expert report in connection with that review.

This letter sets out the matters which SPAN wishes you to address in your report and the requirements the report must comply with to be capable of use in the AER review.

***Terms of Reference***

In its Draft Determination the AER concludes that SPAN's meter supply costs are contract costs which were not let in accordance with a competitive tendering process and incurring them is a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances.

We confirm SPAN seeks your opinion, as an expert, on the following matters:

- 1 were the meter supply contracts entered into by SPAN after RFT 2009/T04, RFT 2009/T05 and RFI 2009/T15 not let in accordance with a competitive tender process?
- 2 at the time SPAN contracted for AMI meters with WiMAX enabled communications modules on 20 September 2009 was it open to SP AusNet to revisit its decision to deploy a WiMAX solution?
- 3 if it was open, was it a substantial departure from the commercial standard that a reasonable business would have exercised in SPAN's circumstances at that time for SPAN to enter into the meter supply contracts?

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- 4 the commercial standard unit cost for a single phase single element meter to support AMI and, in particular, your opinion of the price range of US\$60 to US\$85 quoted on page 4 of the Impaq Consulting report to the AER of 31 March 2011?

In providing your opinion you should have regard to the following material:

- 1 the AMI Order in Council, in particular clauses 5C, 5I.8 and 14 and Schedule 1;
- 2 the AER's Draft Determination;
- 3 other material that may be supplied to you by SPAN at your request or otherwise.

You are instructed that on 20 September 2009 other Victorian distributors' costs were not known to SPAN.

### ***Use of Report***

It is intended that your report will be included by SPAN in its response to the AER's Draft Determination. The report may be provided by the AER to its own advisers.

The report must be expressed so that it may be relied upon both by SPAN and by the AER.

The report will be reviewed by SPAN's legal advisers and will be used by them to provide legal advice to SPAN as to its rights and obligations under AMI Order in Council. You will be required to work with these legal advisers and SPAN personnel to assist them prepare SPAN's submissions in response to the draft determination made by the AER.

### ***Compliance with the Code of Conduct for Expert Witnesses***

Attached is a copy of the Federal Court's Practice Note CM 7, entitled "Expert Witnesses in the Federal Court of Australia", which comprises the code of conduct for expert witnesses in the Federal Court of Australia (**the Code of Conduct**).

Please read and familiarise yourself with the Code of Conduct and comply with it at all times in the course of your engagement by SPAN.

In particular, your report prepared for SPAN should contain a statement to the effect that the author of the report has read the Code of Conduct and agrees to comply with it.

Your report must also:

- 1 give details of the expert's qualifications and of the literature or other material used in making the report;
- 2 state all of the questions or issues that the expert has been asked to address;
- 3 state all of the factual premises upon which the report proceeds; and
- 4 otherwise comply with the Code of Conduct.

It is also a requirement that the report be signed by the expert and include a declaration that the expert has made all the inquiries which the expert believes are desirable and appropriate and that no matters of significance which the expert regards as relevant have, to the expert's knowledge, been withheld from the report.

Please also attach a copy of these terms of reference to the report.

***Terms of Engagement***

Your contract for the provision of the report will be with Johnson Winter & Slattery. You should forward to us any terms you propose govern that contract as well as your fee proposal. Your invoices for the production of the report are to be addressed and sent to Johnson Winter & Slattery.

***Contact with us***

We request that you contact us or SPAN by telephone in the first instance to discuss any requests for the provision of data or your preliminary conclusions. All enquiries to SPAN should be made to Patrick Murphy.

Yours faithfully

*Johnson Winter & Slattery*

**Enclosed: Federal Court of Australia Practice Note CM 7, "Expert Witnesses in Proceedings in the Federal Court of Australia"**

## **APPENDIX B – PwC OPINION**



Mr Rohan Madders  
Partner  
Johnson Winter & Slattery  
Level 10, 211 Victoria Square  
Adelaide SA 5000

18 April, 2011

Dear Mr Madders,

**SP AusNet – Advanced Metering Infrastructure roll out**

**1. Introduction and summary of opinion**

***Terms of Reference***

I refer to the Letter of Instruction dated 14 April 2011 in which you seek my opinion on the following question:

In applying the test in clause 5C.3 of the AMI Order in Council and taking into account and giving fundamental weight to the matters referred to in clause 5I.8 as required by clause 5C.4, is it appropriate for the AER to have regard to information that was not available to SPAN when it committed to incur the expenditure?

In providing my opinion you have requested that I should have regard to the following material:

- the AMI Order in Council, in particular clauses 5C and 5I.8; and
- the AER's Draft Determination.

I am instructed that SP AusNet committed to incur expenditure on AMI meters and communications modules when it entered into the relevant contracts on 20 September 2009 and at that time SPAN did not have the amounts expended by other Victorian distribution business.

I use the term 'original decision' to the decision that SP AusNet made on 20 September 2009 to enter into the contracts referred to above.

The full Letter of Instruction is at Attachment A.

---

**PwC, ABN 52 780 433 757**

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## ***Summary of Opinion***

### Interpretation of the Order in Council

In my view, while Clauses 5.C.3 and 5.I.8 refer to the AER assessing actual or proposed expenditure, these clauses in practice require an assessment of the decisions that have given rise to the expenditure. This means that, when the AER is assessing whether expenditure that is incurred under a contract entered into in the past involved a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances, then the AER must apply this test to the decision to enter into that contract.<sup>1</sup>

I think this is clear from the explicit terms of the Order in Council and also from the fact that the existence of a contract is an important component of the context which the Order requires to be taken into account when assessing the expenditure.

The relevant question when assessing these decisions is the information that the AER should take into account. In my view, the terms of the Order in Council appear explicit that it is inappropriate for the AER to have regard to information not available to SP AusNet at the time when it made the decision to commit to incur the relevant expenditure. I note, however, that this reflects how I would read those provisions as an expert regulatory economist; legal advice is beyond my area of expertise.

### Intention is to create a prudence test

In addition, to a regulatory economist Clauses 5C.3 and 5.I.8 clearly are intended to invite the AER to apply what is referred to as a test of the 'prudence' the relevant expenditure.<sup>2</sup> This test has a well accepted meaning in regulatory economics, which is that the regulator must place itself in the shoes of the decision maker when the relevant decision was made when testing whether the decision was appropriate.

In addition, support for the fact that 'new information' is not to be taken into account when testing the original decision is to be found in the remainder of the Order in Council. In particular, I consider it well accepted in regulatory economics that where a regulatory regime permits a regulator to take account of new information when testing the appropriateness of a decision, this capacity is acknowledged as creating an asymmetric risk for the regulated entity, for which compensation must be provided in advance. I cannot find a provision in the Order in Council that would authorise such compensation.

---

<sup>1</sup> I note that the question could be also asked whether it remained appropriate to seek to exit a contract, either by repudiating the contract and paying damages or seeking to negotiate out of the contract. In considering whether such an action was appropriate, however, it would be necessary to consider the costs associated with exiting from the existing contract as well as the new costs that would be incurred under replacement arrangements. I do not address this option in detail in this opinion.

<sup>2</sup> The term 'prudency' is often substituted for the term 'prudence'. Nothing turns on the choice of terminology.



### ***Information relied upon***

I have not relied upon any information other than that cited directly in this report.

### ***Authorship and declaration***

This report has been prepared by myself (Jeff Balchin). My curriculum vitae is at Attachment B to this report.

As a professional services firm, PwC has an ongoing relationship with many utility firms, including SP AusNet. This relationship includes advising on matters pertaining to regulatory reviews. Further details of PwC's relationship with SP AusNet can be provided on request.

I confirm that, in preparing this report, I have made all the inquiries that I believe are desirable and appropriate and that no matters of significance that I regard as relevant have, to our knowledge, been withheld. I have been provided with a copy of the Federal Court's 'Guidelines for Expert Witnesses in Proceeding in the Federal Court of Australia' and this report has been prepared in accordance with those Guidelines.

## **2. Background**

### ***The AER's Draft Determination***

The AER is reviewing SP AusNet's revised budget application concerning the Advanced Metering Infrastructure (AMI) roll out in Victoria for the 2009-11 period.

In its Draft Determination, the AER concludes that SP AusNet's meter supply and communications modules costs, while contract costs, were not let in accordance with a competitive tendering process. The AER then concluded that incurring those costs involved a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances.

In reaching this conclusion that SP AusNet's costs involved a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances, one of the pieces of information from which the AER has drawn an inference is a benchmarking of SP AusNet's costs against the costs being incurred by the other Victorian distributors. Specifically, at page 20 the AER observes as follows:

...the AER considers it appropriate that in this case the commercial standard against which SP AusNet's proposed expenditure variances to its Approved Budget can be assessed to determine whether it involves a substantial departure from that which a reasonable business would exercise in the circumstances is the average of that expended by the other Victorian DNSPs.

In addition, at page 23 the AER remarks that:

...the AER considers it appropriate that in this case the commercial standard against which SP AusNet's proposed expenditure variances can be assessed to determine whether it involves a substantial departure from that which a reasonable business would exercise in the circumstances is the average of that expended by the other Victorian DNSPs on mesh radio communications modules.

### ***The Order in Council***

For the purpose of this opinion, the relevant clauses of the (revised) Order in Council are as follows:<sup>3</sup>

5C.3 For the purposes of clause 5C.2(b), expenditure is prudent and must be approved:

...

(b) ...

unless the Commission establishes that:

...

(iv) the expenditure will be incurred but incurring the expenditure involves a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances.

For the purpose of this clause, the AER is further required to have regard to and give fundamental weight to Clause 5.I.8,<sup>4</sup> which provides the following:

5I.8 For the purposes of making a determination pursuant to paragraph 5I.7(b), the Commission shall take into account and give fundamental weight to:

(a) the circumstances of the distributor;

(b) if the distributor did not directly incur the expenditure, the circumstances of the person that did incur it; and

(c) if the distributor did not directly manage the expenditure, the circumstances of the person that did manage it,

at the time the commitment was made to incur or manage (as the case may be) the expenditure excess including:

(d) the information available at that time;

(e) the nature of the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;

(f) the nature of the rollout obligation;

Note: See clause 14 and Schedule 1.

(g) the state of the technology relevant to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;

---

<sup>3</sup> Advanced Metering Infrastructure Order in Council 2008, 25 November 2008. The Order first requires the AER to establish that contracted expenditure was 'not let in accordance with a competitive tender process'. While relevant to the AER's Draft Determination, this question is outside of the scope of this advice.

<sup>4</sup> Order in Council, Op. Cit., clause 5.C.4.

- (h) the risks inherent in a project of the type involving the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;
- (i) the market conditions relevant to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems; and
- (j) any metering regulatory obligation or requirement.

### **3. Opinion**

#### ***My interpretation of the Order***

##### Requirement to assess the decisions that give rise to expenditure

The Order in Council requires the AER to assess whether past and future expenditure would meet the clauses set out above, where I note that expenditure refers to the flow of payments over time. However, it is clear that what the Order requires in practice is an assessment of the decision that was (or will be) made by the distributor that gave rise (or will give rise) to that expenditure. I say this for two reasons.

- First, the reference to the ‘commercial standard that a reasonable business would exercise in the circumstances’ in Clause 5.C.3 only makes sense if it is the decisions of the business in question being assessed.
- Secondly, the proposition that it is the decisions of the distributor that need to be assessed seems clear from the requirement of Clause 5.I.8 for the AER to consider (amongst matters) the circumstances of the distributor ‘at the time the commitment was made to incur or manage (as the case may be) the expenditure’.

In circumstances where expenditure is being incurred under a contract that was entered into some time in the past, it follows that what the Order requires to be assessed is the decision to enter into that contract.

I also note that the same conclusion can be reached through an alternative route. Clause 5.I.8 makes it clear that the full circumstances of the distributor need to be considered when assessing a stream of actual or proposed expenditure. If some of that expenditure is occurring under a contract, then the assessment would need to focus on the decision to enter into that contract,<sup>5</sup> which was the same conclusion reached above.

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<sup>5</sup> Again, as noted above, the assessment could also consider the implicit decision not to seek to exit the original contract, although this assessment would need to consider all of the costs to which that action would give rise.

### Is new information relevant?

In my view, the Order makes it explicit that only information that was available at the time that a relevant decision should be considered when applying the test in Clause 5.C.3. This seems clear from the references in Clause 5.I.8 to consider:

the circumstances of the distributor;  
...  
at the time the commitment was made ... including  
...  
the information available at that time;

Notwithstanding, I note the interpretation above reflects how I would interpret those provisions as an expert regulatory economist; legal advice is beyond my area of expertise.

### ***Consistency with the standard practice of economic regulation***

#### Intention is to create a prudence test

In my view, the test that is set out in Clauses 5.C.3 and 5.I.8 is a more fuller drafting of what is commonly referred to in regulatory economics as a 'prudence test'. In my view, it is well established that when a prudence test is being applied, the intention is that:

- the focus is on the decisions that have been taken or will be taken by the relevant business; and
- the intention is for the regulator to place itself in the shoes of the business at the time the decision was taken, implying in turn that only the information available at the time of the decision may be taken into account.

This intention behind a prudence test may be found in many regulatory decisions. As one example, in its 2006 Rule Determination, the Australian Energy Market Commission described a prudence test as follows: <sup>6</sup>

An ex post review effectively requires the regulator to put itself in the position of a TNSP at the time that they were undertaking a particular project to determine if the project was undertaken efficiently.

Similarly, the Australian Competition and Consumer Commission (ACCC, the predecessor to the AER) described the prudence test (which was part of the transitional approach to capital expenditure regulation) in its Final Statement of Regulatory Principles in 2004 as follows: <sup>7</sup>

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<sup>6</sup> AEMC 2006, *Draft National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006, Rule Determination*, 16 November 2006, Sydney, p. 98.

<sup>7</sup> ACCC 2004, *Decision, Statement of principles for the regulation of electricity transmission revenues –background paper*, 8 December 2004, pp.131-132.

A defining characteristic of the capex regime outlined in the DRP is that it requires the assessment of prudence ex-post. That is, the assessment of prudent investment and the determination of the amount of expenditure to be included in the RAB are to be determined after the investment has been made. The amount of expenditure to be included in the RAB is determined by the prudence test as outlined by the DRP. The DRP defines prudence in terms of a TNSP acting efficiently in accordance with good industry practice to achieve the lowest sustainable cost of delivering services.

The ACCC considers that an assessment of whether a TNSP developed a project in accordance with good industry practice necessarily requires the exercise of judgement, taking account of the specific engineering and economic facts and circumstances of the investment.

In addition the ACCC needs to weigh the political, organisational, environmental, strategic and administrative constraints facing the TNSP when making decisions and delivering on a project. In the ACCC's view, a simplistic and doctrinaire interpretation of good industry practice that fails to take account of the real world constraints faced by the TNSP is contrary to the spirit and letter of the code.

The ACCC also believes the assessment of good industry practice should take into account the information and analysis available to the TNSP at the time it made the decision to invest. The ACCC wants to encourage TNSPs to take account of the most accurate information available when designing projects even if the project eventually delivered differs from the project first envisaged.

...

In undertaking the ex-post prudence assessment of capex, the essence of the ACCC's task is to step into the TNSP's shoes at the time the investment decisions were taken and assess whether, a prudent TNSP would have made the same decisions. *[Emphasis added]*

Indeed, these descriptions are consistent with how the concept of a prudence test was defined in a report that I recently co-authored for the Independent Pricing and Regulatory Tribunal (IPART):<sup>8</sup>

We note that the test for capital expenditure in Australia has often been phrased as requiring 'prudence and efficiency', and this is the approach that IPART adopts. In this case, the test of 'efficiency' is directed at the question of whether the appropriate project is selected and the test of 'prudence' is directed at the delivery of the project.

In our view, the concept of 'efficiency' is sufficiently broad to guide the assessment of both project selection and delivery. That said, however, we consider that a reference to the 'prudence' of an investment provides three useful pieces of guidance for the assessment of the efficiency of an investment.

- First, when judging whether a regulated business has been efficient, it is necessary to consider and weight the available evidence. The reference in the Australian regulatory instruments to 'prudence' directs attention to whether the decisions of the entity were consistent with the decisions that a well-managed entity in that the same position would have made. This is a reasonably rich source of evidence and should be provided a high weighting.
- Secondly, the standard of prudence naturally directs attention to the cost performance of an average or median performer, rather than to superior or exceptional performance. Providing a cost allowance that reflects average or median performance is consistent with the tools available for estimating the cost of capital (as these, by their nature, provide the return expected by the average firm).
- Thirdly, the notion of prudence by its nature inquires into whether the investment was efficient on the basis of the information that was available at the time rather than to subject the asset owner to an assessment that benefits from hindsight. *[Emphasis added]*

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<sup>8</sup> PricewaterhouseCoopers, 2010, Review of Regulatory Tests for Capital Expenditure, Final Report to IPART, August, pp.67-68.

Accordingly, I conclude that it would be consistent with a standard prudence test as understood in regulatory economics for the AER to take account only of information available to SP AusNet at the time it made the relevant decisions when assessing the associated expenditure.

Regulatory framework in the Order in Council is not consistent with using 'hindsight'

I note that tests do exist in regulatory instruments that provide the regulator with the capacity to exercise the benefit of hindsight when assessing whether recovery of an incurred (or committed) cost should be allowed. A test that has (and continues) to exist in Australian regulatory instruments is where the regulator has the capacity to reduce the value of assets at some time in the future if the expected market demand does not emerge or falls away. I have referred to such tests previously as 'regulatory stranding' tests, although other terms exist. In a report that I authored (prior to joining PwC) some time ago for the ACCC, I distinguished between a prudence test and 'regulatory stranding'. I commented that 'regulatory stranding implies that':<sup>9</sup>

the assessment of whether an asset should be 'stranded' is an ex post test, that is, a judgment on the efficiency of a network element in light of outturn market outcomes

whereas under a prudence test:<sup>10</sup>

the test would take account only of information available at the time that the project took place – and so utilise only information that was available to the provider

However, a key difference between the tests is that a 'regulatory stranding' test creates the risk of a downside event that is not offset by the potential for an equivalent upside event, and so explicit compensation is required in respect of this risk (much in the way that the recovery of an insurance or self insurance premium is warranted in respect of asymmetric downside events, such as property damage from a natural event). While a prudence test also imposes an asymmetric risk, the fact that it relies upon only information that was available at the time the relevant decision is made and judges performance against a standard that is based on observed industry practice, the risk that is created by such a test can be ignored (at least if the test is applied correctly).

An example of such a 'regulatory stranding' test can be found in the National Gas Rules, where it is referred to as the 'redundant capital' test. Importantly, the Rules also require that if the regulator intends to identify and remove redundant capital, it must:

- declare its intention to do so at the access arrangement review prior to the redundancy occurring;<sup>11</sup> and
- when deciding to require a redundant capital policy, it must take account of the uncertainty that is created, the actual provision being as follows:<sup>12</sup>

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<sup>9</sup> Allen Consulting Group, 2003, Methodology for updating the regulatory value of electricity transmission assets, Final Report to the ACCC, August, p.34.

<sup>10</sup> Allen Consulting Group, Op. Cit., p.35.

<sup>11</sup> This is the effect of clause 77(2)(e) as the previous access arrangement would be applied to determine if there was redundant capital. This requirement was more explicit in the predecessor National Gas Code – see clause 8.27.

<sup>12</sup> National Gas Rules, clause 85(4).



Before requiring or approving a mechanism under this rule, the AER must take into account the uncertainty such a mechanism would cause and the effect the uncertainty would have on the service provider, users and prospective users.

It is noted that the predecessor clause in the National Gas Code was more explicit as to how that uncertainty was to be taken into account:<sup>13</sup>

If a Reference Tariff does include such a mechanism, the determination of the Rate of Return (under sections 8.30 and 8.31) and the economic life of the assets (under section 8.33) should take account of the resulting risk (and cost) to the Service Provider of a fall in the revenue received from sales of Services or part of the Covered Pipeline.

While these clauses apply specifically in the case where the new information that is used to re-test investment relates to asset utilisation, a material asymmetric effect flows from any use of hindsight to test a decision or series of decisions that were made in the past.

I have examined the revenue setting provisions of the Order in Council and could not find a provision that authorised the provision, or provide directly, compensation for the risk that would be consistent with a test that took account of hindsight when judging a past decision. I note in particular that the rate of return is consistent with what the distributors receive in respect of their prescribed distribution services (where regulatory stranding is precluded by the National Electricity Rules), the depreciation lives appear intended to be consistent with technical lives<sup>14</sup> and the Order would appear to preclude an explicit allowance for the effect of asymmetric events.

Accordingly, I conclude that the revenue setting provisions in the Order in Council are consistent with the proposition that the test set out in clauses 5.C.3 and 5.I.8 require use only of information that was available to the distributors at the time that the relevant decisions took place.

\* \* \*

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<sup>13</sup> National Gas Code, clause 8.27.

<sup>14</sup> I mention depreciation for completeness only. I do not think that accelerating depreciation to be an appropriate means of addressing the form of asymmetric risk that is addressed in this opinion.





Should you wish to discuss this report in any way, please do not hesitate to contact me on (03) 8603 4973.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Jeff Balchin".

Jeff Balchin  
**Principal**



Attachment A

Letter of Instruction

JOHNSON WINTER & SLATTERY  
L A W Y E R S

Partner: Rohan Madders +61 3 8611 1313  
Email: rohan.madders@jws.com.au  
Our Ref: A5927  
Doc ID: 60955652.1

14 April 2011

Mr Jeff Balchin  
PricewaterhouseCoopers  
2 Southbank Boulevard  
SOUTHBANK VIC 3006

Dear Mr Balchin

**SP AusNet**

We act for SP AusNet (**SPAN**) in relation to the AER's review of SPAN's revised budget application concerning the Advanced Metering Infrastructure (AMI) roll out in Victoria.

SPAN wishes to engage you to prepare an expert report in connection with that review.

This letter sets out the matter which SPAN wishes you to address in your report and the requirements the report must comply with to be capable of use in the AER review.

***Terms of Reference***

In its Draft Determination the AER concludes that SPAN's meter supply costs are contract costs which were not let in accordance with a competitive tendering process and incurring them is a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances.

At page 20 the AER says:

...the AER considers it appropriate that in this case the commercial standard against which SP AusNet's proposed expenditure variances to its Approved Budget can be assessed to determine whether it involves a substantial departure from that which a reasonable business would exercise in the circumstances is the average of that expended by the other Victorian DNSPs.

At page 23 the AER says:

...the AER considers it appropriate that in this case the commercial standard against which SP AusNet's proposed expenditure variances can be assessed to determine whether it involves a substantial departure from that which a reasonable business would exercise in the circumstances is the average of that expended by the other

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Victorian DNSPs on mesh radio communications modules.

You are instructed that SPAN committed to incur expenditure on AMI meters and communications modules when it entered into the relevant contracts on 20 September 2009 and at that time SPAN did not have the amounts expended by other Victorian distribution business.

SPAN seeks your opinion, as an expert, on the following matter:

- 1 In applying the test in clause 5C.3 of the AMI Order in Council and taking into account and giving fundamental weight to the matters referred to in clause 5I.8 as required by clause 5C.4, is it appropriate for the AER to have regard to information that was not available to SPAN when it committed to incur the expenditure?

In providing your opinion you should have regard to the following material:

- 1 the AMI Order in Council, in particular clauses 5C and 5I.8; and
- 2 the AER's Draft Determination.

### ***Use of Report***

It is intended that your report will be included by SPAN in its response to the AER's Draft Determination. The report may be provided by the AER to its own advisers.

The report must be expressed so that it may be relied upon both by SPAN and by the AER.

The report will be reviewed by SPAN's legal advisers and will be used by them to provide legal advice to SPAN as to its rights and obligations under AMI Order in Council. You will be required to work with these legal advisers and SPAN personnel to assist them prepare SPAN's submissions in response to the draft determination made by the AER.

### ***Compliance with the Code of Conduct for Expert Witnesses***

Attached is a copy of the Federal Court's Practice Note CM 7, entitled "Expert Witnesses in the Federal Court of Australia", which comprises the code of conduct for expert witnesses in the Federal Court of Australia (**the Code of Conduct**).

Please read and familiarise yourself with the Code of Conduct and comply with it at all times in the course of your engagement by SPAN.

In particular, your report prepared for SPAN should contain a statement to the effect that the author of the report has read the Code of Conduct and agrees to comply with it.

Your report must also:

- 1 give details of the expert's qualifications and of the literature or other material used in making the report;
- 2 state all of the questions or issues that the expert has been asked to address;
- 3 state all of the factual premises upon which the report proceeds; and
- 4 otherwise comply with the Code of Conduct.

It is also a requirement that the report be signed by the expert and include a declaration that the expert has made all the inquiries which the expert believes are desirable and appropriate and that no matters of significance which the expert regards as relevant have, to the expert's

knowledge, been withheld from the report.

Please also attach a copy of these terms of reference to the report.

***Terms of Engagement***

Your contract for the provision of the report will be with SPAN. You should forward to SPAN any terms you propose govern that contract as well as your fee proposal. Your invoices for the production of the report are to be addressed and sent to SPAN.

***Contact with us***

We request that you contact us or SPAN by telephone in the first instance to discuss any requests for the provision of data or your preliminary conclusions. All enquiries to SPAN should be made to Patrick Murphy.

Please sign a counterpart of this letter and forward it to us to confirm your acceptance of the engagement.

Yours faithfully

*Johnson Winter & Slattery*

**Enclosed: Federal Court of Australia Practice Note CM 7, "Expert Witnesses in Proceedings in the Federal Court of Australia"**

.....  
Signed and acknowledged by Mr Jeff Balchin

Date .....



Attachment B

Curriculum Vitae

## Jeff Balchin

Executive Director (Economics)

### Summary of Experience

Jeff is an economist and Executive Director in the PwC Economics team. Prior to this Jeff was a Director with the Allen Consulting Group, where he built a consulting practice with a strong specialisation in the economic regulation of price and service, with a particular emphasis on the application of incentive regulation to infrastructure and network industries.

Jeff has experience across the electricity, gas, airports, rail, ports, water, telecommunications, post and banking industries in Australia and New Zealand. He has advised governments, regulators and major corporations on issues including regulatory price reviews, licensing and franchise bidding, market design and development of regulatory frameworks. Jeff has also undertaken a number of expert witness assignments. His experience is outlined below in more detail.

### Qualifications

- B.Ec. (Hons.) at the University of Adelaide (First Class Honours)
- CEDA National Prize for Economic Development

### Previous Experience

Prior becoming a consultant, Jeff held a number of policy positions in the Commonwealth Government.

- **Commonwealth representative on the secretariat of the Gas Reform Task Force** (1995-1996) - Played a lead role in the development of a National Code for third party access to gas transportation systems, with a particular focus on market regulation and pricing.
- **Infrastructure, Resources and Environment Division, Department of the Prime Minister and Cabinet** (1994-1995) - Played a key role in the creation of the Gas Reform Task Force (a body charged with implementing national gas reform that reports to the Heads of Government). During this time he also had responsibility for advising on primary industries, petroleum and mining industry issues, infrastructure issues, government business enterprise reform and privatisation issues.
- **Structural Policy Division, Department of the Treasury** (1992-94). Worked on environment policy issues in the lead up to the UN Conference on Environment and Development at Rio de Janeiro, as well as electricity and gas reform issues.

### Experience – Economic Regulation of Price and Service

#### *Periodic Price Reviews – Major Roles for Regulators*

- **ACT regulated retail electricity price review (Client: Independent Competition and Regulatory Commission, ACT, 2009)** – Directing a team that is developing a method to derive a benchmark cost of purchasing wholesale electricity for a retail business that is subject to a regulated price but exposed to competition.
- **South Australian default gas retail price review (Client: the Essential Services Commission, SA, 2007-2008)** - Directed a team that derived estimates of the benchmark operating costs for a gas retailer and the margin that should be allowed. This latter exercise included a bottom-up estimate of the financing costs incurred by a gas retail business.
- **South Australian default electricity retail price review (Client: the Essential Services Commission, SA, 2007)** -Directed a team that estimated the wholesale electricity purchase cost for the default electricity retail supplier in South Australia. The project involved the development of a model for deriving an optimal portfolio of hedging contracts for a prudent and

efficient retailer, and the estimate of the expected cost incurred with that portfolio. Applying the principles of modern finance theory to resolve issues of how the compensation for certain risk should be quantified was also a central part of the project.

- **South Australian default gas retail price review (Client: the Essential Services Commission, SA, 2005)** - As part of a team, advised the regulator on the cost of purchasing gas transmission services for a prudent and efficient SA gas retailer, where the transmission options included the use of the Moomba-Adelaide Pipeline and SEAGas Pipeline, connecting a number of gas production sources.
- **Victorian Gas Distribution Price Review (Client: the Essential Services Commission, Vic, 2006-2008)** - Provided advice to the Essential Service Commission in relation to its review of gas distribution access arrangements on the treatment of outsourcing arrangements, finance issues, incentive design and other economic issues.
- **Envestra Gas Distribution Price Review (Client: the Essential Services Commission, SA, 2006)** - Provided advice on several finance related issues (including 'return on assets' issues and the financial effect of Envestra's invoicing policy), and the treatment of major outsourcing contracts when setting regulated charges.
- **Victorian Electricity Distribution Price Review (Client: the Essential Services Commission, Vic, 2003-2005)** - Provided advice to the Essential Service Commission on a range of economic issues related to current review of electricity distribution charges, including issues related to finance, forecasting of expenditure and the design of incentive arrangements for productive efficiency and service delivery. Was a member of the Steering Committee advising on strategic regulatory issues.
- **Victorian Water Price Review (Client: the Essential Services Commission, Vic, 2003-2005)** - Provided advice to the Essential Services Commission on the issues associated with extending economic regulation to the various elements of the Victorian water sector. Was a member of the Steering Committee advising on strategic regulatory issues, and also provided advice on specific issues, most notably the determination of the initial regulatory values for the water businesses and the role of developer charges.
- **ETSA Electricity Distribution Price Review (Client: the Essential Services Commission, SA, 2002-2005)** - Provided advice on the 'return on assets' issues associated with the review of ETSA's regulated distribution charges, including the preparation of consultation papers. The issues covered include the valuation of assets for regulatory purposes and cost of capital issues. Also engaged as a quality assurance adviser on other consultation papers produced as part of the price review.
- **Victorian Gas Distribution Price Review (Client: the Essential Services Commission, Vic, 2001-2002)** - Economic adviser to the Essential Services Commission during its assessment of the price caps and other terms and conditions of access for the three Victorian gas distributors. Was responsible for all issues associated with capital financing (including analysis of the cost of capital and assessment of risk generally, and asset valuation), and supervised the financial modelling and derivation of regulated charges. Also advised on a number of other issues, including the design of incentive arrangements, the form of regulation for extensions to unreticulated townships, and the principles for determining charges for new customers connecting to the system. Represented the Commission at numerous public forums during the course of the review, and was the principal author of the finance-related and other relevant sections of the four consultation papers and the draft and final decisions.
- **ETSA Electricity Distribution Price Review (Client: the South Australian Independent Industry Regulator, 2000-2001)** - As part of a team, prepared a series of reports proposing a framework for the review. The particular focus was on the design of incentives to encourage cost reduction and service improvement, and how such incentives can assist the regulator to



meet its statutory obligations. Currently retained to provide commentary on the consultation papers being produced by the regulator, including strategic or detailed advice as appropriate.

- **Dampier to Bunbury Natural Gas Pipeline Access Arrangement Review (Client: the Independent Gas Pipelines Access Regulator, WA, 2000-2002)** - Provided economic advice to the Office of the Independent Regulator during its continuing assessment of the regulated charges and other terms and conditions of access for the gas pipeline, including a review of all parts of the draft decision, with particular focus on the sections addressing the cost of capital (and assessment of risk generally), asset valuation and financial modelling. Represented the Office on these matters at a public forum, and provided strategic advice to the Independent Regulator on the draft decision.
- **Goldfield Gas Pipeline Access Arrangement Review (Client: the Independent Gas Pipelines Access Regulator, WA, 2000-2004)** - Provided economic advice to the Office of the Independent Regulator during its continuing assessment of the regulated charges and other terms and conditions of access for the gas pipeline, including a review of all parts of the draft decision, with particular focus on the sections addressing the cost of capital (and assessment of risk generally), asset valuation and financial modelling. Represented the Office on these matters at a public forum, and provided strategic advice to the Independent Regulator on the draft decision.
- **Victorian Electricity Distribution Price Review (Client: the Office of the Regulator-General, Vic, 1999-2000)** - Economic adviser to the Office of the Regulator-General during its review of the price caps for the five Victorian electricity distributors. Had responsibility for all issues associated with capital financing, including analysis of the cost of capital (and assessment of risk generally) and asset valuation, and supervised the financial modelling and derivation of regulated charges. Also advised on a range of other issues, including the design of incentive regulation for cost reduction and service improvement, and the principles for determining charges for new customers connecting to the system. Represented the Office at numerous public forums during the course of the review, and was principal author of the finance-related sections of three consultation papers, and the finance-related sections of the draft and final decision documents.
- **Victorian Ports Corporation and Channels Authority Price Review (Client: the Office of the Regulator-General, Vic, 2000)** - Advised on the finance-related issues (cost of capital and the assessment of risk generally, and asset valuation), financial modelling (and the derivation of regulated charges), and on the form of control set over prices. Principal author of the sections of the draft and final decision documents addressing the finance-related and price control issues.
- **AlintaGas Gas Distribution Access Arrangement Review (Client: the Independent Gas Pipelines Access Regulator, WA, 1999-2000)** - Provided economic advice to the Office of the Independent Regulator during its assessment of the regulated charges and other terms and conditions of access for the gas pipeline. This advice included providing a report assessing the cost of capital associated with the regulated activities, overall review of all parts of the draft and final decisions, with particular focus on the sections addressing the cost of capital (and assessment of risk generally), asset valuation and financial modelling. Also provided strategic advice to the Independent Regulator on the draft and final decisions.
- **Parmelia Gas Pipeline Access Arrangement Review (Client: the Independent Gas Pipelines Access Regulator, WA, 1999-2000)** - Provided economic advice to the Office of the Independent Regulator during its assessment of the regulated charges and other terms and conditions of access for the gas pipeline, including a review of all parts of the draft and final decisions, with particular focus on the sections addressing the cost of capital (and assessment of risk generally), asset valuation and financial modelling. Also provided strategic advice to the Independent Regulator on the draft and final decisions.

- **Victorian Gas Distribution Price Review (Client: the Office of the Regulator-General, Vic, 1998)** - Economic adviser to the Office of the Regulator-General during its assessment of the price caps and other terms and conditions of access for the three Victorian gas distributors. Major issues addressed included the valuation of assets for regulatory purposes, cost of capital financing and financial modelling. Principal author of the draft and final decision documents.

#### *Periodic and Other Price Reviews – Other Activities*

- **Input methodologies for NZ regulated businesses (Clients: Powerco NZ and Christchurch International Airport, 2009-ongoing)** – advising in relation to the Commerce Commission's development of input methodologies and related matters, covering issues associated with regulatory asset valuation, the regulatory cost of capital, the use of productivity trends in regulation and the design of incentive-compatible regulation.
- **Equity Betas for Regulated Electricity Transmission Activities (Client: Grid Australia, APIA, ENA, 2008)** - Prepared a report presenting empirical evidence on the equity betas for regulated Australian electricity transmission and distribution businesses for the AER's five yearly review of WACC parameters for these industries. The report demonstrated the implications of a number of different estimation techniques and the reliability of the resulting estimates. Also prepared a joint paper with the law firm, Gilbert+Tobin, providing an economic and legal interpretation of the relevant (unique) statutory guidance for the review.
- **Economic Principles for the Setting of Airside Charges (Client: Christchurch International Airport Limited, 2008-2009)** - Provided advice on a range of economic issues relating to its resetting of charges for airside services, including the valuation of assets and treatment of revaluations, certain inputs to the cost of capital (beta and the debt margin) and the efficiency of prices over time and the implications for the depreciation of assets and measured accounting profit.
- **Treatment of Inflation and Depreciation when Setting Landing Charges (Client: Virgin Blue, 2007-2008)** - Provided advice on Adelaide Airport's proposed approach for setting landing charges for Adelaide Airport, where a key issue was how it proposed to deal with inflation and the implications for the path of prices over time. The advice also addressed the different formulae that are available for deriving an annual revenue requirement and the requirements for the different formulae to be applied consistently.
- **Application of the Grid Investment Test to the Auckland 400kV Upgrade (Client: Electricity Commission of New Zealand, 2006)** - As part of a team, undertook a review of the Commission's process for reviewing Transpower's proposed Auckland 400kV upgrade project and undertook a peer review of the Commission's application of the Grid Investment Test.
- **Appropriate Treatment of Taxation when Measuring Regulatory Profit (Client: Powerco New Zealand, 2005-2006)** - Prepared two statements for Powerco New Zealand related to how the Commerce Commission should treat taxation when measuring realised and projected regulatory profit for its gas distribution business (measured regulatory profit, in turn, was a key input into the Commission's advice to the Minister as to whether there would be net benefits from regulating Powerco New Zealand's gas distribution business). A key finding was that care must be taken to ensure that the inputs used when calculating taxation expenses are consistent with the other 'assumptions' that a regulator adopts if it applies incentive regulation (most notably, a need for consistency between assumed tax depreciation and the regulatory asset value).
- **Application of Directlink for Regulated Status (Client: Directlink, 2003-2004)** - Prepared advice on the economic issues associated with the Directlink Joint Venture's request to be converted from an unregulated (entrepreneurial) interconnector to a regulated interconnector. As with the Murraylink application, the key issues included the implications for economic efficiency flowing from its application and the appropriate application of a cost benefit test for

transmission investment (and the implications of that test for the setting of the regulatory value for its asset).

- **Principles for the 'Stranding' of Assets by Regulators (Client: the Independent Pricing and Regulatory Tribunal, NSW, 2005)** - Prepared a report discussing the relevant economic principles for a regulator in deciding whether to 'strand' assets for regulatory purposes (that is, to deny any further return on assets that are partially or unutilised). An important conclusion of the advice is that the benefits of stranding need to be assessed with reference to how future decisions of the regulated entities are affected by the policy (i.e. future investment and pricing decisions), and that the uncertainty created from 'stranding' creates real costs.
- **Principles for Determining Regulatory Depreciation Allowances (Client: the Independent Pricing and Regulatory Tribunal, NSW, 2003)** - Prepared a report discussing the relevant economic and other principles for determining depreciation for the purpose of price regulation, and its application to electricity distribution. An important issue addressed was the distinction between accounting and regulatory (economic) objectives for depreciation.
- **Methodology for Updating the Regulatory Value of Electricity Transmission Assets (Client: the Australian Competition and Consumer Commission, 2003)** - Prepared a report assessing the relative merits of two options for updating the regulatory value of electricity transmission assets at a price review - which are to reset the value at the estimated 'depreciated optimised replacement cost' value, or to take the previous regulatory value and deduct depreciation and add the capital expenditure undertaken during the intervening period (the 'rolling-forward' method). This paper was commissioned as part of the ACCC's review of its Draft Statement of Regulatory Principles for electricity transmission regulation.
- **Application of Murraylink for Regulated Status (Client: Murraylink Transmission Company, 2003)** - Prepared advice on the economic issues associated with Murraylink Transmission Company's request to be converted from an unregulated (entrepreneurial) interconnector to a regulated interconnector. The key issues included the implications for economic efficiency flowing from its application and the appropriate application of a cost benefit test for transmission investment (and the implications of that test for the setting of the regulatory value for its asset).
- **Proxy Beta for Regulated Gas Transmission Activities (Client: the Australian Competition and Consumer Commission, 2002)** - Prepared a report presenting the available empirical evidence on the 'beta' (which is a measure of risk) of regulated gas transmission activities. This evidence included beta estimates for listed firms in Australia, as well as those from the United States, Canada and the United Kingdom. The report also included a discussion of empirical issues associated with estimating betas, and issues to be considered when using such estimates as an input into setting regulated charges.
- **Treatment of Working Capital when setting Regulated Charges (Client: the Australian Competition and Consumer Commission, 2002)** - Prepared a report assessing whether it would be appropriate to include an explicit (additional) allowance in the benchmark revenue requirement in respect of working capital when setting regulated charges.
- **Pricing Principles for the South West Pipeline (Client: Esso Australia, 2001)** - As part of a team, prepared a report (which was submitted to the Australian Competition and Consumer Commission) describing the pricing principles that should apply to the South West Pipeline (this pipeline was a new asset, linking the existing system to a new storage facility and additional gas producers).
- **Relevance of 'September 11' for the Risk Free Rate (Client: the Australian Competition and Consumer Commission, 2001)** - Prepared a report assessing the relevance (if any) of the events of September 11 for the proxy 'risk free rate' that is included in the Capital Asset

Pricing Model (this is a model, drawn from finance theory, for estimating the required return for a particular asset).

- **Victorian Government Review of Water Prices (Client: the Department of Natural Resources and the Environment, Vic, 2000-2001)** - Prepared a report discussing the principles regulators use to determine the capital related cost (including reasonable profit) associated with providing utility services, and how those principles would apply to the water industry in particular. The report also provided an estimate of the cost of capital (and assessment of risk in general) associated with providing water services. The findings of the report were presented to a forum of representatives of the Victorian water industry.
- **Likely Regulatory Outcome for the Price for Using a Port (Client: MIM, 2000)** - Provided advice on the outcome that could be expected were the dispute over the price for the use of a major port to be resolved by an economic regulator. The main issue of contention was the valuation of the port assets (for regulatory purposes) given that the installed infrastructure was excess to requirements, and the mine had a short remaining life.
- **Relevance of 'Asymmetric Events' in the Setting of Regulated Charges (Client: TransGrid, 1999)** - In conjunction with William M Mercer, prepared a report (which was submitted to the Australian Competition and Consumer Commission) discussing the relevance of downside (asymmetric) events when setting regulated charges, and quantifying the expected cost of those events.

#### **Licencing / Franchise Bidding**

- **Competitive Tender for Gas Distribution and Retail in Tasmania (Client: the Office of the Tasmanian Energy Regulator, 2001-2002)** - Economic adviser to the Office during its continuing oversight of the use of a competitive tender process to select a gas distributor/retailer for Tasmania, and simultaneously to set the regulated charges for an initial period. The main issues concern how the tender rules, process and future regulatory framework should be designed to maximise the scope for 'competition for the market' to discipline the price and service offerings. Principal author of a number of sections of a consultation paper, and the regulator's first decision document.
- **Issuing of a Licence for Powercor Australia to Distribute Electricity in the Docklands (Client: the Office of the Regulator General, Vic, 1999)** - Economic adviser to the Office during its assessment of whether a second distribution licence should be awarded for electricity distribution in the Docklands area (a distribution licence for the area was already held by CitiPower, and at that time, no area in the state had multiple licensees). The main issue concerned the scope for using 'competition for the market' to discipline the price and service offerings for an activity that would be a monopoly once the assets were installed. Contributed to a consultation paper, and was principal author of the draft and final decision documents.

#### **Market Design**

- **Options for the Development of the Australian Gas Wholesale Market (Client: the Ministerial Committee on Energy, 2005)** - As part of a team, assessed the relative merits of various options for enhancing the operation of the Australian gas wholesale markets, including by further dissemination of information (through the creation of bulletin boards) and the management of retailer imbalances and creation of price transparency (by creating short term trading markets for gas).
- **Review of the Victorian Gas Market (Client: the Australian Gas Users Group, 2000-2001)** - As part of a team, reviewed the merits (or otherwise) of the Victorian gas market. The main issues of contention included the costs associated with operating a centralised market

compared to the potential benefits, and the potential long term cost associated with having a non commercial system operator.

- **Development of the Market and System Operation Rules for the Victorian Gas Market (Client: Gas and Fuel Corporation, 1996)** - Assisted with the design of the 'market rules' for the Victorian gas market. The objective of the market rules was to create a spot market for trading in gas during a particular day, and to use that market to facilitate the efficient operation of the system.

## **Development of Regulatory Frameworks**

- **Implications of greenhouse policy for the electricity and gas regulatory frameworks (Client: the Australian Energy Market Commission, 2008-2009)** – Provided advice to the AEMC in its review of whether changes to the electricity and gas regulatory frameworks is warranted in light of the proposed introduction of a carbon permit trading scheme and an expanded renewables obligation. Issues addressed include the framework for electricity connections, the efficiency of the management of congestion and locational signals for generators and the appropriate specification of a cost benefit test for transmission upgrades in light of the two policy initiatives.
- **Application of a 'total factor productivity' form of regulation (Client: the Victorian Department of Primary Industries, 2008)** - Assisted the Department to develop a proposed amendment to the regulatory regime for electricity regulation to permit (but not mandate) a total factor productivity approach to setting price caps – that is, to reset prices to cost at the start of the new regulatory period and to use total factor productivity as an input to set the rate of change in prices over the period.
- **Expert Panel on Energy Access Pricing (Client: Ministerial Council on Energy, 2005 2006)** - Assisted the Expert Panel in its review of the appropriate scope for commonality of access pricing regulation across the electricity and gas, transmission and distribution sectors. The report recommended best practice approaches to the appropriate forms of regulation, the principles to guide the development of detailed regulatory rules and regulatory assessments, the procedures for the conduct of regulatory reviews and information gathering powers.
- **Productivity Commission Review of Airport Pricing (Client: Virgin Blue, 2006)** - Prepared two reports for Virgin Blue for submission to the Commission's review, addressing the economic interpretation of the review principles, asset valuation, required rates of return for airports and the efficiency effects of airport charges and presented the findings to a public forum.
- **AEMC Review of the Rules for Setting Transmission Prices (Client: Transmission Network Owners, 2005-2006)** - Advised a coalition comprising all of the major electricity transmission network owners during the new Australian Energy Market Commission's review of the rules under which transmission prices are determined. Prepared advice on a number of issues and assisted the owners to draft their submissions to the AEMC's various papers.
- **Advice on Energy Policy Reform Issues (Client: Victorian Department of Infrastructure/Primary Industries, 2003-ongoing)** - Ongoing advice to the Department regarding on issues relating to national energy market reform. Key areas covered include: reform of cross ownership rules for the energy sector; the reform of the cost benefit test for electricity transmission investments; and the reform of the gas access arrangements (in particular, the scope for introducing more light handed forms of regulation); and the transition of the Victorian electricity transmission arrangements and gas market into the national regulatory regime.
- **Productivity Commission Review of the National Gas Code (Client: BHPBilliton, 2003-2004)** - Produced two submissions to the review, with the important issues including the

appropriate form of regulation for the monopoly gas transmission assets (including the role of incentive regulation), the requirement for ring fencing arrangements, and the presentation of evidence on the impact of regulation on the industry since the introduction of the Code. The evidence presented included a detailed empirical study of the evidence provided by the market values of regulated entities for the question of whether regulators are setting prices that are too low.

- **Framework for the Regulation of Service Quality (Client: Western Power, 2002)** - Prepared two reports advising on the framework for the regulation of product and service quality for electricity distribution, with a particular focus on the use of economic incentives to optimise quality and the implications for the coordination of service regulation coordinated with distribution tariff regulation.
- **Development of the National Third Party Access Code for Natural Gas Pipeline Systems Code (Client: commenced while a Commonwealth Public Servant, after 1996 the Commonwealth Government, 1994-1997)** - Was involved in the development of the Gas Code (which is the legal framework for the economic regulation of gas transmission and distribution systems) from the time of the agreement between governments to implement access regulation, through to the signing of the intergovernmental agreements and the passage of the relevant legislation by the State and Commonwealth parliaments. Major issues of contention included the overall form of regulation to apply to the infrastructure (including the principles and processes for establishing whether an asset should be regulated), pricing principles (including the valuation of assets for regulatory purposes and the use of incentive regulation), ring fencing arrangements between monopoly and potentially contestable activities, and the disclosure of information. Was the principal author of numerous issues papers for the various government and industry working groups, public discussion papers, and sections of the Gas Code.

#### Other Finance Work

- **Private Port Development (Client: Major Australian Bank, 2008)** - Prepared a report on the relative merits of different governance and financing arrangements for a proposed major port development that would serve multiple port users.
- **Review of Capital Structure (Client: major Victorian water entity, 2003)** - Prepared a report (for the Board) advising on the optimal capital structure for a particular Victorian water entity. The report advised on the practical implications of the theory on optimal capital structure, presented benchmarking results for comparable entities, and presented the results of detailed modelling of the risk implications of different capital structures. Important issues for the exercise were the implications of continued government ownership and the impending economic regulation by the Victorian Essential Services Commission for the choice of – and transition to – the optimal capital structure.

#### Expert Witness Roles

- **Victorian gas market pricing dispute – dispute resolution panel (Client: VENCORP, 2008)** – Prepared a report and was cross examined in relation to the operation of the Victorian gas market in the presence of supply outages.
- **Consultation on Major Airport Capital Expenditure – Judicial Review (Client: Christchurch International Airport, 2008)** - Prepared an affidavit for a judicial review on whether the airport consulted appropriately on its proposed terminal development. Addressed the rationale, from the point of view of economics, of separating the decision of ‘what to build’ from the question of ‘how to price’ in relation to new infrastructure.



- **New Zealand Commerce Commission Draft Decision on Gas Distribution Charges (Client: Powerco, 2007-2008)** - Prepared an expert statement about the valuation of assets for regulatory purposes, with a focus on the treatment of revaluation gains, and a memorandum about the treatment of taxation for regulatory purposes and appeared before the Commerce Commission.
- **Sydney Airport Domestic Landing Change Arbitration (Client: Virgin Blue, 2007)** - Prepared two expert reports on the economic issues associated with the structure of landing charges (note: the evidence was filed, but the parties reached agreement before the case was heard).
- **New Zealand Commerce Commission Gas Price Control Decision – Judicial Review (Client: Powerco, 2006)** - Provided four affidavits on the regulatory economic issues associated with the calculation of the allowance for taxation for a regulatory purpose, addressing in particular the need for consistency in assumptions across different regulatory calculations.
- **Victorian Electricity Distribution Price Review – Appeal to the ESC Appeal Panel: Service Incentive Risk (Client: the Essential Services Commission, Vic, 2005-2006)** - Prepared expert evidence on the workings of the ESC's service incentive scheme and the question of whether the scheme was likely to deliver a windfall gain or loss to the distributors (note: the evidence was filed, but the appellant withdrew this ground of appeal prior to the case being heard).
- **Victorian Electricity Distribution Price Review – Appeal to the ESC Appeal Panel: Price Rebalancing (Client: the Essential Services Commission, Vic, 2005-2006)** - Prepared expert evidence on the workings of the ESC's tariff basket form of price control, with a particular focus on the ability of the electricity distributors to rebalance prices and the financial effect of the introduction of 'time of use' prices in this context (note: the evidence was filed, but the appellant withdrew this ground of appeal prior to the case being heard).
- **New Zealand Commerce Commission Review of Information Provision and Asset Valuation (Client: Powerco New Zealand, 2005)** - Appeared before the Commerce Commission for Powerco New Zealand on several matters related to the appropriate measurement of profit for regulatory purposes related to its electricity distribution business, most notably the treatment of taxation in the context of an incentive regulation regime.
- **Duke Gas Pipeline (Qld) Access Arrangement Review – Appeal to the Australian Competition Tribunal (Client: the Australia Competition and Consumer Commission, 2002)** - Prepared expert evidence on the question of whether concerns of economic efficiency are relevant to the non price terms and conditions of access (note: the evidence was not filed as the appellant withdrew its evidence prior to the case being heard).
- **Victorian Electricity Distribution Price Review – Appeal to the ORG Appeal Panel: Rural Risk (Client: the Office of the Regulator General, Vic, 2000)** - Provided expert evidence (written and oral) to the ORG Appeal Panel on the question of whether the distribution of electricity in the predominantly rural areas carried greater risk than the distribution of electricity in the predominantly urban areas.
- **Victorian Electricity Distribution Price Review – Appeal to the ORG Appeal Panel: Inflation Risk (Client: the Office of the Regulator General, Vic, 2000)** - Provided expert evidence (written and oral) to the ORG Appeal Panel on the implications of inflation risk for the cost of capital associated with the distribution activities.
- **Major Coal Producers and Ports Corporation of Queensland Access Negotiation (Client: Pacific Coal, 1999)** - Provided advice to the coal producers on the outcome that could be expected were the dispute over the price for the use of a major port to be resolved by an economic regulator. The main issues of contention were the valuation of the assets for

regulatory purposes, whether the original users of the port should be given credit for the share of the infrastructure they financed, and the cost of capital (and assessment of risk generally). Presented the findings to a negotiation session between the parties.