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re: **Cost Benefit Analysis of Smart Metering and Direct Load Control  
Phase 1 Report**  
date: 1 November 2007

Dear Sir/Madam,

Thank you for the opportunity to provide comments on the above report. I would like to commend the project team on producing a very well thought out and comprehensive report in a punishingly short timeframe.

The following comments are referenced to the appropriate section or functionality heading in the Overview Report.

**Functionality 10: Power Factor Measurement (Page 76)**

The report makes the statement "The network workstream concluded that maximum demand based (kVA) tariffs were unlikely to be introduced for residential and small commercial customers." This is indeed true. It is therefore surprising to see that power factor (hereinafter referred to as reactive measurement) is recommended as a minimum functionality for three-phase meters, although the team did make the correct decision in deleting it for single-phase meters.

Firstly a correction to the above statement from the report is required, and it is an assumption that permeates the rest of the document. Maximum demand tariffs do not equate to kVA tariffs. Maximum demand tariffs are more commonly based on active kW measurement. There are, in fact, very few jurisdictions in the world that bill customers on the basis of kVA. That one of those jurisdictions is NSW perhaps goes some way towards explaining the misunderstanding.

In Victoria, for example, and most other jurisdictions around the world, maximum demand tariffs are based upon kW. The reason for this is that kW is a fundamental unit of measure for which traceability can be established to primary national and international standards. This is essential for any trade measurement system. Unfortunately, kVA is not a fundamental unit of measure and there are several different ways of calculating it, which can lead to varying customer bills under some circumstances.



The project team should consult further with the National Measurements Institute on this matter, who will almost certainly advise against using kVA as a billable unit in trade measurement. I also understand that the national electricity market is settled wholly on the basis of active-only kWh readings.

Secondly, the report indicates that small customers will probably not be billed on the basis of reactive measurement, and are unlikely to have the knowledge or wherewithal to do anything about it even if they were. This is correct. Yet, this whole smart metering project is targeted at small customers; those with consumption below 160MWh per annum. The customers for whom reactive measurement is useful, and who are in a position to do something useful about it, are large industrial/commercial customers with consumption above 160MWh pa. These customers are already fitted with a Type 1 – 4 meter with reactive measurement, and are outside the scope of this project. (In theory, these customers should not be billed on reactive measurement either, however they can be encouraged to keep their power factor within accepted limits through other means.)

The report states (page 130) that there is a need to measure power factor to support existing tariff arrangements, however this is incorrect. Only a tiny fraction of customers in the below 160MWh pa category have tariffs that involve reactive measurement.

Today, the vast majority of three-phase customers below 160MWh pa are fitted with active-only meters. These are usually one rate and sometimes two rate accumulation meters, very occasionally with maximum demand which is mostly measured in kW. There are many hundreds of thousands of simple three-phase meters in this category, fitted to houses, shops, offices and small businesses of all types. To move this very large group of customers to reactive metering is a fairly courageous step, for which the benefits would seem to be negligible.

The costs, on the other hand, may be significant. The report states that the cost of reactive metering is small, however this is difficult to accept as it requires double the amount of data to be measured, transmitted, processed and stored; and the price of reactive three-phase meters today is significantly above that of active-only meters.

#### **Functionality 20: Meter Loss of Supply Detection and Outage Alarm (regular ping) (Page 109)**

This function is somewhat problematic, as its success or otherwise is heavily dependent upon the communications system in use.

The writer had some experience of a system that offered this functionality some years ago, based upon regular pinging of every customer every 36 seconds. As a means of determining supply outages it was nearly useless.



The reason it didn't work was that it wasn't possible to determine whether a reported outage was due to a communications problem in a particular area, or a genuine supply outage. In most cases it was the former. It was not possible to dispatch field crews to the area on the basis of the reported information without wasting a lot of time and resources.

In order for this functionality to be useful, the system needs to have rock-solid communications reliability, and be checking all end points very rapidly and frequently (every few seconds). There are few systems available today that can do this.

### **Functionality 21: Customer Supply Monitoring (Page 113)**

The report's conclusions in relation to customer supply monitoring are correct. This technology is unproven and exists only as a theoretical concept at the present time. The costs are therefore extremely uncertain, and the timeframe to implement it will be long. The development cycle involves a significant amount of design work, laboratory testing and field testing just to determine if the concept actually works, and there is a high probability that it won't. It would be unwise to mandate such an unknown quantity at this point in time.

### **9.5 Standards and Interoperability (Page 114)**

The report correctly canvases the various standardisation options available at the present time. Whilst agreeing wholeheartedly that standardisation is a desirable and necessary goal, in our view it would be a mistake at this point in time to mandate the European, US or a potential new Australian protocol. It is just too early in the maturity cycle of AM systems to be able to make this call. This means that the first generation of AM systems in Australia will mostly be based on proprietary protocols; however, on the positive side, this means that they can be delivered on time and will operate as expected. Any further decisions on protocols can be deferred until the second generation of AM systems.

An attempt to standardise protocols today would have rather too high a probability of being inconsistent with overseas activity in the longer term, and this could be disastrous for the industry. It would also delay the start of any rollout by at least a year, if not more, as most manufacturers would need to convert their systems to a new protocol. In the case of a new, as yet undeveloped Australian protocol, the delay would be more like five years, based on many previous experiences of similar standardisation processes.



Please do not hesitate to contact the undersigned if you need any further clarification or information.

Yours sincerely

A handwritten signature in black ink, appearing to read "Rob Colson".

Rob Colson  
Managing Director