29 October 2007

Manager, MCE Secretariat
Department of Industry, Tourism and Resources
GPO Box 9839
Canberra ACT 2601

Dear Sir

Consultation on Phase 1 of the Smart Meters Cost Benefit Analysis

Integral Energy is pleased to be given the opportunity to comment on Phase 1 of the Smart Meters Cost Benefit Analysis. Integral considers it essential that a rigorous analysis of the costs and benefits associated with interval meters be undertaken prior to consideration of any large scale meter rollout that would impact on millions of electricity customers.

Integral notes that Phase 1 of the Cost Benefit Analysis is intended to answer the question "*What functionalities should be included in a minimum national functionality for a rollout of smart meters?*" and as such this submission provides Integral Energy's response to this question.

Integral Energy notes, however, that Phase 2 of the Cost Benefit Analysis is designed to assess the costs and benefits of the core functionalities themselves. Integral Energy will provide its views on these matters during the separate consultation process for Phase 2. In recognition of the invitation by NERA to comment on the key assumptions underpinning Phase 2, however, Integral Energy has also provided comments on these key assumptions where appropriate. In particular, Integral Energy strongly supports a "distributor led" scenario for any large scale meter rollout.

When considering the significant impacts of a large scale meter rollout, Integral has concerns over the timeframe provided to analyse the Phase 1 report, particularly given the concurrent consultation with an information request from the MCE Smart Meter Working Group ("SMWG"). Integral does not consider that a consultation period of less than a month to review and analyse approximately 1,000 pages of consultants' reports and detailed spreadsheets is sufficient to provide comprehensive comments on this important matter.

To ensure an appropriate level of consultation is undertaken on Phase 1 of the smart meter cost benefit analysis, Integral suggests that the SMWG reconsider their timeframe in light of the significant amount of research being undertaken by distributors in the area of smart metering and customer response to prices. This would allow the working group to benefit from this research in order to make a more informed decision on a smart meter rollout.

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Integral's research in this area includes a trial of over 4,000 advanced meters, a 900 customer trial of dynamic peak and seasonal time of use tariffs, and air conditioner and pool pump cycling as part of our Solar Cities program.

Integral therefore recommends that any decision on a rollout of meters and on the final functionality of those meters based on the estimates and assumptions made by the consultants be compared with the outcomes of distributor trials. This approach will allow confirmation of whether there are benefits to be obtained from features such as power factor measurements or reading of gas and water meters.

Any decision on a potential meter rollout should also include a phased and conservative implementation in order to provide time for existing trials to be completed, the final standards and functionality to be confirmed and time for suppliers to develop (and adequately test) interoperable products. Such an approach will greatly increase the success of any rollout.

The following sections address the issues of meter functionality and issues relating to the key assumptions underpinning Phase 2.

Functionality

Integral supports the inclusion of the following features in a meter rollout as identified by NERA in Table E.1 of the Overview Report:

Item No.	*Functionality*
9	Daily Remote Reading
10	Three-phase power factor measurement;
11	Import/export metering;
12	Remote connect and disconnect;
13	Supply capacity control;
14	Control of load through a dedicated control circuit;
19	Quality of supply measurement;
20	Meter loss of supply detection;
25	Remote configuration;
26	Remote software upgrades; and
29	"Plug and play" commissioning.

Integral wishes to provide comment on a number of areas that should be considered as part of any decision by the SMWG relating to meter functionality.

<u>Single Phase Power Factor Measurement</u>
Integral is concerned that single-phase power factor measurement (item no. 10) is not included in the functionality. Correction of power factor is a means of increasing capacity in the network without any ongoing behavioural change by the customer. However, to date the ability to identify power factor issues on the low voltage network and to enforce service rules has been severely limited by the inability to measure power factor without the installation of additional expensive meters.

Further, with advances in "intelligrid" technology, it is not inconceivable that in the future meters could communicate directly with capacitor banks to automatically correct power factor.

Power factor is already available in many single-phase meters, and so the incremental cost should be negligible. Further, it is not necessary to continuously communicate such information, but rather to have the ability to measure power factor on demand. This would therefore only require minimal data traffic flow increase.

The inclusion of power factor would therefore only have a negligible cost impact, but could have significant potential benefits in the future.

Interoperability

In terms of the functionalities that are still under consideration, Integral would like to express strong support for interoperability of technologies (items no. 23 and 24) to avoid the significant economic, logistic, supply security and technology risks associated with rolling out technology that is proprietary to one vendor.

It is Integral's (and other distributors') experience that the available technology is not yet robust and there is currently no interoperability. Time will be required for suppliers to come up with interoperable products, with at least a year required to trial these technologies in small scale, and a year to trial the technologies in significant scale. Interoperability presents a significant risk to the success of any rollout.

Interoperability does not necessitate a mandate of a standard defined by a committee, but rather that any system must have at least three independent (in terms of ownership) vendors of components (i.e. meters and concentrators) and that the standards must be made available to others. This leaves the design of standards in the hands of the market rather than a committee but also ensures security of supply and competition in meter manufacturing.

Any such open standard could then evolve to find an efficient means into the home. This may or may not (probably not) be through the meter, however, if an open standard signal could be broadcast on high price events then the market could innovate to find solutions to allow appliances to respond.

In addition, the cost benefit analysis should include a requirement for interoperability which will give a clear signal to the metering market that they need to work together to come up with interoperable solution.

Water Conservation Benefits

Integral also suggests that the cost benefit analysis consider the potential water conservation benefits of interface with interval metering (item no. 18). Interval metering - even if only used on an infrequent basis - could potentially identify any leaking water mains or appliances. This feature would need to be balanced against the technical difficulties associated with transmitting data from water to electricity meters. It would, however, be appropriate for suitable trials to be undertaken prior to a meter rollout, as once the meters are rolled out the opportunity to address water conservation issues may be lost.

For similar reasons, the decision on whether to interface load control devices to the meter should be postponed until trials of this option are tested.

Daily Reading Service Levels

While Integral supports the concept of collecting meter data daily (item no. 9), Integral does not support the performance level of all data from 99% of meters being required by 4am and 99.9% of meters within 24 hours after midnight.

Such a performance level far exceeds what is possible in the very costly type 1-4 meter market and is likely to impose considerable costs on the market which will eventually be passed through to consumers.

Discussions with the consultants during the data collection phase were on the basis that there was a perfect communication medium, as the costs of the communication medium were to be considered in phase 2, and therefore all data was available shortly after midnight.

However, it is Integral's experience - based on our advanced metering trial of 4,000 meters - that in reality there are often communication failures over the backhaul system. In order to meet a 4am deadline, a significant nightshift staff would be required to address these failures. Similarly, the national market validation rules require validation prior to delivery of data which would necessitate a further, significant level of office-based nightshift staffing in order to process the validation failures by 4am.

It is not apparent that customers would require, or be willing to pay for, this level of service.

Issues for consideration in Phase 2

A key issue for consideration of Phase 2 of the Cost Benefit Analysis relates to whether any rollout would be led by retailers or distributors.

Retailer versus Distributor led rollout

Integral would like to again express concern over the concept of a retailer led rollout, rather than the distributor led rollout originally proposed by the MCE[1]. Significant benefits would not be available under a retailer led rollout, nor would the potential benefits associated with "intelligrid" applications.

It is Integral's contention that the costs of rolling out meters will increase in retailer led scenarios relative to distributor led scenarios due to:

- Loss of economies of scale;
- Inability to use the lowest cost technologies which require complete penetration;
- Increase in risk of premature asset replacement (i.e. asset stranding) that must be built into the analysis; and
- Higher levels of meter churn. Note that if there is effective competition in metering services under a retailer led rollout, then meters will be churning. When estimating the cost of meter churn to customers in the phase 2 review, consistency is required between assumptions around meter churn in an effectively competitive metering market compared with assumptions regarding how effective full retail contestability is in a given jurisdiction.

In addition to these direct costs, there are likely to be additional costs associated with the significant additional complexity that would need to be built into the market to

[1] "Having regard to the benefits of scale and scope economies, as well as the efficiency and logistic complexity of a roll-out of smart meters, the responsibility for roll-out should fall on a single party in each geographical area. This single party should be each distribution network service provider within its own network area." Smart Meters Information Paper, MCE January 2007.

manage processes around a secondary metering market interfacing with the primary energy market. This additional processes would include:

- Additional B2B processes;
- Increased complexity in the quoting process in order to manage quoting for metering services for small customers (retailers would need to identify what metering is at the site, who the current meter provider is, what rates they would provide - which probably differs by meter type, number of phases, rural vs. urban etc, whether they should use another provider and if so arrange for such a quote);
- Increased complexity in settlements and reconciliation (retailers will also need to pay not only NEMMCO and the LNSP but also a range of meter providers for all their small sites); and
- Increased complexity in transfers (if retailers go with a different meter provider they will need to change the meter for small sites).

Integral considers that when all relevant costs are considered, customers would face lower costs under a distributor led rollout compared with one led by retailers.

If you have any questions regarding any of the above matters please do not hesitate to contact Steve Lette, Manager Metering Information, on 0418 237 651.

Yours sincerely

R. Powis

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