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Department of Resources, Energy and Tourism
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**Cost Benefit Analysis of Smart
Metering and Direct Load Control**

Dear Sarea,

Any reasonable and impartial assessment of the structure and merits of a Distributor-led versus a Retailer-led rollout of smart meters could only conclude that the costs & benefits between the two scenarios are substantively the same.

It simply defies logic that the cost of smart meters could be substantially more and the benefits substantially less under a Retailer-led rollout than a Distributor-led rollout. Both scenarios require smart metering technologies conforming to the same minimum functional specifications and performance levels, delivering the same services, to the same customers, implemented in the same timeframes across the same locations.

So how is it that the cost of implementing smart metering infrastructure is assessed as being up to \$1.6 billion more if left to Retailers? And how can the conclusion be drawn that “potential distribution business efficiencies ... are greatest for ... (a Distributor-led rollout) and are likely to be lower in ... (a Retailer-led rollout)”¹

¹ Cost Benefit Analysis of Smart Metering and Direct Load Control, Overview Report for Consultation, Nera Economic Consulting, 29 February 2008 – page 190

According to NERA Economic Consulting the costs differed between the scenarios due to:

- differences in the assumed communications infrastructure considered by EMCa to be appropriate to support each scenario;
- differences in the non-communications infrastructure, eg, the number of meter data management systems required; and
- differences in meter costs between scenarios.²

It is reasonable to test the extremities of the costs and benefits in order to determine the sensitivities in the overall net position and what factors policy makers might need to consider.

But it is not reasonable to apply assumptions without discussing the source and reasoning behind the assumptions.

Nor is it reasonable to ignore current market practices that demonstrate a contrary position to the assumptions.

Nor is it reasonable to suggest that assumptions apply only to one scenario or the other scenario, without qualifying that the assumptions can apply equally to all scenarios.

NERA Economic Consulting states that “the consideration of scenarios in the analysis is not intended to inform a view as to the relative merits of one scenario over another. Rather, the results provide some insight into what the costs and benefits might be in particular circumstances (such as the competitive provision of metering), which allows for different views as to the validity of those circumstances to then be considered. It also allows for the consideration of how well alternative rollout scenarios may meet the objectives set out by the MCE as well as the risks and policy implications of alternative approaches.”³

But these words belie the assumptions in the consultants’ reports, which strongly imply that the assumptions are absolute and that Distributors are more capable of implementing smart meters than Retailers.

This is without foundation.

It is worth noting that nearly all smart meters operating in the National Electricity Market today, for both large and small sites, have been deployed by Retailers – acting as the Responsible Person and engaging competitive Metering Providers – and not Distributors.

There are very few smart meters where Distributors act as the Responsible Person.

Retailers and the accredited Metering Providers engaged by them are far more experienced at deploying and operating smart meters than Australia’s Distribution businesses.

A simple fact that can be easily confirmed by requesting NEMMCO to identify the number of Type 3 & 4 metering installations in the National Electricity Market, at small and large sites, and how many instances Distributors and Retailers are the Responsible Person.

² Ibid. – page xiv (Executive Summary)

³ Ibid. – page 20

NERA Economic Consulting states that “we have not been asked to analyse in detail the feasibility of competition in the meter data management and meter provider markets.”⁴

How then can any of the assumptions applied by the consultants be taken seriously?

The assumptions – particularly those in the EMCa and CRA reports – create a false, unbalanced and misleading impression about the merits and shortcomings of each the scenarios with the potential to misinform the Ministerial Council on Energy (MCE).

Attachment One identifies the key assumptions and cost and service implications (in blue), between the Distributor-led and Retailer-led rollout scenarios, contained in the consultants’ reports, and our response to those assumptions and scenario implications (in red).

NERA Economic Consulting report that “the results of CRA’s analysis of potential distribution business efficiencies shows that these are greatest for ...(the distributor-led rollout) and are likely to be lower”⁵ for a Retailer-led rollout.

This assessment forms the basis upon which NERA Economic Consulting ranks the second MCE objective (**driving efficiency and innovation in electricity business operations, including improving price signals for efficient investment and contracting**) as a ‘2’ for the Retailer-led rollout and a ‘1’ for the Distributor-led rollout.

The ranking of the third objective (**promoting the long-term interest of electricity consumers with regard to the price, quality, security and reliability of electricity**) “is equal to the ranking under the ...(second) objective, which was the driving of business efficiency gains.”⁶

Of concern is CRA’s own assessment “that the benefits of a Retailer-led rollout are substantially the same for a Distributor led rollout”.⁷ The reduced benefits that CRA speculate under a Retailer-led rollout are – in terms of value – insignificant. Moreover, the basis upon which CRA argues that the benefits would be reduced under a Retailer-led rollout are highly suspect – being based on Distributor claims that they are “unenthusiastic” about using third party services and would not have direct access or control of meter functions. This is clearly an ambit claim by Distributors intent on forcing a Distributor-led rollout and should never have been included in CRA’s report – certainly not without qualification.

It would seem reasonable for the consultants to have taken a far more balanced approach in presenting the scenarios so that the MCE is presented with all the available facts and views – particularly as the MCE is relying on the findings to help inform a policy directive.

A balanced view of the facts holds that the rankings of a Retailer-led and Distributor-led rollout would be the same.

⁴ Ibid. – page 41

⁵ Ibid. – page 190

⁶ Ibid. – page 191

⁷ Cost Benefit Analysis of Smart Metering and Direct Load Control, Network Benefits & Recurrent Costs, CRA International, 27 February 2008 – page 66

**Table 17.1
Assessment of Rollout Scenarios Against MCE Required Objectives:
Relative Ranking of Scenarios (Excluding Functionalities 15 and 16)**

MCE Objectives	Scenario 1 Distributor-led smart meter rollout	Scenario 2 Retailer-led smart meter rollout	Scenario 3 Non smart meter DLC rollout	Scenario 4 Retailer-led smart meter rollout with centralised communications
Reducing peak demand ¹	2	2	1	2
Efficiency and innovation in electricity business operations	1	1	-	2
Promoting the long-term interests of electricity consumers	1	1	3	2
Promoting retail competition	1	1	-	1
Enabling consumers to better manage energy use and greenhouse gas emissions	1	1	-	1
Managing distributional price impacts for vulnerable customers	2	2	1	2
Promoting energy efficiency and greenhouse benefits	1	1	2	1
Providing a platform for other demand side response measures and avoiding discrimination against technologies	1	1	2	1

¹ Note that the smart meter scenarios would be ranked ahead of the non-smart meter DLC rollout where an interface with a HAN is included in the smart meter specification.

Attachment Two presents key assumptions for a Base Scenario, upon which a more balanced cost and benefits position can be derived, and key sensitivities that might be expected between the Distributor-led and Retailer-led rollout scenarios.

What is immediately apparent in examining Attachment Two is the amount of information (in red) that has been omitted from the consultants’ reports. Information that is vital to the MCE decision-making process.

What is also apparent from Attachment Two is that there is very little to suggest that, in pure financial terms, the costs and benefits would necessarily differ between the scenarios. While the mechanisms to achieve an outcome might differ (that is, contract versus regulation) the underlying costs and benefits would be the same.

The sensitivities do establish, however, that service quality and innovation would differ markedly between the scenarios.

EMCa assumes that under a Distributor-led rollout each “smart meter has integrated communications so that in the event that communications systems change the entire meter would need to be replaced – however, EMCa has concluded that it would be unlikely that distributors would choose to churn the communications system over the period of the assessment, given that they would also have built the communications infrastructure.

Therefore there is no churn in meters or communications included in EMCa's cost estimates for"⁸ a Distributor-led rollout.

This is a profound statement.

EMCa assumes that under a Distributor-led rollout of smart meters there will be no meter churn for the "period of the assessment" – locking the market into a technology solution for up to twenty-years with no opportunity to take advantage of new and evolving technologies.

This is one assumption with which we completely agree.

Monopoly based infrastructure deployment and operation – as envisaged under a Distributor-led rollout – is, by necessity, fully regulated and it is difficult to see how research and development into new technologies and innovations can be regulated so that an on-going element of product and service improvement can effectively encouraged.

This is in contrast to the Retailer-led rollout where EMCa assumes that "meters would be installed with separate communications, rather than being integrated ...(to provide) maximum interoperability between meters and communication modems ...(so that retailers can) offer meter upgrades to customers as part of their competitive strategy."⁹ EMCa also assumes that "a refresh of the modems is likely during the period of the cost benefit assessment as retailers are likely to want to take advantage of developments in communications systems over the twenty year assessment period."¹⁰

"Retailers may see commercial advantages in relation to new communications technologies which are not applicable to distributors and hence communications systems are more likely to be churned under"¹¹ a Retailer-led rollout than a Distributor-led rollout.

The implication is very clear.

Retailers will want to take advantage of new and evolving technologies so that they can upgrade meters "as part of their competitive strategies" but they will be prevented from doing so under a Distributor-led rollout.

A Retailer-led rollout, in which accredited Metering Providers and Metering Data Agents continue to compete against one another, encourages and stimulates service quality and innovation.

This raises a fundamental question that has never been properly addressed in this or any other study – Is some level of meter churn desirable? That is, do we want to encourage product and service innovation or don't we?

If the answer is 'no' then smart meters should be rolled out as geographic monopolies with no form of metering services competition. Such monopolies could be Distributor or franchise based – it doesn't really matter.

We strongly argue, however, that meter churn is a necessary and vital component of the market.

⁸ Cost Benefit Analysis of Smart Metering and Direct Load Control, Overview Report for Consultation, Nera Economic Consulting, 29 February 2008 – page 39

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid. – page 39 (footnote 79)

Monopoly based metering services will very clearly diminish service and product innovation – constraining retail competition. But an effective rate of meter churn is a sign of a healthy and vibrant retail market.

Meter churn occurs for only two reasons:

1. A connection point is abolished and the metering is no longer required, which will occur in any scenario; or
2. A meter upgrade is required to enable a new retail product or service.

While a meter might be churned at transfer – it is not a natural consequence of a transfer.

All the smart meters that Metropolis has replaced to facilitate a transfer have been meter upgrades due to outdated meters and communications (over ten years old). But Metropolis has yet to have a single meter churned despite the fact that dozens of connection points – where Metropolis owns and operates residential smart meters – have transferred between Retailers.

Retailers do not automatically churn meters at transfer. It is not in their interests to do so. Retailers will only churn a meter to access better services or lower prices – which is good for them and their customers.

The purpose of the cost and benefits analysis, as we understand it, was to:

1. determine whether there is a net positive cost-benefit for a smart meter mandate in any or all jurisdictions; and
2. examine whether there are any impacts to the costs and benefits under various roll-out scenarios.

Neither objective has been adequately achieved. The assumptions are too extreme and no proper examination has been undertaken to determine the strengths and weaknesses inherent in any scenario.

The consultants have concluded only one thing – that by forcing infrastructure costs down at the outset, at the expense of any technological innovation over 20 years, there is a net-positive business case.

But is this the type of market that ultimately benefits consumers? Particularly given that technological innovations are driving costs down anyway – something the consultants have neglected to examine.

We believe that a more balanced approach is required in the way assumptions underpin each of the scenarios to determine:

- if the case for a national or jurisdictional rollout is clearly demonstrable; and
- to identify and discuss key sensitivities that might influence the outcome under any of the scenarios so that a proper regulatory response might be considered.

It is also time to examine meter churn in detail – what it is and isn't and whether it is desirable or not. We must turn our attention to considering the consequences of a market that allows no meter churn at all.

Such an examination is vital to ensuring the best outcome for consumers.

Yours sincerely,

Marco Bogaers
Managing Director

Attachment One: Cost/Benefits Analysis - Summary of Key Assumptions

Category	Distributor-led Rollout	Retailer-led Rollout	Cost & Service Implications	Response
Economies of Scale	Responses from meter vendors indicate that costs per meter are unlikely to fall considerably for volumes above 250,000 units. Retailers supplying most Australian consumers are comfortably of this size and EMCa estimates that there are no material differences in costs among the smart metering scenarios.		No cost or service implication between scenarios.	
Density	There is a good contractor market for installing meters and EMCa’s assessment is that there is no material difference in installation cost by scenario.		No cost or service implication between scenarios.	
	In urban areas the communications infrastructure would be: <ul style="list-style-type: none"> ▪ mesh-radio for a coverage of 97 per cent; with ▪ GPRS infilling the remaining 3 per cent 	In urban areas the communications infrastructure would be: <ul style="list-style-type: none"> ▪ mesh-radio for a coverage of 80 per cent; with ▪ GPRS infilling the remaining 20 per cent 	The cost of a meter with GPRS is estimated by EMCa to be around \$100 more than a meter with radio-mesh resulting in additional costs of around \$150-\$200 million under a retailer-led rollout.	<p>In a competitive market, density implications drive technical innovation aimed at eliminating the use of data concentrators and reducing capital and operational costs for point-to-point communications.</p> <p>Point-to-point meshing technologies are now available that allow between five to fifteen meters to share a single GPRS (or 3G) modem at a cost less than concentrator based mesh-radio solutions – with the addition of a Home Area Network (HAN) at no extra cost.</p> <p>Point-to-point solutions allow any retailer – through any accredited Metering Data Agent – to communicate directly with any meter for which it is responsible. As such, Metropolis Metering Assets is today deploying such solutions to residential (so called “small”) sites with the “contractual certainty from the retailers sufficient to underwrite rolling out such a system”.</p>

Category	Distributor-led Rollout	Retailer-led Rollout	Cost & Service Implications	Response
Meter Churn	EMCa has not included any difference among the scenarios in meter costs arising from churn.		No cost or service implication between scenarios.	
Interoperability	Smart meters with integrated communications to reduce hardware costs as Distributors would choose not to churn meters or communications over the period of the assessment.	<p>Smart meters with separate communications to maximise interoperability between meters and communication modems.</p> <p>This provides Retailers with flexibility to take advantage of evolving technologies and ability to offer meter upgrades to customers as part of their competitive strategy “such that where a customer changed retailer they would be able to also change either the meter, the modem, both or neither...or to retain the existing meter (having reached a commercial agreement with the previous retailer to utilise the meter) but change the communications modem in order to utilise the new retailer’s communications network.”.</p> <p>“Retailers are likely to want to take advantage of developments in communications systems over the twenty year assessment period (and) ...having a separate modem reduces the costs as the meter itself does not need to be replaced.”</p>	The cost of a meter with a separate modem is estimated by EMCa to be around \$20 to \$45 higher than the cost of a meter with an integrated modem resulting in additional costs of \$250-\$300 million under a retailer-led rollout.	<p>It is not reasonable to conclude that the choice of communications technologies and system architectures will differ between the scenarios such that negative cost and benefit assumptions apply only to one scenario while not the other. The choice of available technologies applies equally to both scenarios.</p> <p>The Distributor-led rollout assumptions:</p> <ul style="list-style-type: none"> ▪ come at the cost of innovation and advancement in delivery of further services; and. ▪ locks the market into a solution-suite chosen at the onset of the rollout for 15+ years without change. <p>This conflicts with the rankings in table 17.1 (page 189 of the NERA report) which says a Distributor-led rollout would lead to greater “efficiency and innovation in electricity business operations” and better promote “the long-term interests of electricity consumers” than a Retailer-led rollout.</p> <p>It is absurd to suggest that a <i>either</i> a modem or a meter might be changed – which implies that there would be two Metering Providers for a connection point – one for the modem and one for the meter. This is very unlikely to happen in practise.</p> <p>The consultants do not discuss the use of open (or even standard) protocols to enable interoperability between deployed meters – regardless of what communications medium is used – and data collection and transactional management systems so that any MDP can communicate with any meter to which it is assigned.</p> <p>Open protocols negate the need to replace modems (comm. modules) at the meter, which is simply another form of churn.</p>

Category	Distributor-led Rollout	Retailer-led Rollout	Cost & Service Implications	Response
		Retailers themselves may not have an incentive to install meters with separate communication modems, as providing such interoperability has implications for the extent of retail competition.	Retailers, or their Metering Provider, would deliberately install meters that are not interoperable to hinder the transfer of customers.	<p>It is not reasonable to assume that parties would choose to adopt practises that are clearly not in their own commercial interests.</p> <p>Why would Retailers, or their appointed Metering Providers, deliberately install non-interoperable smart meters that invite meter churn and drive up their own service charges to accommodate the risk?</p> <p>This assumption would not create a barrier to customer transfers – it would create a situation in which meters would be guaranteed to churn.</p> <p>Adopting this approach requires the Metering Provider to charge the Retailer more in service fees to off-set the churn risk.</p> <p>As such, it is not in the Retailers’ or Metering Providers’ interests to do this – particularly given that more commercially orientated Metering Providers (read: Metropolis) will be waiting to offer lower prices to replace those meters.</p>
Comm.’s Technologies	In rural and remote areas the communications technology is assumed to be power line carrier (PLC)	Communications technology is assumed to be GPRS in rural areas and PSTN in remote areas.	Assumes higher annual operational costs under a retailer-led rollout.	<p>It is not reasonable to assume that parties would choose to adopt practises that are clearly not in their own commercial interests.</p> <p>Why wouldn’t a Distributor make its distribution network available for DLC and/or PLC, in a competitive market, under the right commercial terms?</p> <p>Assuming that PLC is a viable communications technology there is no reason to assume that a third party could not enter into a commercial arrangement with a distributor to utilise its network and cover the cost of deployment and ongoing operation.</p> <p>Late in 2007 the distributor hosting the Victorian PLC trial concluded that the PLC system would materially impact the quality of supply to many customers beyond regulatory limits for harmonics and/or voltage flicker.</p> <p>PLC is a very low-bandwidth communications mechanism and may not support the minimum functional specifications.</p> <p>Given the uncertainty regarding the effectiveness of PLC it would seem prudent to err on the side of caution and assume GPRS/PSTN for both scenarios in this analysis.</p> <p>PSTN (as described by EMCa) is not an acceptable option as it does not deliver the minimum functional specifications.</p> <p>It must be accepted that a minimum number of remote sites may not be suitable for remote communications in any form. Metropolis is prepared to commit – as a minimum – to deliver smart meters to all permanent residences for which it is contracted.</p>

Category	Distributor-led Rollout	Retailer-led Rollout	Cost & Service Implications	Response
Distributor-Initiated Transactions: <ul style="list-style-type: none"> quality of supply load management outage detection 	Quality of supply data can be communicated directly to distribution operations.	Quality of supply data would need to go through the 'transactions manager' business-to-business (B2B) hub to provide this information to the distributors	Diminishes the services and benefits available to Distributors.	<p>Quality of supply data (including events, sags/swells, etc.) is collected daily by Centurion and can be delivered to each distributor on a daily basis with metering data.</p> <p>Centurion offers a direct access portal to Distributors for network diagnostic purposes.</p>
	Distributors with ripple control will retire their systems to use smart metering load control.	<p>Distributors with ripple control will not retire their systems to use smart metering load control.</p> <p>"It seems that Distributors would not be enthusiastic to have load control available through a third party MDA and would prefer to include load control as part of their own systems."</p>	Suggests higher ongoing costs for distributors under a retailer-led rollout (although this is not quantified) and therefore a reduction in benefits.	<p>This is clearly an <i>ambit</i> claim by Distributors intent on forcing a Distributor-led rollout and should never have been included in CRAs report – certainly not without qualification.</p> <p>Ripple control systems are deployed across NSW and Queensland and have already been paid for – so whether or not those Distributors choose to retire those systems is inconsequential to the cost of deploying and utilising smart meters and the benefits would be delivered regardless.</p> <p>Ripple control devices are separate to the meter – it is arguable that leaving those devices in place will (marginally) reduce installation costs in those states anyway.</p> <p>Whether the Distributors like it or not – smart meters make ripple control redundant.</p> <p>Centurion offers a direct access portal to Distributors for load control purposes.</p>
	Distributors are intending to implement smart grid systems to monitor and control a range of distribution network equipment such as distribution transformers, line switches, reclosures, etc. would utilise smart metering load control.	<p>Distributors intending to implement smart grid systems to monitor and control a range of distribution network equipment such as distribution transformers, line switches, reclosures, etc. would not utilise smart metering load control.</p> <p>"It seems that Distributors would not be enthusiastic to have load control available through a third party MDA and would prefer to include load control as part of their own systems."</p>	Suggests higher ongoing costs for distributors under a retailer-led rollout (although this is not quantified) and therefore a reduction in benefits.	<p>This is clearly an <i>ambit</i> claim by Distributors intent on forcing a Distributor-led rollout and should never have been included in CRAs report – certainly not without qualification.</p> <p>The functionality of smart grid systems and smart meters operate quite independently. A smart grid system still needs to remotely monitor and control network assets, switches, etc. for planned and unplanned outage management purposes, regardless of whether smart meters are deployed or have load control capabilities at the connection point.</p>

Category	Distributor-led Rollout	Retailer-led Rollout	Cost & Service Implications	Response
	<p>Outage data always available because the location of data concentrators and meters on the first hop can be selected to pick up key locations on LV networks.</p>	<p>Outage data not always available because:</p> <ul style="list-style-type: none"> ▪ MDAs will have most incentive to locate concentrators and first hop meters to maintain mesh integrity, rather than picking up key points on the electrical network; and ▪ For rural and remote customers, 75% of PSTN lines share the customer's phone line such that the meter would call the NMS daily using a toll free number – but the NMS cannot call the meter to obtain outage information. 	<p>Although under a Retailer-led rollout smart metering systems could provide outage detection services, it seems less likely that Distributors would receive the full benefits that would be realised under a Distributor-led rollout.</p>	<p>It is not confirmed that PLC supports outage notification. Point-to-point and point-to-point mesh solutions support both 'last gasp' and 'ping' outage notification options.</p>
<p>Retailer-Initiated Transactions:</p> <ul style="list-style-type: none"> ▪ Special reads ▪ Remote connections ▪ Product reconfiguration ▪ Time switch settings ▪ In-home display communications ▪ Data verification ▪ Outages ▪ Quality of supply 	<p>“It is also assumed that retail businesses would communicate with meters via existing or enhanced B2B transactions and the level of investment required to manage these transactions would be the same across all scenarios.”</p> <p>It is not possible for retailers to initiate transactions directly with meters and bypass the transaction hub because:</p> <ol style="list-style-type: none"> 1. the additional complexities of ensuring that retailers are communicating with (and thereby controlling) only those connection points for which they are the responsible suggests that communications should be through the transaction hub; and 2. Distributors have responsibility for physical supply and associated health and safety matters, so need to be able to manage this in such a way that it is not dependent on the actions of retailers. 	<p>Suggests that under either scenario retailers would need to utilise a transaction hub (B2B Hub) to initiate transactions at the meter.</p>	<p>The assumption that only one party (either the Distributor or the Retailer) can communicate directly with the meter and the other must utilise a “transaction hub” is noteworthy only because the consultants assume that Distributor benefits will be diminished if it is not the party controlling the communications.</p> <p>It is not explained:</p> <ol style="list-style-type: none"> 1. how a “transaction hub” better ensures that retailers are communicating (and thereby controlling) only those meters for which they are responsible; nor 2. why Distributors would be “dependent on the actions of retailers” if retailers could initiate transactions directly with the meter. <p>It is not reasonable to assume that Distributor ‘benefits’ would be diminished under a Retailer-led rollout because smart meters functions could not be utilised directly, without acknowledging that Retailer ‘benefits’ would be equally diminished under a Distributor-led rollout.</p> <p>Retailers also benefit from performing functions in real time rather than relying on a transaction hub. Transactions include - special reads, remote connections, product reconfigurations, time switch settings, in home display communications, etc.</p> <p>The argument goes both ways if it is assumed (incorrectly!) that only one party can have direct access and control of a smart meter’s functions.</p> <p>However, technologies easily allow for both Retailers and Distributors to directly access smart meters without the need for a transaction hub.</p> <p>Something that third party Metering Providers and Metering Data Agents currently deliver!</p> <p>Centurion allows both Distributors and Retailers to bypass the transaction hub and communicate directly with individual or groups of smart meters owned and operated by any accredited Metering Provider.</p> <p>Centurion currently provides remote disconnect/reconnect services to Retailers bypassing the existing transaction hub.</p>	

Category	Distributor-led Rollout	Retailer-led Rollout	Cost & Service Implications	Response
Role Tracking		<p>With ever changing responsibilities for metering services, Distributors will need to keep track of which metering services provider serves which connection point.</p> <p>Any errors in the data could lead to:</p> <ol style="list-style-type: none"> 1. no load control signals reaching the customer's meter and the customer then not having hot water; and 2. no interrogation of meters to obtain outage or quality of supply information. 	Suggests that a retailer-led rollout is more complex for Distributors and will diminish Distributor benefits.	<p>Contradicts EMCa cost estimates for “enhancements to the market gateway to manage the increase in frequency and volume of market transactions that are both of an existing format (or schema) and new format.”</p> <p>It is not reasonable to propose assumptions that ignore known market practises.</p> <p>MSATS tracks all market role changes and provides all participants with updated role changes and is the database of record for role assignments. Distributors are required – and currently – synchronise their systems against MSATS change request notifications at all times.</p> <p>Distributors currently use it to track thousands of transfers between Retailers each day so that network charges are properly applied. MSATS is also used to track changes in Metering Providers and Metering Data Agents across the National Electricity Market.</p> <p>Why assume that under a Retailer-led rollout Distributors would not be able to keep track of role changes when it is something they are required to do on a daily basis right now?</p> <p>This assumption suggests that Distributors do not conform with NEMMCO's MSATS/CATS Procedures and are currently incapable of keeping track of transfers/role changes at sites for network billing purposes.</p> <p>Centurion & Metropolis maintain all participant relationships in their respective databases and restricts direct access to meter functions to the current Retailer and Distributor at each connection point.</p>

Category	Distributor-led Rollout	Retailer-led Rollout	Implication	What's Not Said
Meter Data Management	<p>Approximately the same number of Meter Data Management service providers will exist under a Distributor-led national smart meter rollout as exist today on the basis that the overwhelming majority of Distributors will continue to in-house this service.</p> <p>There are currently sixteen accredited Metering Data Providers in the NEM, but some operations are managed jointly – for example Powercor/Citipower and Alinta/UED.</p> <p>EMCa estimates the cost of a Meter Data Management System to be between \$9 million to \$12 million per MDP and that there will be nine “large” MDCP businesses in the NEM, aligned to the largest Distributors.</p>	<p>Retail businesses will mimic current competitive strategies in managing MDP’s and maintain multiple providers.</p> <p>Retailers and Distributors will rely on the Metering Data Providers to undertake data collection, validation and substitution activities – only implementing Meter Data Warehouse Solutions to store validated data.</p> <p>“This is estimated to cost relatively less than a full MDMS”.</p> <p>EMCa estimates the cost of a Meter Data Management System to be between \$9 million to \$12 million per MDP and that there will be only 6 MDPs in the NEM.</p>	<p>On these assumptions alone the Retailer-led rollout would cost \$30-\$40 million less.</p>	<p>Of the “sixteen accredited Metering Data Providers in the NEM” today – one (Centurion) is independent and not aligned with any Distributor. As the overwhelming majority of Distributors will continue to in-house this service under a Distributor-led Rollout – Centurion will be out of business!</p> <p>It is an accreditation requirement that Metering Data Providers maintain all interval data for a period of seven years. A well designed data store is also required to facilitate data validation, substitution and estimation processes, which rely on historical data.</p> <p>As such, the availability of a secure data store (with DRP) is included in the cost of the MDP Meter Data Management Systems – saving the market approximately \$100 million in unnecessary infrastructure duplication.</p> <p>Centurion offers Distributors and Retailers data aggregation services to negate the need to invest in:</p> <ul style="list-style-type: none"> ▪ large volume data-warehouses; and ▪ billing and trading systems upgrades to aggregate interval values.
	Distributors and Retailers will each implement Meter Data Warehouses to hold and access validated metering data.		Duplication of information management systems under either scenario.	
Distributor System Enhancements	Estimated, by EMCa, to cost between \$6.5 million to \$11 million per Distribution Business.	Estimated, by EMCa, to cost between \$15 million to \$26 million per Distribution Business.	EMCa report that Distributor Systems Costs will be \$43-\$65 million higher under a Retailer-led rollout than a Distributor-led rollout.	<p>No explanation is given for the assumed increase in Distributor systems costs under a Retailer-led rollout.</p> <p>In fact, this assumption contradicts the Meter Data Management assumptions above.</p>
Economic Regulation				The cost of economic regulation has not been considered.
Economic Compensation				The cost of economic compensation to existing service providers has not been considered.

Attachment Two: Cost/Benefits Analysis – A more balanced appraisal would conclude.....

Category	Base Scenario	Sensitivity Analysis		Cost & Service Implications
		Distributor-led Rollout	Retailer-led Rollout	
Economies of Scale	Meter and communication hardware costs are unlikely to fall considerably for volumes above 250,000 units.			No cost or service implication between scenarios.
Density	There is a good contractor market for installing meters and there is no material difference in installation cost by scenario.			No cost or service implication between scenarios.
	In urban areas the communications infrastructure will be: <ul style="list-style-type: none"> ▪ mesh-radio for a coverage of 90 per cent; with ▪ GPRS infilling the remaining 10 per cent 	Greater densities may allow Distributors to optimise usage of data concentrators in urban areas, perhaps allowing: <ul style="list-style-type: none"> ▪ mesh-radio for a coverage of 97 per cent; with ▪ GPRS infilling the remaining 3 per cent. 	As Retail customers are dispersed, lower densities will diminish the optimisation of data concentrators in urban areas, requiring: <ul style="list-style-type: none"> ▪ mesh-radio for a coverage of 80 per cent; with ▪ GPRS infilling the remaining 20 per cent. 	Use of data concentrator communications solutions will come at a marginally higher capital cost per connection point under a Retailer-led rollout than a Distributor-led rollout. <p>However, it is to be noted that the cost implications of using data concentrators with lower customer densities is driving technical innovation by competitive Metering Providers aimed at eliminating the use of data concentrators and reducing capital and operational costs for point-to-point communications.</p> <p>Point-to-point meshing technologies are now available that allow between five to fifteen meters to share a single GPRS (or 3G) modem at a cost less than concentrator based mesh-radio solutions – with the addition of a Home Area Network (HAN) at no extra cost.</p>
Rural & Remote Comm.'s Technologies	In rural and remote areas the communications technology is assumed to be either GPRS, 3G/NextG or a suitable alternative based on current coverage maps for each state. It is assumed that 100% smart meter deployment is not possible in any jurisdiction as the cost to communicate with remote outliers using PSTN or satellite is cost prohibitive.			No cost or service implication between scenarios.
Integrated Comm.'s	Smart meters would be implemented with integrated communications where those technologies readily allow for integration and with a separate communications module that plugs into the bottom of a meter, under the terminal cover, where that is the most appropriate option. The range of pricing for meters with and without a ZigBee interface to a HAN, is explored.			No cost or service implication between scenarios.

Category	Base Scenario	Sensitivity Analysis		Cost & Service Implications
		Distributor-led Rollout	Retailer-led Rollout	
Connection Point Abolishment	Approximately x%-y% of the installed smart meter base will be removed each year due to connection point abolishment.			No cost or service implication between scenarios.
Meter Churn (Product & Service Innovation)		In order to achieve the lowest possible hardware costs, regulations might be introduced preventing Distributors (and other parties) from replacing meters and communication equipment before the end of the useful life.	In order to achieve the lowest possible hardware costs, regulations might be introduced preventing Retailers (and other parties) from replacing meters and communication equipment before the end of the useful life.	In either scenario this comes at the cost of technical innovation and advancement in delivery of further services; locking the market into a solution-suite chosen at the onset of the rollout for the extent of the useful life estimate (say 15+ years) without change. Australia would lose the opportunity to mature smart metering technologies and services for the world market; and would lose the opportunity to take advantage of overseas developments.
	Smart metering is in its infancy and will continue to rapidly evolve. Research and development will continue to be undertaken metering manufacturers and communications network providers working with accredited Metering Providers who are competing against one another to make sales and increase market share. Approximately x%-y% of the installed smart meter base will be replaced each year to accommodate new and evolving technologies.	It is difficult to see how research and development into new technologies and innovations can be effectively regulated so that an element of 'product & service improvement' can be effectively 'encouraged'. Regulated price controls tend to stymie Distributor initiatives forcing suppliers (metering manufacturers) to fund the cost of development with no certainty that costs are recoverable by achieving an adequate level of sales. Distributors do not conduct research and development projects themselves. It is difficult to envisage metering suppliers striving to make further product and service improvements once Distributors have made initial purchasing decisions. As such, it is estimated that none of installed smart meter base would be replaced to accommodate new and evolving technologies.	Smart meters represents one of the most effective tools by which a Retailer can differentiate its products and services. The need for Retailers to maintain competitive advantage by its nature drives research and innovation, such that any Metering Provider cannot become complacent once it has affixed a smart meter at a connection point. New Retailers, in particular, can – and do – enter the market at anytime – and they are not beholden to the contractual terms and conditions upon which smart metering services may have been previously provided. As such, smart meters are always subject to the risk of being churned if they do not meet the expectations of the market. In this environment, metering manufacturers, communications network providers and accredited Metering Providers will continue to fund research and development, improving the quality of smart metering products and reducing service charges, with the aim of encouraging new sales. New Metering Providers, unencumbered by the legacy purchasing decisions made by their competitors at the onset of the rollout, are free to enter the market at any time – offering lower charges to Retailers, increased functionality, improved performance levels, and more services. New connections offer an immediate point at which new Metering Providers can enter the market, in readiness for any 'incumbent' smart Metering Provider to falter on its contractual terms.	The evolution of smart metering technologies will stagnate under a Distributor-led rollout, because Distributors are limited to regulated cost recovery. The opportunities, and incentive, to purchase 'improved' technologies will be limited – discouraging further investment in product research and development by vendors/suppliers. Australia would lose the opportunity to mature smart metering technologies and services for the world market; and would lose the opportunity to take advantage of overseas developments. Alternatively, the evolution of smart metering technologies will flourish under a Retailer-led rollout as incumbents anticipate and drive innovation or risk losing market share.

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			<p>This provides Retailers with flexibility to take advantage of evolving technologies and ability to offer meter upgrades to customers as part of their competitive strategy.</p> <p>“Retailers are likely to want to take advantage of developments in communications systems over the twenty year assessment period (and) ...having a separate modem reduces the costs as the meter itself does not need to be replaced.”</p> <p>Approximately x%-y% of the installed smart meter base would be replaced each year to accommodate new and evolving technologies.</p>	
Meter Churn (Transfers/ Interoperability)	Smart meters will remain in-situ as customers switch between retailers and transfers will occur immediately the MSATS objection period ends on each transfer request notification.	<p>Distributors will act as both Metering Provider and Metering Data Agent within their respective network areas, implementing turn-key solutions between backend Metering Data Management Systems and the deployed metering and communications infrastructure.</p> <p>As there is no competition for either Meter Provision or Meter Data Management services, Retailers will be required to use the services of the incumbent Distribution business ensuring that smart meters remain in-situ.</p>	<p>Retailers will engage Metering Providers on a competitive basis to deploy smart meters.</p> <p>Metering Providers will pursue contractual relationships with all Retailers in the market to protect the deployed meter asset base from churn.</p> <p>Retailers will choose to use the existing smart meter at a site to facilitate prompt and efficient transfers – using its prerogative to churn a meter only if the incumbent Metering Provider does not offer acceptable contractual terms or consistently fails to meet agreed service levels and performance standards.</p> <p>Retailers will require that Metering Providers grant any accredited Metering Data Agent with security access and control over any meter to which it is assigned. This requires that open (or even standard) protocols must be provided by meter manufacturers to enable interoperability between deployed meters – regardless of what communications medium is used – and the data collection and transactional management systems of accredited Metering Data Agents..</p> <p>Competition is freely open to Metering Data Providers with the system capabilities to communicate with any meter to which it is assigned using the open communications protocols – negating the need to replace meters or modems (comm. modules) to affect competition.</p> <p>Retailers will have the incentive to ensure interoperability of the meters deployed to preserve access to the best available metering services charges (which would otherwise increase for those Retailers that insist on meters that are not interoperable as those meters would be more likely to churn).</p>	No cost or service implication between scenarios.
Meter Churn (Useful Life)	The useful life of a smart meter and communications modules is estimated as x-y years when the hardware must be replaced.			No cost or service implication between scenarios.

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Role Tracking	<p>MSATS provides all participants with updated role changes and is the database of record for role assignments.</p> <p>Neither Distributors nor Retailers require system changes to receive and process role nominations as this is an existing requirement of the MSATS:CATS Procedures managed by NEMMCO.</p>			No cost or service implication between scenarios.
Meter Data Management	<p>Approximately the same number of Meter Data Management service providers will exist under a Distributor-led national smart meter rollout as exist today on the basis that the overwhelming majority of Distributors will continue to in-house this service.</p> <p>There are currently sixteen accredited Metering Data Providers in the NEM, but some operations are managed jointly – for example Powercor/Citipower and Alinta/UED.</p> <p>Interval data from smart meters will be collected and provided to market participants as per National Electricity Rule requirements on a daily basis.</p> <p>Quality of supply data, such as events codes, alarms, voltage indicators, etc. to provided to distribution operations on a daily basis.</p> <p>Connection point outages reported to distribution operations as they occur. Incorporated with SCADA diagnostic tools to determine likely cause and isolation requirements.</p>	EMCa estimates the cost of a Meter Data Management System to be between \$9 million to \$12 million per MDP and that there will be nine “large” MDCP businesses in the NEM, aligned to the largest Distributors.	<p>Retail businesses will mimic current competitive strategies in managing MDP’s and maintain multiple providers.</p> <p>EMCa estimates the cost of a Meter Data Management System to be between \$9 million to \$12 million per MDP and that there will be only 6 MDPs in the NEM.</p>	The Retailer-led rollout would cost \$30-\$40 million less.
	<p>It is an accreditation requirement that Metering Data Agents maintain all interval data for a period of seven years. A well designed data store is also required to facilitate data validation, substitution and estimation processes, which rely on historical data.</p> <p>As such, Meter Data Agents responsible for remote data collection and management will maintain Meter Data Warehouses to accommodate the secured data storage needs of both Distributors and Retailers, providing data aggregation and access facilities to negate the need to invest in:</p> <ul style="list-style-type: none"> ▪ large volume data-warehouses; and ▪ billing and trading systems upgrades to aggregate interval values. 	The cost of a Meter Data Warehouse is estimated to be between \$x million to \$y million per MDP and that there will be nine “large” MDA businesses in the NEM, aligned to the largest Distributors.	<p>Retailers and Distributors will rely on the Metering Data Providers to undertake data collection, validation and substitution activities – only implementing Meter Data Warehouse Solutions to store validated data.</p> <p>“This is estimated to cost relatively less than a full MDMS”.</p> <p>The cost of a Meter Data Warehouse is estimated to be between \$x million to \$y million per MDP and that there will be only 6 MDAs in the NEM.</p>	The Retailer-led rollout would cost \$x-\$y million less.

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Direct Transaction Initiation	<p>Retailers and Distributors can each initiate required transactions directly with a smart meter through web enabled transaction interfaces provided by each Metering data Agent for the connection points to which they are assigned.</p> <p>Retailer initiated transactions include:</p> <ul style="list-style-type: none"> ▪ Special reads; ▪ Remote connections; ▪ Product/meter reconfiguration; ▪ Time switch settings; ▪ In-home display communications; ▪ Data verification; ▪ Outage detection/verification; and ▪ Quality of supply. <p>Distributor initiated transactions include:</p> <ul style="list-style-type: none"> ▪ quality of supply diagnostics, ▪ direct load management; and ▪ outage detection. 	The cost of web enabled interfaces is estimated to be between \$x million to \$y million per MDA and that there will be nine “large” MDA businesses in the NEM, aligned to the largest Distributors.	The cost of web enabled interfaces is estimated to be between \$x million to \$y million per MDA and that there will be only 6 MDAs in the NEM.	The Retailer-led rollout would cost \$x-\$y million less.
Distributor System Enhancements	Estimated to cost between \$x million to \$y million per Distribution Business.			No cost or service implication between scenarios.
Retailer System Enhancements	Estimated to cost between \$x million to \$y million per Retail Business.			No cost or service implication between scenarios.
Economic Regulation	No cost of economic regulation.	<p>Smart metering service charges – including meter provisioning charges, meter data management charges and transaction charges – within each jurisdiction will need to be economically regulated by the Australian Energy Regulator.</p> <p>This would cost \$x million dollars per jurisdiction for each regulatory period (assumed to be five years).</p> <p>Additionally, each Distribution business would incur administration, legal and accounting costs of \$y million for each regulatory review.</p>		<p>Economic regulation will cost:</p> <ul style="list-style-type: none"> ▪ the AER between \$x-\$y million over 20 years; and ▪ each Distribution business between \$x-\$y million over 20 years.

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		As noted by the Victorian Essential Services Commission, economic regulation does not provide true price discovery or transparency with the risk that service charges will be set higher than might be set in a n unregulated market.		Service charges will be higher under economic regulation.
Economic Compensation	No compensation due to NEMMCO accredited Metering Services Providers currently operating in the NEM.	<p>Of the accredited Metering Providers operating in the NEM today, only Metropolis is independent of the Distributors.</p> <p>Metropolis has major contracts with Retailers to supply smart meters for both residential ('small') and commercial ('large') connection points.</p> <p>Metropolis is the Metering Provider for the Adelaide Solar City Project – contracted to own and operate over 5,000 residential smart meters in Adelaide.</p> <p>In fact, Metropolis owns and operates the largest portfolio of residential smart meters across the NEM.</p> <p>Only eight Metering Data Agents are accredited by NEMMCO to collect, validate and distribute smart metering data. Two of those – Centurion and Elect Data Services – are independent; but only Centurion manages data for residential ('small') smart meters.</p> <p>Under a Distributor-led rollout, Metropolis and Centurion will lose its key markets – ie. supplying metering services to Retailers – and will have to cease operations.</p>		Independent service providers will have to be compensated for loss of business – expected to be in the vicinity of \$x-\$y million per business.