Metropolis

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Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1255

**Framework for Open Access and Communication Standards Market Review**

Dear Mr Pierce,

This letter forms a submission by Metropolis Metering Services Pty Ltd (Metropolis) in regard to the AEMC's Market Review on a Framework for Open Access and Communications Standards[1] and we reference some terms contained therein[2].

Metropolis acknowledges the importance of open access, and the need to ensure that customers have access to the services that will make the deployment of smart meters effective for them.

The SCER has expressed a desire for an open access framework in order to support contestability in metering and services enabled by smart meters.

We need to be clear about how contestability of this type will be provided and by which agents in the market. It needs to be clear that if new market players are to be introduced, that their role is clear and that they provide an actual service, and are not a gatekeeper for services provided by others.

The AEMC states that "Our aim is to support commercial outcomes where possible"[3]. Metropolis contends that commercial outcomes are not only possible, but necessary

[1]http://www.aemc.gov.au/Media/docs/Draft-Report-c8711350-628b-4fbd-87fa-5fa92d4f8eb3-0.pdf.
[2]Ibid, p 39.
[3]Ibid p ii

for future smart metering deployments to be effective, both in the services that they provide, and in cost.

We request that the AEMC not make any standard or process compulsory to any party engaging in the provision or consumption of smart metering services.

Metropolis is by no means opposed to the development of standards, or an ongoing discussion around interoperability and open access. However, such developments need to be industry driven, and not made mandatory by regulation. Typically interoperability, where it makes sense in any market, is adopted naturally, without government intervention. What is most important is that customers and other parties can access new and cutting edge services as and when they can be delivered, without the need to wait for standards committees to incorporate these things into new standards.

## About Metropolis

Metropolis has been at the forefront of smart metering in Australia since 2003 when it started developing it's own smart metering systems and establishing a network of smart meters. It has extensive experience in the development and operation of smart meters, smart metering systems and in establishing relationships with market participants to provide value added smart metering services.

All of Metropolis' systems have been developed in house, including the meter reading head-end system, the MDP data collection and validation system, its own web portal for customers, retailers and other interested parties. All of its systems are meter manufacturer agnostic, and were developed using proprietary meter protocols. There is no requirement in our system anywhere that meter manufacturers conform to any standard. With our own in house software team, we can adapt our services to suit our suppliers and our customers.

Metropolis won an Innovation Award at the 2012 Smart Metering Australia and New Zealand Summit in Sydney[4] for it's Critical Peak Pricing system for the Adelaide Solar City project run by Origin Energy. This was the first commercial DSP project conducted in Australia, and was facilitated by innovative services developed by Metropolis and was very successful. It involved a combination of a colour touch screen in home display, and SMS, email and telephone broadcast alerts to notify customers of critical peak prices so they were able to adjust their usage to reduce energy costs.

## Current Market Structure

The first question that needs to be addressed is: what is the nature of the problem being solved here ?

Current market structure supports the deployment of residential Type 4 meters, (the only true smart meters currently in the market), and Metropolis has rolled out

[4] http://www.smartmeteringaustralia.com/awards.html

residential smart meters in Victoria (2007-2009), South Australia (2008-), NSW (2012-) and Queensland (2012-). Data read from these meters is delivered to market participants through the AEMO B2B hub, to customers via Metropolis' Dialogue portal, and to other authorised parties via NEM12 files. Additional remote services, such as disconnection, load control and programming, are provided to retailers and distributors via additional web portals for both individual and larger scale use. It is a small exercise in software development for us to provide an automated web services interface to deliver these enhanced services to retailers and distributors.

These enhanced services are in the market already, and have been delivered by Metropolis since it started operations in 2007.

## Regulation

In the scope of the review, a number of areas of proposed regulation are suggested:

- security
- types of access
- rights of access
- price of access

We believe that security is already dealt with. Existing privacy legislation already requires custodians of customer data to manage it securely. AEMO accreditation also requires and audits data security and physical security.

The types of services that are delivered through a smart metering platform will be market determined. At this stage, it would be foolish to prescribe services that must be provided, given the immaturity of the space. An attempt to standardise this would take a long time, and this delay would delay investments in smart metering, as the investors are likely to wait until the process was completed before committing their capital to any venture.

Rights of access to data need not be regulated. Currently, all interested parties can already gain access, namely, retailers, distributors and customers and no other parties should be gaining access. There may be a case for customers authorising third parties to access data, but there should be no implicit or explicit right for these third parties to automatically gain access. If a business will commercially gain from access to the data, and are authorised to access it, then they can reach a commercial agreement with the MDP who collected it.

Rights of access to services also need not be regulated. The way the market is likely to unfold is that MPs and MDPs will provide access portals or web service interfaces to relevant parties (ie customers, retailers and distributors) to access specific services of the meters. Where a commercial benefit exists for one of these parties to access such services, then these can be arranged via a commercial arrangement between the

entities. There is no need to regulate this access, and attempts to do so will lead to delays in rollouts, and increases in costs.

Prices must absolutely not be regulated. How will such a regulated price be determined ? Setting a regulated price undermines the goal of reducing prices for consumers, as there is then no incentive to do that. Simply ensure that there can be a vibrant competitive market, and let the market determine the pricing.

## Interoperability

The draft review describes interoperability as a spectrum between "not interoperable" and "interchangeable", where it describes degrees of access to physical meters. In doing so, it presupposes that parties can access the underlying network that provides access to these meters. It also presupposes that differing protocols render a device "not interoperable".

These are both flawed assumptions. Typically in a GPRS, 3G or 4G scenario, metering providers access their meters via private APNs, which entail certain security measures to protect the network from outside interference. It would be theoretically possible for multiple parties to access these secure networks, and have direct access to meters, but this is not necessarily the most sensible approach. It would be equally effective if the meter provider were able to provide an interface through which the meter could be contacted and configured. With a modern meter network, this interface can often provide these services in real time, as though the meter was being configured directly.

Similarly different protocols do not render a device "not interoperable". If access to the secure meter network is available, then as long as the protocols are available to the relevant parties, there is no impediment to reading them (once access passwords have been made available). If access is via the MP interface, then there will already be a protocol translation layer making the meter protocol itself irrelevant.

Over time, standards can be considered and supported, if industry decides that there is a benefit to it. And over time, as metering hardware becomes more flexible, then these standards can be supported. But it is not necessary to have these things to have interoperability.

There is currently a meter reading model in the marketplace where a meter vendor on sells its meter reading head-end as part of a package, and meter providers use the vendor specific package to read that vendor's meters. This is perhaps giving the market and regulators a false impression that there is an interoperability problem.

It is not necessary, however, for this to be the case - to have different software for each meter type - if metering protocols are published. Then it is about competition in software, where the best software solution can make a company more competitive. Metropolis, for example, has developed its own meter agnostic head-end in house. All that is needed are metering protocols and we can support any meter in the market.

## Access to Data

Access to data itself is not a major issue. Any smart meter deployed in Australia must comply with the market requirements which require daily collection and delivery to the FRMP, LNSP, LR and AEMO. This data transfer is facilitated by the B2B system managed by AEMO, and works effectively using the existing NEM12 format. Delivery to other parties can be easily facilitated where appropriate authorisation is given to third parties, and this activity is an can continue to be effectively managed by the relevant MDP that is holding the data after collection.

The MDP has invested much time and money in the development, operation and maintenance of the data collection systems, and currently recovers its costs through charges to the RP who has appointed the MDP to provide these services. In the event that third parties wish to access the data, then these parties can engage the MDP on a commercial basis to provide the data.

Customers at a site will typically get reasonable access to their interval data through web portals that are developed by the MDP, and these portals already exist and are used effectively by those consumers who wish to access this data.

There are significant issues of data security that arise when we talk of third party access to metering data. The data itself is quite sensitive, in that awareness of consumption patterns, can allow awareness of building occupancy, for example. In particular, it can be reasonably deduced when a building is vacant, which introduces a risk of break-ins and theft. As measurement becomes more sophisticated, then there is also the potential to deduce the kinds of appliances present at a property, which could be a privacy issue.

In order to manage the privacy issues, it is important that any web portal have strong controls on access to the customer. Furthermore we should be circumspect about providing any access to third parties, unless there is clear authorisation to do so.

## Distributor Access

One of the impediments to smart metering rollouts has been the desire of distributors to control the smart meter networks, so that they could enhance their own network management processes. In Victoria this led to a distributor mandated rollout, with the associated cost blowouts, delays, and difficult customer engagement.

There is no need for distributors to control metering rollouts for the metering networks to meet their needs. Mostly the distributor services required are related to targeted disconnections of supply at a connection point level, or measurements of network characteristics (voltage levels, frequency etc). There is no reason that a distributor cannot contract with a competitive metering services provider to meet those needs.

As long as appropriate mechanisms are in place, and good working relationships can be established between MP/MDP businesses and distributors, there is no reason that there cannot be contracted arrangements between parties to ensure that distributor

needs are met. Certainly Metropolis is very interested in provided smart metering services to distribution businesses, and is looking forward to establishing these relationships as the market matures.

Perhaps a more well-policed ring-fencing approach would also assist in ensuring there are no conflicts of interest between the distributor function and the metering function within the monopoly businesses.

## Communications Protocols

Metropolis is firmly of the view that no mandate of standard protocols should be considered. It is not a trivial matter for meter manufacturer to support a particular protocol, it must be implemented in the meter's firmware which consumes resources in these usually fairly limited platforms. Current meter suppliers have typically either operated with their own proprietary protocols or some standard protocols like DLMS or ANSI C12. To make meter suppliers all implement the same protocol would be a time consuming and costly exercise for the manufacturers, and introduce delays in the supply of products from some vendors. It would also unfairly disadvantage those manufacturers who were not already on those platforms.

What is important, and what will provide open access to meters will be vendors making their protocols available to the software vendors wishing to communicate with their meters. Once a head-end software developer has built their meter reading system, it is a relatively straightforward matter for it to be enhanced for new meter protocols. The companies that are operating in the market who wish to deploy new meter types, simply need to ensure that they are able to access updated versions of reading software. Once the major head-end software suppliers are supporting all the major meter vendors, their will be no impediment to companies gaining access to meters in the field. It will then be a commercial matter of gaining access to meter networking infrastructure and meter access passwords.

Furthermore, the current standard protocols in the marketplace, such as DLMS and ANSI C12 were designed many years ago for reading meters through a serial (RS232 or RS485) interface (eg through the optical port). Modern smart meter reading infrastructure operates in packet oriented networks such as IP (TCP or UDP), and the existing standards to not translate well to these environments. The protocols would need to be significantly reworked to be suitable in these contexts, assuming that is even feasible, particularly since they are international standards from either the ANSI or IEC.

In addition the overseas experience indicates that even if a standard is agreed upon, like DLMS, this is no guarantee of interoperability. The DLMS protocol is sufficiently configurable that different vendors can implement DLMS support differently, so that expensive customisation and integration will be necessary anyway.

What is significant also is that smart metering opens up many possibilities for enhanced functionality – the AEMC and SCER even state this as a goal for rolling out smart meters in the first place – and these new features will only be accessible if the

metering protocol allows them to be accessed. Manufacturers of innovative smart metering technology need the freedom to provide new protocols so that new features can be accessed in the future. Requiring adherence to outdated and cumbersome standards will only inhibit innovation in the metering hardware.

One of the reasons that competition is able to deliver better and cheaper outcomes for energy consumers, is that there is a degree of experimentation and innovation by industry in order to be the lowest cost, or highest service provider. Design and development of metering access protocols is an area where there is significant scope for such innovation. Where protocols are more efficient and effective, costs can be reduced. Where protocols are more feature rich, services can be enhanced. Without the ability for these protocols to be varied and enhanced, then these opportunities for innovation will be lost.

The efficiency of a meter protocol can have a significant impact on the cost. If the protocol consumes 1MB of data per day, this will be a much more expensive operation that if it consumes 1kB of data a day. DLMS/COSEM as an example is not an efficient protocol. Many of the vendor proprietary protocols are much more efficient. Therefore it can be of great benefit to allow the use of proprietary protocols where they are available and can be supported.

Furthermore, we don't believe it will be practical for third parties to access meters directly. We believe the more straightforward model is one where the MP who installs and maintains the meter controls the configuration of the meter (including access passwords, data stream configurations, communications setup etc). Ultimately it will be the MP who maintains the communications hardware on the meter as well, which modem/sim or meshing interface the meter has installed. The MDP who reads the meter will need access to read data and update configurations. These parties will be the ones who communicate directly with the meter. They can then provided services to third parties through software interfaces that they develop.

## Communications Architecture

Reference is made in the document to open access communications architectures, with a view to potentially standardising this for smart meters.

With current technology this is unwise. Communications technologies undergo regular revolutions, and what is currently best practice in smart metering may be old hat in five or ten years time. While it is important that the platforms are long lasting, it is equally important that there is no regulated or mandated architecture that might become archaic in the future.

Metropolis has over ten years experience with setting up and operating a smart metering network using third party communications providers.

For cost effectiveness, we must rely on third party communications providers (ie. commercial telecommunications providers) to build and maintain the networks. These networks will grow and improve over time, and eventually be replaced. We need to ensure that we are able to move to newer and better platforms as time and

technology progress. This needs to be a process that is not tied up in bureaucratic and administrative red tape due to the existence of a regulated standard.

## Smart Meter Provider

There is no need for a Smart Meter Provider role. In practice, existing parties will carry out all services that are facilitated by smart meters. It is likely that existing parties will need to acquire any associated SMP accreditation, which introduces an administrative burden on them, and it is very unlikely that unrelated parties will acquire any such accreditation.

Current market roles are reasonably reflective of actual activity. It must be noted that currently there are no companies that are just MDP. All MDPs are also MPs, and there is a reason for this.

Practically also, it is difficult to see how an SMP would be able to do its job independently of the MP. The draft review refers to the SMP being responsible for

> "managing security and congestion at the smart meter for access by multiple parties"[5]

There is no reason that this cannot be achieved by the existing accredited entities, and it is our clear view that there is little to be gained by introducing a new role.

One of the proposed roles of an SMP is to manage password access at a meter. It strikes me that MPs would be uncomfortable giving such control to a third party (Metropolis as an MP would definitely not be comfortable with this).

It needs to be acknowledged that the MP, who typically is the owner of the device, who is responsible for its operation, and must replace it when it fails, must be the ultimate arbiter of access. It makes little sense for a new entity, who has no financial interest in, or responsibility for the device to be able to determine who can access it, and what they can do with it. The virtual role of SMP, if it is deemed necessary at all, must be incorporated into the role of MP.

Regarding network congestions management, another proposed responsibility of the SMP, it is stated in the draft review:

> "A modern smart meter communication network is significantly more sophisticated than the communications for existing type 1 to 4 metering installations"[6]

This may be true of some Meter Providers, but is not true of Metropolis. Metropolis' smart meter network is currently used for both commercial and residential Type 1-4 metering installations, and has been since it commenced operations in 2007. This network is capable of supporting all the functions described as advanced smart metering functions, and more. Metropolis as a market accredited MP/MDP business is able currently to perform all the functions of MP and the proposed functions of SMP without any major modification to its systems and processes.

[5] Ibid p iii
[6] Ibid p 21

## Service Oriented Protocols

It would be potentially feasible for MPs and/or MDPs to provide or support some kind of standard automated interface to allow access to meter functions.

If such a service were to be provided as an extension to AEMO's B2B hub, then this hub would need to be updated to a more real time system. If AEMO can set up a RESTful web interface, for example, which led to immediate request response type behaviour from service providers, then this might work.

Alternatively, if service providers agreed on a standard RESTful interface for these services, then MPs (SMPs) could agree to implement these standards. Then AEMO can publish the provider's service URLs so that parties can access these services.

Once again, however, we would not recommend mandating such standards. We should develop the standards, and work towards implementing them, but if parties wish to use alternate mechanisms to access these functions, then that should be possible as well. This then allows for these services to be provided immediately, and not have to be retrofitted into a standard when (after some considerable time) that standard has been developed.

## Maintenance of Standards

It is proposed that maintenance of standards be managed by AEMO.

We have no issue with AEMO being the party responsible for maintenance of standards. However, we need to ensure that the consultative processes that will be undertaken properly canvass views from across the industry, and ensure that the goals of competitive service provision are maintained.

Many stakeholder and consultation groups in the metering space typically contain an over-representation of monopoly distributor members. For competitive service providers, the costs of engaging in these processes is hard to recoup, as any increased costs end up being reflected in higher (and less competitive) charges. It is incumbent on AEMO and other regulatory agencies to ensure that they are able to adequately counterbalance a monopoly viewpoint, even when the competitors are under-represented in committees and review panels.

## Regulating rights of access

As stated in the draft review[7], it is customary for owners of infrastructure to determine who can access their property. The argument is put that there may be a need to enforce access to what is considered an "essential" service.

We can perhaps consider the provision of electricity as an essential service, but to extend that definition to include advanced smart metering functions doesn't make sense. These services are not essential services, and to enforce access through regulation seems extreme.

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[7] Ibid p 34

In any case, access should be given to services, rather than meters, and the specific manner of delivery of those services should not be prescribed in regulatory documents. This will unnecessarily constrain innovation in service delivery.

It is also important to recognise that providing smart metering services is expensive, and reasonable charges need to be levied. Even "essential" services are not provided for free, and are removed when parties do not pay. Failure to pay for services is the only likely reason for denial of access, and this would be a reasonable action to take in those circumstances. If parties can derive revenue from providing access to third parties, then there is little likelihood this access will be denied. And where the market for services is a competitive one, these charges will be kept reasonable by market forces.

## Regulating charges for access

Metropolis is very confident that the market will keep prices reasonable for access. It would be unwise also to start regulating prices before the market as matured a little more. It is difficult to predict what the "reasonable" price will end up being, and fixing a high price in regulation will ensure that it stays high. Fixing a low price will mean that fewer new entrants will appear.

## DSP

A key focus of this review is the provision of Demand Side Participation (DSP). In other words, providing incentives and mechanisms for customers to reduce their own usage as a way of reducing overall demand in the network.

As stated earlier, Metropolis has experience in this area with the Adelaide Solar City project, where it developed and operated a DSP service for critical peak price messaging.

The mechanisms by which customers can engage in demand management are quite immature at the moment, and how a smart meter and associated devices can assist customers in this process is still very much a work in progress. To spend time now to identify the mechanisms and regulate standards by which these services can be delivered would seriously stifle the innovative processes that are currently already underway to address these industry needs.

The market needs some time to experiment with these things a lot more before we can start to think about standards.

## Other industry perspectives

Regulated and mandated standards have been attempted, unsuccessfully, in other industries in the past. There are a number of significant examples where such attempts have not been adopted by industry, but in those same industries other standards have emerged which were defined by industry itself.

In telecommunications, the ITU (a regulatory agency) attempted to have the OSI standard implemented across the telecommunications industry as a way of

implementing advanced telephony services. In parallel, military and academic research institutes and industry bodies like the IEEE and the IETF developed the TCP/IP based networking standards. In practice now, across the world, TCP/IP has been adopted as a universal standard without any regulatory involvement, and has been a phenomenal success. This has essentially driven the information economy, and has come into existence from within industry to meet an existing industry need.

Beyond this, on the internet itself, there is a plethora of both open and proprietary standards that co-exist to provide value added services over the internet. Open standards like http (again not mandated) have led to the World Wide Web, along with SSL (secure socket layer) being adopted for security. But there are also proprietary protocols in wide use that are providing really valuable services for end users, like Skype or Adobe Flash. Eventually standards to appear to emerge for some of these proprietary protocols (like enhanced SIP based video telephony, or HTML5 for embedded video), but the development of these standards does not hold up the initial service provision made by these innovative first starters. It can be contended that without the initiative of the innovative first starters, the standards would never have been developed, as the market would never have existed.

## Conclusion

It is not necessary or desirable for the AEMC or the SCER or any other regulatory body to mandate adherence to any standard protocols or processes in order to achieve open access to metering infrastructure..

Normal commercial imperatives will drive the market to ensure that metering infrastructure is accessible to all appropriate parties. Metering Providers will want to ensure that their assets are not removed, so will work with meter readers to ensure they can be read. Similarly Metering Data Providers will want to read anybody's meters.

What is critically important to understand is that any new process of standardisation or regulatory intervention will serve to significantly slow the rollout of new meters. There are many players who are prepared to make the investment now to install meters and start providing services to customers. Let the experienced players start the process, and let the market, where possible, sort out these issues.

Please consider that under current market rules, with current metering hardware products, current metering service providers can start implementing smart meter rollouts immediately. Right now. If we go down a path of developing protocol standards at a metering hardware level, we will significantly delay any rollouts by many years. This is not a desirable outcome for anybody, and will set the Australian market even further behind its international counterparts.

The best outcome for Australian energy consumers will be one where a competitive smart metering market is allowed to flourish, and as soon as possible.

We look forward to your determination,

Yours Sincerely

Chris Boek

Director and CTO