



NSW Government Smart Meters Discussion Paper:

## Smart Meters are a Smart Choice

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In response to the NSW Smart Meter discussion paper, below are responses prepared by Beyond Zero Emissions to questions asked by the NSW Smart Meter Taskforce.

### Summary

Smart meters, and the associated communications infrastructure, enable a host of benefits which directly or indirectly benefit consumers, the network, and the energy companies.

Home Energy Management systems allow for energy consumption feedback to be provided to the consumer. Research has indicated that consumers measurably reduce energy consumption in response to feedback.

The dissemination of clearly explained pricing information to the public by energy retailers as well as the use of in-home displays installed in tandem with a roll-out of smart meter technology will enable consumers to better understand and monitor their energy usage with respect to price signals.

BZE believes that a Government roll out should not be dismissed as an option for a successful campaign to expand the use of smart meters in NSW. A well designed and implemented program could avoid many of the pitfalls the Victorian program encountered by learning from the mistakes of the Victorian AMI rollout. BZE believes that the full electricity demand management benefits attributable to smart meters will be best achieved through a mandatory rollout of smart meters.



**1. *What are the most important benefits Smart Meters can provide to most efficiently and effectively manage the consumption of electricity?***

Smart meters, and the associated communications infrastructure, enable a host of benefits which directly or indirectly benefit consumers, the network, and the energy companies.

*Facilitating energy-aware customers.* Smart meters make possible the devices and applications which are central to making customers much more aware of the way they consume energy. Through greater awareness comes more considered use of energy, which normally would save money. Energy-aware customers are much more likely to:

- discover and respond to their own inefficiencies of power use;
- discover and respond to inappropriately high levels of standby power use;
- appreciate more directly the energy generated by solar panels;
- appreciate when the network is stressed (through messaging to in-home displays) and respond accordingly;
- be able to identify and effectively respond to billing errors;
- appreciate immediately when new electrical devices consume less energy; and
- respond more quickly to energy-use abnormal situations which could be a sign of dangerous conditions.

*Facilitating active demand response.* The smart meter network makes possible clever demand-response arrangements with mutual benefit to networks and consumers. For example, a consenting consumer might get a preferential general tariff in return for the installation of a demand response device which could turn off a pool pump or other non-essential device at times of network stress. Investment in network capital infrastructure in order to meet critical peak demand requirements has been the reason for much of the recent electricity price rises<sup>1</sup> - active demand response reduces the need for those price rises.

*Facilitating dynamic pricing.* The smart meter network makes possible clever pricing arrangements with mutual benefit. Some retail consumers might opt into a dynamic pricing scheme (e.g. pool price pass through) which gives a strong incentive to reduce demand when wholesale prices rise to high

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<sup>1</sup> Refer Productivity Commission 2012 "Economic Regulation of Network Businesses", Australian Industry Group 2012 "Energy Shock confronting higher prices", and others



levels. This would have a considerable strategic benefit to the electricity generation portfolio since there would be less need for costly critical peak reserve capacity<sup>2</sup>.

*Facilitating retail competition through quicker change of retailer.* In a contested retail market, consumers can switch electricity retailers. In the absence of smart meter infrastructure, the customer cannot actually commence buying power from their new retailer until a manual meter read occurs. In a smart-meter-enabled grid, the meter reading can occur remotely (thereby quicker and cheaper), enabling the change of retailer to be a more attractive proposition for the customer.

*Saving lives through incidental safety rectifications.* A lesson from the Victorian roll out is that, during installation of smart meters, a large number of latent electrical safety problems are found and rectified. These measures will reduce the long-run incidence of electrical fires and other adverse safety events.

*Improve meter reads for water and gas.* The meter reading communications network can also carry information for other services such as water and gas. This is made possible because the smart meter acts as a data hub and gateway of a wireless home-area network. Suitable battery-powered devices attached to water and gas meters can transmit wirelessly to the smart meter.

*Reduced power theft.* Smart meters impede inappropriate tampering with the network. This is because a) they can directly signal that they've been opened, and b) the real-time power data enables smarter inferences about the presence of neighbourhood power cheats. This ultimately benefits the network and all honest consumers.

*Facilitate distributed generation:* Smart meters enable the more widespread penetration of distributed generation, through enabling the network operator to gain more detailed information about the power quality effects of export of power into the Low Voltage network, and enabling the metering and hence billing of the same. BZE believes that the widespread deployment of solar PV is inevitable, will be a key part of the solution to reducing household carbon emissions, and should be actively promoted by governments. As smart meters are a key enabler for a widespread deployment, BZE believes that smart meters should be actively promoted.

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<sup>2</sup> Keech, R 2012, *Why are we buying insurance from power companies?*, article, 12 December 2012, Renew Economy, Neutral Bay, New South Wales, viewed 26 February 2013, <<http://reneweconomy.com.au/2012/why-are-we-buying-insurance-from-power-companies-49636>>



**2. *Are the other tools or management systems that should be considered and implemented together with smart meters or as an alternative?***

Customer side smart grid technology, or Home Energy Management, refers to a suite of technologies that exist on the customer side of the smart meter. These technologies use the granular data provided by the smart meter as well as other relevant data to present the customer with information about their energy usage. They can also take automated action to switch appliances on or off or adjust thermostat settings on the basis of that data.

These technologies allow for energy consumption feedback to be provided to the consumer. A number of studies have examined the effect of this feedback on consumer behaviour, and have found that it has the potential to have a significant effect on usage patterns. Accenture (2011), Darby (2006, updated in 2010), ACEEE (2012), VaasaETT Empower Study (2011) and the Brattle Group (2009) have all conducted meta-studies of global trials of feedback technologies. Accenture's study specifically looked at the relevance of global feedback technology trials to Victoria. They examined 76 global trials (including 7 Australian trials) and five other meta-studies, and found the following seven key trends particularly relating to In Home Displays (IHD):

- Consumers measurably reduce energy consumption in response to feedback (ranging from 2% - 20%);
- IHDs do drive energy consumption reduction in isolation from other feedback types;
- Opt-out trials lead to smaller energy consumption reductions than opt-in trials;
- Dynamic (flexible) pricing tends to drive load-shifting behaviour, whereas feedback drives overall reduction in consumption
- Evidence suggests that on-going education has little or no additional effect on the behaviour of IHD users
- When consumers were asked, they responded positively to IHDs;
- Energy saving behaviour persists over time –this is especially the case with IHDs which appear to have a stimulating effect on consumers helping them to understand their consumption patterns and locking in new habits.



**3. *How can the level of understanding about smart meter technology be increased in the community, and who are the key players who can contribute to this understanding?***

All levels of government, as well as community organisations and energy suppliers and retailers have important roles to play in increasing awareness and understanding of smart meter use. In particular, local councils have the ability to run community based forums to educate people about the particular benefits of smart meter technology in their area.

Energy suppliers and retailers are ideally placed to deliver information directly to their customers. In addition, they have the advantage of being able to track current use (in general) and deliver information which may be more specific to the type and pattern of usage in individual households / biller addresses.

It is most important to have consumer groups fully engaged in the policy design and execution of the smart meter rollout. This will assist in ensuring that positive messages about the smart meter rollout are spread to the community and reduces the chance of misinformation. BZE believes that this is one of the key lessons from the Victorian AMI experience.

**4. *What will encourage the community to respond to the “price signals” that smart meters can deliver?***

The dissemination of clearly explained pricing information to the public by energy retailers as well as the use of in-home displays installed in tandem with a roll-out of smart meter technology will enable consumers to better understand and monitor their energy usage with respect with price signals.

Implementing a phased approach to implementing more complex pricing signals and considering the development of a “Consumer choice” website will give customers confidence that they can choose the plans that are right for them.

A whole of state government information program, perhaps with endorsement from the AER, will also ensure that accurate information is disseminated to customers from a trusted advisor.



**5. Are the principles the task force will recommend to the NSW Government appropriate?**

- a. BZE agrees that consumers should not pay higher charges for smart meters. We are particularly concerned for those who are unable to outlay the capital for purchase and installation of a smart meter (e.g. low income earners and pensioners), and who do not have access to interest-free credit. We also believe that energy generator and retailers should bear some of the costs associated with smart meter installation and education, as they will benefit from consumer demand management.
- b. BZE believes that a Government mandated roll out should not be dismissed as an option for a successful campaign to expand the use of smart meters in NSW. A properly designed and implemented program could avoid many of the pitfalls the Victorian program encountered by responding to the negative aspects of that program.
- c. BZE agrees that the Government plays an important role in promoting consumer acceptance of smart meters and removal of regulatory barriers, provided the removal of such barriers is not at the detriment to consumers.
- d. BZE agrees that other steps must be taken to drive demand reductions, but applauds this important first step.

**6. Are there any additional policy principles that the task force should consider?**

Smart Meters work effectively within a broader community framework of energy consumption reduction. Initiatives which enable consumers to drive down energy consumption, or shift use to times of lower demand (usually corresponding to cheaper pricing) are important. These include, but are not limited to, increased home insulation, ratings guides for energy efficient appliances, appropriate home shading and orientation, and guidelines or suggestions for consumers interested in shifting consumption out of peak demand times.

*Decouple notional safety upgrade costs from meter installation.* In Victoria the notional cost of the rollout includes the incidental safety upgrades and rectifications to premises. Whenever the rollout cost is publicly communicated, it should be decoupled from the cost attributed to safety rectifications.



**7. *Is the task force correct to recommend a market-led rollout of smart meters with a level of Government support as the best possible option?***

No. Beyond Zero Emissions believes that we, as a community, must reduce our carbon emissions to zero within 10 years to avoid catastrophic climate change. The most effective way to bring about this fast, efficient transition is a Government-mandated and supported program. We also believe that the most effective leverage of other communications infrastructure (namely the NBN) could be achieved through a Government-mandated and supported program.

In order to avoid previous pitfalls with the implementation of Government Smart Meter schemes (such as in Victoria), a thorough education program is required. In addition, energy retailers and generators must “buy-in” to the program and take some responsibility for helping to manage demand of electricity consumption and hence, generation. Finally, if the Government decides on a distributor-led rollout (to which BZE would agree is likely to be more efficient than a retailer-led rollout), careful consideration should be given to the cost recovery mechanisms to ensure that distributors are appropriately incentivised to reduce costs.

**8. *What is the most appropriate role for Government in the introduction of smart meters to ensure the most successful outcome for energy consumers? What interventions should the task force consider recommending to minimise the potential adverse impacts on vulnerable consumers?***

The deployment should be mandatory to get the proper benefits and economies of scale of smart meters. As such the role of government is to regulate for the timely roll out by industry and to ensure a fair and efficient disbursement of costs to all stake holders. Government should ensure that the cost to consumers is spread over a long period through their regular billing process, and that the benefits of the rollout are visible to customers at the same time that costs are visible.



**9. *The task force recommends that the wider introduction of smart meters need not automatically be linked to the introduction of a mandatory retail or network time of use prices in NSW. Will this minimise adverse social impacts or will it remove an important pricing reform available to consumers to manage their electricity use?***

BZE has no objection to time-of-use pricing in NSW. It is an important reminder and marker to energy consumers of the real cost of their electricity consumption. Programs are already in place to mitigate the impact of electricity pricing on those who require electricity for medical reasons. We would also recommend that critical peak demand management is also included in pricing tariffs.

**10. *How could the benefits for consumers of the wider introduction of smart meters be quantified?***

A number of case studies can be gathered from the community demonstrating the clear benefits to consumers in terms of reductions in energy bills and the positive impacts they are having on reducing their own carbon footprints.

BZE believes that the AER as a trusted advisor disseminating the benefits for consumers of the smart meter program would be beneficial. The Productivity Commission (2012) recommended that the AER have oversight of developing a cost benefit analysis for a distributor-led, geographically based rollout of smart meters. We believe that such a mechanism would be an appropriate way to quantify the benefits for consumers of the wider introduction of smart meters.

**11. *Can a mandated rollout strike the right balance between urgent reforms that may reduce the pressure of peak demand while protecting consumers from regulatory charges for meter installation?***

A mandated roll out does not necessarily mean a "one size fits all" approach. Schemes such as low or no interest loans for pensioners and low income earners would help to offset the cost of smart meters until energy savings have been achieved made. Such a program could be designed to ensure no consumer is left at a disadvantage.

In addition, it is important that energy distributors and retailers bear some of the cost of a smart meter roll-out, as they are the primary beneficiaries of a successful smart meter program. That is to say, if a smart meter roll out and uptake was successful across the community, electricity generators



and distributors would greatly benefit from reduced peak demand, reduced operational costs and improved power quality, and should thus bear some of the cost and speedily return those benefits through to customers through reduced electricity prices.

***12. Is there sufficient community awareness / confidence in smart meters to facilitate a market-based approach?***

Current awareness of the benefits of smart meters and their operation is low while a lot of misinformation has been spread with regards to the benefits of smart meters. In addition, general scepticism exists towards “environmental” or “sustainable” products which may appear to have little effect in slowing global warming. As such, a market-lead approach will not be enough to encourage demand for a large scale uptake of smart meters.

***13. Would a slow uptake undermine any impact smart meters would have on the cost of supply?***

A slow uptake would not hinder the impact of smart meters, although this is detrimental to the ability for rapid transition towards reduction in energy use in order to minimise the severity of climate change effects. As we have seen from the widespread installation of photovoltaic solar panels, a small but committed uptake of these technologies has made great strides in reducing peak energy usage. In fact, in the case of photovoltaic solar panels and the current use of smart meters and industrial demand management, it has been so successful that peak demand of electricity in NSW has actually dropped for the first time in decades.

However, BZE recommends a mandated roll-out of smart meters in order to achieve the best possible impact on NSW electricity demand management.