



## Submission on the *Improving Electricity Market Performance* discussion document

Thank you for the opportunity to comment on the *Improving Electricity Market Performance* discussion document (the discussion document).

In this submission, I respond to section *Facilitate smart meters and smart tariffs*, focussing on recommendations 22 and 23. I support recommendation 22, subject to one critical amendment, and my reasoning is laid out below. I support recommendation 23. And I ask you to add a third recommendation.

In June this year, I released a report on the roll-out of advanced electricity meters across New Zealand. In this submission, I draw on the knowledge my office gained when researching our report along with information we have learned subsequently.

### The roll-out of meters

New Zealand retailers are **in the process of rolling-out** advanced meters, which are not the 'smart meters' they are sometimes described as. These meters provide retailers with real-time information about a household's electricity use. However, these advanced meters are limited in their value, and that value is captured mainly by retailers, for example, through remote meter reading and access to rich customer information. Ten percent of households already have advanced meters. In three years, more than half of New Zealand houses will have advanced meters, based on current plans.

If an advanced meter is also **Home Area Network (HAN) functional**, it then becomes what I regard as a 'smart' meter. A smart meter can communicate with other devices within the home, e.g. smart appliances and in-home displays. A household with a smart meter will be in a much better position to reduce its electricity consumption without suffering hardship.

My particular interest is in the benefit to the environment. Reducing electricity use in New Zealand by five percent would **reduce annual greenhouse gas emissions** by an amount equivalent to taking around 200,000 cars off the road and could save households \$125M per year, according to one consultant's estimate.<sup>1</sup> And lower peak consumption reduces the need for new power plants and transmission lines.

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<sup>1</sup> Concept Consulting Group Limited (Concept). June 2008. *Smart Metering in New Zealand*. A report prepared for the Parliamentary Commissioner for the Environment. Wellington: Concept. Available online at [www.pce.parliament.nz](http://www.pce.parliament.nz).

## **Recommendations from my report: *Smart electricity meters: how households and the environment can benefit***

In my report I made a number of recommendations; two are most relevant here. These are that:

### **1. Home area network (HAN) functionality should be fitted to advanced meters before they are installed.**

Adding the HAN-functionality to an advanced meter before it is installed will cost a few dollars. Retrofitting it later will cost the householder around \$150 because it will require a visit by a technician. What exactly has to be done to the meter to add the functionality depends on the design of the meter. But it is likely to remain too complex for a householder to do themselves, especially as there are significant health and safety issues when modifying meters (e.g. danger of electrocution).

### **2. Communication protocols should be open access.**

Communication between smart meters and other smart devices is governed by protocols. If manufacturers all use different protocols and are not required to share them, it would add unnecessary costs and hassle when switching retailers or moving house. It also would create a barrier to switching retailers, thus undermining how well the market functions.

## **Smart appliances and electric vehicles: when will they arrive?**

The discussion document, along with the recent public debate after the release of my report, gives the impression that smart appliances are not yet available in New Zealand and will not be here for many years. This is not the case. Since releasing my smart meter report, I have learnt that some smart appliances are already present in New Zealand. Further, from 2011, all new heat-pumps/air conditioners will be required to have demand response functionality, i.e. they will be able to reduce electricity consumption when signalled by a smart meter. However, without smart meters, householders will not be able to take advantage of these power-saving features.

There are advantages beyond just smart appliances. Indeed the greatest benefit from smart meters will probably come from their ability to coordinate the recharging of electric vehicles. Electric vehicles are expected to be introduced into the New Zealand market over the next 10 years. New Zealand needs to prepare for this or risk overloading local networks. Smart meters can play a crucial role, because they can communicate with the electric vehicles.

## **Uncertainty around ‘the right protocol’**

The discussion document states that uncertainty surrounding the ‘right’ protocol is the reason that our retailers are rolling out advanced meters that do not have HAN-functionality. An option is for the Government to regulate the same protocol as Australia. Choosing the same protocol as Australia makes sense; both Australian and New Zealand companies benefit from common Australasian standards because they increase our bargaining power internationally.

Increasingly household appliances are being required to meet the same energy efficiency standards in New Zealand as in Australia.

In Australia, Victoria has mandated a smart meter roll-out, making inclusion of the 'Zigbee chip' (a HAN chip using one of the leading protocols) mandatory. I would be very surprised if the other states do not follow their leadership.

### **Options for the future**

I judge that the Government has two ways to address this issue:

1. mandate the inclusion of HAN-functionality prior to installation, adopting the same communication protocol as Victoria (Australia), i.e. ZigBee.

Or, if significant doubts remain surrounding Victoria's choice and therefore the best option for New Zealand:

2. halt the roll-out of advanced meters until those doubts are resolved.

Regulating a communication protocol makes sense in the same way as regulating electricity standards for 50Hz and 240 Volts.

### **Response to recommendation 22 (section *Facilitate smart meters and smart tariffs* in the discussion document)**

I agree with elements of recommendation 22:

- I strongly support providing for open access communication, customer switching and the development of smart networks, as recommended in my recent report.

But I also have reservations:

- I do not support the phrase "*or allow upgrades for*", as this implies advanced meters do not have to be HAN-functional at the time of installation. This means missing the opportunity to save many millions of dollars.

Accordingly, I propose an amendment to the discussion document's recommendation 22, as follows:

*"Ensure guidelines and standards on smart meters provide for ~~(or allow upgrade for)~~ energy efficiency capability, open access communications, customer switching, and the development of smart networks."*

## **Advanced meter moratorium**

I am concerned that unless action is taken, millions of dollars will be wasted, and the public will reject advanced meters along with the associated environmental and consumer benefits. The roll-out of advanced meters is a complex issue. The public debate has been extensive but confusing. This matter must be addressed. Accordingly, I ask you to add a further recommendation, namely that:

**The Government calls for a moratorium on the roll-out of advanced meters until regulations are in place for:**

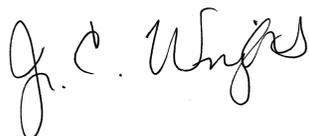
- **communication protocols**
- **the inclusion of HAN-functionality into advanced meters before they are installed**

## **Response to recommendation 23 (section *Facilitate smart meters and smart tariffs* in the discussion document)**

Finally, I strongly support recommendation 23 of the review, which currently states:

*“Encourage retailers to make tariffs available, as an option for consumers, that provide incentives to better manage electricity consumption including through shifting load to off-peak times and conservation during dry years.”*

I would appreciate the opportunity to speak to my submission if appropriate.



Dr Jan Wright  
**Parliamentary Commissioner for the Environment**