Landis+Gyr AP
60 O'Riordan Street
Alexandria NSW 2015
Australia

Contact: Steve Jeston
Phone: +61 2 9690 7334
Fax: +61 **2** 9690 7399
Internet: www.landisgyr.com

Landis+Gyr AP - PO Box 6274 South Sydney Business Hub Alexandria NSW 2015

Australian Energy Market Commission
Level 5
201 Elizabeth Street
Sydney NSW 2000

17 May 2012

Re: Landis+Gyr's Submission : AEMC's Power of Choice Review

Dear Mr Campbell and Mr Corrigan

Landis+Gyr would like to thank you for the opportunity to provide the AEMC a brief submission regarding its Power of Consumer Choice - Directions Paper (dated 23 March 2012).

Landis+Gyr is an international leader in smart meter technology and a key supplier of smart meters to the Victorian market. Over the last two and a half years, Landis+Gyr has provided over 860,000 smart meters to Victorian utilities for the State's Advanced Metering Infrastructure (AMI) program.

In this submission, Landis+Gyr specifically focuses on how new technologies such as smart metering can be a critical enabler for all the functional streams that AEMC is reviewing, including:

- consumer participation;
- distribution network incentives;
- pricing mechanisms; and
- supply chain opportunities.

Landis+Gyr understands the key challenge facing the electricity industry is the need to balance the expense of re-investing in ageing infrastructure to meet rising peak demand and public concerns against escalating electricity prices.

We consider this process as critical to provide all stakeholders an opportunity to closely examine the most effective and efficient strategies for demand side management.

This was further exemplified during presentations at the recent AEMC Public Forum where there was strong consensus that smart metering technology is 'fundamental' to demand side management[1].

[1] Simhauser, P 2012, *Dynamic Pricing and the Peak Load Problem*, AEMC Power of Choice Review Public Forum, AGL External.

Key Opportunities

Smart metering technology has the capability to enable reductions in base load and smooth peak demand electricity usage, with greater effectiveness and efficiency when coupled with solutions including:

- Dynamic pricing
- Voluntary load control programs
- Automated energy management systems in home
- Measurement and monitoring of residential distributed generation
- Provisioning of innovative tariff programs

Smart metering is a well proven technology with extensive deployment both in North America, Europe and Victoria, Australia.

Victorian Smart Metering Rollout

It is evident that the Victorian rollout of smart metering has already provided dividends for utilities. Specifically these include remote readings, interval data, outage management and reliability analytics (including quality of supply monitoring; for example voltage fluctuations with PV installations).

These important achievements have been overshadowed by consumer concerns due to a lack of consultation, increased consumer prices and a lack of energy management tools.

Notwithstanding these issues, the Victorian smart meter roll-out is proceeding, consistent with its original schedule.

By the end of 2013, Victoria will be the only state in Australia that will have 'smart' electricity infrastructure that is easier to control, cheaper to operate, capable of delivering renewable energy into the mix and providing consumers with individually designed efficiency programmes.

Core Benefits

Whilst Victoria has embarked on this vital step toward establishing a secure and reliable electricity future, the uncomfortable reality is that nationally and in other state jurisdictions, delivering smarter grids and empowering consumers requires far greater national commitment.

Every smart metering deployment (as observed internationally and locally) carries its own unique social and economic demands and influences. Nevertheless, Landis+Gyr's experience demonstrates that in almost every instance, all stakeholders have been able to reap early benefits from smart metering, as highlighted.

a. Consumers

- Enjoy lower electricity bills through:

  - Use of Home Area Network (HAN) energy management tools including In Home Displays (IHDs), online portals, power nodes and smart mobile applications to enable consumers with visibility and control of energy consumption and demand ;
  - Change their consumption behaviour via visibility of (near) real-time of billing information including monthly billing; and
  - Facilitate the selection of the best of innovative product (tariff) including Critical Peak Pricing and Time of Use (ToU) to meet specific load management scenarios.

b. Retailers

- Reduce revenue risk through:

  - Visibility of consumption trends;
  - Tariff innovation; and
  - Acquisition and retention of customers.

c. Network Providers

- Experience reduction in capital and operating costs by:

  - Understanding of demand and consumption profiles (including realtime interval data) to smooth peak load;
  - Improving reliability with use of granular data for load control/shedding schemes; and
  - Creating opportunities for deployment of innovative renewable and clean energy solutions.

d. Regulatory Authorities

- Deliver lower energy cost for the community through:

  - Enacting the appropriate regulatory methods for price reform;
  - Providing a strong competitive retail environment;
  - Facilitating reduction in investment once consumers are empowered and making rational choices; and
  - Promoting better decision making with realtime data analytics.

Landis & Gyr Recommends

These core benefits, however, cannot be realised without the appropriate framework.

We strongly contend that the key to addressing electricity demand growth is the deployment of smart metering.

As a result, Landis+Gyr strongly recommends that the AEMC adopts and advocates the following for large scale smart metering deployment nationwide:

1. A consumer campaign to highlight the issues of an ageing electricity infrastructure and the urgent need to move towards a smarter grid without compromising level of customer experience.

2. Develop an incentive program for distribution utilities to drive smart metering deployments in all states where base or peak loads are constrained.

3. Create an effective cost recovery model with longer pay back period[2].

4. Create a business model to share the savings and other benefits gained from reduced infrastructure spending between all stakeholders including consumers.

5. Mandate the NSMP's national smart metering specifications and performance standards to provide assurance against technology redundancy, obsolescence and cost escalation.

6. Accelerate smart metering deployment and consumer engagement programs to advance benefits for all stakeholders in light of rising electricity prices.

7. Promote home energy management products and services to engage and empower consumers on consumption visibility; demand trends; shifts in consumption patterns; conservation and efficiency.

Conclusion

Smart metering technology is now fully tried and proven both international and locally.

As emphasised by the Australia's Climate Commission in their report - *The Critical Decade* (2011), there is an urgent need to invest in energy management technology to minimise risks to our economy, society and way of life into the future.

Landis+Gyr urges AEMC and DRET to provide for the appropriate regulatory drivers, including incentives, mandates, policies and framework to accelerate smart metering deployment – urgently.

[2] Example : In Texas the regulatory payback period for smart meters is 17 years and consumers are charged USD2.50 per month over 7 years (approximately USD250 in total)

Smart metering is a feasible and rational solution for the Australian electricity stakeholders – offering a platform whose 'building blocks' can be amended over time for growth and development in demand side management.

Finally we attach with this submission some relevant additional material which may be helpful in the work of the review, including:

1. Landis+Gyr's Oncor, Texas case study ; and
2. Landis+Gyr's Smart Technology for a Smart Energy Future booklet.

If there is any aspect of this submission you would like to discuss in greater detail, please contact Milan Vrkic on +61 2 9690 7494.

Kind Regards

Milan Vrkic
General Manager Marketing & Portfolio Management

ONCOR

Partner in a Big Way

One of the largest, fastest and most Advanced Smart Meter deployments in the US is taking place in the Dallas metropolitan area. Teaming together with Texas utility Oncor, Landis+Gyr is providing the complete solution – meters, networks and software – for this leading-edge effort.

Everything is big in Texas. Oncor, a regulated electricity distribution and transmission utility, serves over 27,000 square miles of territory, owns 3.1 million meters and delivers energy to over 7 million electricity consumers. These are big numbers. Oncor's approach to its Advanced Metering System (AMS) implementation is no exception – Advanced Metering has arrived in a big way.

Landis+Gyr was selected by Oncor to replace over 3 million meters by 2012, in a project that includes a two-way communication network and electronic meters fitted with remote service switches. The system also enables consumer involvement via in-home displays, and can be expanded to include distribution automation. The USD 690 million Oncor project, which includes Landis+Gyr's Gridstream solution, represents the largest Advanced Metering System rollout in Texas and is one of the largest in the US.

This all fits in with Oncor's strategic aims to increase energy efficiency for their consumers, and to improve their own efficiency, heralding in the Smart Grid. "With AMS technology and monitoring equipment, consumers will have the ability to get real-time information about how they use electricity. It's essentially an electricity speedometer that puts control in the hands of consumers," says Bob Shapard, Oncor CEO. "More efficient use of electricity will also reduce the need for new generation plants and help keep the air cleaner."

Oncor's commitment to helping consumers increase their energy efficiency and sustainability is clearly shown by their "Smart Texas" consumer education campaign. It is important to Oncor that their customers are fully informed and empowered to make decisions to better manage their energy use. The "Smart Texas" campaign is designed with this in mind. The program includes 1,000 square feet of demonstration space pulled by a tractor trailer, adjacent demonstration areas and a huge outside video display screen for multimedia content. Since June 2008, the "Smart Texas" program has been travelling around the service territory to community events, fairs, schools and other public gatherings. Inside are six "experience centers" that teach the benefits of Oncor's new technology. This includes greater control over energy consumption and ways to reduce energy bills and help the environment. The tour is continuing over the years to come as the AMS is rolled out. Anyone interested in visiting the "Smart Texas" tour can find dates and venues on the www.oncor.com website.

"With this education campaign, we believe that consumers in Oncor's service area will better understand how to take advantage of the opportunities that the new advanced meters provide and will be able to reduce their demand – along with lowering their bills and helping the environment," Shapard adds. This entire AMS program will also greatly benefit Oncor's own infrastructure. In addition to the potential economic and conservation benefits, the Smart Meters will improve overall reliability. They have a two-way communication capability that helps minimize the number

and length of power outages by providing an ongoing picture of the overall system and potential trouble spots. The utility can read meters remotely, potentially avoiding estimated meter readings, skipped meters and inconvenience to consumers with hard-to-reach meters. In addition, the meters can be remotely connected or disconnected, which is a great cost saving for Oncor as service can be provisioned or discontinued without a technician having to physically visit the meter.

Oncor views their AMS deployment as the foundation for a host of financial and environmental benefits for consumers, businesses, and society as a whole. When complete, the system will empower consumers to see their energy use in near real time and identify patterns of energy consumption that can then be used to better control their energy use. This information can be used to reduce demand, lower costs and decrease environmental impact.

Oncor is focused on educating consumers in a big way. The Mobile Experience Center was designed to move through the service territory and raise awareness and educate consumers through interactive kiosks, videos and live demonstrations about the opportunities advanced meters provide.

Landis+Gyr
manage energy better

Smart Technology For A Smart Energy Future

Table of contents

A new dawn

Electricity prices are soaring.

Modern, technology-heavy lifestyles, along with growing affluence, are pushing demand. At the same time, prices are being driven by the need to invest in electricity infrastructure.

Never has there been a greater need to find new ways to create a sustainable model for our energy use. Until now, Australia's energy infrastructure has been built to meet our daily demand. Now we must invest in a truly sustainable energy future.

We must also change the way we think about electricity and how we use it. Information, education, tools and freedom of choice will enable us to manage our energy better and save electricity.

Our electricity infrastructure

Australia's mainland base-load demand is mainly supplied from coal-fired power generators.

Coal-fired power stations are expensive to build but are generally cheap to operate. Coal-fired power generators, however, need to be operated continuously and their supply capacity cannot be adjusted quickly to address any unpredictable demand fluctuation.

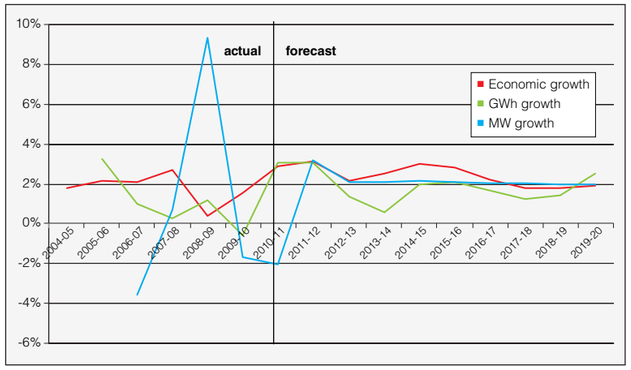
Hydroelectricity and gas turbine generators are used to supply peak demand. Peak load power generators are specifically designed to be used for short periods to supply the peaks in demand and handle unpredictable fluctuations in demand and supply.

Peaks occur during hot summer and cold winter days and peak load generators may only be required for a few minutes to a few hours in a year.

Recognising peak demand

Forecasts show continued average growth in peak demand of about 2% per annum across Australia.

Forecast and actual growth in total and peak demand in NSW 2002/03 to 2019/20



Source: Aemo 2010, *Electricity Statement Of Opportunities For National Electricity Market 2010*, Australian Electricity Market Operator

As illustrated, variable weather can affect the peak demand experienced in any one year as the peaks occur in hot summer and cold winter weather which accounts for the oscillation in peak demand (measured in MW) compared to the smoother trend line in total demand (measured in GWh).

Traditionally, Australia has met this challenge by building electricity infrastructure. This is a costly and highly inefficient way to address a need that happens less than 1% of the year.

Are consumers responsible for peak demand?

It is consumers' lifestyle choices that primarily drive peak demand. Consumers now have smaller households with proportionately more (number of) appliances specifically air conditioners, and additional computers and televisions.

Sustainable solutions for peak demand management will have a big impact on consumers' electricity bills as well as the environment.

Our lifestyles are becoming increasingly energy intensive

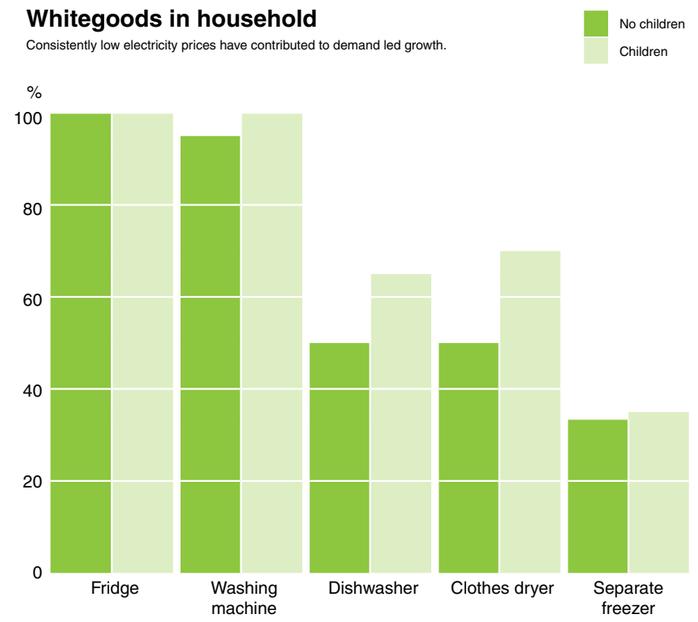
Having had years of low electricity prices, consumers have exercised their choices – more of everything per household. Consumer demand for electronics, electrical appliances and electrical gadgets have increased since 1995.

1995	Today
• 10% had internet access	• 90% have internet access • DVD players in almost every household
• 10% had internet access	• 75% have games consoles
• 10% had internet access	• 33% have Portable DVD players, DVD recorders and hard drive recorders as presents
• 100% had television	• 100% have television or flat screens
• 75% had 2 or more televisions	• 90% have 2 or more televisions of which 25% have 4 or more televisions
• 100% had television	• 76% have portable MP3/MP4 players (with an average family household has 2 portable MP3/MP4 players)
• 100% had television	• 97% have mobile phones of which 56% have advanced capabilities including internet access and video content)
• 78% had access to computer	• By 2020 ownership of PC will see around two laptops per household

Source: http:/www.abs.gov.au/abs@.nsf/mf/8146.0

Whitegoods in household

Consistently low electricity prices have contributed to demand led growth.

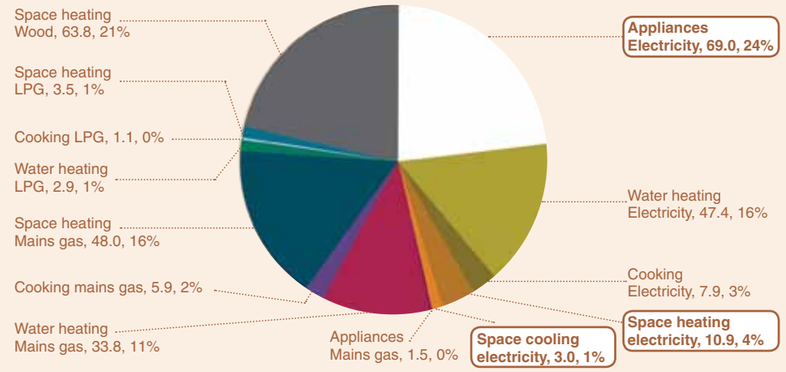


Source: *White Goods*, Household Water, Energy Use and Conservation, Victoria, October 2009, viewed 12 April 2011, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/0/7E391A69F25A1F30CA25774A0013BF89?opendocument>.

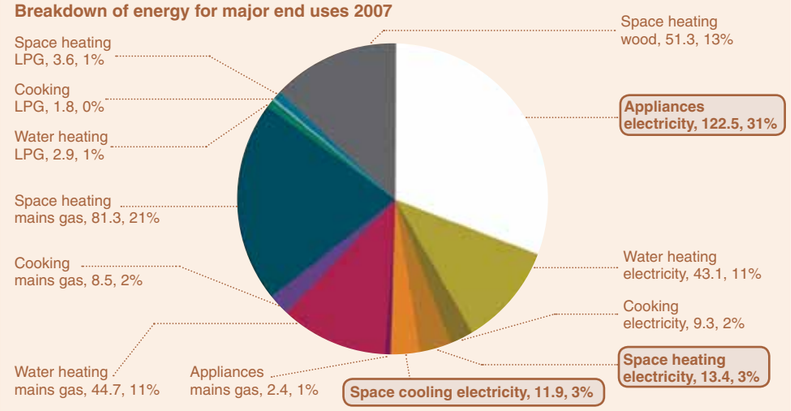
Energy consumption is on the rise

Energy consumption for consumer electrical appliances has been growing by 1.3% per year since 1990 and has overtaken space heating as the largest single user of household electricity.

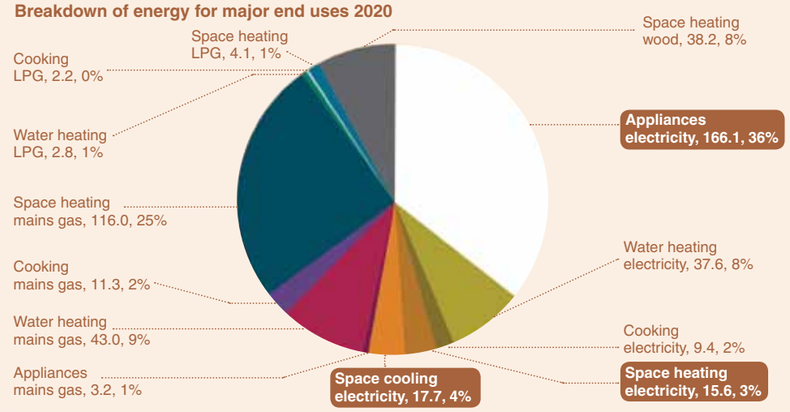
Breakdown of energy for major end uses 1990



Breakdown of energy for major end uses 2007



Breakdown of energy for major end uses 2020



Source: Department of Environment, Water, Heritage & Arts 2008, *Energy Use in Australian Residential Sector*, Commonwealth Australia Breakdown of Energy for Major End Users 1990, 2007 and 2020 (Projected).

Trends predicted to worsen

By 2050: Australians use of renewables (excluding hydro) will increase by 1700 %.

By 2050: Australians will be using twice as much energy.

By 2050: Use of renewables (excluding hydro) will increase by 1700%.

From 1985 to 2009: The average size of new homes is 40% larger.

From 1990 to 2020: Energy consumption for consumer electrical appliances is projected to increase by almost 5% each year.

By 2020: Peak (maximum) demand annual average growth is projected at 2.0% – 3.3% in summer and 1.8% – 3.3% in winter.

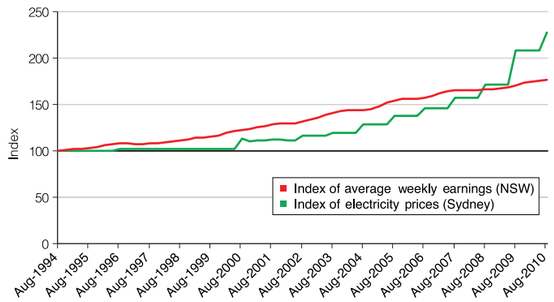
From 1994 to 2008: The number of households with air conditioners and coolers have doubled from 32% to 67%.

By 2012/13: Electricity bills will account for between 1.7% and 5.3% of household income.

In 2007: Heating and cooling accounted for the greatest proportion of electricity consumed in households (almost 40%), water heating (25%), household appliances (19%), lighting (6%), and cooking (6%). Of household appliances, refrigerators and freezers were the largest contributors to household energy use, consuming 34% electricity used.

In 2009/10: Households' electricity bills accounted for between 1.1% and 3.8% of household income.

Relative movements of average weekly earnings and electricity prices



Source: Derived from ABS series 6302.0 Average Weekly Earnings Australia, and 6401.0 Consumer Price Index

The energy challenge

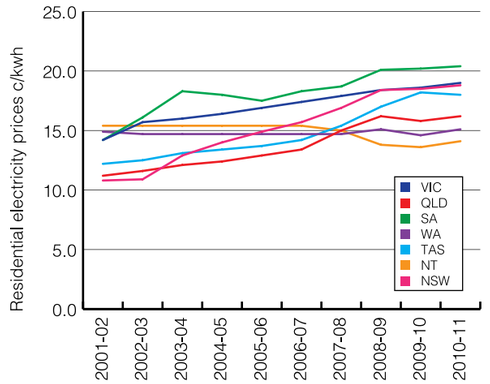
1 Australian consumers are facing escalating electricity prices.

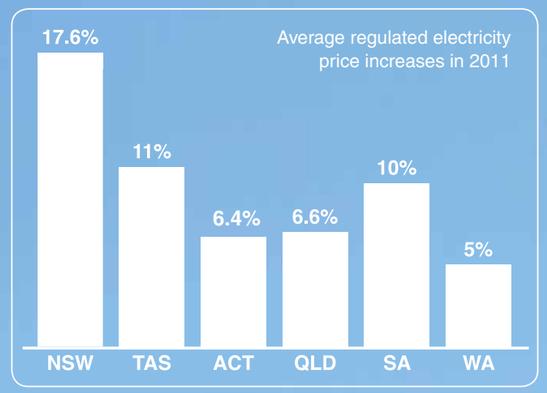
2 Implementation of carbon price in Australia is expected to further increase electricity prices.

3 Heavy capital spending to upgrade poles and wires and infrastructure, to address energy growth at 2.3% per year until 2020, will push electricity prices up.

4 Growth in peak demand (expected to be at a rate of 2.6% per year until 2021) is driving higher prices.

Comparison of electricity prices by jurisdiction (cents/kwh)





Worry free

We know what consumers expect from their electricity supply. It must be:

- Affordable
- Safe
- Constant
- Reliable
- Predictable
- Available
- Sustainable.

The home of the future = energy efficient + energy intensive

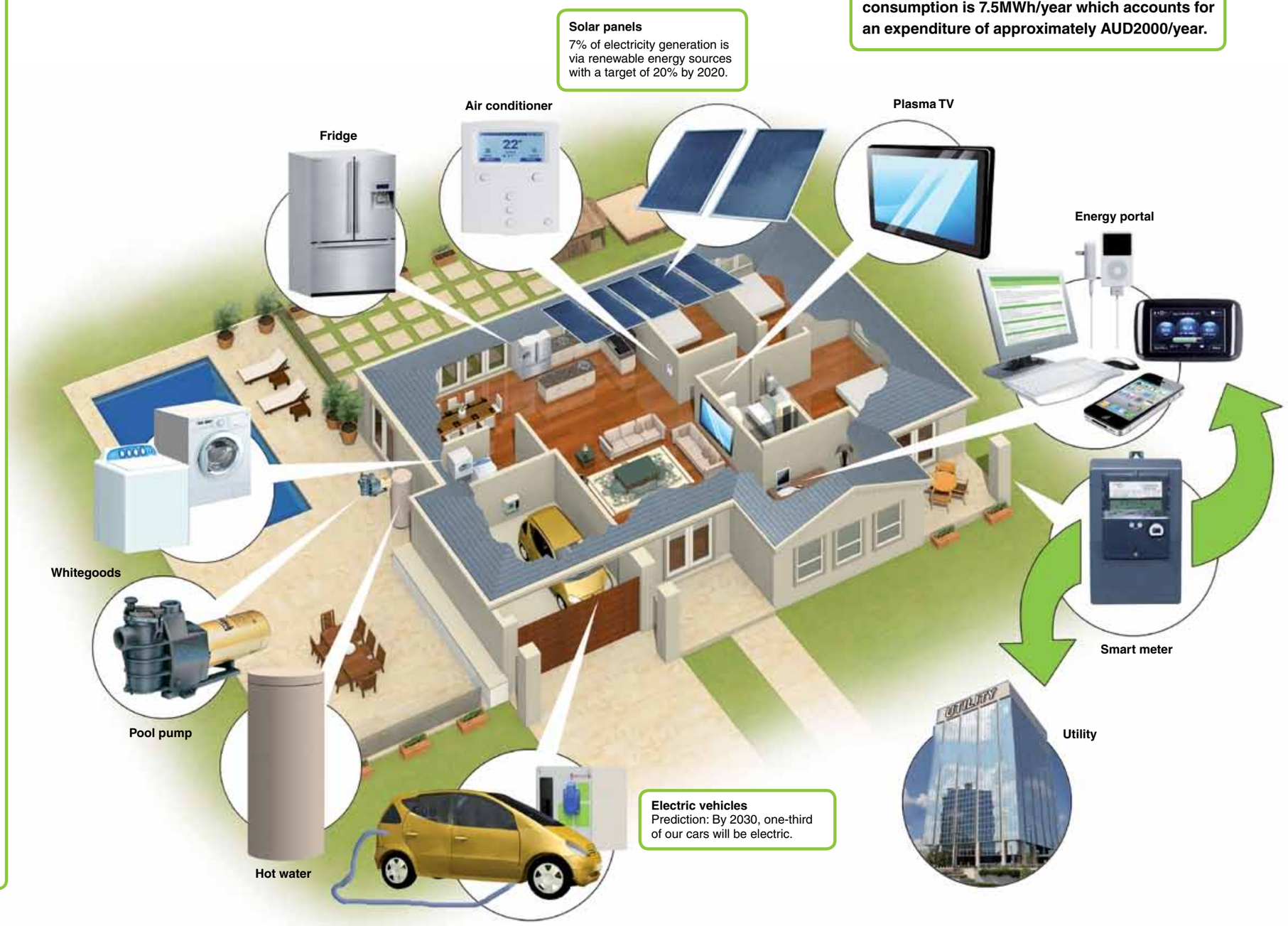
1 The state operated solar schemes have positive and negative impacts to consumers. The positive impacts include the tariff benefits paid to consumers with installations and the response to climate change via generation of renewable energy by consumers. Whilst the negative impacts include the recovery of tariff benefits paid for solar installations from all electricity consumers (including low income and exempt consumers); the increasing cost of program administration has been passed on to all electricity consumers; and the cost of the disruptive effects on the grid network, such as excessive voltage for significant periods of time leading to customer equipment damage.

2 Residential air conditioning contributes a major and rapidly growing part of peak electricity demand. The cost of air conditioners has decreased significantly in recent years. However, the cost of generating, distributing and maintaining our electricity infrastructure for growth in peak periods is increasing. The price of electricity paid by the consumer does not cover the cost of maintaining or expanding electricity infrastructure to cope with peak periods.

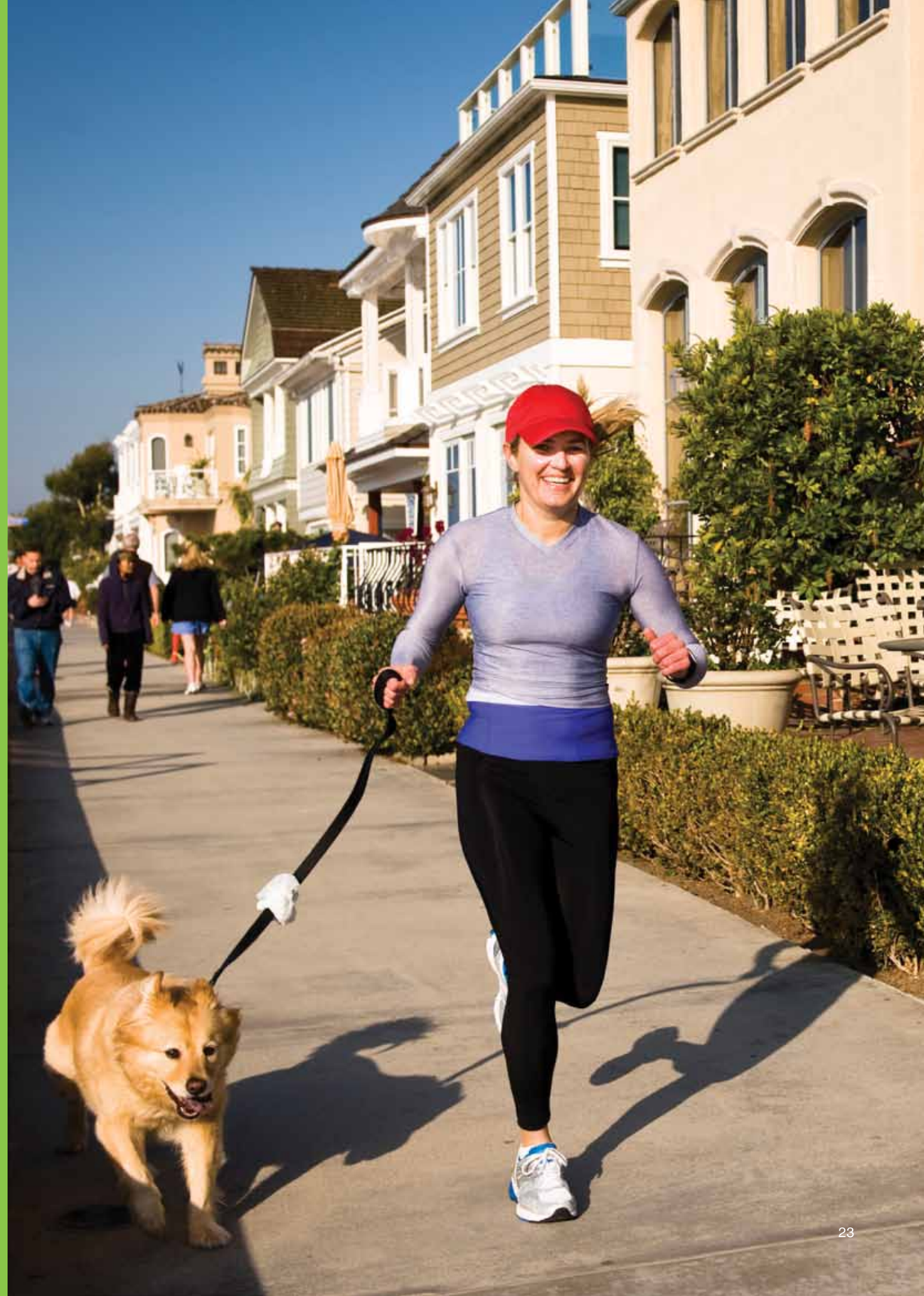
3 Green energy schemes play an extremely small role in increasing energy costs. In 2010/11, they accounted for only 4% of a typical NSW electricity bill.

4 Personal energy management technologies (including home energy portals and in-home displays) will allow consumers to become energy efficient and savvy.

In 2011, the average household's electricity consumption is 7.5MWh/year which accounts for an expenditure of approximately AUD2000/year.



Sustainable energy management: can consumers have it all?



Our choices

Reduce investment

Maintain current consumer behaviour but reduce network investment to effectively counter electricity price increases. Prices stay the same as no investment is made for additional load. Consumers can expect to experience longer and more frequent outages as the network buckles under the strain of rising demand.

Based on the average number of interruptions between 2005-06 to 2007-08, AEMO (March 2011) reports calculate the probability of future outages of 2 hours and less on current electricity infrastructure, as follows: 28.6% for VIC, 30% for QLD, 38.2% for NSW, 29.4% for SA and 35.8% for TAS.

Do nothing

Demand continues to rise and prices will continue to spiral as billions of dollars are spent to continue expanding the capacity of the current electricity network to accommodate extra load.

AEMO (2010) models indicate that a growing Australian economy and population will lead to a 30% to 70% increase in electricity demand over the next 20 years. This will require an investment of AUD $40 billion to $130 billion in new power generation, poles and wires.

Change lifestyle

Reduce energy usage through consumers' changing their lifestyle (for example, using less electricity).

Manage energy better

Enjoy lifestyle by managing energy better, accompanied by investment in smart and scalable infrastructure, which will allow them to adjust their energy use.

This is the most economical, efficient and beneficial option for consumers.

Go smart. The only viable option.

For consumers, the ‘do nothing’ option is unrealistic.

Managing energy more effectively is the only sustainable way of containing costs and maintaining network reliability standards.

Consumers, utilities, governments, businesses and regulators in Australia have all been working towards better energy management focusing on sustainable energy. Programs have been diverse and include lighting programs, solar schemes and insulation initiatives such as: Green Loans; Green Start; Energy Saver Strategy (including incandescent lighting); Solar Cities; Solar Hot Water Rebate; Renewable Energy Target; Heating, Ventilation, and Air-conditioning (HVAC) Efficiency Strategy. Programs have achieved varying success. For example, the incandescent lighting program achieved 1.1% savings on energy usage, while the Victorian Energy Efficiency program (businesses and residential) will achieve its target of 4.8% reduction in energy usage. Is this enough?

If our electricity infrastructure struggles to deliver efficiently and effectively, these initiatives will count for very little.

Greater sustainability will be achieved through smarter electricity infrastructure, such as digital technology. Digital technology will result a more reliable, secure and efficient service from generation through to individual electricity consumers. It will also address our requirement for clean energy now, and in the future.

A smart meter: smart tool

A smart meter is an energy management and conservation tool. It's like a speedometer for home electricity use that shows how much electricity is being used and how much it's costing at any given time. The information can be looked up on the internet (online consumer portal) or via an in-home display unit that shows how energy use changes depending on what appliances are being used, or on the time of day.

Smart meters are electricity meters that are capable of measuring and recording energy consumption in near real-time and in small intervals (for example 30 minutes or half hourly consumption).

Smart meters can also 'talk' to the electricity supplier about faults and problems on the network.

Benefits of a smart meter

More accurate bills

- Verify bills in realtime – avoid nasty surprises.
- Fewer estimated bills.
- No more meter readers knocking on doors for access.
- No more calls to utilities for appointments with meter readers and inspectors.

Detailed and regular information

- Near real-time interval usage and billing information.
- Monthly billing.
- Ability to switch to ‘best price fit’ retailer.
- Choice of retailer tariffs.
- Discretionary modification to electricity use.
- Communication about type of service received (for example, outages and quality).

Better service

- Reduced number of calls to utilities call centers.
- Faster reconnections after power outages.
- Greater understanding by consumers of the quality of the power supply (power fluctuations).

Environmentally savvy

- Better management of energy usage.
- Implementation of in-home energy conservation scheme that suits the household.
- Realisation that a consumer behaviour can change the utilitiy's behaviour.

Evidence shows smart metering achieves savings

The Canadian BC Hydro Advanced Metering Initiative Pilot*

Pilot information: Conducted in 2007 for a period of 6 months; total of 2,000 residential consumers.

Aims of pilot: Gain an understanding of consumer needs for information about and acceptance of available and affordable ways to save energy.

Result: Consumers enjoyed (overall) 8% reduction in electricity consumption.

The PowerCentsDC™ Trial*

Pilot information: Conducted in 2008; total of 900 residential consumers.

Aims of pilot : Determine the amount of electricity consumers can save by utilising key Smart Grid technologies including smart meters, smart thermostats and smart energy pricing.

Results:

- 90% of participating consumers saved on their electricity bills.
- 34% reduction in peak electricity demand.

The Irish Electricity Smart Metering Customer Behaviour Trial*

Pilot information: Conducted in 2010 for a period of 12 months; total of 4,300 residential consumers.

Aims of pilot include:

- Ascertain the potential for smart metering technology, when combined with time of use tariffs and different demand side management (DSM) stimuli.
- Effect measurable change in consumer behaviour in terms of reduction in peak demand and overall electricity use.
- Identify the 'Tipping Point' where price of electricity will significantly change usage by consumers.

Results: Changes to participating consumer behaviour include:

- 74% made minor changes to the way they used their electricity.
- 38% have made major changes to the way they used their electricity.
- 79% became more aware of the amount of electricity used by appliances.
- 78% became more aware of the cost of electricity used by appliances.

*VaaseETT, 2011, *Empower Demand*.

Victoria leads the nation with smart meter technology

With the installation of smart meter technology in Victoria, we learned many valuable lessons.

Critical consumer issues must be fully understood and addressed in a smart meter technology rollout. We need:

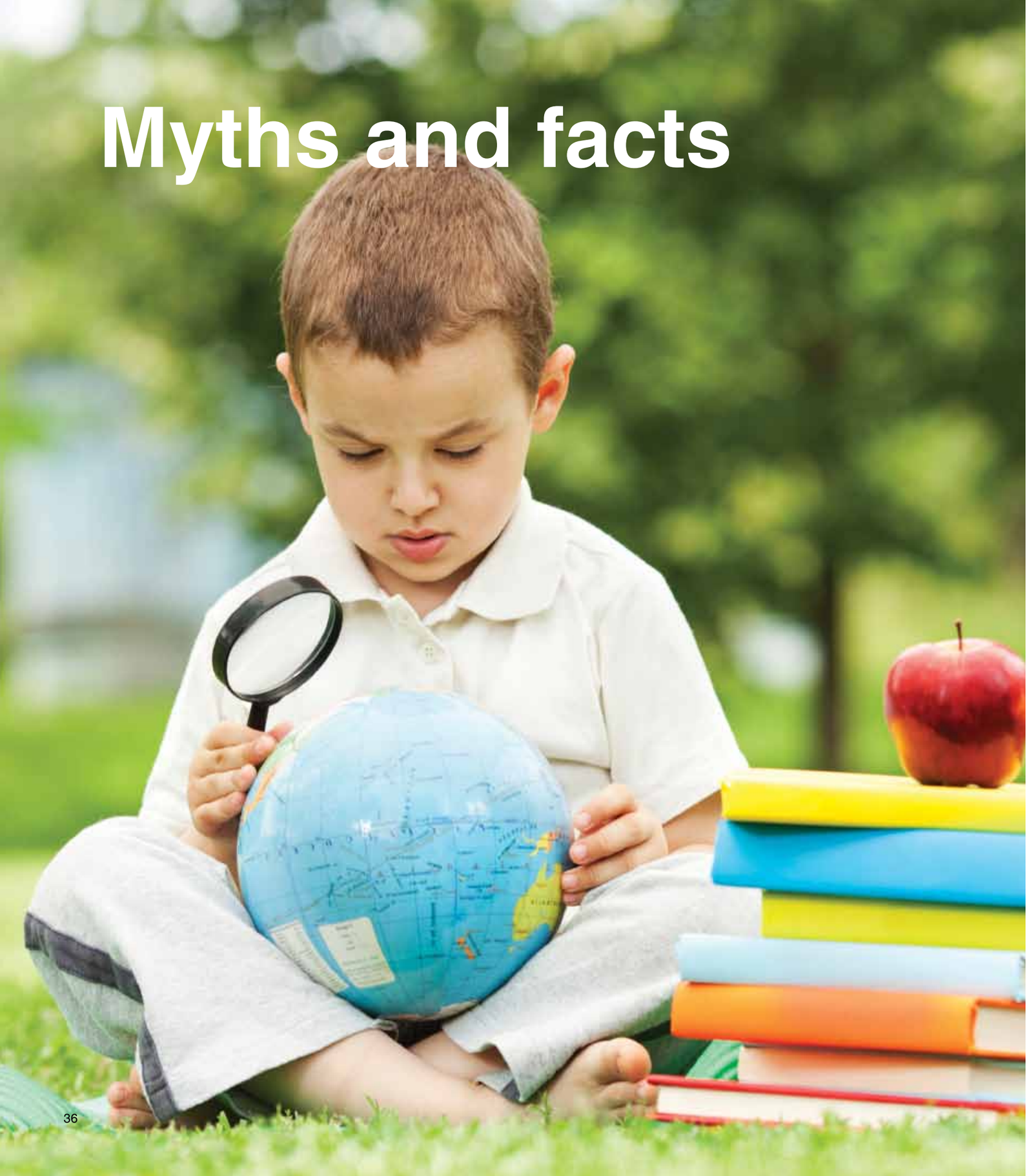
1. Access to an online consumer portal which can be accessed via PC, laptop, tablet devices and mobile phone.

2. More frequent billing (for example, monthly billing).

3. Faster access to home area network (HAN) management tools, including in-home display units to provide feedback about consumer energy use.

4. Choice of retailer and tariff programs to help consumers reduce energy bills and realise savings.

Myths and facts



Myth	Fact
Smart meters cause electricity prices to rise.	Electricity prices are rising regardless of smart meters. Smart meters will give consumers the tools they need to better manage their energy costs. Ultimately the cost of installing smart meters is less than the cost of doing nothing and consumers will be better off in the long run.

Myth	Fact
Smart meters aren't safe.	Every smart meter is fully tested for safety and accuracy before installation at consumers' premises. Landis+Gyr smart meters meet some of the strictest electrical standards for metering in the world. All key Australian standards are covered such as AS:62052.111, AS:62053.21, AS:62052.21 and AS: 62055.31. The meters receive Australian National Measurements Institute (NMI) M6 pattern approval. Before being released for installation, the smart meters undergo comprehensive reliability testing such as JEDEC A101. This provides early prevention of potential problems in the field. Before leaving the factory, the meters are also calibrated, verified and certified by National Association of Testing Authorities (NATA) accredited facilities in Australia.

Myth	Fact
Smart meters allow the electricity company to turn off my appliances remotely without asking householders and consumers.	Outages will be shorter, less frequent and will affect fewer people. In exceptional circumstances of high demand versus a shortfall in electricity supply, an electricity company may need to reduce demand very quickly (load shed) to avoid the entire electricity network shutting down completely. This can affect an area's power supply while the electricity company stabilises the situation. Electricity companies currently monitor and manage power load to ensure a consistent supply for all customers. A smart meter enables consumers themselves to 'load shed' – they can define which appliances to switch off to help alleviate power loss for all.

Myth	Fact
Pensioners, low and fixed incomes households (vulnerable consumers) will be heavily impacted financially by smart meters.	The industry is working with state and federal governments to ensure vulnerable consumers are not disadvantaged. Smart meters can help people better manage the energy they consume, and therefore reduce their energy bills. Empowering vulnerable and low income groups with education and tools is critical to success. Consumer education (for example through online consumer portals) and tools (such as in-home display monitors) that immediately show them how much electricity they are using, helps consumers manage their costs more effectively.

Myth	Fact
With the installation of smart meters households and consumers must go on Time-of-Use (ToU) billing.	The currently installed interval consumption data meters mean utilities can charge households (consumers) for their time of electricity use (known as time-of-use (ToU) billing). Smart meters also provide this interval consumption data. But, unlike other interval consumption data meters, smart meters can provide near real-time interval consumption data to consumers. Time-based tariffs like ToU and critical peak pricing (CPP) help consumers balance their budgetary and lifestyle choices, although this does require a dramatic shift in consumer thinking and behaviour.

Myth	Fact
Radio frequency emissions from smart meters are dangerous to householders and consumers health.	A recent study by California Council of Science and Technology concluded that the radio frequency emissions from smart meters (a type of communication enabled meter) are extremely small compared to many common household electronic devices, especially mobile phones and microwave ovens. Communications enabled meters have been used globally since mid-1980s. About 50 million of these meters are installed in the United States alone, with no associated documented injury or health problems.

Myth	Fact
Smart meters will destroy my privacy and personal life. Everyone will now know where I am and what I am doing from my energy usage data.	Technology changes in recent times have seen increases in the collection of consumer data through the use of mobile phones, rewards cards, credit cards and so forth. This increase has seen associated privacy concerns. The industry and utilities have taken privacy very seriously from the outset of meter reading and with more diligence since the collection of interval data reading a decade ago. Smart meters allow metered interval data to be collected remotely and have it delivered to consumer at their homes. However, it would not be possible for a utility to know what a customer is doing at any given time from the aggregated interval energy usage data. To ensure that only authorised utility and the individual consumer can access this data, multiple security measures have been implemented to protect the data including the latest encryption techniques, global security standards, and getting external security experts to attempt breaking to the devices and network's to further strengthen data and systems. These measures are all designed to safeguard and protect consumer privacy.

Landis+Gyr recommends:

A smart metering program will give consumers greater control over their energy use and potentially save billions of dollars for Australians through deferred infrastructure investment. **The Australian Government mandate for smart meter rollouts must continue.**

International markets, including the United States and United Kingdom, are adopting smart meter technology at an increasing pace. Earlier this year, United Kingdom announced the most comprehensive plan to roll out 53 million smart meters in 30 million homes and businesses, between 2014 and 2019. The government has estimated this will result in likely savings of £23 on household (consumers) annual energy bills by 2020 (up from its previous estimate of £14 in savings).

In almost every project in which Landis+Gyr has been involved, the success of the rollout and consumer acceptance of smart meter is linked to consumer education about the benefits of the program.

The Clean Energy Council's report *Australian Household Call for Help on Energy Savings* (June 2011) highlights that '89% of Australians are willing to take action to use less energy' and '73% wanted more information on how they could save energy'. It is only when consumers have access to education and tools (such as online energy data through consumer portals or in-home display units) that they are able to realise the benefits and become more willing to adopt energy-saving behaviours.

ONCOR

Partner in a Big Way

One of the largest, fastest and most Advanced Smart Meter deployments in the US is taking place in the Dallas metropolitan area. Teaming together with Texas utility Oncor, Landis+Gyr is providing the complete solution – meters, networks and software – for this leading-edge effort.

Everything is big in Texas. Oncor, a regulated electricity distribution and transmission utility, serves over 27,000 square miles of territory, owns 3.1 million meters and delivers energy to over 7 million electricity consumers. These are big numbers. Oncor's approach to its Advanced Metering System (AMS) implementation is no exception – Advanced Metering has arrived in a big way.

Landis+Gyr was selected by Oncor to replace over 3 million meters by 2012, in a project that includes a two-way communication network and electronic meters fitted with remote service switches. The system also enables consumer involvement via in-home displays, and can be expanded to include distribution automation. The USD 690 million Oncor project, which includes Landis+Gyr's Gridstream solution, represents the largest Advanced Metering System rollout in Texas and is one of the largest in the US.

This all fits in with Oncor's strategic aims to increase energy efficiency for their consumers, and to improve their own efficiency, heralding in the Smart Grid. "With AMS technology and monitoring equipment, consumers will have the ability to get real-time information about how they use electricity. It's essentially an electricity speedometer that puts control in the hands of consumers," says Bob Shapard, Oncor CEO. "More efficient use of electricity will also reduce the need for new generation plants and help keep the air cleaner."

Oncor's commitment to helping consumers increase their energy efficiency and sustainability is clearly shown by their "Smart Texas" consumer education campaign. It is important to Oncor that their customers are fully informed and empowered to make decisions to better manage their energy use. The "Smart Texas" campaign is designed with this in mind. The program includes 1,000 square feet of demonstration space pulled by a tractor trailer, adjacent demonstration areas and a huge outside video display screen for multimedia content. Since June 2008, the "Smart Texas" program has been travelling around the service territory to community events, fairs, schools and other public gatherings. Inside are six "experience centers" that teach the benefits of Oncor's new technology. This includes greater control over energy consumption and ways to reduce energy bills and help the environment. The tour is continuing over the years to come as the AMS is rolled out. Anyone interested in visiting the "Smart Texas" tour can find dates and venues on the www.oncor.com website.

"With this education campaign, we believe that consumers in Oncor's service area will better understand how to take advantage of the opportunities that the new advanced meters provide and will be able to reduce their demand – along with lowering their bills and helping the environment," Shapard adds. This entire AMS program will also greatly benefit Oncor's own infrastructure. In addition to the potential economic and conservation benefits, the Smart Meters will improve overall reliability. They have a two-way communication capability that helps minimize the number and length of power outages by providing an ongoing picture of the overall system and potential trouble spots. The utility can read meters remotely, potentially avoiding estimated meter readings, skipped meters and inconvenience to consumers with hard-to-reach meters. In addition, the meters can be remotely connected or disconnected, which is a great cost saving for Oncor as service can be provisioned or discontinued without a technician having to physically visit the meter.

Oncor views their AMS deployment as the foundation for a host of financial and environmental benefits for consumers, businesses, and society as a whole. When complete, the system will empower consumers to see their energy use in near real time and identify patterns of energy consumption that can then be used to better control their energy use. This information can be used to reduce demand, lower costs and decrease environmental impact.

'Consumer engagement does not end... it becomes standard procedure'

Oncor is focused on educating consumers in a big way. The Mobile Experience Center was designed to move through the service territory and raise awareness and educate consumers through interactive kiosks, videos and live demonstrations about the opportunities advanced meters provide.

International experiences

1. Smart meter technology offers consumer choices.

To force retail electric providers to offer a variety of pricing options, The Public Utilities Commission (PUC) in Texas, United States has relied on consumer electricity competition. The PUC offers extensive education, including an online FAQ and rates listed by retailer. It also helps consumers when switching retailers with contracts and terms, renewable energy (or green power), rates (fixed, indexed and variable) and assistance programs.

Source: *Texas Electric Choice 2011*, Electricity Basics, Public Utility Commission of Texas, United States, viewed 8 June 2011, <http://www.powertochoose.com/_content/_about/electricity_basics.asp#heading-7>.

2. Involving consumers with smart meter campaigns.

In July 2011 Oncor Texas kicked off its new 'Biggest Energy Saver' residents' contest for the best energy efficiency improvements as measured by the smart electricity meters. This contest is part of the continual effort by Oncor to educate consumers about the benefits of smart meters.

Source: *Biggest Energy Saver seeks real-life efficiency stars*, Greenbang Sustainable Technology Analysis, 13 June 2011, viewed 23 June 2011, <http://www.greenbang.com/biggest-energy-saver-seeks-real-life-efficiency-stars_18422.html>.

3. Lack of change in consumer behaviour leads to higher energy costs.

Current traditional economic pricing – flat and inclining block tariffs structures that do not vary (hourly, daily or seasonally) – have proven to have little or no effect in shifting consumers' peak-demand behaviour. The generation and distribution cost of electricity, however, does vary hourly, daily or seasonally (based on consumer demand). This mismatch, along with the lack of behavioural shift during peak periods, has led utilities to continue to build extra capacity. In turn this has led to increasing energy costs which are borne by the consumers.

Dynamic pricing can be useful in changing consumer behaviour. The effectiveness of these pricing mechanisms has been proven globally and locally. Studies of trials indicate that during peak demand, significant

reduction in residential load consumption (5 to 20%) can be achieved with the introduction of dynamic pricing.

Source: Faruqui, A, Sergici, S, and Palmer, J 2010, *The Impact of Dynamic Pricing on Low Income Customers*, Whitepaper, Edison Foundation Institute of Electric Efficiency, United States, revised September 2010, <http://www.edisonfoundation.net/iee/reports/IEE_LowIncomeDynamicPricing_0910.pdf>.

4. Reduced demand with dynamic pricing.

A dynamic pricing pilot was undertaken by PowerCentsDC™ in the United States District of Columbia (DC) with 900 customers across three different price plans. The results showed that consumers consistently reduced demand when given a price signal. The peak reductions in summer were 34% and in winter 13% under CPP plan.

Source: *eMeter Strategic Consulting 2010*, PowerCentsDC™ Program Final Report, eMeter Corporation, California.

5. Different consumers willing to pay different prices.

New findings have emerged from international smart metering pilots that different consumer segments significantly differ in their willingness to participate and pay for smart metering. Consumer segments include low income, high income, the young, the aged, males and females. Consumers' level of education also has also been found to have an influence on their willingness to pay.

Nielsen's Energy Survey 2010 of US consumers found that:

- Approximately 15% of the population would be willing to pay up to US$10 per month for smart meter data.
- Approximately 27% are willing to pay US$5/month and 47% would pay US$1/month.
- Approximately 37% of younger customers (18 to 34) would be willing to pay US$5/month.
- Only 9% of older customers (age 55 or older) would be willing to pay US$5/month.

The lowest income group (earning US$25,000 per year or less) had a slightly higher desire at all price points than their higher-income counterparts.

Source: E Source 2011, *Customers Want Smart Meter Data and Are Willing to Pay For It*, Colorado, USA.

Glossary

Base load	The minimum amount of electricity that a utility will make available, or the amount of electricity required to meet minimum (reasonable expectations of) customer requirements.
Home area network (HAN)	A network set up in the home or workplace that connects one or more devices to the smart meter.
Hydroelectricity	Generation and distribution of electric energy derived from the energy of falling or flowing water.
In-home display monitor	A device that can be installed in the home to electronically 'talk' to a smart meter. The unit displays how much electricity is being used giving near real-time data and other information including tariffs and informative messages.
Kilowatt hour (kWh)	The kilowatt-hour is a unit of energy equivalent to one kilowatt (1 kW) of power expended for one hour (1 h) of time. For example, a 60 watt light bulb for one hour consumes 0.06 kilowatt hours of electricity. Similarly, a 6 watt light bulb for one thousand hours consumes 60 kilowatt hours of electricity.
Maximum demand	The highest amount of electricity delivered over a defined period either to a single household or multiple households.
Megawatt (mW)	The megawatt is equal to one million (106) watts.
Online consumer portal	An internet gateway between utilities and consumers which can provide a variety of energy service functions and may be integrated with non-energy service applications. The portal offers the consumer a wealth of information about their energy consumption, including real time pricing on use of appliances. The portal can be accessed via the internet using a PC or smart phone.

Peak load	The maximum electricity requirement of a system at a given time, or the amount of electricity required to supply customers at times when consumer demand is greatest.
Probability of exceedence (POE)	The probability, as a percentage, that a maximum demand will be met or exceeded (for example, due to weather conditions) in a particular period of time.
Renewable energy	Energy that comes from the naturally replenished (renewable) energy sources such as sunlight and wind. Sometimes referred to as 'green' or 'clean' energy.
Scalable infrastructure	The ability of the infrastructure (including hardware, communications, software, processes and resources) to accommodate growth without disruption or failures.
Smart grid infrastructure	The smart grid pertains to any part of the electric infrastructure, from the power plant to the transmission lines, to the consumer. It makes the electrical system work more efficiently through improved communication and integration of resources and applications.
Smart meter	A two-way communication enabled meter which can record quantities of energy consumer over set, frequent time intervals.
Transmission and distribution	The 'physical' delivery of electricity over poles and wires to homes or businesses by utilities. The utility is responsible for maintaining the poles and wires, and responding to emergencies and power outages.

References

4602.2 – Household Water, Energy Use and Conservation, Victoria, Oct 2009, Australian Bureau of Statistic, viewed 17 May 2011, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4602.2Main+Features1Oct%202009?OpenDocument>.

AEMO 2010, *2010 Electricity Statement of Opportunities for National Electricity Market*, Australian Energy Market Operator.

AEMO 2011, *Electricity Statement of Opportunities for National Electricity Market 2011*, Australian Electricity Market Operator.

AEMO launches New Electricity Planning Document, 15 December 2010, Australian Energy Market Operator, viewed 20 July 2011, <http://www.aemo.com.au/planning/0410-0050.pdf>.

Australian Communications and Media Authority 2007, *Media and Communications in Australian Families 2007*, Commonwealth of Australia.

Australian Energy Market Operator 2010, *2010 Electricity Statement of Opportunities for National Electricity Market*, AEMO.

Australian Energy Market Commission, 2011, *Strategic Priorities for Energy market Development 2011*, AEMC, Sydney.

Australian households call for help on energy savings 2011, Clean Energy Council Australia.

Base Load, Energy Dictionary, viewed 20 September 2011, <http://www.energyvortex.com/energydictionary/baseload__base_load__baseload_demand.html>.

Benefits of smart meters recognised worldwide, 29 March 2011, IQPC, <http://www.prlog.org/11405300-benefits-of-smart-meters-recognised-worldwide.html>.

Berthon, B, & Guittat, P 2011, *Rise of the Intelligent City*, Accenture.

Biggest Energy Saver seeks real-life efficiency stars, 2011, Greenbang Sustainable Technology Analysis.

Bright savings for energy hikes, Sydney Morning Herald, 8 June 2011, < http://www.smh.com.au/money/saving/bright-savings-for-energy-hikes-20110607-1fpp7.html >.

Budde, P 2011, *The revolution of energy consumption*, 13 June 2011, <http://www.buddeblog.com.au/smart-grids/the-revolution-of-energy-consumption/>.

CRA 2004, *Peak Demand on the ETSA Utilities System*, Charles River Associates (Asia Pacific) Pty Ltd.

Customers Want Smart Meter Data and Are Willing to Pay for It 2011, E Source.

Darby, S 2010, *Smart metering: what potential for householder engagement?*, <www.informaworld.com>.

Davis, M 2011, *Behavior and Energy Savings Evidence from a Series of Experimental Interventions*, Environmental Defense Fund.

Department of Environment, Water, Heritage & Arts 2008, *Energy Use in Australian Residential Sector*, Commonwealth of Australia.

Department of Resources, Energy and Tourism 2011, *Energy in Australia 2011*, Commonwealth of Australia.

Disendorf, M 2010, *The Base Load Fallacy and other Fallacies disseminated by Renewable Energy Deniers*, Energy Science Coalition, Briefing Paper 16.

Dustan, C, Ghiotto N,Ross, K 2011, *Report of the 2010 Survey of Electricity Network demand management in Australia*, last viewed 27 October 2011, <http://www.a2se.org.au/images/stories/files/a2se_isf_sendma%20report%20june%202011_final.pdf>.

Dustan, C, Ross K & Ghiotto, N 2011, *Barriers to Demand Management: A Survey of Stakeholder Perceptions*, last viewed 27 October 2011, <http://www.a2se.org.au/images/stories/files/a2se_isf_dm%20barriers%20report%20june%202011.pdf>.

Economic Viability of Electric Vehicles, Department of Environment and Climate Changes, 4 September 2009, viewed 20 September 2011, <http://www.environment.nsw.gov.au/resources/climatechange/ElectricVehiclesReport.pdf>.

Edelmann, H 2011, *Seeing energy differently Power and utilities: ready for a smart transformation?*, Ernst & Young.

Electric Consumer Right to Know Act (S 1029) – or 'e-KNOW' introduced to US Senate, 2011, <www.metering.com>.

Electricity advisory committee (EAC) 2008, Smart *Grid: Enabler of the New Energy Economy*, Advice to U.S. Department of Energy (DOE).

Electricity Basics 2011, Texas Electric Choice Public Utility of Texas US.

Electricity Smart Metering Customer Behaviour Trials (CBT) Findings Report 2011, Irish Commission for Energy Regulation.

Electric vehicles FAQs, Royal Automobile Club, viewed 20 September 2011, <http://rac.com.au/About-Us/Community/Environment/Electric-vehicles-FAQs.aspx>.

Energy in Australia 2011, Australian Government Department of Resources Energy and Tourism, Commonwealth of Australia 2011, <http://www.ret.gov.au/energy/Documents/facts-stats-pubs/Energy-in-Australia-2011.pdf>.

Energy use in the Australian Residential Sector 1986-2020, 2008, Department of Environment, Water, Heritage and the Arts, viewed 12 April 2011, <http://www.climatechange.gov.au/what-you-need-to-know/buildings/publications/~/media/publications/energy-efficiency/buildings/energyuse-part1.ashx>.

Environmental Awareness and Action, Australian Social Trends, June 2010, viewed 20 September 2011, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features20Jun+2010>.

Faruqui, A & Harris, D 2009, *Lessons from Demand Response: Trials and Potential Savings for the EU*, The Brattle Group.

Faruqui, A, Mitarotonda, D 2011, *The Costs and Benefits of Smart Meters for Residential Customers*, The Edison Foundation Institute for Electricity Efficiency.

Faruqui, A, Sergici, S & Palmer, J 2010, *The Impact of Dynamic Pricing on Low Income Customers*, Edison Foundation Institute of Electric Efficiency.

Fox, J, & Gohn, B Q2 2011, *Home Energy Management In-Home Displays, Web Dashboards, and Mobile Applications: Market Analysis and Forecasts*, Pike Reasearch.

Garnaut, R 2011, *Transforming the electricity sector*, Commonwealth of Australia.

Global Smart Grids – An Industry in Transformation – a new market report, 2011, <www.pr-inside.com>.

Gohn, B 2011, *Smart Grid Industry Perspectives Landis+Gyr National Sales Meeting*, Pike Research.

Harvey, F 2010, *Smart meters predicted to save UK households £23 a year by 2020*, Guardian.

Hatler, M, Gurganious, D & Chi, C 2010, *Smart Energy Homes*, ON World.

Hatler, M, Gurganious, D & Ritter, M 2011, *Smart Metering*, ON World.

Herter, K, O'Connor, T, & Navarro, L 2011, *Evaluation Framework for Smart Grid Deployment Plans A Systematic Approach for Assessing Plans to Benefit Customers and the Environment*, Herter Energy Research Solutions & Environmental Defense Fund.

Hoiland, J 2011, *Selling Smart Meters to Consumers*, Transmission & Distribution World.

How Do Homeowners Use Energy Management?, Your Story, 13 September 2011, viewed 20 September 2011, <http://your-story.org/how-do-homeowners-use-energy-management-266468>.

Independent Pricing & Regulatory Tribunal 2011, *Changes in regulated electricity retail prices from 1 July 2011 – Electricity Final Report June 2011*, IPART NSW.

Independent Pricing & Regulatory Tribunal 2011, *Consumer Summary: Changes in regulated electricity retail prices from 1 July 2011 – based on Draft Determination, April 2011*, IPART NSW.

Industry mobilises in carbon tax battle, 1 July 2011, The Australian.

Johnston, R June 2011, *Report of the 5th Meeting of the Residential Energy Management Forum*, Australian Centre of Innovation Limited.

King, C 2011, *Texas smart meter rollout yields faster, bigger savings than expected*, eMeter Corporation.

Kirkpatrick, K, & Fisher, L 2010, *Smart Grid Applications Smart Meters, Demand Response, and Distributed Generation*, ABI Research.

Lohman, T 2010, *Victorian smart meter roll-out put on hold*, Computerworld, viewed 23 March 2011, <http://www.computerworld.com.au/article/340543/victorian_smart_meter_roll-out_put_hold/>.

NSW Electricity Network and Prices Inquiry, NSW Government Industry & Investment, viewed 27 October 2011, <http://www.dpc.nsw.gov.au/__data/assets/pdf_file/0005/118904/NSW_Electricity_Network_and_Prices_Inquiry_Report.pdf>.

Nuclear power debate 'live debate within the Labour Party', says Martin Ferguson 30 June 2011, The Australian.

Orchison, K 2011, *Scotching the snake*, TiP.

Orchison, K 2011, *Three four-letter words for O'Farrell*, Business Spectator.

Parkinson, G 2011, *The power to save billions*, Business Spectator, Australia.

Peak Load, Energy Dictionary, viewed 20 September 2011, <http://www.energyvortex.com/energydictionary/peak_load__peak_demand.html>.

Personal Energy Management: Connecting consumers to energy management solutions 2010, Landis+Gyr.

Power up the 'smart meters' 2011, Los Angeles Times.

PowerCentsDC™ Program Final Report 2010, eMeter Corporation.

Radio Frequency (RF) & Smart Meters, Demand Response and Smart Grid Coalition, viewed 20 May 2011, <http://www.drsgcoalition.org/resources/factsheets/Radio_Frequency_(RF)_and_Smart_Meters_FAQ.pdf>.

Residential customers keen to see data 2011, Smart Grid Today.

Residential Demand Management – Key Research Findings 2011, Energeia.

Residential Energy Management in Australia 2010, 2010, Connection Research.

Robbins, B, 2011, *Power costs mean consumers must get used to shocks*, Sydney Morning Herald.

Roen, H 2011, *Understanding the Smart Grid*, ALT Energy Stocks, 20 January 2011, viewed 19 August 2011, <http://www.altenergystocks.com/archives/2011/01/understanding_the_smart_grid.html>.

Roussac, C 2011, *Building green to beat peak demand*, Climate Spectator.

Scalabity, Wikipedia, viewed 19 August 2011, <http://en.wikipedia.org/wiki/Scalability>.Shapley, D 2011, *Survey: Smart Meters Save Homeowners Energy*, <thedailygreen.com>.

Sims, R 2011, *Regulated retail electricity prices from 1 July 2011*, IPART.

Smart meter link to bill shock 6 April 2011, Herald Sun.

Smart meter shock: electrical hazards found in 3500 homes, 13 February 2011, The Age.

Smart meters will minimize load shedding 2011, <metering.com>.

St. John, J 2011, *HP's Home Energy Experiment: Nice Display But Now What?*, <http://gigaom.com>.

Stevens, N 2011, *Carbon price may cost up to $275 : ERAA*, AAP.

Tasmania's Energy Sector – an Overview April 2011, State of Tasmania.

Time Varying Pricing 2011, Pacific Gas & Electric Company, viewed 9 June 2011, <http://www.pge.com/mybusiness/energysavingsrebates/demandresponse/peakdaypricing/TimeVaryingPricing>.

The energy you use at home, Environment Victoria, viewed 20 September 2011, <http://www.environmentvictoria.org.au/content/energy-home>.

The Impact of Residential Air-conditioning on the Western Australian Electricity System, Office of Energy, 13 December 2004, viewed 27 October 2011, <http://www.energy.wa.gov.au/cproot/603/2759/Air%20conditioning%20paper.pdf>.

Tournemille, H 2009, *Italy's Smart Metering Revolution: Showing the world how it's done*, <www.energyboom.com>.

Trembath, M 2011, *Families brace for electricity-bill shock*, St George & Sutherland Shire Leader News.

Understanding Consumer Preferences in Energy Efficiency 2010, Accenture.

viewed 12 April 2011, <http:/www.abs.gov.au/abs@.nsf/mf/8146.0>.

viewed 1 June 2011, <http://www.ipart.nsw.gov.au/files/Speech%20-%20%20Electricity%20Price%20and%20Market%20Dynamics%20Review%202011%20-%2029%20April%202011%20-%20Rod%20Sims.PDF>.

viewed 15 July 2011, <http://www.powertochoose.com/content/about/electricity_basics.asp#heading-7>.

viewed 16 June 2011, <http://www.powercor.com.au/Search_Results/?search=load%20shedding>.

viewed 15 July 2011, <http://www.powertochoose.com/content/about/electricity_basics.asp#heading-7>.

Wallop, H 2011, *Smart meters save just £23 as energy taxes and bills rise*, The Telegraph, viewed 8 July 2011, <http://www.telegraph.co.uk/finance/personalfinance/consumertips/8416688/Smart-meters-save-just-23-as-energy-taxes-and-bills-rise.html>.

Wimberly, J 2011, *EcoPinion Consumer Cents for Smart Grid Survey Report Issue 12 May 2011*, <www.ecoalign.com>.

White Goods, Household Water, Energy Use and Conservation, Victoria, October 2009, viewed 12 April 2011, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/0/7E391A69F25A1F30CA25774A0013BF89?opendocument>.

Yon, D 2011, *Customer Care Series: Serving critical care customers*, Chartwell Inc.

Notes

Notes

Landis+Gyr

Key Figures

Turnover:	USD 1.53 billion
R&D:	6.6% of sales
Employees:	5,139
Companies:	45 in more than 30 countries

Landis+Gyr is the leading global provider of integrated energy management products tailored to energy company needs and unique in its ability to deliver true end-to-end advanced metering solutions.

Today, the Company offers the broadest portfolio of products and services in the electricity metering industry, and is paving the way for the next generation of smart grid. With annualized sales of more than US$1.5 billion, Landis+Gyr, a standalone growth platform of the Toshiba Corporation (TKY:6502) and 40% owned by the Innovation Network Corporation of Japan, operates in 30 countries across five continents, and employs 5,000 people with the sole mission of helping the world manage energy better.

Landis+Gyr
manage energy better

Australia
Customer Service Toll Free
Australia 1300 252 634

New Zealand
Auckland +64 09 478 4200

International
Sales Enquires +61 3 8368 1600

sales.au@landisgyr.com
www.landisgyr.com

Landis + Gyr Pty Ltd
ABN 78 002 894 224