

A word from your president



Regulators and electricity cost pressures

Now that the carbon tax legislation has passed through the Commonwealth parliament, the challenge for government and energy regulators is to seek out ways of keeping the lid on future electricity prices. While trade exposed industries and low/middle income earners will be compensated, no amount of compensation is likely to cater for the relentless upward pressure on electricity prices. The carbon price is only one factor pushing up electricity prices. Other drivers are the national and state green schemes, the uncertain generation investment environment, the need for large scale network investments in transmission and distribution networks and the concentration of retail ownership.

The billions of dollars being invested in transmission and distribution networks needs very close scrutiny. The capital spent on electricity networks over the last decade resembles a feast to famine mindset and this in my view reflects very poorly on the nation's electricity regulators. Regulators have oscillated between "drive the system harder" to build the "low risk" full (N-1) contingent network immediately. We have seen some network owners slash their workforces by a 1/3, losing their capability to effectively build the needed infrastructure only to incur the huge costs of rebuilding the same capacity a few years later. The feast to famine has also affected equipment suppliers and other service providers in the same way. This feast and famine approach is one of the main reasons that electricity prices have been increasing at such an alarming rate.

Network regulators live in fear that they will be held responsible for forcing their regulated entities to cut back on capital projects that will ultimately cause blackouts and other disruptions. There is a fine line in balancing the risks of cutting back capital spending and maintaining adequate levels of reliability and customer service. Investing in networks is a long term process. There are long time lags between the spending and the customers receiving the benefits. The benefits are not always directly measureable but appear in the form of reduced risks of blackouts and loss of reliability visible only to the network planners and system operations staff. Short term improvements in SAIDI and SAIFI can mask large risks of widespread network failures that can occur when key critical individual pieces of infrastructure fail.

Is the current large capital spending on networks worthwhile? In one sense it is because we need modern and reliable networks that the capital spending is providing. On the other hand the sheer size of the expenditure forces up unit construction costs adding to the large unwanted jumps in electricity prices. What is needed is a long term view of building networks to meet customer needs. Good industry regulation will provide for a network just adequate to meet the acceptable needs of the average customer.

In many respects the regulator is the ultimate pseudo customer, the "knowledgeable customer" that makes these decisions for all of us. What I would like to see are regulatory determinations that stabilise the annual network infrastructure spending so that feast and famine responses comes to an end. What I call for is a steady hand on the capital works spending that result in modest changes in the expenditure from year to year. Regulators also need to take a long term view of where the networks need to be in 5, 10 and 20 years. This is the best method available for regulators to stabilise the network component of electricity prices in the long term.



Dr Robert Barr
EESA National President

CHANGE OF DATE....

**The EECON QLD 2012 Conference & Trade Exhibition
dates have now changed to...**

Wednesday 29th to Friday 31st of August 2012



Bulletin 1, January - February 2012
Please email submissions by 25th January to the Bulletin Editor
Patrick McMullan @ pmcmullan@energy.com.au

News and Issues around the Industry

The Energy Supply Association of Australia (esaa) has appointed Matthew Warren as its new Chief Executive Officer.

Currently the Clean Energy Council's Chief Executive, Mr Warren was selected as esaa's new CEO following a nationwide search, said esaa Chairman Tony Concannon.

"We are delighted to have secured someone of Matthew's standing to lead esaa in its vital task of representing the interests of Australia's energy supply industry," Mr Concannon said.

Mr Warren will take up the role of esaa's CEO on 16 January.

"Australia currently stands at a crossroad confronting critical climate and energy challenges that will impact on the reliability of supply, needs of investors and cost of our energy supply for generations to come," said Mr Concannon. Mr Warren has led the Clean Energy Council since 2008 and has been a prominent voice in Australia's energy and climate debates for many years.

He was previously the environmental writer for the Australian newspaper and holds a Bachelor of Economics with Honours from the University of Adelaide.

esaa is the peak industry body for the stationary energy sector in Australia and represents the policy positions of more than 40 electricity and downstream natural gas businesses.

These businesses own and operate some \$120 billion in assets, employ over 52,000 people and contribute \$16 billion directly to the nation's GDP each year.

The IEA reports that...

Guidebook on Energy Efficient Electric Lighting for Buildings (http://www.ecbcs.org/docs/ECBCS_Annex_45_Guidebook.pdf). Whilst lighting is a large and rapidly growing source of energy demand and greenhouse gas emissions, the savings potential is high. This report, available in **summary** (http://lightinglab.fi/IEAAnnex45/guidebook/guidebook_summary_report.pdf) or **complete** (http://www.ecbcs.org/docs/ECBCS_Annex_45_Guidebook.pdf) format, concludes the work of Annex 45 of the Energy Conservation in Buildings and Community Systems Programme (ECBCS - <http://www.ecbcs.org/>) and includes a series of case studies and proposals for upgrading standards and codes.

Bioenergy is the focus of these first three dot points...

- **Bioenergy, Land Use Change and Climate Change Mitigation – Background Technical Report** (<http://www.ieabioenergy.com/LibItem.aspx?id=6927>) analyses the connection between bioenergy and associated changes in land use, and supports a shorter, earlier version aimed at policy advisors and policy makers which can be accessed **here** (<http://www.ieabioenergy.com/LibItem.aspx?id=6770>).
- **Greenhouse Gas Benefits of a Biogas Plant in Austria** (http://www.iea.org/impagr/cip/pdf/Austrian_Case_Study_Biogas_2011.pdf). This 36-page study from Task 38 of the **Bioenergy IA** (<http://www.ieabioenergy.com/>) uses life-cycle assessment to determine the greenhouse gas and efficiencies of energy output of biogas plants, with and without closed storage.
- **Algae as a Feedstock for Biofuels** (http://www.iea-amf.vtt.fi/pdf/annex34b_joint_t39_algal_biofuels_summary_report_sept2011.pdf). Jointly produced by the **Advanced Motor Fuels** and **Bioenergy Task 39** (<http://www.iea-amf.vtt.fi/>) collaborative programmes, this 23-page report examines issues and opportunities for algal biofuels production.
- **Resources to Reserves 2011 brochure**. This four-page leaflet provides an insight into the messages and findings of the IEA's upcoming study on the technical challenges facing the upstream fossil fuel industries in the future. It is projected that fossil fuels will continue to make a significant contribution to global energy demand over the coming decades. Conventional reserves, however, are being depleted and access to new reserves is becoming more demanding. Better technology is required to access these reserves more efficiently, in a more environmentally sustainable manner and at a competitive cost. **Download** (http://www.iea.org/papers/2011/Flyer_RtoR2011.pdf) from the IEA website.
- **Launch of ISGAN website**. Visit the website of the recently created Implementing Agreement for a Co-operative Programme on Smart Grids (**ISGAN** - <http://www.iea-isgan.org/main/>). This IEA collaborative programme seeks to improve understanding of the potential for smart grid technologies to enable reductions in greenhouse gas emissions and energy use at country, regional, and global levels. It focuses high-level government attention on the promise of smart grids to achieve such reductions as well as the challenges to accelerating their deployment.

News and Issues around the Industry

Rooftop solar panels overloading electricity grid - EXCLUSIVE -

ANNABEL HEPWORTH, ADDITIONAL REPORTING: MARK SCHLIEBS (13 October 2011, The Australian)

THE runaway take-up of rooftop solar panels is undermining the quality of electricity supplies, feeding so much power back into the network that it is stressing the system and causing voltage rises that could damage household devices such as computers and televisions.

Power distribution lines and home wiring were designed for electricity to flow from power stations to appliances, but households with solar panels do the reverse of this.

One of Australia's biggest electricity network providers, Ausgrid, warned that there was a "significant likelihood" that costs would have to rise because of the impact of the solar photovoltaic cells.

In a letter to the NSW pricing regulator, obtained by The Australian, Ausgrid warns that in areas with a high concentration of solar cells, voltage levels can rise and this can have "consequences for appliances and equipment in customers' homes". It can also cause solar systems to switch off.

In Queensland, some new applications for rooftop solar systems have been rejected and Energex now urges customers to check that a solar PV system can be installed without threatening the operation of the network.

In Western Australia, Horizon Power has set limits on how much renewable energy can be installed in a system without affecting the power supply. Horizon is rejecting applications for new renewables installations in Exmouth and Carnarvon, and accepting them only from households, schools and not-for-profit organisations in Broome and Leonora.

Energex spokesman Mike Swanston said it was becoming difficult for electricity distribution authorities to set up the power system to ensure correct voltages when some houses in a street had solar and others did not.

"It is similar to the water network -- the pipes get smaller and the pressure is designed to be lower as you get closer to the house," Mr Swanston said. "Start pumping water backwards into the smaller household pipes, and all sorts of strange things happen."

Energy Networks Association acting chief executive John Deveraux said the problem would only get worse as more rooftop solar panels were installed and the systems got bigger.

In southeast Queensland alone, more than 22,300 rooftop solar systems were installed in the first three months of this financial year -- more than the 19,000 installed in the 2009-10 financial year, according to Energex.

Federal Labor's target of producing 20 per cent of electricity from renewable sources such as solar power by 2020 has pushed up demand for the rooftop PV systems. So, too, have state-based schemes that pay generous feed-in-tariffs to households for injecting power back into the grid.

Meanwhile, a flood of cheap solar panels being made in Asia and imported into Australia has offset moves by the government and some states to wind back their subsidies.

Power quality problems are worse in rural areas as the network is sometimes weaker and there is generally more space, meaning that bigger solar PV systems with capacities of 5 kilowatts or more are being installed, compared with the 1kW-3kW systems more common in urban areas. Essential Energy, which operates powerlines in country NSW and parts of southern Queensland, wants NSW to follow Queensland's lead on introducing a cap on solar PV systems of 5kW to avoid power quality problems.

Endeavour Energy, which runs the network in Sydney's greater west, warns that some solar panel installers have not done voltage checks and other measurements to ensure the solar PV system operates adequately.

"The biggest problem we've got with the accelerated rollout is making sure every installation is fully compliant," Endeavour's general manager of network development, Ty Christopher, said.

Adelaide solar panel installer Chris Hart said the problems were worse in the summer months, when airconditioner use added to the stress on the system.

Mr Hart, who owns EcoSouth Solar Electricity, said areas with a lot of solar panels pushed the voltage up to the maximum allowable level, triggering shutdowns in the individual systems and taking the load off the grid.

He said solar systems "drop out for a few minutes" when voltages get too high, a phenomenon known as "tripping out".

"Then they try to come online again and it pushes the voltage up again and it's very wearing," he said. "That's the problem with having too much solar in an area where the local authority hasn't got enough wires or copper in the street to hold the voltage down."

Mr Hart said the size of conductors and cables in the streets would have to be upgraded "so it can handle lots of solar, versus times when there's lots of load and no solar".

"If you get a very, very hot night and there's obviously no solar, the mains voltage is going to drop a lot," he said. "If your wires aren't up to it, you've got a problem."

The network companies say measures such as retrofits and battery storage can stop the "tripping" but can be costly.

In Western Australia, Horizon Power has set "hosting capacity limits" for renewable energy- installations.

News and Issues around the Industry

Shock to system Power companies admit to starting 4320 fires PETER HUNT in the Weekly Times writes that

THE owners of Victoria's electricity network have admitted to starting at least 4320 fires between 2006 and 2010.

The startling statistic is revealed in the Australian Energy draft determination on implementing the Victorian Government's f-factor scheme, which sets yearly fire-start thresholds on the state's powerline network.

Under the scheme the Government will charge distributors \$25,000 for each fire their network starts above the threshold and reward them with \$25,000 for each fire below the target.

But rather than lowering the bar the Australian Energy Regulator has decided to set an annual threshold for most distributors based on the average number of fires their networks started in the past five years.

As a consequence the AER has issued a draft determination stating:

SPAUSNET'S annual threshold of 257 fires, based on its network starting 1290 fires for the period.

POWERCOR'S annual threshold of 402 fires, based on 2005 fires.

UNITED Energy's threshold of 124 fires, based on 566 fires.

JEMENA'S threshold at 57 fires, based on 276 fires.

CITIPOWER'S threshold at 30 fires, based on 183 fires.

A spokesman for Energy Minister Michael O'Brien said the f-factor scheme would "ensure distribution businesses effectively and efficiently target their maintenance and fire mitigation programs".

A fire-start covered by the f-factor scheme includes any starting in or originating from a distribution system started by a tree (or part of a tree falling upon or coming into contact with a distribution system), animal, lightning strike or anything else coming into contact with a distribution system.

The scheme will begin on January 1 next year.

In the meantime, the Government has deferred implementing a key recommendation of the 2009 Victorian Bushfires Royal Commission.

Recommendation 32 of the commission's final report calls on the Government to "disable the reclose function on the automatic circuit reclosers on all SWER lines for the six weeks of greatest risk in every fire season".

The Government's Powerline Bushfire Safety Taskforce has considered and made recommendations to Mr O'Brien on the issue.

But Mr O'Brien has refused to release the report and will not make a decision on the issue until later this year, well into the bushfire season.

Victorian Chapter News

Annual EESA Corporate Members' Breakfast

Friday 4 November 2011

We were very fortunate to have Professor of Civil Engineering and Deputy Dean at Swinburne University of Technology, John Wilson, provide us with an insight into the most recent Victorian Infrastructure Report Card released by Engineers Australia. In particular, John talked about our electricity, rail, and water sectors, which were found to be 'old and ageing' and expected to be struggling to meet the demands of a rapidly growing population.

Whilst listening to John, corporate members enjoyed a quality breakfast and networked with other corporate members.



International Snippets from around the Industry

Perry Sioshansi in the latest EEnergyInformer writes...

Energy-intensive industry uses lot of electricity and, not surprisingly, wants it cheap. This results in intense competition among countries who want such industries – and that is not everyone.

The latest survey of cheap electricity by NUS Consulting Group puts Canada, ahead of South Africa, previously considered the cheapest. The new ranking reflects a recent 28% price increase in South Africa, with more price increases likely to follow as the country is frantically adding new generation capacity due to chronic shortages.

The NUS survey does not include all expensive countries – e.g., Japan – or cheap – e.g., hydro-dominated Norway or Brazil. Moreover, the reported costs do not include taxes – which are considerable in many European countries – and reflect national averages, which could vary considerably within large countries such as the US. More important, while low cost electricity remains a powerful lure for energy-intensive industry, it is not everything.

Smart Meters Worth Every Penny

If in doubt about all the money pouring into the advanced metering infrastructure (AMI), which broadly covers smart meters and associated peripherals, rest assured because the benefits are likely to outweigh the costs by a wide margin under most scenarios. At least that is the message from The Costs and Benefits of Smart Meters for Residential Customers, a recently published report by the Institute for Electric Efficiency (IEE).

In releasing the study in July 2011, Lisa Wood, IEE Executive Director said, “Although specific results will vary by utility, our study found that even with conservative assumptions regarding consumer engagement in technology, programs, and rate plans, utilities and their customers can expect positive net benefits from their AMI investment over the next 20 years.”

The study groups utilities and their customers into 4 categories from marginally to fully committed for the former and from marginally to fully engaged for the latter. It examines the AMI’s benefits in operational, customer, and societal categories. Looking at a hypothetical utility service area with 1 million households, IEE found that the total cost for a utility to invest in AMI and associated home energy management technologies varies from a low of \$198 to a high of \$272 million.

On the benefit side, AMI investments are likely to result in

- Operational savings – e.g., from avoided metering costs, automated outage detection, and remote connections – in the \$77-208 million range; and
- Customer-driven savings – e.g., from energy pricing programs, in-home enabling technologies, and energy information – in the \$100-150 million range.

Net benefits from investing in AMI ranged from between \$21-64 million for the four types of utilities.

“Interestingly, our analysis also revealed that the strategy with the potential to return the greatest ... (benefits) is to focus on accelerating the adoption of electric vehicles (EVs). Households that have EVs, which represented only about 1.25 to 1.5% of the hypothetical 1 million customers in a service territory, created a disproportionately high share of the overall consumer-driven savings, indicating that even modest increases in EV adoption will have a large impact on benefits.”

Some pain, net gain

	Pioneer	Committed	Exploratory	Cautious
Costs (\$ million)	198	272	223	258
Operational savings (\$ million)	77	153	156	208
Consumer-driven savings (\$ million)	150	140	131	100
Net Benefits (\$ million)	29	21	64	50

Source: The Costs and Benefits of Smart Meters for Residential Customers,” IEE, July 2011

Who's on top?

Electricity prices in selected countries, in US cents/kWh*

2011 rank	Country	Cost in US¢ per kWh
1	Canada	7,98
2	South Africa	8,55
3	United States	9,48
4	France	9,61
5	Australia	10,02
6	Poland	11,87
7	Sweden	11,94
8	Finland	12,11
9	Portugal	13,51
10	Netherlands	14,37
11	Austria	14,58
12	UK	15,10
13	Belgium	15,23
14	Spain	15,37
15	Germany	18,56
16	Italy	19,70

* Rankings based on supply of 1,000 kWh with 450 hrs of use excluding VAT and other taxes, June 2011 data

International Snippets from around the Industry

MIT Technology Review - Oct 2011- Energy Natural Gas Upgrade?

A California startup gets new funding for cracking the puzzle of how to make liquid chemicals directly from methane. Spurred by the long-term prospects of cheap and abundant supplies of natural gas, **Siluria** (<http://siluria.com/>), an early-stage San Francisco startup, has received \$20 million in new funding to invent technology to convert methane—the main component of natural gas—into ethylene, a feedstock that is used in much of the world's chemical production. If Siluria is successful—the technology is still confined to laboratory testing—it could transform the economics of producing various chemicals and plastics, and even fuels.

The new investment, led by **Wellcome Trust** (<http://www.wellcome.ac.uk/>), reflects hopes that the company, which previously had **raised \$13.3 million from a number of leading venture capital firms** (<http://www.technologyreview.com/business/26296/>), can solve a problem that has outwitted researchers and chemical companies for decades: finding catalysts that will selectively get methane to react with oxygen to make ethylene. Using recently developed nanotechnology tools and rapidly screening techniques, Siluria says it has invented several groups of catalysts that seem to work, at least in the lab, and is optimizing those catalysts while it continues to search for additional ones. It plans to begin testing the catalysts in a pilot system next year.

The commercial logic of the plan is simple. The United States is awash with cheap gas. Meanwhile, ethylene, the world's highest volume commodity chemical with a value of some \$160 billion a year, is made from petroleum using "steam cracking" in which the long-chain hydrocarbons are thermally broken down—or cracked. Natural gas is far cheaper than oil, and, especially with the recent exploitation of shale deposits in the United States and elsewhere, the supplies of it are projected to last for decades. Thus, making ethylene from natural gas would not only provide a far cheaper route to various petrochemicals and even fuels, it could provide natural gas producers with a valuable outlet for their products, while reducing dependence on petroleum.

Interconnected European offshore grid will save billions of Euros October 2011

New results on offshore electricity grid infrastructure in Europe: the EU "OffshoreGrid" project analysis reveals tremendous cost saving potential. Report published in Brussels in October 2011.

Offshore grids, connecting North and Baltic Sea wind farms to electricity consumers, will be substantially cheaper to build than expected. Building "hub connections" at sea instead of using cables to connect single wind farms individually to the shore will result in investment costs that are 14 billion Euros lower. Additionally if these hub connections were combined with an even more interconnected "meshed grid", the necessary additional costs of 5 to 7 billion Euros would be compensated by 16 to 21 billion Euros of additional benefits over 25 years of grid operation.

The cost for creating the complete meshed offshore grid including wind farm connections would amount to about 0.1 Eurocent per kWh consumed in the EU27 over the project life time.

There have been numerous estimates as to the costs such a grid may involve and the form it may take. The OffshoreGrid project, co-financed by the European Commission, proves the financial benefits of building a meshed European grid offshore and outlines two cost-efficient designs. However, it warns that a new regulatory framework is needed to enable its construction.

"As a concrete roadmap for further grid developments, the OffshoreGrid report sends a credible and urgent call for action to our policymakers and regulators. It should help trigger and steer timely investments, and deepen the international exchange and collaboration that are necessary for an efficient Europe-wide grid", says Geert Palmers, Chief Executive Officer of global renewable energy consultancy 3E, who acted as the project coordinator.

"In order to facilitate the development of an offshore power grid, the North and Baltic Sea countries have to adapt the legal framework together." said Stephan Kohler, Chief Executive Officer of the German Energy Agency (dena). "For example, the compatibility of grid connection policies and support mechanisms has to be pursued with high priority. We need innovative concepts for the distribution of costs and benefits for the construction of new transnational power grids."

Christian Kjaer, Chief Executive Officer of the European Wind Energy Association (EWEA) added: "If the right regulatory measures are put in place to enable this improved grid development, substantial economic benefits can be reaped through the projected savings in investment costs. Also this will significantly increase the security of electricity supply. In a truly liberalised European energy market this should have a positive effect on our electricity bills".

Partners of the project, co-funded by the EU's "Intelligent Energy Europe" programme, include 3E, the German Energy Agency (dena), the European Wind Energy Association (EWEA), the Polish Institute for Renewable Energy (iEO), the Renewable Energy Sources unit of the National Technical University of Athens, the Norwegian Energy Research Institute (SINTEF), the German Centre for Wind Energy Research (ForWind) and the UK based global energy services Group Senergy Econnect.

International Snippets from around the Industry

EPRI Reports Measure Consumers' Preferences and Expectations of Electric Vehicles

Posted on October 12, 2011 (<http://www.smartgridelectronics.net/2011/10/epri-reports-measure-consumers%e2%80%99-preferences-and-expectations-of-electric-vehicles/>)

More than 50 percent of people surveyed in the service territories of the Tennessee Valley Authority (TVA) and Southern Company would prefer to charge an electric vehicle at home, according to surveys conducted by the Electric Power Research Institute (EPRI). The EPRI surveys also characterized consumers' perceptions of electric vehicle ownership and their expectations of electric utilities and associated services.

"These surveys help in developing preliminary forecasts for electric vehicle adoption and identify the corresponding infrastructure and charging needs," said Mark McGranaghan, vice president of Power Delivery and Utilization at EPRI. "As we survey people in different regions of the country, we see different perceptions about electric vehicle technology. This will help utilities in developing their specific plans to meet the needs of their customers."

Almost two-thirds of respondents expect their local utility to develop public charging stations, while more than half expect their utility to offer installation of at-home charging. A substantial portion of power customers also will look to their electricity provider to offer potential electric vehicle buyers "buyer's guide" information about various types and makes of electric vehicles.

What factors influence a car buyer's likelihood to go electric? Survey results point to the availability of multiple locations to charge, and the availability of fast charging technology. Results also show that consumers may be hesitant to pay for faster charging, with more than 50 percent in both surveys unwilling to pay \$500 to install an optional 220V upgrade system in their home for fast charging electric vehicles.

The surveys provide insight into a number of areas of consumer sentiment: what and when residents drive, and how far; impact of knowledge on electric vehicle purchase interest; understanding vehicle charging and willingness to pay; and vehicle purchase intentions. When asked if they would purchase an electric vehicle if it were available in the make and model of their preference, approximately 15 percent of survey respondents indicated they would.

Seasons Greeting from EESA



The EESA Committee would like to wish all our EESA members and EESA friends the very best for the Christmas season. We have had a very successful year with events held across Australia.

We wish you all a safe and happy holiday with family and friends. Look forward to welcoming you to the upcoming EESA Conference and events throughout 2012!