EESA
THE ELECTRIC ENERGY SOCIETY OF AUSTRALIA
ENGINEERS AUSTRALIA

The Electrical Energy Society of Australia

www.eesa.asn.au

A word from your president

CPRS Backdown Changes Electricity Market

The Prime Minister's announcement on the 27 March that the Carbon Pollution Reduction Scheme (CPRS) was to be deferred until beyond 2012 has fundamentally changed the national forward electricity market. I find it bizarre that an announcement so important to the electricity industry could be made at a door stop interview at the Nepean District Hospital in Western Sydney. It is further bizarre that the announcement was made without the knowledge of the Federal Minister for Energy, Martin Ferguson. Having made the decision, we must give them credit for making the announcement as soon as possible to minimise the adverse impacts on the country.

It seems that "the greatest moral challenge of time" is to be put on ice in the short term, but clearly there is now every chance it will never see the light of day in Australia. The timing of the announcement was critical for many large electricity customers. The April, May, June period is a time of the year where many large electricity customers seek contracts with retailers for contracts starting 1 July.

Prior to the announcement, most large electricity customers were looking for 1 year only contracts for 2010/11 to avoid contracting into a possible CPRS period. The sheer uncertainty of contracting into an undefined CPRS meant a lack of market liquidity and the scenario of paying for carbon three times. You may ask how could customers pay three times for carbon?

1. Customers and retailers were operating in forward electricity markets that contained a significant carbon component.
2. Almost all large customer retail electricity contracts have 100% CPRS cost pass through provisions.
3. Customers would indirectly pay for CPRS compensation to a long list of recipients.

Paying for carbon three times is not what electricity customers had in mind. The Rudd announcement in March immediately brought down the forward market, quashed the CPRS cost pass through risks for the year 2011/12 and killed the compensation issue for 2011/12. Now that the CPRS is pushed back to at least 2013, liquidity in 2011/12 has improved and 2 year deals are now being done.

Even though it was never enacted, the CPRS has seriously damaged the power industry in Australia. In my view, we are going to have higher electricity prices for many years to come due to underinvestment and changes to the mix of new generation with its emphasis on wind and gas. I have no doubt that we will get through the years to come but at a cost. Ultimately the political process gets to the right solution, the process is not necessary fast or efficient but it gets there in the end. Unfortunately there are always some casualties along the way.

Bob Smith to Be Awarded Honorary EESA Life Membership

I'm very please to announce that due to distinguished services to the electricity industry and the EESA, Bob Smith, our NSW Chapter Chair will be awarded Honorary Life Membership of the EESA at our upcoming National Conference to be held in Sydney 1-3 September 2010. This is going to be one of the highlights of the conference.

Dr Robert Barr
EESA National President

Bulletin 4, August - September 2010:
Please email submissions by the 5th of August to the Bulletin Editor,
Patrick McMullan on pmcmullan@energy.com.au

Upcoming Events

86th National Conference & Trade Exhibition

Watt's up.... future-proofing energy networks

1 - 3 September 2010

Brochure & Registration Available Now!!! www.tmm.com.au

To Register or to find our more on the National Conference and/or Sponsorship and Exhibition opportunities **please go to www.eesa.asn.au or contact The Meetings Manager on 02 9810 7322 or meetings@tmm.com.au**

News and Issues from around the Industry

Extracts from the June edition of EEnergy Informer
http://www.menloenergy.com/?p=215

Perry Sioshansi: Desertec faces multitude of obstacles, and not just technical or financial

Desertec Industrial Initiative, a consortium consisting of some of the biggest names in the energy and finance in Europe, is conducting an assessment of a massive network of solar and wind plants in North Africa with an equally massive transmission network to feed as much as 15% of Europe's electricity needs by 2050.

Preliminary estimates put the costs at €300 billion ($400 billion), with multitudes of obstacles, not all technical or financial, to overcome. Yet the consortium is pushing ahead. Tying the vast solar and wind potential of North African continent to the European grid makes sense – if these obstacles can be overcome.

The Desertec consortium has the backing of insurance company Munich Re, Deutsche Bank, Siemens, plus a number of energy firms notably E.ON and RWE, Germany's biggest two energy utilities.

http://www.desertec.org/en/ http://en.wikipedia.org/wiki/Desertec

Perry Sioshansi again: Turning Off Lights Not As Easy As It Sounds.

Efficient utilization of energy, everyone acknowledges, is the cheapest and easiest way to address concerns about dwindling energy supplies, energy security and climate change. It is estimated that 30% of energy in US commercial buildings is inefficiently or unnecessarily consumed.

Savings can be achieved by measures as simple as turning off the lights in unoccupied rooms, empty office buildings or shopping malls after closing hours. But implementing such simple measures is not as trivial as it sounds.

In private homes, however, the resulting savings directly flows to the bottom line. In commercial settings where energy savings do not directly flow to individual occupants, motivating good energy utilization behavior is considerably more complicated. In the case of an estimated 4.8 million large and small commercial buildings in the US, the simple question of who is responsible to turn off the lights at the end of the day turns out to be no one in particular.

The problem has not escaped the attention of the US Environmental Protection Agency (EPA), who, among other things, is behind the highly successful Energy Star program to highlight the energy efficiency of major appliances. In April, the EPA launched a new program called Working off the Waste to encourage reduced energy consumption in the US commercial building sector where an estimated 30% of the energy is currently inefficiently or unnecessarily consumed.

EPA's new program, copied from the a popular TV show on NBC network called The Biggest Loser which recognizes the greatest weight loss among obese contestants, starts off with a competition among 14 major commercial buildings to see who can cut the biggest amount of energy waste. The contestants, major retails stores, shopping malls, office buildings and residential dormitories, are required to turn in details of their energy usage from Sept 2009 to August 2010. The winner will be the building with the largest percentage energy drop.

While installing efficient appliances and sophisticated energy management systems helps, simple behavioral factors and operational changes – things like turning off the lights, the escalators and the circulation system – are expected to be the big winners. And behavioral factors, once they are adopted and become the norm, can outlast the buildings.

http://www.energystar.gov/index.cfm?fuseaction=buildingcontest.about

News and Issues from around the Industry

Finally Perry Sioshansi reports on Unconventional Gas : How much of a game changer

Over a relatively short period of time, huge resources of non-conventional gas have been added to the inventory of proven reserves. The potential size of non-conventional resource endowment in the US is estimated as high as 3,700 trillion cubic feet, 1,400 for Canada, roughly a quarter of which may be reasonably recoverable with today's technology.

These numbers, still in the making, simply dwarf the current proven reserves of North American gas, and by extension, the same probably applies to rest of the world. Writing in The Wall Street Journal (10 May 2010), Professor Amy Jaffe of Baker Institute at Rice University, concludes, "… I am convinced that shale gas will revolutionize the (energy) industry – and change the world – in the coming decades," adding, "It will prevent the rise of any new cartels. It will alter geopolitics. And it will slow the transition to renewable energy."

Professor Jaffe dismisses the two main obstacles that critics believe may limit further development of non-conventional gas, namely that exploration and development will be expensive and carries environmental risks. She believes that the costs will fall with advancements in technology and mass production, perhaps to as low as $2 per million BTUs. As for the risks, she believes they are manageable and commensurate with the rewards.

The implications, if one believes her logic, can be significant on a number of dimensions. Abundant and cheap natural gas will make coal less attractive for electricity generation, and this could have major environmental benefits since the former emits half as much greenhouse gases as the latter for a given output of electricity.

Regarding renewables and nuclear, both will become relatively less attractive, at least until we exhaust the commercially viable reserves of non-conventional gas. In the mean time, OPEC and Russian gas tsars will become less threatening and less relevant – few tears will be shed for either.

http://online.wsj.com/article/SB10001424052702303491304575187880596301668.html

New AEMC Chairman

The Chief Executive of the Australian Energy Market Commission, Mr Steven Graham, has welcomed the organisation's new Chairman, Mr John Pierce, who commenced his term of office on 2 June 2010. Mr Pierce comes to the AEMC from his position as Secretary of the Department of Resources, Energy and Tourism. Prior to that, he was Secretary of the New South Wales Treasury for 12 years and Chairman of the NSW Treasury Corporation. 'The AEMC is looking forward to growing and deepening its contribution to the development of national energy markets under John's stewardship," Mr Graham said. Mr Pierce succeeds the Commission's inaugural Chairman, Dr John Tamblyn, who retired this month after five years with the organisation. For more information contact:
AEMC Chief executive Steven Graham on 02 8296 7800
Communication Manager Prudence Anderson 02 8296 7818 or 0404 821 935

http://www.aemc.gov.au/News/Whats-New/New-AEMC-Chairman.html

Newcastle to be Australia's first Smart Grid Smart City

Newcastle will be the site of Australia's first commercial-scale smart grid, in a project that will help Australians to save energy, connect renewable energy to the grid and to tackle climate change. To commence in mid 2010, the $100 million Smart Grid Smart City demonstration project in Newcastle is expected to lead to Australia-wide advances in energy efficiency. Minister for Climate Change, Energy Efficiency and Water, Senator Penny Wong announced in Newcastle on the 7th June that a consortium, led by EnergyAustralia, was the winning bidder. The main demonstration site will be in the city of Newcastle, with other parts of the trial to be conducted in Scone, Homebush, Ku-ring-gai and the Sydney CBD. Senator Wong said Smart Grids could give Australian households and businesses the tools to reduce their energy use and energy bills into the future.

http://www.climatechange.gov.au/en/minister/wong/2010/media-releases/June/mr20100607a.aspx

News and Issues from around the Industry

EPRI Collaborative Aims to Improve Efficiency of Transmission Grid

The Electric Power Research Institute (EPRI) launched an industry-wide "transmission efficiency" demonstration collaborative with a group of utilities and transmission system operators that will compile and analyse performance data from transmission lines, substations and grid operations to assess the cost, benefit and technical criteria for implementing efficiency measures.

More than 20 organizations and proposed 33 transmission demonstration projects will be providing data, and EPRI is actively recruiting more utilities and system operators to participate. The results will serve as a blueprint that will help improve the efficiency of the existing transmission system and the future bulk power network.

The collaborative is an outgrowth of efforts by EPRI, the Federal Energy Regulatory Commission (FERC) and transmission owners and operators to implement various technical designs that can facilitate more efficiency in the transmission system.

EPRI estimates a 40 percent improvement in grid efficiency would result in a savings of 54 terawatt hours, enough electricity to power 4.8 million homes in the United States.

"We cannot build transmission lines and substations the same way we did years ago," said Mike Heyeck, senior vice president of American Electric Power and Chairman of EPRI's Transmission Executive Committee. "We must fully incorporate life-cycle efficiencies into planning, engineering, and procurement for the grid of our energy future."

The initiative follows five meetings by key stakeholders in the United States and one in Poland in 2009 that identified the best practices and the technology improvements necessary to bolster bulk power efficiency. The international part of the collaborative will be launched June 2 in Madrid, Spain.

"These projects will provide the data under operational conditions for improving the efficiency of our transmission system," said Arshad Mansoor, vice president of EPRI's Power Delivery and Utilization sector. "We encourage broader participation by the transmission industry to maximize the opportunity for shared learning."

http://mydocs.epri.com/docs/CorporateDocuments/SectorPages/PDU/TransmissionEfficiencyInitiative/index.html

Global Temperature Is Continuing to Rise: A Primer on Climate Baseline Instability

MIT Technology Review 29 April 2010

Professor Bothun of the Department of Physics at the University of Oregon has made the following observations on recent warming trends based on an analysis sent to him by a colleague http://duende.uoregon.edu/~hsu/blogfiles/blogf1.pdf

"it seems clear from this analysis that the El Nino/La Nina cycles are superposed on a steadily increasing slope that commences somewhere in the 1980-1985 period. The claim that global warming stopped in 1998, as applied to this diagram, shows that it also stopped in 1982, then again in 1985, and then in 1991, 1998, 2001, 2003, and 2008. In other words, we see continuous evidence of "mini-peaks" (or local maxima in the parlance of time series language) in the anomaly data which are simply smoothed over and missed when one plots annual data.

"The current period is most likely a local minimum with respect to the last peak and one just need wait another 12 months or so, when we will return to increasing global monthly anomalies which then will be about +1 degree C in amplitude.

"Note finally that this data is using a 100 year baseline which is serving to somewhat suppress the actual amplitude of the positive residuals. The main point of this article, however, is not to determine the statistically best way to define the maximum amplitude of global rises in average land temperature, but rather to point out the significant fluctuations in the baseline due to the 4 phase AMO/PDO system and the El Nino/La Nina cycle will cause local maxima and minima in any time series data involving average temperatures.

"On the basis of this data it would seem that we oscillate between a local maximum and a local minimum (on timescales of a couple of years) while the underlying trend is upwards and certainly not downwards. Consistent with that conclusion is the recent data from NOAA and NASA that March 2010 was the warmest March every within the time period shown above. When other factors are considered [which affect] the future amplitude of temperature increases, such as the water vapor feedback loop and the methane release of the Arctic permafrost, the argument that global warming peaked in 1998 will prove to be both erroneous and silly."

http://www.technologyreview.com/blog/post.aspx?bid=354&bpid=25121

News and Issues from around the Industry

The Intelligent Grid Report: The Warren Centre news letter May 2010

The engineering is do-able. Policy and regulatory frameworks need considered thought and leadership. All energy market stakeholders need to be engaged and educated. The Intelligent Grid Report is the culmination of a three year CSIRO research program which examined the social, technological, environmental and economic value of widespread distributed energy use in Australia.

The Value Proposition is plain - the present value of cost savings of wide-scale deployment of distributed energy solutions could be as much as $ 130 billion by 2050, as well as helping reduce water usage associated with energy generation by up to 75% should Australia adopt the Garnaut 450ppm emission trajectory.

The water savings derive from a combination of distributed energy technologies and renewables, taking water usage associated with energy generation down to a fraction of what would otherwise be the case.

CSIRO's Intelligent Grid project set out to evaluate the impact distributed energy use could have for satisfying Australia's future energy needs in a carbon constrained economy using a combination of economic modelling, technology simulations and real world case studies. To understand how to realise this value, we examined the social, regulatory and policy factors that influence uptake of distributed energy.

Of the distributed generation technologies, we find in the short term that biomass and natural gas fired cogeneration provide good value in rural and industrial sectors, with trigeneration emerging in the commercial building sector. Longer term, solar PV may be likely to dominate growth in the distributed generation market across residential and commercial sectors, though this hinges on assumptions about technology development over time.

A wide range of energy efficiency and demand management opportunities provide significant value in the short and long term, from more efficient lighting, heating and cooling, to smarter management of interruptible loads like refrigeration and space conditioning.

CSIRO research sought to understand the many issues that can hold back or enable distributed energy solutions. Our work included case studies, consumer surveys, energy market stakeholder interviews and a literature review.

We found that long-term policy and regulatory uncertainty, as well as a lack of understanding of how distributed energy works were important hurdles which need to be overcome to realise the potential of wide-scale adoption of distributed energy.

We found a real need for education of consumers, energy companies, policy makers and regulators to help ensure energy market incentives are aligned with efficient energy service provision and that consumers make informed energy choices.
While distributed energy may still be perceived as an emerging industry in Australia, it is likely to rapidly evolve as efforts to reduce emissions from the stationary energy sector increase.

Continued technological development, business innovation and an increasing commitment to developing skills in the workforce will help drive the industry's development and ensure the transition to a low carbon future can occur most efficiently in Australia.

The report: Intelligent Grid: A value proposition for the wide-scale distributed energy solutions in Australia is available at www.csiro.au/resources/IG-report.html.

Nominations to EESA National Council & NSW Chapter now sought

Nominations forms for positions on the National Council & NSW Chapter have been included with this Bulletin.

It is probable that all the retiring Council members will re-nominate, however others may also nominate.

Forms to be returned to fax toJenna Zervos, at Engineers, 02 6273 2358, by Thursday 19 August. If required, elections will be conducted at the AGM at the National Conference on 2-3 September. To download a nomination form click on this link:

http://www.eesa.asn.au/articles/eesa-dual-nomination-national-and-nsw-form-2010/EESA_Dual_Nomination_form_2010-1.pdf

State Chapter News from South Australia

EESA Seminar – "Solar Power – Delivering Utility Scale Power on Demand"

Martyn Pearce, Chairman of the South Australian Chapter, reports that Artur Zawadski, Manager Business Development of Wizard Power delivered a presentation on the development potential of concentrating solar power (CSP). A group of about 100 attended this presentation at the new South Australian offices of Engineers Australia on Tuesday 16th March.

Wizard Power is a partner in the project to build the Whyalla Solar Oasis using big dish technology. The consortium includes Wizard Power (solar technology supplier), National Power (developer), Sustainable Power Partners (capital syndication and market operations) and Lycopodium Limited. (engineering procurement and construction management)

This project is planned to have 600 big dish solar concentrators, capable of generating 80 MW and delivering 132 GWh of energy a year, reducing greenhouse gas emissions by 129,000 tonnes per year. The plant would be connected to the electrical grid to supply power needs to the community of Whyalla. The consortium has applied for $100 million from the Commonwealth under the Renewable Energy Demonstration Program.

Notably, on 11 May 2010 the Australian Government announced $60 Million funding to the Whyalla Solar Oasis consortium to build a 40 MW 300 Big Dish solar power plant. While scaled down from the consortium's original 80MW proposal presented at the seminar, the project is proceeding and is expected to be operational in late 2012 / early 2013.

Artur gave a perspective of the potential growth path for CSP. In the short term, CSP projects will require direct subsidies, accelerated rates of depreciation, feed in tariffs or other forms of support to be financially viable. For greater commercial opportunities to evolve and the CSP technology to further develop integration of CSP with short term storage or where available, natural gas back up is required. This provides the ability to manage peak loads, such as late afternoon demand in summer, when electricity pool prices are higher.

Therefore integration with storage or gas back-up technologies is important for CSP to contribute on a long term commercial basis. Artur described a number of projects in the USA and Europe utilising CSP integrated with storage technologies such as molten salt and steam buffering.

There is also an increasing recognition that thermochemical solutions can play an important role, including options such as value-adding Australia's coal supplies using solar gasification to produce the feedstocks for liquid fuels, plastics and fertilisers.
http://www.eesa.asn.au/media/sa/SA%20-%20Solar%20Power%20March%202010.pdf

Future meetings of interest

Save the Date – EESA National Conference 2011
Dates: 6 - 8 April 2011 (please note the earlier date)
Venue: Wrest Point Convention Centre, Hobart, Tasmania

Call for Papers and other details will be available soon after the September 2010 EESA National Conference.

Call for Papers: 21st International Conference & Exhibition on ELECTRICITY DISTRIBUTION Frankfurt, Germany : 6 - 9 June 2010

CIRED, the Leading Forum where the Electricity Distribution Community meets, holds the major International Electricity Conference & Exhibition every two years in different venues in Europe with a worldwide perspective and participation. The 2011 EVENT will take place in Frankfurt a. M., the business heart of Europe.1200 professionals and senior executives challenged by the roll out of Smart metering, the design of Smart Grids, the management of an aging infrastructure and the third energy package are expected to meet in the Frankfurt Conference Centre (Messe Frankfurt).

http://www.cired2011.org/documents/CIRED-CALL-BAT.pdf