

REFORM
SCHOOL ...



“Could do better” says Productivity Commission

Electricity reform has lowered the average cost of electricity and contributed an estimated \$1.5 billion a year to national prosperity, but this is less than was promised when the national electricity market was formed, said the Productivity Commission review of the industry.

1

Insufficient interconnector capacity:

Submissions from many generators identified the lack of new interstate transmission as the key problem. As a result, the NEM has remained fragmented, with spot wholesale prices differing from state to state and isolated shortages still occurring.

NSW, Qld regimes “anti-competitive”: NSW and Queensland maintained anti-competitive price equalisation schemes that allowed their giant state-owned generating companies to exercise disproportionate market power.

Excessive reserve margins: It has also been widely noted that most states maintain large reserve margins, with one observer quipping that it might be a good idea in Queensland “given the state of the transmission network”. The Commission concluded that the southern states need to boost capacity to meet long term demand, but pointed out that new transmission links would help in the short-term by making the NEM more efficient.

COAG moved belatedly: These deficiencies were recognised by the Council of Australian Governments (COAG) a year ago, when it belatedly agreed to establish a national energy regulator and national transmission regulator.

PM White paper prompts discussion of energy futures

Securing Australia's Future, the Prime Minister's white paper on the future of energy in Australia and the recent spike in the price of crude oil has spawned a rash of discussion around clean coal and alternative energies. (*Full report starts on page 8.*)

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Electricity in brief

China plans generator sell-off: China is reportedly preparing to sell up to 11 power plants in a move that could open its fast-growing energy market to foreign companies and raise about \$US2 billion (\$2.8 billion) to alleviate chronic electricity shortages.

Japan, too: The Japanese Government is looking to unload more than \$4.1 billion of shares in wholesale electricity provider Electric Power Development (J-Power). It is part of the government's attempt to deregulate Japan's electricity generation market and shore up public finances.

"Could do better" says reform report card: Electricity reform has lowered the average cost of electricity and contributed an estimated \$1.5 billion a year to national prosperity, but this is less than was promised when the process began, noted *The Australian Financial Review*.

Wesfarmers gets power station nod: StateWest Power, a Wesfarmers subsidiary, has been selected by Western Power as the preferred bidder to build five new power stations in Marble Bar, Nullagine, Menzies, Laverton and Gascoyne Junction.

New Qld gas plant mooted: The Queensland Gas Company is studying the feasibility of building an \$80m 57MW power station at Chinchilla on top of its coal seam methane fields.

Engineer shortage claimed: Australia is facing a shortage of qualified power engineers, according to a joint study by the Electric Energy Society, Engineers Australia and the Energy Supply Association.

Greenhouse debate call: Tony Coleman, chief risk officer and group actuary for Australia's largest insurer, Insurance Australia Group, wants increased debate about climate change in Australia. The insurance sector will be an early casualty if major climatic events increased in number and severity.

Origin sees "no joy" in forward price curve: Origin chief executive Grant King is coy about timing of the group's proposed new Vic power station. "The forward curve of the electricity price gives no cause for joy for investing in generation," King said. Portland is tipped as the likely site.

Coal in from the cold: Growing disillusionment with natural gas among American power generators is bringing coal back into favour. Coal already fires more than half the power stations in the US - and reliance on coal is increasing for the first time in decades, as rising NG prices choke off the so-called "dash for gas" among generating companies.

Record US deficit: The United States monthly trade deficit hit a record level in June because of costly energy imports.

Malthus right? A leading oil expert, World Bank consultant Mamdouh Salameh, has claimed there are 300 billion fewer barrels of oil in the world than asserted by OPEC, which, he alleges, deliberately overestimated the size of proven oil reserves in the 1980s.

Feds dust off petrol pricing powers: The Federal Government was reportedly reviewing its powers to protect people from a major disruption to oil imports, as crude prices soared towards \$US50 a barrel.

Pacific Hydro's big ambitions: Pacific Hydro plans to expand its wind-power business with 500MW to 700MW of new capacity over four years. Pacific Hydro last week announced a record net profit after tax (NPAT) of \$40.7 million for the full-year ended 30 June 2004, up 39 per cent.

Portland wind project shaping up: When all 120 windmills of the 195MW Portland Wind Project are commissioned, they will almost double Australia's wind energy generating capacity. Project developer Pacific Hydro recently announced construction of Stage One - Yambuk, a 30MW, 20-windmill farm - due for completion in May 2005.

Not happy, John: The Howard Government's white paper Securing Australia's Energy Future was illogical and favoured fossil fuels, said Andrew Stock, President of the Australian Business Council for Sustainable Energy (BCSE).

New NZ generator planned: Mighty River Power, New Zealand's fourth-largest electricity retailer, is seeking planning consent to build a 320MW coal-fired generator north of Auckland.

Hydrogen lab for Apple Isle: The University of Tasmania is to develop the first laboratory in Australia specifically for applied hydrogen research.

Japan's Kyoto target in trouble: Japan's agreement to meet emission targets under the Kyoto accord was predicated on a rapid nuclear power build up. But those targets no longer look achievable, in large part because of the scaling back of new nuclear capacity from at least 10 new reactors by 2010 to four.

Japan carbon tax could hit Aust: Japan is contemplating a tax on the carbon content of fossil fuels as early as next year. If it does so, Australia could lose \$5 billion in GNP between 2005 and 2010, reflecting a decline in energy exports to Japan, ABARE said in a report just released.

Latham would delay carbon trading: Labor's federal energy spokesperson Joel Fitzgibbon said a Latham government would maintain funding for "clean coal technologies" and could delay implementation of a carbon trading scheme to as late as 2010. Federal Environment Minister, Senator Ian Campbell, said Labor's greenhouse policy is "in tatters".

US investing in renewables: The United States was the leading producer and consumer of renewable energy in the world, with more than 116GW of installed capacity in 2001, US Energy Secretary, Spencer Abraham, told a top-level conference organised by the Pew Center on Global Climate Change.

... but Europe leads in photovoltaics, wind: But German companies have moved ahead of American companies in photovoltaics, while the Dutch have the lead in wind energy, Democrat Senator Joseph Lieberman told the same conference.

Hydrogen top of US energy research pops: Hydrogen is the first of six pillars of collaborative climate research that the US Department of Energy had decreed deserve the greatest attention in energy technology priorities. The other five pillars are clean coal, safe nuclear power, fusion, energy efficiency and renewable energy.

Jindabyne dam modified: To provide for environmental flows into the Snowy River, Snowy Hydro is to modify the Jindabyne Dam.

World Energy Congress: Nuclear energy will headline the agenda at the 19th World Energy Congress in Sydney next month.

Tas Trevallyn tunnel works completed: Hydro Tasmania had completed major maintenance and upgrade works on the headrace tunnel carrying water from Lake Trevallyn to the Trevallyn Power Station.

Carbon disclosure rate grows: The second edition of the Carbon Disclosure Project (CDP) released last week achieved a 59 per cent response rate and reported 13 per cent of all worldwide CO2e emissions. The CDP was launched in December 2000 to facilitate institutional investor collaboration on climate change.

We're all activists now, says engineer: In a climate where community activism could delay or even sink a big project, engineers could no longer be pure technocrats. They must understand emerging community values and engage with the communities in which they work, argued, said leading Australian engineer Else Shepherd. She says "community outrage" can now sink electrical infrastructure projects.

Find out more at the subscriber section of www.erisk.net

Origin boss keeps mum on timing: Forward price curve offers no joy for investment

Origin chief executive Grant King has again refused to be drawn on timing of the company's proposed new power station project, noted *The Sydney Morning Herald* (18/8/2004, p. 42). "The forward curve of the electricity price gives no cause for joy for investing in generation," said King.

Portland still site favourite: Portland in western Victoria remains the likely site of the new generator, the paper added, and electricity industry sources suggest it should be ready to begin generation by the summer of 2008 to fill the looming supply shortages in Vic and SA.

New document on NEMMCO policies on Network and FCAS Constraint Formulation: Full solution to follow MCE review

3 A new document has been released outlining NEMMCO's policy on network constraint formulation for the interim period until an overall solution is put in place. *Policy on Network and FCAS Constraint Formulation* is available on the NEMMCO website.

Top price for NEM week 15-21 August 2004: Eildon at \$57.67/MWh

SA			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
North'n Power	\$2,639,012	88,272	\$29.90
Osborne	\$751,369	24,693	\$30.43
Ladbroke	\$337,884	11,418	\$29.59
Pelican Pt	\$260,486	7,967	\$32.70
Torrens Is. B	\$1,694,303	49,411	\$34.29
Vic->SA	\$1,644,780	56,034	\$29.35
MLink->SA	\$160,488	5,037	\$31.86
Torrens Is. A	\$148,299	3,722	\$39.84
Mintaro	-	-	-
Dry Creek	-	-	-
Playford	\$262,986	8,829	\$29.79
Snuggery	\$33	1	\$26.93
Pt Lincoln	-	-	-
Quarantine	\$64,315	1,373	\$46.86
Hallett Power	\$6,733	165	\$40.77
Lonsdale	-	-	-
VIC			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Loy Yang A	\$8,643,330	355,874	\$24.29
Loy Yang B	\$4,155,938	171,257	\$24.27
Hazelwood	\$6,223,838	251,856	\$24.71
Yallourn	\$5,949,611	244,886	\$24.30
Anglesea	\$651,918	26,880	\$24.25
Energy Brix	\$579,054	23,906	\$24.22
Newport	\$477,666	12,458	\$38.34
MLink->Vic	\$7,742	470	\$16.48
SA->Vic	\$2,099	44	\$47.88
Snowy->Vic	\$700,599	23,311	\$30.05
Jeeralang	\$7,862	196	\$40.01
West Kiewa	\$87,658	3,260	\$26.89
Bairnsdale	\$41,576	1,025	\$40.55
Dartmouth	\$272,623	8,511	\$32.03
Eildon	\$7,295	126	\$57.67
Hume Vic	-	-	-
McKay Power	\$791	20	\$38.64
Clover	-	-	-
Valley Power	\$257	11	\$23.89
Rubicon	-	-	-
Somerton Power	-	-	-
Sunshine Energy	-	-	-
Longford	-	-	-
Tramway Road	-	-	-
Toora Wind Farm	-	-	-

NSW			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Bayswater	\$10,072,394	391,977	\$25.70
Eraring	\$7,781,639	289,004	\$26.93
Mt Piper	\$5,308,811	203,891	\$26.04
Liddell	\$4,989,780	194,501	\$25.65
Vales Point	\$4,216,349	157,149	\$26.83
Wallerawang	\$3,694,777	144,843	\$25.51
Redbank	\$419,551	16,277	\$25.78
Smithfield	\$525,752	19,563	\$26.87
Snowy->NSW	\$2,085,616	67,972	\$30.68
Shoalhaven	-	-	-
Hunter Valley	-	-	-
Hume Hydro	-	-	-
Blowering	-	-	-
Munmorah	-	-	-
Northern Gas	-	-	-
Burrinjuck	-	-	-
Brown Mountain	-	-	-
Keepit	-	-	-
Broken Hill	-	-	-
Ergon Energy	-	-	-
Pindari Hydro	-	-	-
DL Q->N	\$104,246	3,350	\$31.12
QLD->NSW	\$2,124,342	76,829	\$27.65
West Nowra	-	-	-
QLD			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Tarong	\$5,808,499	249,733	\$23.26
Callide B	\$1,297,329	55,306	\$23.46
Stanwell	\$4,488,117	187,149	\$23.98
Gladstone	\$3,863,272	160,180	\$24.12
Callide Power	\$2,840,997	118,727	\$23.93
Swanbank	\$1,127,391	45,619	\$24.71
Collinsville	\$161,130	6,320	\$25.50
Millmerran	\$3,316,200	142,592	\$23.26
Swanbank C_D_E	\$507,177	18,726	\$27.08
Callide A	-	-	-
Kareeya	\$242,196	10,416	\$23.25
Barcardine	\$95,132	3,547	\$26.82
Barron Gorge	\$27,096	869	\$31.19
Mt Stuart	-	-	-
Wivenhoe	\$558,923	25,550	\$21.88
Townsville	-	-	-
Mackay	-	-	-
Roma	\$36,848	961	\$38.36
Oakey	\$95,872	2,738	\$35.01
DL N->Q	-	-	-
NSW->QLD	\$3,801	195	\$19.50
Rocky Point	-	-	-
Tableland	-	-	-

Bringing together different policy aspects: It has been created to bring together, for convenience, different aspects of policy on formulation of network and FCAS constraints that have been previously advised to the market through a number of different avenues.

Overall solution to follow MCE review: NEMMCO was aiming to put forward an overall solution once the Ministerial Council on Energy regional structure review had been completed.

What the document covers: This document dealt only with decisions regarding whether terms should be on the left or right hand sides of the constraint equation. It did not deal with whether or not the equation adequately represented the specified technical envelope that was determined by a separate process.

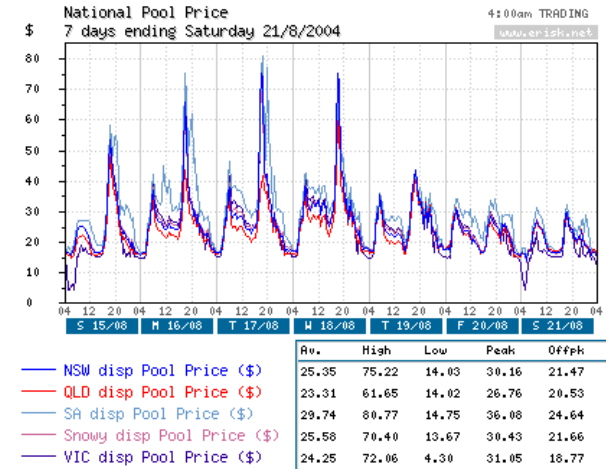
For further information contact Mark Miller, Head of Market Operations Performance. Phone: 1300 300 295. To view document visit: nemmco.com.au/operating/transmission/170-0030.htm

ACCC transmission links decision gets AFR thumbs up

4 While somewhat underwhelmed by progress on electricity market reform, *The Australian Financial Review* (21/8/2004, p.62) took some heart from last week's decision by the ACCC to change the test it had used to decide whether to allow a proposed new transmission link to charge regulated tariffs. The new test should

the week in detail

- NSW:** Average price of \$25.35/MWh, exactly the same as the previous week's average, up 33 per cent on the average of \$19.00/MWh of the comparable week last year; maximum price \$75.22/MWh for the trading interval ended 18330 Tuesday, 17 August. Average demand 9304MW, up 2.1 per cent on the previous week, up 3.7 per cent on a year ago; maximum demand 12,273MW for the interval ended 1830EST Wednesday, 18 August, up 4.7 per cent on 11,724MW of the previous week. NSW imports from Snowy averaged 402MW, up 9.5 per cent on average imports of 367MW the previous week;
- Victoria:** Average price of \$24.25/MWh, up 4 per cent on the previous week's average of \$23.30/MWh, up 20 per cent on the average of \$20.14/MWh of the comparable week last year; maximum price \$72.06/MWh for the trading interval ended 1900EST Tuesday, 17 August. Average demand 6070MW, up 7MW on the previous week, up 2.1 per cent on a year ago; maximum demand 7300MW for the interval ended 1830EST Monday, 16 August, down 0.4 per cent on the 7326MW of the previous week. Net exports to Snowy averaged 95.99MW, up 15.5 per cent on average exports of 83.14MW the previous week;
- South Australia:** Average price of \$29.74/MWh, down 10 per cent on the previous week's average of \$32.97/MWh, up 28 per cent on the average of \$23.37/MWh of the comparable week last year; maximum price \$80.77/MWh for the trading interval ended 1900EST Tuesday, 17 August. Average demand 1509MW, down 5MW on the previous week, down 4.1 per cent on a year ago; maximum demand 2038MW for the 1900EST interval on Monday, 16 August, up 1.5 per cent on the 2008MW of the previous week. Vic-SA disp flow averaged 332MW, up



13.7 per cent on the 292MW the previous week; Murraylink net flow averaged 26.92MW west, down from 30.96MW west the previous week; and

Queensland: Average price of \$23.31/MWh, up 1 per cent on the previous week's average of \$23.05/MWh, up 46 per cent on the average of \$16.00/MWh of the comparable week last year; maximum price \$61.65/MWh for the trading interval ended 1900EST Wednesday, 18 August. Average demand 5425MW, down 1MW on the week, up 4.3 per cent on a year ago; maximum demand 6755MW for the 1830EST interval Wednesday, 18 August, up 0.6 per cent on the 6712MW the previous week. QNI net flow averaged 438MW south, down 16.7 per cent on the 526MW south the previous week. Directlink average 19.22MW south, down on the 23.79MW south the previous week.

make it easier for regulated transmission links to win approval by taking into account the competitive benefits of increased interstate trade, it said.

Bizarre: After six years under the previous rules, only one new link (the Queensland-NSW interconnector) and one upgrade (to the Snowy Mountains-Victoria link) have been approved. South Australia was bizarrely denied a desperately needed interconnector to oversupplied NSW.

"Regulatory blindness": "Since competitive benefits are the *raison d'être* of the NEM, this is nothing short of amazing," the paper said. "The Energy Users Association estimates the cost to electricity users of this regulatory blindness - based on the cumulative difference between lowest and highest prices in the NEM - at \$6 billion over its life or more than \$1 billion a year. It will take a few years to build the transmission links to transfer this wealth from suppliers to users."

Wesfarmers subsidiary to build five new WA remote township power stations

5

StateWest Power had been selected by Western Power as the preferred bidder to build new power stations in five remote towns - Marble Bar, Nullagine, Menzies, Laverton and Gascoyne Junction.

Operational by late next year: Construction is expected to begin in January next year with

the power stations operational by late 2005. StateWest Power, a subsidiary of Wesfarmers, already supplies electricity to Western Power in the Mid-West at Cue, Yalgoo, Mt Magnet, Meekatharra, Wiluna and Sandstone.

New Queensland Energy landscape: New portfolio, new minister, and new look

Premier Peter Beattie has announced a new separate Energy Dept with a new Queensland Energy Minister, John Mickel and Scott Flavell the senior public servant responsible for Energy, reported the *ABC* (23/8/04).

Stand-alone Energy Dept: Energy will become a stand alone portfolio headed by the current Environment Minister, John Mickel.

Ex-Energy Minister gets Natural Resources: Current Energy Minister Stephen Robertson will retain the Natural Resources portfolio, while Local Government Minister Desley Boyle will add environment to her responsibilities.

Response to damning report: The moves form part of the State Government's response to a damning report into Queensland's electricity network.

\$2.7bn energy spend planned: Premier Peter Beattie has also announced Energex and Ergon will spend \$2.7 billion on capital works and maintenance over the next two years.

New Qld Energy Minister: Beattie said Flavell would work closely with the newly-announced Minister for Energy, John Mickel, to oversee the efficient implementation of the Action Plan for Queensland Electricity Distribution, which Cabinet approved today.

Scott top Qld electricity bureaucrat: "Scott will be the top bureaucrat with responsibility for ensuring all 44 recommendations of the Somerville Report on electricity distribution and service delivery are put in place," Beattie said.

Scott former Office of Energy: "He is a former Director-General and Executive Director of the Office of Energy, and has previously worked on electricity issues in Queensland Treasury."

Flavell Employment & Training Dept: Flavell is Director-General of the Department of Employment and Training. He will become Director-General of the Department of Employment, Training and Energy.

Electricity generators in top four users who ship more than 90 per cent of natural gas

The smaller the number of users of a gas transmission pipeline and/or the larger their purchases, the greater their bargaining power in relation to pipeline owners, the Productivity Commission said in its review of the gas regime.

Large costs in losing one large user: The Productivity Commission said this was because the costs to the pipeline operator from losing one user would be large. In general, the concentration of users serviced by transmission pipelines was high.

High level of concentration: Across all major pipelines, the top four users shipped more than 90pc of the natural gas on average. Disaggregated information on Epic Energy's pipelines (in September 2003) also showed a high level of concentration of users serviced by transmission pipelines as shown in the following table:

Concentration of users on Epic Energy's transmission pipelines September 2003

Transmission pipeline	Number of users	Contracted capacity of three largest users (%)	Users' industry category	Proportion of pipeline capacity (%)
Dampier-Bunbury	11	7.8	Manufacturing/ minerals processing	6.2
			Retail	1.1
			Electricity generation	2.7
Moomba-Adelaide	4	99.8	Manufacturing/minerals processing	1.0
			Retail	1.6
			Electricity generation	7.4
Balera-Wallumbilla	3	100	Manufacturing/minerals processing	9.5
			Retail	5
			Electricity generation	Not applicable

Source: Epic Energy submission to Productivity Commission's "Review of the Gas Access Regime". 10 August 2004. <http://www.pc.gov.au>

Qld Gas study into 57MW generator on top of CSM fields

Queensland Gas said it expected to complete a feasibility study next month on building an \$80 million 57MW generator on top of its coal seam methane fields at Chinchilla, next to the main NSW-Qld interconnector, reported *The Australian Financial Review* (21/8/2004, p. 13).

First sales by 2007: QGC hoped to make first sales to the NEM in 2007, the company's CEO Richard Cottee told *The Courier-Mail* (21/8/04).

Dearth of electrical engineers will get worse, study claims

Australia is facing a shortage of qualified power engineers at a time when the industry says it needs to spend upwards of \$30 billion on augmentation and expansion, according to a study reported in *The Australian* (21/8/2004, p. 9.)

75pc employers have trouble filling posts: Commissioned by the Electric Energy Society, Engineers Australia and the Energy Supply Association, the study found that almost three-quarters of employers are experiencing difficulties finding qualified people for positions already vacant.

More attrition to come: The researchers calculated that during the next five years 627 engineers will be lost to the industry, while the industry estimates it needs 692 more over the same period.

Hong Kong's no 2 power company Datang International records 31 per cent rise in profit

Datang International Power Generation, the second-largest Chinese power producer listed in Hong Kong, recorded

a profit increase of 31 per cent, according to *The Australian Financial Review* (23/8/2004, p. 30). The company claimed it generated more electricity and controlled fuel costs better than its rivals.

Pac Hydro lifts profits; flags huge wind power program

Renewable energy company Pacific Hydro Limited recorded a net profit after tax (NPAT) of \$40.7 million for the full-year ended 30 June 2004, up 39 per cent over the previous year. Net profit excluding non-recurring items was \$31.2 million compared to \$28.4 million last year, an increase of 10 per cent.

700MW of wind capacity planned: Pacific Hydro CEO Jeff Harding told *The Age* (19/8/2004, p. B5) that the company planned to expand its wind-power business by building between 500 and 700MW of wind capacity over the next four years.

Lions share: If the higher of those capacity figures is achieved, Pacific Hydro would contribute the lion's share of the approximately 1000MW of renewable generation yet to be built under the mandatory renewable energy target (MRET) subsidy scheme.

New equity not needed: Last year, Pacific Hydro raised \$60 million in new equity and Harding said there was no need for further equity to develop projects in the next two years.

Alstom's WA exothermic steam and power project to be completed in two years

Alstom Power would deliver a steam and power project for the BHP Billiton Ravensthorpe nickel process in WA, reported *EcoGeneration* magazine (July 2004, p. 22). The acid plant would produce heat in an exothermic process, captured in recovery boilers and sent to the Alstom-supplied power plant. Power would be produced by 3 x 18.5MW steam turbines and three oil-fired boilers. The project was expected to be completed in about two years' time.

Mighty River plans 320MW coal generator near Auckland

Mighty River Power, New Zealand's fourth-largest electricity retailer, is seeking planning consent to build a 320MW coal-fired generator north of Auckland, noted *The Australian Financial Review* (19/8/ 2004, p. 10).

Dedicated hydrogen research facility: \$350,000 from Hydro Tasmania, renewables benefit

The University of Tasmania's Hydrogen Energy Research Facility has received \$350,000 from Hydro Tasmania for

ongoing funding of a post-doctoral researcher and laboratory equipment.

Germans, Danes in: The new facility will investigate potential hydrogen applications in automotive technology and electrical engineering in collaboration with German and Danish research teams.

Big implications for renewables: Hydro Tasmania CEO Geoff Willis said the facility would significantly benefit Hydro Tasmania's plans for further renewable energy development. "Renewable energy will play a large role in the development of a hydrogen economy," Willis said.

Reference: University of Tasmania, 16 August 2004.

Hydro Tas completes \$5.1m upgrade of Trevallyn tunnel to produce extra 12GWh

Hydro Tasmania has completed major maintenance and upgrade works of the headrace tunnel which carries water from Lake Trevallyn to the Trevallyn Power Station, initially commissioned in 1955, reported *EcoGeneration* magazine (July 2004). The \$5.1 million tunnel upgrade would enable the power station to produce an additional 12GWh annually. The next stage will be a turbine upgrade to produce an additional 41GWh at a cost of \$21.7 million.

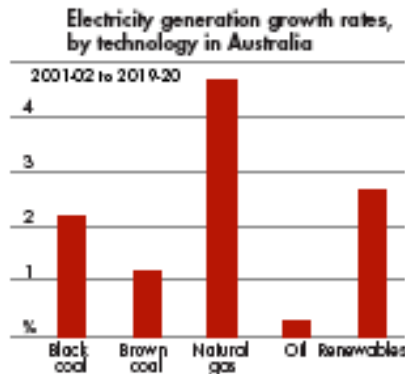
'Community outrage' can stop your pet energy project cold, warns engineer Else Shepherd

Leading Australian engineer Else Shepherd explored the phenomenon of 'community outrage' and its impact on engineering practices in the construction of electrical infrastructure in Australia - and around the world - in a public lecture on Wednesday, 18 August, at the University of Technology, Sydney. Shepherd, chair of Powerlink Queensland, argued that in a climate where community activism could delay or even sink a big project, engineers could no longer be pure technocrats. They must understand emerging community values and engage with the communities in which they work.

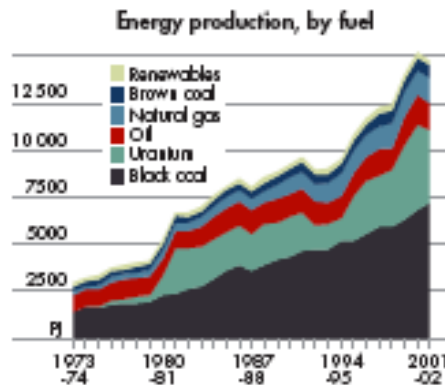
Reference: UTS, 13 August 2004. Contact: Belinda Kynaston, Faculty of Engineering. Phone: 02 9514 2637.

Coal in from the cold in US; generators going back to the devil they know, gas dropped

Growing disillusionment with natural gas among American power generators is bringing coal back into favour there, too. Coal already fires more than half the power stations in the US - and reliance on coal is increasing for the first time in decades, as



ABARE forecasts hold that the growth of renewable energy generation to 2020 will exceed that of coal and oil. Labor has committed to extending the Mandatory Renewable Energy Target to "a genuine 5% to encourage investment in the renewables sector." But Greens have accused the Labor Party of bowing to the coal lobby by agreeing to support funding of 'clean coal' technology commercialisation program COAL21 and delaying carbon trading to 2010.



Despite the green lobby's opposition to Govt and more recently Federal Opposition support for 'clean coal' funding, the majority of Australia's energy has historically come from its vast coal reserves, estimated to last another 200 years. The renewables industry has argued that a lack of policy support has contributed to the marginal role it plays in Australian energy generation.

rising NG prices choke off the so-called "dash for gas" among generating companies, according to a report in *The Australian* (18/8/2004, p. 30).

More reliable: The US Government predicts that coal's contribution to global energy consumption will double to 50 per cent by 2015 as developing countries (particularly China and India) seek a supply of low-cost energy, more reliable than oil and gas.

US has plenty of it: It is also often overlooked that the US has more coal than any other nation.

Natural gas disappoints: Some 175,000MW of new gas-fired generation capacity was installed in the US over about the last decade. But domestic gas production has peaked, causing dramatic price spikes and growing demand for imported gas.

Labor bows to coal lobby says Green Senator: Commits to COAL21, delays carbon trade

Labor party commitments to clean coal funding while delaying the implementation of carbon trading to 2010 were a bow to the coal lobby, Greens Senator Bob Brown has argued.

Labor supports COAL21: In a speech to the National Power Conference on August 17, shadow Energy Minister Joel Fitzgibbon said: "Labor supports the Coal21 initiative focused

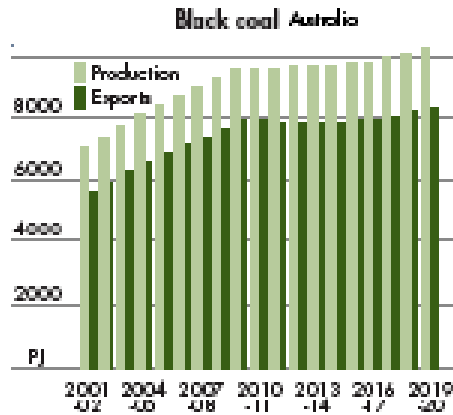
on commercializing technologies to achieve this." Greens Senator Bob Brown accused Labor of bowing to the coal lobby after opposition energy spokesperson Joel Fitzgibbon said a Latham government would maintain funding for "clean coal technologies" while delaying implementation of a carbon trading scheme to as late as 2010, reported *The Australian Financial Review* (18/8/2004, p. 6).

Fingerprints on policy smudged with coal: Brown said he was "very disappointed" that a Labor government in Canberra would wait two or three terms before introducing an emissions trading scheme. "This is remarkably disappointing for people in business who are looking for government to take the lead in the age of renewable energy. The power of the coal lobby is written all through this."

At least there's a timeframe: Fitzgibbon did at least put a time frame on a greenhouse trading scheme when he said: "Labor is committed to the implementation of a suitable national emissions trading framework by 2010".

Green voters neglected: The move however left the renewables lobby, already smarting from the rebuff delivered in the government's energy white paper, which blatantly favoured fossil fuels, feeling neglected.

Clean coal oxymoron: But where do greens go, when the alternative government has put emissions trading on the far back burner, and agreed with the present government's view that coal – albeit "cleaner coal" (a monumental oxymoron to most greens) – is the future?



Australia, like most developed nations is caught between an energy price rock and a climatic hard place. Coal makes Australia the worst per capita greenhouse gas emitter in the world but also supplies a sizable chunk of its export revenue. In 2001-02, almost 80 per cent of Australian black coal production was exported. ABARE expects this balance to remain largely unchanged until 2020. The key role that coal plays as a low cost, baseload fuel in electricity generation, not only worldwide but particularly in the rapidly growing Asian region, is expected to underpin firm demand for Australian thermal coal in the medium and long term. Currently more than 90 per cent of thermal coal exports and more than 60 per cent of Australia's metallurgical coal exports are destined for the Asian region. In the medium term, Australian thermal coal exports are projected to grow by 5 per cent a year to 130 million tonnes in 2008-09. Over the same period Australia's metallurgical coal exports are expected to grow by 3.8 per cent a year to reach 138 million tonnes in 2008-09.

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Business divided: On the business front, insurance group IAG – which sees significant profit risks in greenhouse changes – is campaigning for more debate about the costs of greenhouse to Australia. But, as *The Australian Financial Review* pointed out last week, the wider business community remains divided on the need for urgent action.

Demand side trial: Meanwhile, as reported in our companion Demand edition, big NSW distributor Energy Australia is setting up a major trial of demand-side responsiveness in the Sydney CBD this summer.

Labor's 2010 carbon trading timeframe too late for greens

Shadow Energy Minister Joel Fitzgibbon has committed to a carbon trading program by 2010, which was a "realistic time frame" that the Labor Party hoped would provide business with investment certainty.

Emissions framework by 2010: In a speech to the National Power Conference on August 17, Fitzgibbon said: "Labor is committed to the implementation a suitable national emissions trading framework by 2010. We will not unilaterally impose a scheme on industry stakeholders."

2010 a realistic timeframe: A spokesperson from the Office of Shadow Energy Minister Joel Fitzgibbon told *Electricity Week* that 2010 is a realistic timeframe to implement a strategy like this. "It is a commitment that will provide business with investment certainty."

Transitional response: "At the same time, Labor will provide a transitional response to allow both the fossil fuel industry and the renewables sector to improve their competitiveness ahead of a carbon constrained world."

5 per cent MRET: "This means retaining the government's Low Emissions Technology Fund and increasing the MRET to a genuine 5 per cent to encourage investment in the renewables sector."

BCSE: PM's Energy White Paper illogical, pro-fossil fuels

The Howard Government's energy vision, laid out in the white paper *Securing Australia's Energy Future*, was illogical and favoured fossil fuels, said Andrew Stock, president of the Australian Business Council for Sustainable Energy (BCSE), in an article published in *EcoGeneration* (7/2004, p. 5).

Illogical conclusion: Stock said the Prime Minister had argued that the choice was not about renewables versus fossil fuels, but about low versus high emissions outcomes. But if that argument were followed through to its logical conclusion, he argued, then the white paper would have boosted support for renewable energy which represented the only proven suite of zero emission technologies we have today.

Renewables industry disbelief at Howard's energy policy

The reaction of those in the renewables industry to the Howard Government's Energy White Paper had been

“universally and overwhelmingly one of bitter disappointment and disbelief”, said *EcoGeneration* (7/2004, p. 6). At the very least, the industry had expected that the Tambling recommendations for a small increase in the MRET target in 2020 and the extension of the scheme to 2035 would be implemented.

IGAG comes out in support of climate change action

Australia's largest insurer, Insurance Australia Group, whose profits stand to be eroded if major climatic events increase in number and severity, wants to create debate across Australian boardrooms and households about climate change. "Australia is undoubtedly the most vulnerable continent to climate change," said IAG's chief risk officer and group actuary, Tony Coleman. "We can't afford to sit back and take a relaxed approach to this" .

Business in the gun: Coleman argued to *The Australian Financial Review* (21/8/2004, p. 23) that business has much to lose from climate change.

Living standards under threat: Last month, the Australian Climate Group - convened by environmental group WWF Australia with the backing of IAG - released a report backed by eight senior scientists that said Australia's living standards were under threat from global warming and radical action was needed, including deep cuts to CO2 emissions to the order of 60 per cent by 2050.

But BCA divided over emissions reductions: Fossil fuels seen to be the future

The wider business community in Australia, however, remains divided on the need for urgent action on greenhouse gas emissions, *The Australian Financial Review* (21/8/2004, p. 23) said.

Energy intensive arena not budging: Those in the energy intensive arena - coal miners, generators, alumina smelters - were peopled with enviro-sceptics, and were not budging from their opposition to either Kyoto ratification or other sudden shifts in policy.

Queensland potentially top banana in alternative power

Queensland University researcher Bill Clarke told ABC Radio Sydney this week that he expected to have a prototype of a banana powered electricity generator by February 2005.

60kg of black slime produces 6000L: His approach has been to test anaerobic digestion of bananas to generate methane and then to use the methane to generate electricity. He has spent two weeks extracting methane from the black sludge expressed from 60kg of rotten bananas and has produced 6000 litres of methane.

Bananas aint oil: Taking into account any errors he may have made performing

calculations live on radio, the 40-60,000 tonnes of bananas that are discarded each year could produce about 15 Megawatt hours of electricity. Spread over three months that is a little more than 7 kilowatts. Clarke pointed out that energy from waste is generally economically inefficient and that is why it has not been adopted by mainstream power generators. For the banana growers, though, it needs only to break even to be an improvement on burying the fruit as they currently do.

China puts 11 power plants on the block; opportunity for foreign power companies

China was preparing to sell up to 11 power plants in a move that could open its fast-growing energy market to foreign companies and raise about \$US2 billion (\$2.8 billion) to alleviate chronic electricity shortages, reported *The Australian Financial Review* (19/8/2004, p. 33).

Advisors appointed: The State Grid Corp of China was believed to have appointed Goldman Sachs and UBS to manage the sale, which was expected to begin in the next few months.

Huge building plans: China planned to build the equivalent of Britain's total electricity-generating capacity in each of the next two years. International power generators had little presence in China but had long hoped to gain a bigger foothold.

Constraint Library Changes Report for the week 16 - 22 August 2004

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<p>17/08/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: N-BW_2000, 2100, 2200 Constraint Equation: N_BW_2000, 2100, 2200 Reason: Discretionary constraints required for total Bayswater generation</p>
<p>18/08/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: S-TI_CB_AW3+AC3 Constraint Equation: S_TI_CB_AW3+AC3 Reason: Required for planned outage</p>
<p>18/08/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: S-PFBA Constraint Equation: S>PFBA Reason: Required for planned outage</p>
<p>19/08/2004: Modified Constraint Set(s) and Constraint Equation(s) Constraint Set: Q-NIL_GTHERMAL Constraint Equation: Q>NIL_SBMU Reason: Increase MVA rating for Isolators at Swanbank</p>
<p>19/08/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: S-TITN Constraint Equation: S_TITN Reason: Required for planned outage</p>
<p>19/08/2004: Modified Constraint Set(s) and Constraint Equation(s) Constraint Set: Q-NIL_GTHERMAL Constraint Equation: Q>NIL_SBMU Reason: Constraint now reads actual ratings</p>
<p>Please note that the Effective Date indicates the new/updated Constraint is available from that date, it may not necessarily be invoked until a later time. Refer to the System Operating Procedure SO_OP3709 (http://www.nemmco.com.au/operating/systemops/3709.htm) for more information on Generic Constraints. Refer also to the Constraint Naming Guidelines: http://www.nemmco.com.au/operating/transmission/200-0062.htm and the Network and FCAS constraint formulation policy: http://www.nemmco.com.au/operating/transmission/170-0030.htm Should you have any queries regarding the above please contact Ben Blake on 02 8838 5359</p>

Transmission Outage Start Date 26 August - 1 September 2004

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Station Name	Equipment Name	Equipment Type	KV	Start Time	Status	Constraint Set ID
Bendigo 220kV	Bendigo Shepparton 220kV LINE	line	220	2004/08/26 07:00:00	SUBMIT	V-BESH
Point Henry 220kV	Pt Henry 4 220kV BUS	bus	220	2004/08/26 07:00:00	SUBMIT	
Bungama 132kV	Bungama Playfod PS 132kV LINE	line	132	2004/08/26 07:30:00	SUBMIT	
Happy Valley 275kV	Happy_Vly W 275kV BUS	bus	275	2004/08/26 07:30:00	SUBMIT	
Morphett Vale East 275kV	Mrpht_VI_E Happy_Vly 275kV LINE	line	275	2004/08/26 07:30:00	SUBMIT	
Torrens A Ps 275kV	Trrns_A_PS Torrens_N 1 66kV LINE	line	66	2004/08/26 07:30:00	SUBMIT	
Torrens A Ps 275kV	Trrns_A_PS Torrens_N 2 66kV LINE	line	66	2004/08/26 07:30:00	SUBMIT	
Murray	68 Murray-Dederang CB 682B	cb	330	2004/08/26 08:00:00	SUBMIT	
Broadsound 275kV	h20_bsnd.cplr 5022 cb	cb	275	2004/08/26 09:30:00	SUBMIT	
Sydney North 330kV	Sydney N 212A 330kV CB	cb	330	2004/08/26 10:00:00	SUBMIT	
Broadsound 275kV	h20_bsnd. Cplr 5032 cb	cb	275	2004/08/26 13:00:00	SUBMIT	
Mobilong 132kV	MOBILO 6073 132kV CB	cb	132	2004/08/26 18:00:00	SUBMIT	
Mobilong 132kV	MOBILO 6075 132kV CB	cb	132	2004/08/26 18:00:00	SUBMIT	
Mobilong 132kV	Mobilong Mannum 132kV LINE	line	132	2004/08/26 18:00:00	SUBMIT	
Para 275kV	PARA 6116 132kV CB	cb	132	2004/08/26 18:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6128 132kV CB	cb	132	2004/08/26 18:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6129 132kV CB	cb	132	2004/08/26 18:00:00	SUBMIT	
Tailem Bend 275kV	Tailem_Bnd Mobilong 132kV LINE	line	132	2004/08/26 18:00:00	SUBMIT	
Munmorah 330kV	Munmorh Sydney W 26 330kV LINE	line	330	2004/08/27 07:15:00	SUBMIT	
West Darra 110kV	W Darra 1 110kV CAP	cap	110	2004/08/27 07:30:00	SUBMIT	
Bungama 132kV	Bungama Playfod PS 132kV LINE	line	132	2004/08/27 07:30:00	SUBMIT	
Happy Valley 275kV	Happy_Vly 3 275/66kV XFMR	xfmr2	275/66	2004/08/27 07:30:00	SUBMIT	
Mobilong 132kV	MOBILO 6073 132kV CB	cb	132	2004/08/27 18:00:00	SUBMIT	
Mobilong 132kV	MOBILO 6075 132kV CB	cb	132	2004/08/27 18:00:00	SUBMIT	
Mobilong 132kV	Mobilong Mannum 132kV LINE	line	132	2004/08/27 18:00:00	SUBMIT	
Para 275kV	PARA 6116 132kV CB	cb	132	2004/08/27 18:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6128 132kV CB	cb	132	2004/08/27 18:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6129 132kV CB	cb	132	2004/08/27 18:00:00	SUBMIT	
Tailem Bend 275kV	Tailem_Bnd Mobilong 132kV LINE	line	132	2004/08/27 18:00:00	SUBMIT	
Mudgeeraba 275kV	Mudgeeraba 3 275/110kV XFMR	xfmr2	275/110	2004/08/28 00:00:00	SUBMIT	
Tarong 275kV	Tarong Middle Rdg 831 275kV LINE	line	275	2004/08/28 00:01:00	SUBMIT	
Chalumbin 275kV	Chalumbin 2 275kV BUS	bus	275	2004/08/28 06:00:00	SUBMIT	
Woree 275kV	Woree Chalumbin 877 275kV LINE	line	275	2004/08/28 06:00:00	SUBMIT	
Sydney East 330kV	Sydney E B1 132kV BUS	bus	132	2004/08/28 07:00:00	SUBMIT	
Ashgrove West 110kV	Ashgrove W Updr Kedron 7257 110kV LINE	line	110	2004/08/28 07:00:00	SUBMIT	
Kilburn 275kV	Kilburn Northfield 275kV LINE	line	275	2004/08/28 07:30:00	SUBMIT	
Kilburn 275kV	Kilburn Northfield 275kV LINE	line	275	2004/08/29 07:30:00	SUBMIT	
Munmorah 330kV	Munmorh Sydney W 26 330kV LINE	line	330	2004/08/30 07:15:00	SUBMIT	
Happy Valley 275kV	H_VALL 6525 275kV CB	cb	275	2004/08/30 07:30:00	RESUBMIT	
South Pine 275kV	h2_spine.cplr 5032 cb	cb	275	2004/08/30 08:00:00	SUBMIT	
Callide 132kV	Callide Calvale 7161 132kV LINE	line	132	2004/08/30 08:30:00	SUBMIT	
Calvale 275kV	Calvale 2 288/138kV XFMR	xfmr2	288/138	2004/08/30 08:30:00	SUBMIT	
Para 275kV	Para 275kV 1 275/66kV XFMR	xfmr2	275/66	2004/08/30 09:00:00	SUBMIT	
Liverpool 330kV	Liverpool 122A 330kV CB	cb	330	2004/08/31 06:30:00	SUBMIT	
Munmorah 330kV	Munmorh Sydney W 26 330kV LINE	line	330	2004/08/31 07:15:00	SUBMIT	
Callide 132kV	Callide Calvale 7161 132kV LINE	line	132	2004/08/31 08:30:00	SUBMIT	
Calvale 275kV	Calvale 2 288/138kV XFMR	xfmr2	288/138	2004/08/31 08:30:00	SUBMIT	
South East 275kV	South_East Heywood. 2 275kV LINE	line	275	2004/08/31 08:30:00	SUBMIT	I-HYSE_R
Tailem Bend 275kV	T_BEND 6536 275kV CB	cb	275	2004/08/31 09:00:00	SUBMIT	
Robina 110kV	t128_rba.bs 4112 cb	cb	110	2004/09/01 06:00:00	SUBMIT	
Eildon Ps 220kV	Eildon PS Thomastown 220kV LINE	line	220	2004/09/01 07:00:00	SUBMIT	
Munmorah 330kV	Munmorh Sydney W 26 330kV LINE	line	330	2004/09/01 07:15:00	SUBMIT	
South Pine 275kV	h2_spine.fdr 8252 cb	cb	275	2004/09/01 08:00:00	SUBMIT	
Sydney North 330kV	Sydney N 1 132kV CAP	cap	132	2004/09/01 10:00:00	SUBMIT	

Transmission Outage End Date 26 August - 1 September 2004

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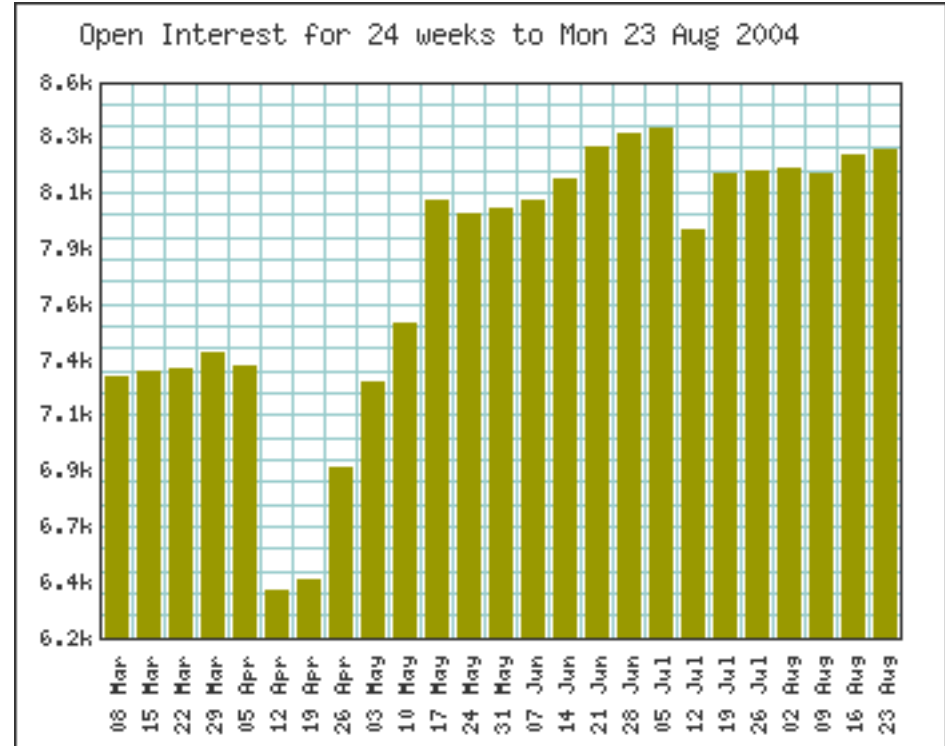
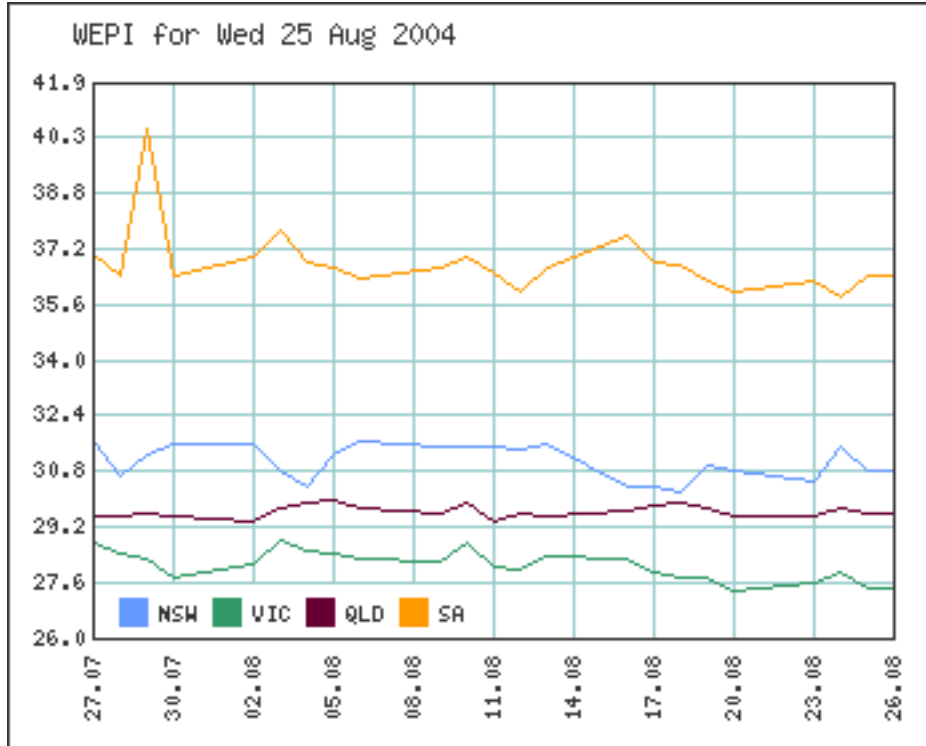
Station Name	Equipment Name	Equipment Type	KV	End Time	Status	Constraint Set ID
Broadsound 275kV	Broadsound 2 275kV BUS	bus	275	2004/08/25 17:30:00	SUBMIT	
Mobilong 132kV	MOBILO 6073 132kV CB	cb	132	2004/08/26 03:00:00	SUBMIT	
Mobilong 132kV	MOBILO 6075 132kV CB	cb	132	2004/08/26 03:00:00	SUBMIT	
Mobilong 132kV	Mobilong Mannum 132kV LINE	line	132	2004/08/26 03:00:00	SUBMIT	
Para 275kV	PARA 6116 132kV CB	cb	132	2004/08/26 03:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6128 132kV CB	cb	132	2004/08/26 03:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6129 132kV CB	cb	132	2004/08/26 03:00:00	SUBMIT	
Tailem Bend 275kV	Tailem_Bnd Mobilong 132kV LINE	line	132	2004/08/26 03:00:00	SUBMIT	
Sydney North 330kV	Sydney N 212A 330kV CB	cb	330	2004/08/26 12:00:00	SUBMIT	
Broadsound 275kV	h20_bsnd.cplr 5022 cb	cb	275	2004/08/26 12:30:00	SUBMIT	
Broadsound 275kV	h20_bsnd. Cplr 5032 cb	cb	275	2004/08/26 15:00:00	SUBMIT	
Murray	68 Murray-Dederang CB 682B	cb	330	2004/08/26 16:00:00	SUBMIT	
Bungama 132kV	Bungama Playfod_PS 132kV LINE	line	132	2004/08/26 16:30:00	SUBMIT	
Point Henry 220kV	Pt Henry 4 220kV BUS	bus	220	2004/08/26 16:30:00	SUBMIT	
Bendigo 220kV	Bendigo Shepparton 220kV LINE	line	220	2004/08/26 17:00:00	SUBMIT	V-BESH
Happy Valley 275kV	Happy_Vly W 275kV BUS	bus	275	2004/08/26 17:30:00	SUBMIT	
Morphett Vale East 275kV	Mrpht_VI_E Happy_Vly 275kV LINE	line	275	2004/08/26 17:30:00	SUBMIT	
Torrens A Ps 275kV	Trrns_A_PS Torrens_N 1 66kV LINE	line	66	2004/08/26 18:30:00	SUBMIT	
Torrens A Ps 275kV	Trrns_A_PS Torrens_N 2 66kV LINE	line	66	2004/08/26 18:30:00	SUBMIT	
Mobilong 132kV	MOBILO 6073 132kV CB	cb	132	2004/08/27 03:00:00	SUBMIT	
Mobilong 132kV	MOBILO 6075 132kV CB	cb	132	2004/08/27 03:00:00	SUBMIT	
Mobilong 132kV	Mobilong Mannum 132kV LINE	line	132	2004/08/27 03:00:00	SUBMIT	
Para 275kV	PARA 6116 132kV CB	cb	132	2004/08/27 03:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6128 132kV CB	cb	132	2004/08/27 03:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6129 132kV CB	cb	132	2004/08/27 03:00:00	SUBMIT	
Tailem Bend 275kV	Tailem_Bnd Mobilong 132kV LINE	line	132	2004/08/27 03:00:00	SUBMIT	
West Darra 110kV	W Darra 1 110kV CAP	cap	110	2004/08/27 12:30:00	SUBMIT	
Munmorah 330kV	Munmorh Sydney W 26 330kV LINE	line	330	2004/08/27 15:15:00	SUBMIT	
Bungama 132kV	Bungama Playfod_PS 132kV LINE	line	132	2004/08/27 16:30:00	SUBMIT	
Middle Ridge 275kV	Middle Rdg 1 110kV BUS	bus	110	2004/08/27 17:00:00	PTP	Q-SBBM+BKBM+MR+PW_CP
Middle Ridge 275kV	Middle Rdg 1 110kV BUS	bus	110	2004/08/27 17:00:00	PTP	Q-SBBM+BKBM+MR_50CP
Middle Ridge 275kV	Middle Rdg 1 110kV BUS	bus	110	2004/08/27 17:00:00	PTP	Q-TR_OFFSET_-10
Middle Ridge 275kV	Middle Rdg 2 110kV BUS	bus	110	2004/08/27 17:00:00	PTP	Q-SBBM+BKBM+MR+PW_CP
Middle Ridge 275kV	Middle Rdg 2 110kV BUS	bus	110	2004/08/27 17:00:00	PTP	Q-SBBM+BKBM+MR_50CP
Middle Ridge 275kV	Middle Rdg 2 110kV BUS	bus	110	2004/08/27 17:00:00	PTP	Q-TR_OFFSET_-10
Middle Ridge 275kV	Middle Rdg 1 110kV CAP	cap	110	2004/08/27 17:00:00	PTP	Q-SBBM+BKBM+MR+PW_CP
Middle Ridge 275kV	Middle Rdg 1 110kV CAP	cap	110	2004/08/27 17:00:00	PTP	Q-SBBM+BKBM+MR_50CP
Middle Ridge 275kV	Middle Rdg 1 110kV CAP	cap	110	2004/08/27 17:00:00	PTP	Q-TR_OFFSET_-10
Happy Valley 275kV	Happy_Vly 3 275/66kV XFMR	xfmr2	275/66	2004/08/27 17:00:00	SUBMIT	
Happy Valley 275kV	H_VALL 6524 275kV CB	cb	275	2004/08/27 17:30:00	SUBMIT	

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Station Name	Equipment Name	Equipment Type	KV	End Time	Status	Constraint Set ID
Mobilong 132kV	MOBILO 6073 132kV CB	cb	132	2004/08/28 03:00:00	SUBMIT	
Mobilong 132kV	MOBILO 6075 132kV CB	cb	132	2004/08/28 03:00:00	SUBMIT	
Mobilong 132kV	Mobilong Mannum 132kV LINE	line	132	2004/08/28 03:00:00	SUBMIT	
Para 275kV	PARA 6116 132kV CB	cb	132	2004/08/28 03:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6128 132kV CB	cb	132	2004/08/28 03:00:00	SUBMIT	
Tailem Bend 275kV	T_BEND 6129 132kV CB	cb	132	2004/08/28 03:00:00	SUBMIT	
Tailem Bend 275kV	Tailem_Bnd Mobilong 132kV LINE	line	132	2004/08/28 03:00:00	SUBMIT	
Tarong 275kV	Tarong Middle Rdg 831 275kV LINE	line	275	2004/08/28 06:00:00	SUBMIT	
Tailem Bend 275kV	Tailem_Bnd 4 275/132kV XFMR	xfmr2	275/132	2004/08/28 08:30:00	PTP	S-TB_TX_1
Sydney East 330kV	Sydney E B1 132kV BUS	bus	132	2004/08/28 12:00:00	SUBMIT	
Sydney East 330kV	Sydney E 1 132kV CAP	cap	132	2004/08/28 15:00:00	STLTP	
Mudgeeraba 275kV	Mudgeeraba 3 275/110kV XFMR	xfmr2	275/110	2004/08/28 16:00:00	SUBMIT	
Kilburn 275kV	Kilburn Northfield 275kV LINE	line	275	2004/08/28 17:30:00	SUBMIT	
Chalumbin 275kV	Chalumbin 2 275kV BUS	bus	275	2004/08/28 18:00:00	SUBMIT	
Woree 275kV	Woree Chalumbin 877 275kV LINE	line	275	2004/08/28 18:00:00	SUBMIT	
Hazelwood Ps 220kV	Hazelwd PS mwts/mps In 220kV	cb	220	2004/08/29 16:00:00	PTP	
Ashgrove West 110kV	Ashgrove W Upr Kedron 7257 110kV LINE	line	110	2004/08/29 17:00:00	SUBMIT	
Kilburn 275kV	Kilburn Northfield 275kV LINE	line	275	2004/08/29 17:30:00	SUBMIT	
Munmorah 330kV	Munmorh Sydney W 26 330kV LINE	line	330	2004/08/30 15:15:00	SUBMIT	
Callide 132kV	Callide Calvale 7161 132kV LINE	line	132	2004/08/30 16:30:00	SUBMIT	
Calvale 275kV	Calvale 2 288/138kV XFMR	xfmr2	288/138	2004/08/30 16:30:00	SUBMIT	
Munmorah 330kV	Munmorh Sydney W 26 330kV LINE	line	330	2004/08/31 15:15:00	SUBMIT	
Liverpool 330kV	Liverpool 122A 330kV CB	cb	330	2004/08/31 16:00:00	SUBMIT	
Muswellbrook 330kV	Muswlbk330 1 132kV CAP	cap	132	2004/08/31 17:00:00	PTP	N-MU_CP1
Sydney North 330kV	Sydney N 1 132kV CAP	cap	132	2004/09/01 12:00:00	SUBMIT	
Munmorah 330kV	Munmorh Sydney W 26 330kV LINE	line	330	2004/09/01 15:15:00	SUBMIT	
South Pine 275kV	h2_spine.cplr 5032 cb	cb	275	2004/09/01 16:00:00	SUBMIT	
Para 275kV	Para 275kV 1 275/66kV XFMR	xfmr2	275/66	2004/09/01 16:00:00	SUBMIT	
Callide 132kV	Callide Calvale 7161 132kV LINE	line	132	2004/09/01 16:30:00	SUBMIT	
Calvale 275kV	Calvale 2 288/138kV XFMR	xfmr2	288/138	2004/09/01 16:30:00	SUBMIT	
Robina 110kV	t128_rba.bs 4112 cb	cb	110	2004/09/01 17:00:00	SUBMIT	

D-cypha Weekly Report

EWN Publishing



Trading summary for week ending Monday 23/08/04

- Futures contracts traded this week = 20
 - Base = 20
 - Peak = 0
- Options contracts traded this week = 0
- Volume of EFP trades this week = 0
- Volume of BTF trades this week = 0

- Futures & Options contracts traded to date = 21,691
- Open Interest as at COB Monday 23/08/04 = 8,383 lots
- Average volume
 - Average daily volume FY04-05 = 39
 - August 2004 average daily volume = 38
 - July 2004 average daily volume = 39
 - June 2004 average daily volume = 48

Activity

- Volume on the bid and offer, counted at 4.35pm on 23/08/04= 845 lots.
- Brokers with active orders this week include: CSFB, ICAP, JP Morgan, Man Financial and Prebon.
- Bids and offers consistently quoted across all four states in Quarterly and Cal/Fin Year Strip Products and in the Custom Market.

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