



NSW fresh air: State plans new independent regulator: and ends retail gen cross subsidies

In a cool refreshing breeze, a NSW Government *Green Paper* proposed structural and governance changes to the NSW electricity system. These appear to include stronger greenhouse rules, new incentives for gas plant and the hand over of retail-risk to new firms. The complex NSW policy plan included these elements: the State of NSW would:

- keep all generation and distribution assets;
- separate state retail and distribution corporations;
- investigate the possibility of merging some government-owned generating capacity with a government-owned retailer to create a vertically integrated energy generation, trading and retailing company;
- plan joint ventures or reselling arrangements between the government-owned businesses and the private sector;
- not risk any capital in new generation;
- allow private interests to build new stations; but
- each new generator would sell the electricity through joint venture with a state-owned generator;
- set up a new government body to manage the network efficiently;
- allow new private players to sell electricity

The State of NSW also:

- implied a plan for a gas incentive like Qld's 13pc rule, to drive new gas supplies;
- noted the NSW electricity emissions were up 44 per cent in 12 years and proposed the use of stronger NSW greenhouse

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Electricity in brief

NSW emerges from dark ages: NSW was to look at merging some of its generating capacity with one of its retailers to create a vertically integrated energy group. Private interests would build new stations but sell the electricity through joint ventures with a state-owned generator. An extra 2000MW was needed in next ten years. But there was a problem; generators now emitted 59 million tonnes of greenhouse gases, or 40pc of the state total and the Government owned 96pc of total capacity of 12,800MW. So new generation must follow strict green rules.

New green rules confound coal: The State had lots of coal and it was much cheaper and much dirtier, too. \$40-\$50/MWh was needed to make combined cycle gas plants economic, up to 50pc more than coal-based generation prices, the NSW Green Paper said. But the coal-fired power cost likely to rise under future emissions trading schemes as the State said it would set minimum emission performance standards for new generators. The NSW Green Paper floated three options for a minimum emissions performance standard that could apply to future generators. Very timely as this was the week the Kyoto COP 10 hard yakka started in Argentina in Buenos Aires.

Changes for NSW greenhouse rules: As the emission intensity of best practice coal generation was above 2012 benchmark set by the NSW Greenhouse Gas Abatement Scheme, new offsets were needed; a higher bar, in short.

New trading rules to pressure coal: Future NSW electricity generators may need to buy internationally accepted offsets to cut impact on environment, said the NSW Green Paper.

New distribution model for NSW: The NSW Green Paper hinted at setting up a single govt-owned electricity distribution network with its management separate from existing retail businesses.

Corps to buy 50pc of State firms? NSW planner saw the ACT Actew-AGL joint venture as one model for private sector involvement in its electricity retailing businesses.

CO2 waste dumps for NSW: The NSW - driven International Climate Change Taskforce supported the idea of CO2 waste dumps. NSW was estimated to have economic coal resources sufficient for at least 10,000MW of new generation capacity, said the Green Paper.

Power station asbestos to crash ABB: The Swiss power group ABB could lose up to \$2bn sorting out power station asbestos settlements after ABB Lummus Global's settlement plan over pending asbestos litigation affected the subsidiary's saleable value, after a negative judgement.

Gas and hydro a good thing: Hydro pump-storage and gas-fired peaking plant, - were the major options to provide new peaking capacity for NSW power supply said the NSW policy Green Paper. But drought dried the water and the gas had to come from CSM, East Timor, PNG or the North West Shelf. Drought had dried up hydropower generation said the State-owned Eraring Energy (now that the Shoalhaven river was to get used to provide supplementary water to Sydney.

But Snowy cashes in: Snowy increased its profit, despite a drop in electricity generation and water releases.

Sales gossip: AGL was ready to get its hands on \$760m from NGC sale, but there no firm decisions on how to spend it: a long wait was expected before the ATO issued a ruling. Alinta was rumoured to want to spin-off co-gen & other power assets into separate investment vehicle. National Grid Transco, was interested in bundling GasNet assets with Basslink: Talks between the parties continued.

Why import more from Qld: Extra transmission interconnection was another option for NSW to meet future electricity demand, said the Energy Green Paper, but costs and risks of relying on transmission interconnection for future NSW supply mean it's unlikely to be economically or technically feasible, the Green Paper said.

Hot wind of rage blows: Before Canberra's skyline is 'polluted forever' by wind turbines, questions over reliability and contribution to NEM must be answered, said locals.

Wind impact on Basslink: Rising wind generation in Tasmania was likely to increase constraints on electricity imported through new Basslink cable. Then on the island, Tasmania's Transend said major capital projects were managed in 2003-04 to supply extra infrastructure for wind farms.

Wind lobby strikes back: Claims that wind energy needed back-up generation distorted the facts, said the Wind Association (AusWEA) president, which were, that every system needed back-ups.

SA regulator to change wind rules: The no-bid requirement for wind generators would push baseload off the grid and force up prices for SA consumers: ESCOSA called for change to NEM rules.

Sun versus wind: The worldwide capacity of solar thermal energy greatly underestimated: bigger than wind power said the International Energy Agency.

99.9pc of REC quota was met: Companies preferred credits to shortfall charge. 4200MW of wind power was unlikely to proceed because of too few RECs, said AusWEA.

1500MW of wind farms for NSW: NSW sets limits to wind. With applications in for 800MW of wind farms, NSW Govt announces plans for regional landscape assessment to determine "no go" areas. A total of 1500MW of wind farms were in the pipeline for NSW, but Carr's green credentials were questioned by Greens MP over coal plants: a 20pc renewables target was called for.

Where NSW falls short: Wind, fuel cells, solar, biomass and coal seam methane were not making significant contribution to NSW energy production, the Green Paper said. NSW plans structural shake-up of its electricity businesses: It will keep all generation and distribution assets but won't risk any capital in new generation.

Locust plague crashes powerlines: In NSW a locust helicopter crashed into powerlines, it was third such crash in six weeks. Two died.

Nuclear NEM to solve problems: SA should use local uranium and export nuclear generated electricity to the burdensome NEM said a letter-writer, one

of a swarm of such letters which appeared in the WMC takeover wars.

Owens to cross the Alps: We can expect a new regulator for SA in 2005: ESCOSA chair, that Alexander the Great of the NEM, who somehow crossed regulatory mountains (elephants) and with the aid of a pen - announced his plan to quit. He may emerge on a new mountain.

More silly walks in the sunshine: Energex got an early Christmas gift of 11.25pc pay rise to skirt bonus cuts as it rejected an 4.5pc ETU pay claim.

State of the USA: The final piece of legislation paved way for Australia-US FTA to take effect from 1 January, thus allowing US businesses to overrule Australian environment laws which stand in the way of profits.

Pictures in the attic: Howard opened up record lead over Opposition Leader Latham, a 60-25pc lead as preferred PM. Latham was looking a little sad and portly and Howard as perky as an elf.

The end is nigh: The rising Australian dollar may deliver a fall in profitability for resources sector in 2004, despite the China boom. The Australian economy was now more vulnerable than before 1990 recession: Beware a shock - such as an abrupt falls in the exchange rate - said Professor Garnaut.

Coal purgatory: Coal shippers said they were losing up to \$US100,000 per day as vessels waited to enter ports as the boom went on its mad path. Queues of boats outside ports were caused by coal miners accepting orders without having the supplies says Prime: But miners blamed port owners. The Minerals

Survey showed Australian resources investment up 60 per cent as Australian mineral and energy exports would hit \$65.1 billion in 2004-05 says ABARE, on a world oil price average it guessed as \$US41/barrel. A Minerals Council survey shows plant and equipment investment was set to hit \$8.2 billion in 2004-05.

Coal earnings up 48pc: Coal export earnings were tipped to rise 48 per cent to \$16.1 billion in 2004-05, and iron ore 35 per cent to \$7.1 billion.

Coking coal price above \$US120: Global coking coal price would rise above \$US120 from April in a major win for Australian exporters in benchmark contract negotiations. BHPB reached \$US125 a tonne deal with Brazilian buyers. Iron and steel producers in Europe settled at prices exceeding \$US100 a tonne for hard coking coal from the US. BHP Billiton Mitsubishi Alliance (BMA), sought a new coking contract price of \$US104 a tonne, up from \$US57 a tonne in the 2004-05 fiscal year.

Thermal \$US53 a tonne: Thermal coal contracts with Japanese generators were at \$US53 a tonne.

Good news for coal exporters: Growth in Chinese steel production up to 22.1pc despite slight cooling overall.

Coal mine carnage: In China, 33 deaths in latest blast. China was to consolidate the coal industry into 13 large mines in bid to improve an atrocious safety record.

First coking coal finds in 20 years: Macarthur's \$12 million prospecting paid off but Prime Infrastructure shares plunged 13 per cent as Dalrymple ruling lowers coal loading to \$1.53/tonne.

CS Energy takes equity in CSM: CS Energy lifted stake in Kogan North coalseam gas project to 50 per cent with a \$10.8 million injection.

New era starts in WA: The new *Electricity Network Access Code* was create a "level playing field" for private investment said the govt, as a Energy Safety inquiry blamed a faulty Western Power pole for 2 December wildfire. In the State the unemployment rate was lowest since 1977, as economic growth hit 7.5 per cent last year.

7 December: 850 Energex customers lost power after storms forced a 4WD into power pole at Tugun, Qld.

8 December: A flying roof hit a powerline and caused an outage to 1500 households in Tugun, Qld.

10 December: Lightning struck a Melbourne power pole, and blacked 1000 homes.

Week 11 December, price falls: The average pool price was down on last week - 27-91pc to \$28.31- 37.14/MWh as milder days sees demand plunge: but there was still a LOR2 emergency risk notice in SA on Saturday.

13 December: Qld spiked to 1727.60/MWh after day of heavy demand and 2-unit Millmerran crash

10 December: 3 Snowy transmission lines were out.

12 December: It was 35C throughout southeast Queensland and blackouts rolled over the Gold Coast Caboolture, north Brisbane and Logan.

13 December: Freak storms in Sydney: Bedlam rained down the coast from as far

north as Brisbane to Canberra and 40,000 homes & businesses were blacked out as wild storms lash the southeast. Millmerran crashed and this set the Qld average up 202pc: while NSW, Vic and SA down 1-12pc to \$32.28-\$74.16/MWh range.

14 December: Qld set a new peak demand record, as Brisbane hit 37 degrees.

Toxic penalties: Stanwell Corp and related firms were fined \$230,000 death of fish in Bremerhaven Channel, Logan River and Moreton Bay.

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trading rules to govern new power station efficiency. It noted 90 per cent of NSW generation was from coal and the State owned 96 per cent of those assets, and said at a carbon price of around \$20 a tonne, gas might become a cheaper option than coal, based on current technology;

- supported the possibility of CO2 waste dumps. NSW Premier Bob Carr said elsewhere, "we will need new energy sources somewhere between four and eight years off. And we've got to leave open the prospect of clean-coal technology ... We can't rule out coal sequestration, for example. All that has got to be canvassed, along with demand management and more benign sources like gas, its capacity to deal with the bulk of our energy requirements";
- new power stations would incorporate pollution control technology for key pollutants which was "equivalent to best available technology";

New governance for NSW grid: "The distribution network would be managed by a new government owned entity," the paper said. "The board and management of this would be wholly focused on the management of the network and on providing a reliable supply of electricity without the distraction of electricity retailing and trading." *(see more stories inside)*

NSW policy objectives: The Green Paper said changes to the structure of the government businesses had to be made to meet the following objectives:

Top price for NEM week 5-11 December: McKay Power at \$55.25/MWh

SA			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
North'n Power	\$3,241,671	87,215	\$37.17
Ladbroke	\$491,730	13,358	\$36.81
Osborne	\$581,308	14,672	\$39.62
Pelican Pt	\$962,145	23,332	\$41.24
Torrens Is. B	\$1,799,198	43,849	\$41.03
Vic->SA	\$1,086,012	32,370	\$33.55
MLink->SA	\$137,660	3,976	\$34.62
Torrens Is. A	\$447,066	10,898	\$41.02
Mintaro	-	-	-
Dry Creek	-	-	-
Playford	\$86,789	1,836	\$47.27
Snuggery	-	-	-
Pt Lincoln	-	-	-
Quarantine	\$133,034	2,705	\$49.19
Hallett Power	\$5,960	113	\$52.59
Lonsdale	-	-	-
VIC			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Loy Yang A	\$11,775,596	354,057	\$33.26
Loy Yang B	\$2,851,108	85,689	\$33.27
Hazelwood	\$7,137,073	215,034	\$33.19
Yallourn	\$6,514,646	198,480	\$32.82
Anglesea	\$894,264	26,880	\$33.27
Energy Brix	\$733,770	21,956	\$33.42
Newport	\$2,177,339	58,044	\$37.51
MLink->Vic	\$31,820	682	\$46.69
SA->Vic	\$30,103	614	\$49.02
Snowy->Vic	\$1,126,082	26,282	\$42.85
Jeeralang	\$356,838	7,159	\$49.84
West Kiewa	\$115,479	2,594	\$44.52
Bairnsdale	\$119,432	2,566	\$46.55
Dartmouth	\$320,681	7,343	\$43.67
Eildon	\$35,754	958	\$37.34
Hume Vic	-	-	-
McKay Power	\$81,500	1,475	\$55.25
Clover	-	-	-
Valley Power	\$8,623	162	\$53.08
Rubicon	-	-	-
Somerton Power	\$31,470	655	\$48.03
Sunshine Energy	-	-	-
Longford	-	-	-
Tramway Road	-	-	-
Toora Wind Farm	-	-	-

NSW			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Bayswater	\$9,836,842	296,109	\$33.22
Liddell	\$7,577,553	229,347	\$33.04
Mt Piper	\$6,951,202	209,860	\$33.12
Wallerawang	\$2,329,168	68,596	\$33.95
Vales Point	\$4,269,267	128,899	\$33.12
Munmorah	\$1,163,540	33,388	\$34.85
Eraring	\$9,824,443	285,379	\$34.43
Redbank	\$743,912	23,198	\$32.07
Smithfield	\$674,426	19,572	\$34.46
Snowy->NSW	\$1,146,747	27,601	\$41.55
Shoalhaven	\$196,390	7,514	\$26.14
Hunter Valley	-	-	-
Hume Hydro	\$135,717	4,335	\$31.31
Blowering	\$86,367	2,762	\$31.27
Northern Gas	-	-	-
Burrinjuck	-	-	-
Brown Mountain	-	-	-
Keepit	-	-	-
Broken Hill	-	-	-
Ergon Energy	-	-	-
Pindari Hydro	-	-	-
DL Q->N	\$102,237	2,771	\$36.89
QLD->NSW	\$3,099,746	94,237	\$32.89
West Nowra	-	-	-
QLD			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Tarong	\$8,487,436	299,348	\$28.35
Millmerran	\$4,099,645	145,007	\$28.27
Swanbank	\$1,135,452	38,432	\$29.54
Stanwell	\$4,574,563	159,088	\$28.75
Callide B	\$3,203,810	111,968	\$28.61
Callide Power	\$3,355,273	116,194	\$28.88
Gladstone	\$4,161,354	137,672	\$30.23
Collinsville	\$346,584	11,884	\$29.16
Swanbank C, D, E	\$1,127,167	35,920	\$31.38
Barcardine	\$109,558	3,152	\$34.76
Callide A	-	-	-
Kareeya	\$104,712	3,748	\$27.94
Barron Gorge	\$36,688	1,046	\$35.07
Mt Stuart	\$33,724	1,054	\$32.00
Wivenhoe	\$218,325	10,302	\$21.19
Townsville	\$229,171	7,070	\$32.42
Mackay	-	-	-
Roma	\$74,660	1,986	\$37.59
Oakey	\$35,011	924	\$37.89
DL N->Q	\$190	7	\$28.48
NSW->QLD	-	-	-
Rocky Point	-	-	-
Tableland	-	-	-

- preservation of the value of the government's significant investment in the electricity sector. This was to be achieved through more effective governance structures for the management of risks and business structures that could effectively compete in the national market; and
- promotion of private investment in energy infrastructure.

WA: Electricity Network Access Code opens "level playing field" for private investment

The Western Australian *Electricity Network Access Code*, which came into effect on 1 December, would:

- govern the commercial arrangements and charges to apply to private operators using the state's electricity network; and
- aimed to attract more private investment by diluting Western Power's monopoly on services; and
- created a competitive marketplace, according to a Western Australian Government statement (7/12/2004)

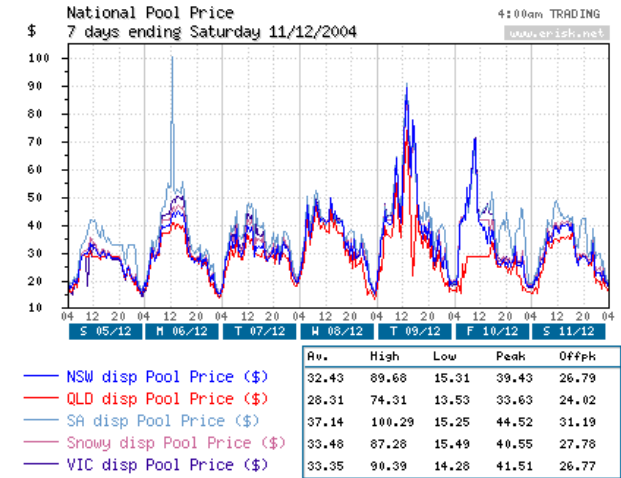
Opposed to privatisation, but...: Energy Minister Eric Ripper said "The government was implacably opposed to privatisation of Western Power, but saw no reason why private power generators and retailers could not compete alongside Western Power".

the week in detail

• **NSW:** Average price of \$32.43/MWh, down 91 per cent on the \$360.07/MWh of the previous week, up 25 per cent on the \$25.90/MWh of the comparable week last year; maximum price \$89.68/MWh for the 30-minute trading interval ended 1330EST Thursday. Average demand 8364MW, down 4.6 per cent on the previous week, up 2.7 per cent on a year ago; maximum demand 10,487MW in the 1500EST interval on Thursday, down 17.2 per cent on the summer record of 12,664MW of the previous week. Snowy-NSW exports averaged 94.11MW, down 84.3 per cent on the 599MW the previous week;

• **Victoria:** Average price \$33.35/MWh, down 29 per cent on the \$46.73/MWh of the previous week, up 7 per cent on the \$31.20/MWh of the comparable week last year; maximum price \$90.39/MWh for the 30-minute trading interval ended 1330EST Thursday. Average demand 5639W, up 1.1 per cent on the previous week, down 0.5 per cent on a year ago; maximum demand 7177MW for the 1600EST interval Monday, up 0.8 per cent on the 7117MW of the previous week. Net Victorian imports from Snowy averaged 10.46MW, compared with net exports of 184MW the previous week;

• **South Australia:** Average price \$37.14/MWh, down 27 per cent on the \$50.71/MWh the previous week, up 9 per cent on the average of \$34.01/MWh of the comparable week last year; maximum price \$100.29/MWh for the trading interval ended 1300EST Monday. Average demand 1380MW, down 7.5 per cent on the previous week, down 5.3 per cent on a year ago; maximum demand 1748MW for the 1400EST interval on Friday, down 20.3 per cent on the 2194MW of the previous week. Vic-SA flow



averaged 189MW, down 15.2 per cent on the 223MW the previous week; Murraylink net flow averaged 19.44MW west, up from 15.96MW west the previous week; and

• **Queensland:** Average price \$28.31/MWh, down 75 per cent on the \$114.06/MWh the previous week, up 2 per cent on the \$27.79/MWh of the comparable week last year; maximum price \$74.31/MWh for the trading interval ended 1330EST Thursday. Average demand 5784MW, down 1.6 per cent on the previous week, up 0.5 per cent on a year ago; maximum demand 6775MW for the 0930EST interval Friday, down 7.5 per cent on the 7323MW the previous week. QNI flow averaged 568MW south, down 0.7 per cent on the 572MW south the previous week. Directlink averaged 18.24MW south, down from 21.72MW south the previous week.

Network Access Code: The Minister said the relatively high cost of electricity in WA put a handbrake on the state's economic growth.

South West access arrangement: The Minister said the new code currently applied to the South West Interconnected System. It would be administered by the Economic Regulation Authority. Under the code, Western Power had six months to develop a proposed access arrangement for its South West Interconnected System networks, for approval by the Economic Regulation Authority.

Public consultation: Importantly, the Economic Regulation Authority would undertake public consultation before approving an access arrangement. A final access arrangement was expected to be in place by mid-2006. The Western Australian Government intended to seek certification of the Access Code as an effective access regime under Part IIIA of the *Trade Practices Act 1974* from the National Competition Council.

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NSW Green Paper Plan: Separate distribution and retail

6 The introduction of full retail competition (FRC) meant there was no longer a need to operate a network management business and a retail business as the one entity, the NSW Government said in its *Energy Directions Green Paper* released by the Minister for Energy and Utilities, Frank Sartor.

Two distinct operations: The Green Paper said each of the NSW Government-owned retail-distribution businesses (EnergyAustralia, Integral Energy and Country Energy) was currently involved in the following two very distinct operations:

- the management of an electricity distribution network, which was a capital - intensive, engineering - focused business operating as a regulated monopoly; and
- the retailing of electricity, which was essentially a highly competitive financial enterprise involving the purchase of electricity from the wholesale market (and the management of the consequent wholesale trading risks), selling this electricity to customers (at contracted or regulated prices), and the management of billing and customer service systems.

Structure predates FRC: This structure dated from the time before FRC was introduced when local distributors had a monopoly over the sale of electricity within a distribution region.

Separating distribution from retail: The Green Paper said creating a vertically integrated government-owned energy business would result in the management of a proportion of the distribution network being separated from the management of the retail business. The distribution network would be managed by a new government-owned entity.

Three distribution networks: NSW had about 20 businesses licensed to retail electricity, of

which three were government-owned - Country Energy, EnergyAustralia and Integral Energy. These three also operated the distribution network (i.e. poles and wires) in particular areas of the state.

Whole focus on distribution: The board and management of this business would focus wholly on managing the network and on providing a reliable supply of electricity to businesses and households without the distraction of electricity retailing and trading.

New boundaries: The Green Paper said the government would examine the existing distribution network boundaries to determine if they provided the best structures in which to manage the maintenance and development of these networks.

Reference: NSW Government "Energy Directions Green Paper" released by Minister for Energy and Utilities, Frank Sartor. 6 December 2004. Address: Department of Energy, Utilities and Sustainability, Level 17, 227 Elizabeth Street, Sydney. NSW. 2001. Phone: 8281 7777. Fax: 8281 7799. <http://www.deus.nsw.gov.au>

NSW plan: transfer of significant retail load exposure to private sector

The plan was to transfer significant retail load exposure to private sector parties. These parties would have strong commercial incentives to invest in new generation capacity. The NSW Government is

looking at the Actew-AGL joint venture in the Australian Capital Territory (ACT) as a model for private sector involvement in its electricity retailing businesses.

Transfer of risk: In its *Energy Directions Green Paper* released by the Minister for Energy and Utilities, Frank Sartor, the NSW Government said it would aim to transfer the risk of electricity retailing away from government-owned retailers to the private sector while minimising any impact on customers and employees.

Joint ventures: A possible way in which the private sector could become involved would be through creating joint ventures or reselling arrangements between the government-owned businesses and the private sector. This would involve the private sector taking most of the risks of electricity trading.

Various options to be examined: The Actew-AGL venture in the ACT, which had worked effectively, was a precedent. The NSW Government would examine this and other options with a view to implementing an appropriate option for each business by 2006.

NSW to look at merging some of its generating capacity with one of its retailers to create vertically integrated group

The NSW Government would investigate the possibility of merging some government-owned generating capacity

with a government-owned retailer to create a vertically integrated energy generation, trading and retailing company, the NSW Government said in its *Energy Directions Green Paper* released by the Minister for Energy and Utilities, Frank Sartor.

One element of revised structure: The Green Paper said this was one of the elements of a revised structure for state-owned electricity businesses that the government intended to apply.

Greater private sector involvement: The government would also investigate ways for the private sector to become involved in the government-owned retail businesses.

Hint that ETEF allowed to die: It would also consider the future role of the Electricity Tariff Equalisation Fund (ETEF), which was set up to manage the risks associated with providing regulated tariffs by government-owned retailers. The government is considering allowing ETEF to expire on 30 June 2007.

Other options: The other options being investigated were:

- reviewing the current distribution network boundaries; and
- establishing a framework for state-owned generators to enter into longer-term, risk-sharing trading contracts with the private sector.

Options don't mean selling assets: The Green Paper said that all these options would not involve the government selling existing generation, transmission or distribution assets.

Reference: NSW Government "Energy Directions Green Paper" released by Minister for Energy and Utilities, Frank Sartor. 6 December 2004. Address: Department of Energy, Utilities and Sustainability, Level 17, 227 Elizabeth Street, Sydney. NSW. 2001. Phone: 8281 7777. Fax: 8281 7799. <http://www.deus.nsw.gov.au>



New regulator for SA in 2005: ESCOSA chair Law Owens announces plan to quit

Essential Services Commission chair Law Owens has told the South Australian Government he does not wish to see out his contract and plans to quit early next year, according to *The Advertiser* (11/12/2004, p. 7).

Looking for new challenges: Owens was tightlipped about his decision, but said he had

been planning to resign for some time to pursue "new challenges". However, he had no definite plans for a future career as yet.

Guardian of change: Owens has overseen many controversial changes in the electricity industry, including a decision to allow retailer AGL to lift prices for households and small business by 26 per cent in 2003.

A tough job: Treasurer Kevin Foley said Owens had served "a long time in one of the toughest jobs in the state". Owens was appointed as electricity industry regulator by former treasurer Rob Lucas in 1999 and started the job in January 2000.

7 December: 850 Energex customers lose power after storms force 4WD into power pole at Tugun, Queensland

Queensland's rain season kicked into overdrive on 7 December as severe thunderstorms continued to lash the state, according to *The Courier-Mail*. A deluge on the Gold Coast saw 76mm of rain fall at Coolangatta in just an hour. The extremely heavy rain between 8pm and 9pm prompted the weather bureau to issue a flash flood warning. During the storms more than 850 Energex customers lost power after a four-wheel-drive struck a power pole at Tugun. It was the third consecutive day of storms, and for some the damage was extensive.

8 December: blackout for 1500 households in Tugun, Qld

Heavy rainfall in Queensland's southeast doused any thoughts of an endless summer of sizzling heat with maximum temperatures in some areas dropping by almost 10C in a week. More than 1500 homes lost power when a roof was blown on to powerlines at Tugun, according to *The Courier-Mail* (9/12/2004, p. 3).

10 December: Lightning strikes Melbourne power pole, blacks out 1000 homes

About 1000 households and businesses in the Melbourne suburbs of Boronia and Watsonia were without power on Friday after lightning struck a power pole, said TXU, according to *The Australian Financial Review* (11/12/2004, p. 6).

9 December: Prices up 8-23pc to \$33.75-\$45.32: Lightning again hits Vic-SA interconnector

South Australian transmission network service provider (TNSP), ElectraNet SA, had advised that lightning activity near the Victoria to South Australia interconnection (Tailem Bend-South East substation) on

Thursday, 9 December was a credible risk to tripping the interconnection. In a market notice at 1324EST, NEMMCO declared the double circuit trip of the Tailem Bend-South East substation 275kV lines a credible contingency event from 1304EST until further notice. In an update at 2123EST, NEMMCO said that lightning activity in the Tailem Bend-Para region had passed.

Monday, 13 December: Qld spikes to 1727.60/MWh after day of heavy demand 2-unit Millmerran crash

Queensland had a spike to \$1727.60/MWh in the 30-minute trading interval ended 1900EST on Monday, 13 December, on a day when maximum demand of 7737MW approached the summer record of 7934MW. Brisbane's top temperature was 31 degrees.

Smaller spike to \$116.02/MWh: Two hours later in the 2100EST interval, Queensland recorded a small spike to \$116.02/MWh. This coincided with NEMMCO declaring a lack of reserve level one (LOR1) in Queensland from 2020-2100EST because it considered there was insufficient capacity reserve available.

Reference: National Price for 13 December in Price/Demand section of Erisk Net - Realtime NEM Data.
<http://www.erisk.net>

10 December: 3 Snowy transmission lines crash

In a market notice at 0803EST, NEMMCO said that at 0724EST it became aware of the loss of the:

- Murray to Upper Tumut 330kV line;
- Lower Tumut to Upper Tumut 330kV line; and
- Yass to Upper Tumut 330kV line.

NEMMCO invoked constraints which would limit Snowy-NSW and Snowy-Victoria flows and had invoked constraints 1-HN_1700 and H-MSUT_R.

12 December: 35C throughout Queensland: blackouts for Gold Coast, Caboolture, north Brisbane and Logan

The mercury soared above 35C throughout southeast Queensland on 12 December with severe coastal thunderstorms failing to cool things down. Temperatures hovered around 6C above the average - 35C was recorded at Archerfield - with forecasters predicting extremely hot conditions today and tomorrow.

Local blackouts: The conditions also contributed to 1058 Energex customers losing power, with most affected homes on the Gold

Coast (968), Caboolture and north Brisbane (60) and Logan (60), according to *The Courier-Mail* (13/12/2004, p. 7). Minimum temperatures were several degrees above average in most of the tropics and southern coastal districts of the state.

38C at Rockhampton: The highest minimums were at Urandangi (27C), Ayr (26C), Rockhampton (25C) and Tewantin(23C). Maximum temperatures were mostly near or above average. Rockhampton (38C) and Archerfield (35C) were both six degrees above average. The highest temperature in the state was 43C at both Birdsville and Urandangi.

13 December: freak storms in Sydney: Bedlam rain down the coast from as far north as Brisbane to Canberra

Freak storms that swept Sydney and the east coast on 13 December left one man dead, closed three airports and battered passenger jets with hail as big as fists. Heaving storms tore through the south of Sydney and out to the coast, dumping 17 millimetres of rain over the city throwing traffic and public transport into chaos and turning one freeway into a river. Bedlam rained down the coast from as far north as Brisbane to Canberra, blowing roofs off and knocking out power to homes, according to *The Sydney Morning Herald* (14/12/2004, p. 1).

13 December: 40,000 homes Qld businesses blacked out as wild storms lash the southeast

Almost 40,000 Queensland homes and businesses were blacked out yesterday from the Lockyer Valley west to Brisbane along the Sunshine and Gold coasts as storms and extreme high winds up to 70km/hour lashed the state's southeast, reported *The Courier Mail* (14/12/2004, p.1).

Storm damage and blackouts: A woman was struck by lightning, millions of dollars worth of yachts were trashed, and almost 40,000 homes were left without power when storms swept across southeast Queensland mid-afternoon 13 December.

Extreme high winds: Energex summer operations manager Mike Swanston said the storms had widely affected southeast Queensland's power supply. "Customers' power was interrupted due to extreme high winds of up to 70km/h, which uprooted trees and carried flying debris, including roofing iron, and brought down almost 200 powerlines," Swanston said.

13 December: Millmerran crash: Qld price up 202pc

Heavy demand in Queensland on a hot day (31 degrees in Brisbane), and the loss of the two 426MW capacity



Millmerran units at a critical time in the evening saw NEMMCO declare lack of reserve level 1 (LOR1) for 40 minutes. A spike to \$1727.60/MWh in the 1900EST interval and another spike to \$116.02/MWh pushed the average price to \$74.16/MWh, up 202 per cent on Friday, the previous week day. Maximum demand of 7737MW was up 962MW (14.2 per cent) and was within 200MW of the Queensland record. Prices were down 1-12pc in NSW, Vic and SA: Average prices dropped 1-12 per cent to a \$32.28-\$35.60/MWh range in NSW, Victoria and South Australia.

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14 December: Qld demand record as Brisbane hits 37C

Queensland set a demand record of 7963MW as Brisbane's top temperature hit 37 degrees. The

7963MW for a 30-minute interval broke the previous record of 7934MW set in February by 29MW (0.4 per cent). However, despite a LOR1 being declared for five hours and the second successive day of a constraint equation being violated, there was no spike in price. Average prices dropped 3-52 per cent to an overall \$29.32-\$35.79/MWh range on system-wide maximum demand up 54MW (0.2 per cent) to 26,200MW.

Qld constraint equation still being violated:

For the second successive day, NEMMCO issued a market notice relating to the violation of a constraint in Queensland. In a market notice at 1046EST on Tuesday, 14 December, NEMMCO said it was aware that constraint equation Q^NIL_FNQ3 had been violating intermittently since 0945EST on Tuesday.

No changes in NEMMCO forecast: There were no changes in the medium term projected assessment of system adequacy (MT PASA) report issued by NEMMCO at 1115EST on Tuesday, 14 December to that issued on Tuesday, 7 December.

“No-bid” requirement for wind generators pushing baseload off the grid and forcing up prices for SA consumers

Concern that wind power developments would push up energy prices and disrupt the power network have led South

Australian regulators to demand that all new wind developments be examined by a technical panel, according to *The Age* (9/12/2004, p. B2).

Getting tougher on permits: "From now on we'll be tougher on wind permits. We've already licensed 400 megawatts and I'm aware of another 400 megawatts (seeking approvals) ... the concern is that (wind power) will increase pool and contract prices," said South Australia's Essential Services Commissioner, Lew Owens. He said South Australia had only 4000MW of electricity-generating capacity, and minimum demand was about 1200MW.

Wind generators don't have to bid: Unlike other energy sources, wind generators did not have to bid into the national electricity market as all their output was dispatched regardless of cost.

Pushing out cheaper baseload generators: As a result, when wind became a substantial proportion of overall power output, it pushed low-priced base-load generation out of the market and increased power prices to consumers in a state where high prices were already a hot political issue.

SA bears cost for other states: Wind power operated under the federal MRET subsidy scheme, which spread its subsidy of about \$40 per megawatt hour across the entire national electricity market. But because South Australia has a lot of wind potential, much of the nation's wind power is to be sited in the state. Hence, Owens, said, "South Australian consumers were having to carry the wind energy costs for Queensland and NSW, where consumers enjoyed lower power costs as a result."

Current system needs review: The current system giving wind energy rights to generate regardless of price needed to be reviewed, he said. "At the moment, if (a lot of) wind generation is operating, others have to drop out but be (on standby) in case the wind drops. It's important to look at how (wind generators) should be dealt with. It shouldn't just be swept under the carpet."

Swiss power group ABB could lose up to \$2bn sorting out power station asbestos claim

Lummus Global's potential value was hampered by litigation over the activities of ABB's US unit, Combustion Engineering, and there were more than 100,000 asbestos lawsuits pending. ABB was taken by surprise when a superior court ruled that the proposed settlement plan was unacceptable, even though the plan had been ratified by two lower courts. Efforts by Swiss-based power and automation technology group ABB Ltd to improve its debt-laden balance sheet could be delayed by the collapse of attempts to limit its liability to US asbestos litigation, said analysts, according to *The Australian Financial Review* (10/12/2004, p. 47).

Liability cap rejected: Last week, a US federal appeals court rejected a pact that would have capped liability at \$US1.2 billion (\$1.6 billion). ABB spokesperson John Scriven,

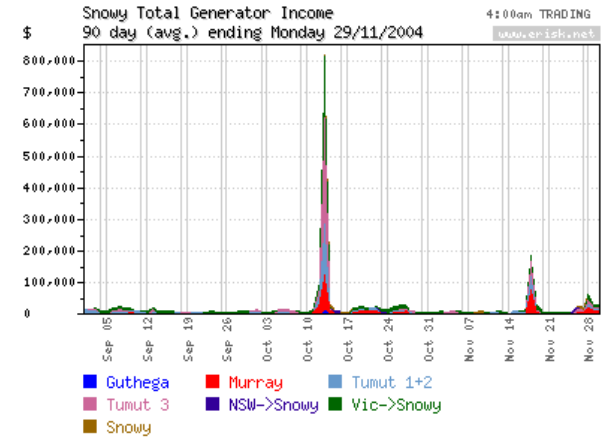
declined to comment on the specific size of a new settlement but suggested that the legal process would take a few months. Some analysts, however, said ABB would not be able to sort out its asbestos problems before 2006 and may incur \$US500 million to \$US2 billion in new charges to reach a final settlement.

NSW: Locust helicopter crashes into powerlines, third such crash in six weeks

Two men were killed on 22 November when an anti-locust helicopter crashed into powerlines - the third such crash in six weeks, according to *The Daily Telegraph* (23/11/2004, p. 14). The two - a pilot and a Rural Lands Protection Board employee - were in a Bell 206 chopper that crashed 12km west of Dunedoo near Dubbo. They had been spotting swarms as part of the campaign against NSW's locust plague.

Snowy increases profit despite a drop in electricity generation and water availability

The owner of the Snowy Mountains Hydro-electric Scheme, Snowy Hydro Ltd, increased its profit last financial year despite a drop in electricity generation and water releases, according to *The Australian Financial*



Review (14/12/2004, p. 8). In the year to 26 June, it generated 4320 gigawatt hours of power, against 4749 the year before. Water released for irrigation was 2037 gigalitres, compared with 2220 previously.

NSW: Drought drying up hydro power generation says Eraring

Continuing drought conditions in NSW resulted in lower than normal generation from most hydro power stations this year, with the Shoalhaven Scheme used extensively to provide supplementary water to the Sydney supply, according to *Eraring Energy 2003-04 Annual Report* (October 2004)

Kangaroo Valley failure: Kangaroo Valley Unit 3 underwent a major outage with the refurbishment of both the pump discharge and turbine main inlet valves. To reduce the effect

on the availability of the Shoalhaven scheme, a blanking plate was manufactured to enable the operation of Unit 4 during the outage.

Brown Mountain upgrade: Tenders for the refurbishment of Brown Mountain Hydro Power Station were in the process of being evaluated at the end of the year. The plan was to replace four of the five existing units (total capacity of 3.5MW) with a single 4.2MW unit.

Wind farm generation: Generation from the Blayney and Crookwell wind farms was marginally less than the previous year. The Blayney wind farm achieved an availability of 96.3 per cent for the year.

Source: Eraring Energy's 2003-04 annual report (October 2004). Level 16, 227 Elizabeth Street Sydney NSW 2000. Phone: 02 8268 4200. Fax: 02 9261 2967.

Applications in for 800MW of wind farms; NSW Govt announces plans for regional landscape assessments

While wind generation did not have any greenhouse emissions, it could have an impact on the amenity of the area and its fauna, the NSW Government said in its *Energy Directions Green Paper* released by the Minister for Energy and Utilities, Frank Sartor.

Concern for local communities: The Green Paper said these issues could concern local communities and must be managed.

Regions valued for landscape: NSW had proposals being considered for more than 800 megawatts (MW) of wind farms, mainly in the southern regions of the state. However, these regions were also valued for their landscapes.

Aims of assessment: The Green Paper said a regional landscape assessment would be undertaken to:

- locate "no go" areas based on landscape constraints; and
- develop assessment parameters for other areas to avoid impacts on important vistas or regional landscapes.

NSW Govt to set stronger emission-cut standards for new generators

Setting minimum emission performance standards would be considered for new generators, the NSW Government said in its *Energy Directions Green Paper* released by the Minister for Energy and Utilities, Frank Sartor.

No direct incentive for high emissions: The Green Paper said the NSW Greenhouse Gas Abatement Scheme provided an incentive to invest in and operate new low-emission generators, but it did not provide a direct disincentive for new high emission plant.

Limits may be appropriate: While the requirement on retailers to meet the cost of

offsetting emissions should generate demand for low emission energy sources and energy efficiency, it might still be appropriate to place limits and conditions on the proponent of a new generator to ensure it maximises opportunities to reduce emissions from its proposed plant.

Ongoing role for emission standards: The Green Paper said emission performance standards might have an ongoing role, even after the introduction of an emissions trading scheme, depending on whether market signals were strong enough (particularly in the short term) to promote investment in clean generation technologies.

Complementary approach needed: The government recognised an emissions performance standard only limited emissions per unit of energy and by itself did not guarantee reductions in total greenhouse gas emissions. An emissions intensity standard therefore needed to be complemented by initiatives to improve the efficiency of use of electricity.

National action urged: If this approach were adopted, NSW would advocate through the Council of Australian Governments (COAG) that all states adopt minimum emission performance standards for new power generators.

Reference: NSW Government "Energy Directions Green Paper" released by Minister for Energy and Utilities, Frank Sartor. 6 December 2004. Address: Department of Energy, Utilities and Sustainability, Level 17, 227 Elizabeth Street, Sydney. NSW. 2001. Phone: 8281 7777. Fax: 8281 7799. <http://www.deus.nsw.gov.au>

Constraint Library Changes Report for the week 6-12 December 2004

ewn publishing

<p>6/12/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: Q-DL_050, Q-DL_060, Q-DL_070, Q-DL_080, Q-DL_090, Q-DL_100 Constraint Equation: Q_DL_050, Q_DL_060, Q_DL_070, Q_DL_080, Q_DL_090, Q_DL_100 Reason: Required for Powerlink Network Support Agreement with Directlink</p>
<p>6/12/2004: Modified Constraint Equation(s) and Generic Equation(s) Constraint Equation: H>V_NIL1A, H>V_NIL1D, H>V_NIL3, H>V_NIL4A, S>V_NIL, S>VML_NIL1, S>VML_NIL5, S>VML_NIL6, S>VMLNW-RB, V:H_NIL2, V:H_NILA_P, V:H_NILAR, V:H_NILB_P, V:H_NILB_R, V:H_NILC_P, V:H_NILC_R, V^SML_NIL2, V>SMLMH-RB, VH>V3NIL, VH>V4NIL (modified) Generic Equation: V:H_1-ST, H>V-ST1D, V:H_2-ST (new) Reason: Constraints required for ST and PD PASA</p>
<p>6/12/2004: Modified Constraint Equation(s) Constraint Equation: Q>NIL_757+758_B_SUMR, Q>NIL_SBMU Reason: Constraints required for ST and PD PASA</p>
<p>6/12/2004: Modified Constraint Equation(s) and Generic Equation(s) Constraint Equation: H>N-NIL_A_15M, H>N-NIL_B_15M, H>N-NIL_C_15M, H>N-NIL_D_15M, H>N-NIL_E_15M, H>N-NIL_F_15M, H>N-NIL_G_15M, H>N-NIL_H_15M, H>N-NIL_I_15M, H>N-NIL_K_15M, H>N-NIL_U_15M, N:H_NIL, N>Q+NIL_F7, N^Q_NIL_B, N>N-NIL_1U, N>N-NIL_1G, N>Q+NIL__D (modified) Generic Equation: X:N:H_ST, N^Q_B_ST (new) Reason: Constraints required for ST and PD PASA</p>
<p>7/12/2004: Modified Constraint Equation(s) and Generic Equation(s) Constraint Equation: Q:NIL_CN1, Q^NIL_FNQ3, Q^NIL_FNQ4 (modified) Generic Equation: X^FNQ_CWST, X^FNQ_RCST (new) Reason: Constraints required for ST and PD PASA</p>
<p>7/12/2004: Modified Constraint Set(s) and Constraint Equation(s) Constraint Set: Q-CSNIL, Q-GG120CP_MR50CP, Q-H14+H4+H9_50MVARCP, Q-H14+H5_50CAPS, Q-H14+H9_50MVARCP, Q-H4+H9+H14+T155_CP, Q-H40WU_120MVAR_CAP, Q-H5WO_50MVAR_CAP, Q-H6GG_120MVAR_CAP, Q-H6GG_25MVAR_TXCAP, Q-H6GG_50MVAR_CAP, Q-H9PW_50MVAR_CAP, Q-SBBM+BKBM+MR+PW_CP, Q-WU_CP120-GG_CP50 (modified), Q-CS_1900 (new) Constraint Equation: Q_CS_1900 (New, added), Q_0419 (removed) Reason: Constraints required for ST and PD PASA, added Yabulu 2</p>
<p>7/12/2004: Marked for Archival Constraint Set(s) and Constraint Equation(s) Constraint Set: Q<CS1900 Constraint Equation: Q_0419 Reason: Constraints superseded by new constraints</p>
<p>7/12/2004: Modified Constraint Equation(s) and Generic Equation(s) Constraint Equation: H^V_LTUT, N:H_LTUT, H^V_NIL1 Generic Equation: H^V-ST1 Reason: Constraints required for ST and PD PASA</p>
<p>7/12/2004: Modified Constraint Equation(s) Constraint Equation: Q:N_BI_POT, Q:N_NIL_OSC, Q>N-NIL_DF, Q>N-NIL_DX, Q>N-NIL_DY, Q>N-NIL_DC Reason: Constraints required for ST and PD PASA</p>
<p>7/12/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: PASA_NIL Constraint Equation: ST_N>>N-NIL_1A, ST_N>>N-NIL_1S, ST_N>>N-NIL_1T, ST_Q^Q_NIL_TR_1, ST_Q>>Q_NIL_BRTX Reason: Constraints required for ST and PD PASA</p>
<p>7/12/2004: Modified Constraint Equation(s) Constraint Equation: Q^TCT_120CP_H40WU, Q^TCT_120MVARCP_H6GG, Q^TCT_50MVARCP_H14MR, Q^TCT_50MVARCP_H5WO, Q^TCT_50MVARCP_H6GG, Q^TCT_50MVARCP_H9PW, Q^TCT_803+H14MR_CP, Q^TCT_810WOPW_SQ50CP, Q^TCT_810WO_PW, Q^TCT_8813, Q^TCT_BMTX, Q^TCT_GG120CP_MR50CP, Q^TCT_H14+H22_CAP, Q^TCT_H14+H4+H9_50CP, Q^TCT_H14+H4_CAP, Q^TCT_H14+H5_CAP, Q^TCT_H22CAP+H3CB, Q^TCT_H2SP50CP, Q^TCT_H4+H14+H22_CAP, Q^TCT_H4+H22_50CP, Q^TCT_MU+MR+LL+WD_CP, Q^T3CB8262, Q^TWP_120CP_H40WU, Q^TWP_120MVARCP_H6GG, Q^TWP_50MVARCP_H14MR, Q^TWP_50MVARCP_H5WO, Q^TWP_50MVARCP_H6GG, Q^TWP_50MVARCP_H9PW, Q^TWP_803+H14MR_CP, Q^TWP_810WOPW_SQ50CP, Q^TWP_810WO_PW, Q^TWP_8813, Q^TWP_BMTX, Q^TWP_GG120CP_MR50CP, Q^TWP_H14+H22_CAP, Q^TWP_H14+H4+H9_50CP, Q^TWP_H14+H4_CAP, Q^TWP_H14+H5_CAP, Q^TWP_H22CAP+H3CB, Q^TWP_H2SP50CP, Q^TWP_H4+H14+H22_CAP, Q^TWP_H4+H22_50CP, Q^TWP_MU+MR+LL+WD_CP Reason: New Townsville PS steam unit (Yabulu2) required to be added to constraints.</p>

<p>7/12/2004: Modified Constraint Set(s) and Constraint Equation(s) Constraint Set: I-HYSE_N-2, I-HYSE_P, I-HYSE_R, S-DVBR, V-HYML_P, V-HYML_R, V-HYTX, V-MLSY Constraint Equation: I:SV-250, I:SV-200, I:VS-250, (removed), SV_250, SV_200, VS_250 (added) Reason: Replace discretionary constraint equations with ones that are active in ST PASA</p>
<p>7/12/2004: Marked for Archival Constraint Equation(s) Constraint Equation: I:SV-250, I:SV-200, I:VS-200 Reason: Constraints superseded by new constraints</p>
<p>7/12/2004: Modified Constraint Equation(s) Constraint Equation: S>VMLMHNW1, V>SMLMHNW1 Reason: Constraints required for ST and PD PASA</p>
<p>7/12/2004: Modified Constraint Equation(s) Constraint Equation: H>>H-64_A, H>>H-64_B, H>>H-64_C, H>>H-64_D, H>>H-64_G, H>>H-64_H, H>>H-64_J, H>>H-64_K, H>N-64_A_15M, H>N-64_B_15M, H>N-64_C_15M, H>N-64_D_15M, H>N-64_E_15M, H>N-64_F_15M, H>N-64_G_15M, H>N-64_H_15M, H>N-64_I_15M, H>N-64_K_15M, H>N-64_U_15M Reason: Constraints required for ST and PD PASA</p>
<p>7/12/2004: Modified Constraint Equation(s) Constraint Equation: N:H_KC_VC1, N:H_KC_VC2 Reason: Constraints required for ST and PD PASA</p>
<p>8/12/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: V-HWRO4_C Constraint Equation: V>V_HWRO4_C Reason: Include new constraint equation for overload of ROTS-YPS 220kV lines</p>
<p>8/12/2004: Modified Constraint Equation(s) Constraint Equation: Q^TML_120CP_H40WU, Q^TML_120MVARCP_H6GG, Q^TML_50MVARCP_H14MR, Q^TML_50MVARCP_H5WO, Q^TML_50MVARCP_H6GG, Q^TML_50MVARCP_H9PW, Q^TML_803+H14MR_CP, Q^TML_810WOPW_SQ50CP, Q^TML_810WO_PW, Q^TML_8813, Q^TML_BMTX, Q^TML_GG120CP_MR50CP, Q^TML_H14+H22_CAP, Q^TML_H14+H4+H9_50CP, Q^TML_H14+H4_CAP, Q^TML_H14+H5_CAP, Q^TML_H22CAP+H3CB, Q^TML_H2SP50CP, Q^TML_H4+H14+H22_CAP, Q^TML_H4+H22_50CP, Q^TML_MU+MR+LL+WD_CP, Q^TML_BB_CB5452, Q^TML_BM_CB5422, Q^TML_BM_CB5452, Q^TML_BMcb8172, Q^TML_H14+H22CP+H3CB, Q^TML_ME_CB8372, Q^TML_ME_CB88132, Q^TTB_120CP_H40WU, Q^TTB_120MVARCP_H6GG, Q^TTB_50MVARCP_H14MR, Q^TTB_50MVARCP_H5WO, Q^TTB_50MVARCP_H6GG, Q^TTB_50MVARCP_H9PW, Q^TTB_803+H14MR_CP, Q^TTB_810WOPW_SQ50CP, Q^TTB_810WO_PW, Q^TTB_8813, Q^TTB_BMTX, Q^TTB_GG120CP_MR50CP, Q^TTB_H14+H22_CAP, Q^TTB_H14+H4+H9_50CP, Q^TTB_H14+H4_CAP, Q^TTB_H14+H5_CAP, Q^TTB_H22CAP+H3CB, Q^TTB_H2SP50CP, Q^TTB_H4+H14+H22_CAP, Q^TTB_H4+H22_50CP, Q^TWP_MU+MR+LL+WD_CP Reason: New Townsville PS steam unit (Yabulu2) required to be added to constraints.</p>
<p>9/12/2004: Modified Constraint Equation(s) Constraint Equation: Q^TML_120CP_H40WU, Q^TML_120MVARCP_H6GG, Q^TML_50MVARCP_H14MR, Q^TML_50MVARCP_H5WO, Q^TML_50MVARCP_H6GG, Q^TML_50MVARCP_H9PW, Q^TML_803+H14MR_CP, Q^TML_810WOPW_SQ50CP, Q^TML_810WO_PW, Q^TML_8813, Q^TML_BMTX, Q^TML_GG120CP_MR50CP, Q^TML_H14+H22_CAP, Q^TML_H14+H4+H9_50CP, Q^TML_H14+H4_CAP, Q^TML_H14+H5_CAP, Q^TML_H22CAP+H3CB, Q^TML_H2SP50CP, Q^TML_H4+H14+H22_CAP, Q^TML_H4+H22_50CP, Q^TML_MU+MR+LL+WD_CP, Q^TML_BB_CB5452, Q^TML_BM_CB5422, Q^TML_BM_CB5452, Q^TML_BMcb8172, Q^TML_H14+H22CP+H3CB, Q^TML_ME_CB8372, Q^TML_ME_CB88132, Q^TTB_120CP_H40WU, Q^TTB_120MVARCP_H6GG, Q^TTB_50MVARCP_H14MR, Q^TTB_50MVARCP_H5WO, Q^TTB_50MVARCP_H6GG, Q^TTB_50MVARCP_H9PW, Q^TTB_803+H14MR_CP, Q^TTB_810WOPW_SQ50CP, Q^TTB_810WO_PW, Q^TTB_8813, Q^TTB_BMTX, Q^TTB_GG120CP_MR50CP, Q^TTB_H14+H22_CAP, Q^TTB_H14+H4+H9_50CP, Q^TTB_H14+H4_CAP, Q^TTB_H14+H5_CAP, Q^TTB_H22CAP+H3CB, Q^TTB_H2SP50CP, Q^TTB_H4+H14+H22_CAP, Q^TTB_H4+H22_50CP, Q^TWP_MU+MR+LL+WD_CP Reason: ST PASA flag turned off</p>
<p>9/12/2004: Modified Constraint Set(s) and Constraint Equation(s) Constraint Set: PASA_NIL Constraint Equation: MT_H>N-64_A, MT_H>N-64_E, MT_H>N-64_H_15M, MT_H>V_NIL1A, MT_I>HV-1900, MT_I>VH-1100, MT_N>Q>NIL_F7, MT_Q>BRTX1-2, MT_V:H_NILA_R Reason: Combine PASA_NIL and MT_NIL_SEASONAL constraint sets</p>
<p>9/12/2004: Marked for Archival Constraint Set(s) Constraint Set: MT_NIL_SEASONAL Reason: Constraints from this set are now in the PASA_NIL set</p>
<p>9/12/2004: Modified Constraint Equation(s) Constraint Equation: V>V_HWRO4_C Reason: Constraints required for ST and PD PASA, updated description</p>

<p>9/12/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: N-RGSW_38 Constraint Equation: Added: N>N-38_19A, N>N-38_20A, Q>N-38_19A, Q>N-38_20A. Removed: N>N-38__19, N>N-38__20 Reason: Constraints superseded by new constraints</p>
<p>9/12/2004: Marked for Archival Constraint Set(s) and Constraint Equation(s) Constraint Set: Q_GC64610, Q_GC66056, Q_GC73246 Constraint Equation: Q>0853,Q>0854,Q>0862, Q>0863, Q>0858A, Q>0858B, Q:N_H1H4, Q:N_H1H4_1, Q^87174, Q>0858a, Q>0858b, Q>0856a, Q>0857a, Q>0858c, Q>0857A Reason: Archived since new cutset</p>
<p>9/12/2004: Marked for Archival Constraint Set(s) and Constraint Equation(s) Constraint Set: Q-GC_H4MU275KV_565 Constraint Equation: Q^GC_H4MU275KV_565 Reason: Redefined cutset</p>
<p>10/12/2004: Modified Constraint Set(s) and Constraint Equation(s) Constraint Set: N_RGSW_38 Constraint Equation: Modified: N>N-38_20A, Q>N-38_20A Reason: Constraints superseded by new constraints</p>
<p>10/12/2004: Modified Constraint Equation(s) Constraint Equation: Q^GCBKVC Reason: Redefined Gold Coast cutset</p>
<p>10/12/2004: New Constraint Set(s) and Constraint Equation(s) Constraint Set: Q-CS_1000, Q-CS_1050, Q-CS_1100, Q-CS_1150, Q-CS_1200, Q-CS_1250, Q-CS_1300, Q-CS_1350, Q-CS_1400, Q-CS_1450, Q-CS_1500, Q-CS_1550, Q-CS_1600, Q-CS_1650, Q-CS_1700, Q-CS_1750, Q-CS_1800, Q-CS_1850, Q-CS_1950, Q-CS_2000 Constraint Equation: Q_CS_1000, Q_CS_1050, Q_CS_1100, Q_CS_1150, Q_CS_1200, Q_CS_1250, Q_CS_1300, Q_CS_1350, Q_CS_1400, Q_CS_1450, Q_CS_1500, Q_CS_1550, Q_CS_1600, Q_CS_1650, Q_CS_1700, Q_CS_1750, Q_CS_1800, Q_CS_1850, Q_CS_1950, Q_CS_2000, Q_CS_0800 (existing), Q_CS_0900 (existing) Reason: CQ-SQ constraints required to have new Townsville PS Yabulu2 unit added. New constraints built to replace original constraints so that constraint IDs conformed with current constraint naming convention.</p>
<p>10/12/2004: New Constraint Set(s) Constraint Set: V-DD_BUS1, V-DD_BUS2 Reason: Separate constraints sets created for outage of Dederang No.1 and No.2 330kV busses. Constraint for outage of No.2 transformer included in the set for the No.2 bus outage.</p>
<p>10/12/2004: Modified Constraint Equation(s) Constraint Equation: V>>V_DDTX1_A, V>>V_DDTX1_B, V>>V_DDTX2_OR_TX3 Reason: Constraints required for ST and PD PASA</p>
<p>10/12/2004: Modified Constraint Equation(s) Constraint Equation: H>N-39_B, N:H_SWYS, N>H-39_A Reason: Constraints required for ST and PD PASA</p>
<p>10/12/2004: Modified Constraint Equation(s) Constraint Equation: CHI_Q_GC Reason: Added summated value for redefined Gold Coast cutset</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/powersystemops/3709.htm) for more information on Generic Constraints. Refer also to the Constraint Naming Guidelines: http://www.nemmco.com.au/dispatchandpricing/200-0062.htm and the Network and FCAS constraint formulation policy: http://www.nemmco.com.au/dispatchandpricing/170-0030.htm Should you have any queries regarding the above please contact Ben Blake on 02 8838 5359</p>

Transmission Outage Start Date 16 - 22 December 2004

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Station Name	Equipment Name	Equipment Type	KV	Start Time	Status	Constraint Set ID
Tomago 330kV	Tomago Newcastle 94 330kV LINE	line	330	2004/12/16 04:30:00	STLTP	
George Town	GeorgeTown B 220kV BUS	bus	220	2004/12/16 06:00:00	STLTP	
George Town	GeorgeTown Comalco 6 220kV LINE	line	220	2004/12/16 06:00:00	SUBMIT	
Dederang 330kV	Dederang Murray 1 330kV LINE	line	330	2004/12/16 06:00:00	STLTP	I-DDMS_P
Dederang 330kV	Dederang Murray 1 330kV LINE	line	330	2004/12/16 06:00:00	STLTP	V-DBUSS_L
Dederang 330kV	Dederang Murray 1 330kV LINE	line	330	2004/12/16 06:00:00	STLTP	V-DBUSS_T
Sydney West 330kV	Sydney W 5 132kV CAP	cap	132	2004/12/16 06:30:00	STLTP	
Sydney West 330kV	Sydney W 262B 330kV CB	cb	330	2004/12/16 06:30:00	STLTP	
Keilor 500kV	Keilor ats ln/a2 xfmr 220kV	cb	220	2004/12/16 06:30:00	STLTP	
Morwell 220kV	Morwell 3 230/66kV XFMR	xfmr2	230/66	2004/12/16 06:30:00	SUBMIT	
Wagga 330kV	Wagga Yanco 994 132kV LINE	line	132	2004/12/16 06:43:00	STLTP	N-X5_TRIP
Lower Tumut	Lwr Tumut Upr Tumut 64 330kV LINE	line	330	2004/12/16 07:00:00	STLTP	H-LTUT
Lower Tumut	Lwr Tumut Upr Tumut 64 330kV LINE	line	330	2004/12/16 07:00:00	STLTP	H-LTUT_15M
Gladstone 132kV	Gladstn132 Boyne Isld 7145 132kV LINE	line	132	2004/12/16 07:00:00	SUBMIT	
Mudgeeraba 275kV	Mudgeeraba 3 110kV BUS	bus	110	2004/12/16 08:00:00	STLTP	
Para 275kV	Para 275kV 61 275kV CAP	cap	275	2004/12/16 08:00:00	SUBMIT	
George Town	GeorgeTown A 220kV BUS	bus	220	2004/12/16 08:30:00	STLTP	
Millmerran 330kV	Millmerran 6002 330kV CB	cb	330	2004/12/16 09:00:00	STLTP	
Newcastle 330kV	Newcastle A2 330kV BUS	bus	330	2004/12/17 04:30:00	SUBMIT	
George Town	GeorgeTown A 220kV BUS	bus	220	2004/12/17 06:00:00	STLTP	
George Town	GeorgeTown Comalco 4 220kV LINE	line	220	2004/12/17 06:00:00	STLTP	
North West Bend 132kV	N_W_Bend 1 132/66/11kV XFMR	xfmr3	132/66/11	2004/12/17 06:30:00	STLTP	
Wagga 330kV	Wagga Yanco 994 132kV LINE	line	132	2004/12/17 06:43:00	STLTP	N-X5_TRIP
Gladstone 132kV	Gladstn132 Boyne Isld 7146 132kV LINE	line	132	2004/12/17 07:00:00	SUBMIT	
Geelong 220kV	Geelong Moorabool 1 220kV LINE	line	220	2004/12/17 07:00:00	STLTP	
Newcastle 330kV	Newcastle A2 330kV BUS	bus	330	2004/12/17 17:00:00	SUBMIT	
Heatherton 220kV	Heatherton B2 220/66kV XFMR	xfmr2	220/66	2004/12/18 06:00:00	STLTP	
North West Bend 132kV	N_W_Bend 2 132/66/11kV XFMR	xfmr3	132/66/11	2004/12/18 06:30:00	STLTP	
Ballarat 220kV	Ballart220 Moorabool 2 220kV LINE	line	220	2004/12/18 06:30:00	STLTP	V-BAML_2
Ballarat 220kV	Ballart220 Moorabool 2 220kV LINE	line	220	2004/12/18 06:30:00	STLTP	V-ML_SLOW_RUNBACK
Palmwoods 275kV	Palmwoods 2 132kV BUS	bus	132	2004/12/18 08:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 2 132kV BUS	bus	132	2004/12/18 08:30:00	MTLTP	Q-TR_OFFSET_-40
Palmwoods 275kV	Palmwoods 2 132kV CAP	cap	132	2004/12/18 08:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 2 132kV CAP	cap	132	2004/12/18 08:30:00	MTLTP	Q-TR_OFFSET_-40
Palmwoods 275kV	Palmwoods 6 132/110kV XFMR	xfmr2	132/110	2004/12/18 08:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 6 132/110kV XFMR	xfmr2	132/110	2004/12/18 08:30:00	MTLTP	Q-TR_OFFSET_-40
Hazelwood 500kV	Hazelwood Rowvill500 4 500kV LINE	line	500	2004/12/19 04:30:00	STLTP	V-HWRO4_C
Bendigo 220kV	Bendigo Kerang 220kV LINE	line	220	2004/12/19 06:30:00	STLTP	V-BEKG
Bendigo 220kV	Bendigo Kerang 220kV LINE	line	220	2004/12/19 06:30:00	STLTP	V-ML_SLOW_RUNBACK
North West Bend 132kV	N_W_B 6033 132kV CB	cb	132	2004/12/19 07:30:00	STLTP	
North West Bend 132kV	N_W_Bend 6225 132kV CB	cb	132	2004/12/19 07:30:00	STLTP	
Palmwoods 275kV	Palmwoods 4 132kV BUS	bus	132	2004/12/19 08:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 1 132kV CAP	cap	132	2004/12/19 08:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 6 132/110kV XFMR	xfmr2	132/110	2004/12/19 08:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Liddell Ps 330kV	Liddell PS Bayswtr330 34 330kV LINE	line	330	2004/12/20 06:15:00	STLTP	N-BWLD_ONE
Mt Beauty 220kV	Mt Beauty ddt5 1 ln	cb	220	2004/12/20 06:30:00	STLTP	
Farrell	Farrell Reece 2 220kV LINE	line	220	2004/12/20 07:00:00	SUBMIT	
Sheffield	Sheffield Lemonthyme 220kV LINE	line	220	2004/12/20 07:00:00	SUBMIT	
Torrens B Ps 275kV	TIPS_B BC4 275kV CB	cb	275	2004/12/20 08:00:00	STLTP	
Callide 132kV	Callide 2 132kV BUS	bus	132	2004/12/20 09:00:00	SUBMIT	
Callide 132kV	Callide Calvale 7161 132kV LINE	line	132	2004/12/20 09:00:00	SUBMIT	
Calvale 275kV	Calvale 2 288/138kV XFMR	xfmr2	288/138	2004/12/20 09:00:00	SUBMIT	
Swanbank B 275kV	h1_sbk_b.fdr 8062 cb	cb	275	2004/12/20 09:00:00	MTLTP	
Liddell Ps 330kV	Liddell PS Bayswtr330 34 330kV LINE	line	330	2004/12/21 06:15:00	STLTP	N-BWLD_ONE
Mt Beauty 220kV	Mt Beauty ddt5 1 ln	cb	220	2004/12/21 06:30:00	SUBMIT	
Torrens B Ps 275kV	TIPS_B BC4 275kV CB	cb	275	2004/12/21 08:00:00	STLTP	
Glenrowan 220kV	Glenrowan 1 xfmr grp 220kV	cb	220	2004/12/22 06:00:00	STLTP	
Liddell Ps 330kV	Liddell PS Muswbk330 83 330kV LINE	line	330	2004/12/22 06:15:00	MTLTP	F-N-LDMU_83
Liddell Ps 330kV	Liddell PS Muswbk330 83 330kV LINE	line	330	2004/12/22 06:15:00	MTLTP	N-LDMU_83
Torrens A Ps 275kV	TIPS_A AC4 275kV CB	cb	275	2004/12/22 07:30:00	STLTP	
South Pine 275kV	h2_spine.cplr 5072 cb	cb	275	2004/12/22 08:00:00	SUBMIT	
Torrens A Ps 275kV	TIPS_A AC1 275kV CB	cb	275	2004/12/22 08:00:00	STLTP	

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Transmission Outage End Date 16 - 22 December 2004

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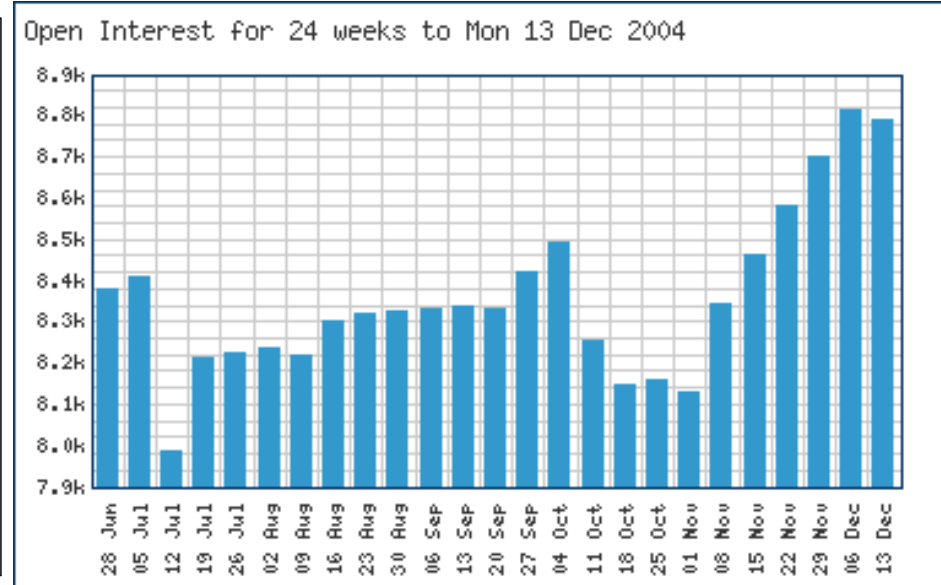
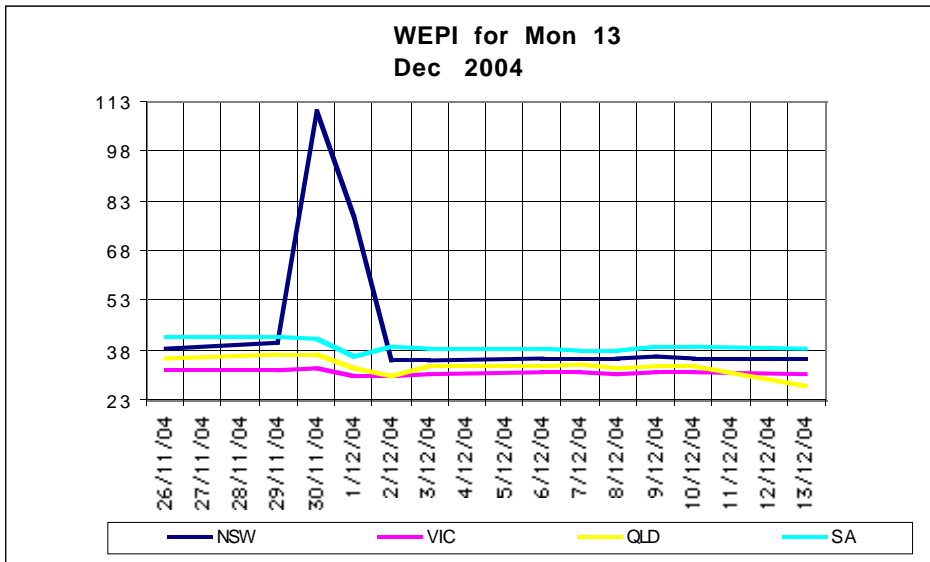
Station Name	Equipment Name	Equipment Type	KV	End Time	Status	Constraint Set ID
George Town	GeorgeTown B 220kV BUS	bus	220	2004/12/16 08:30:00	STLTP	
Para 275kV	Para 275kV 61 275kV CAP	cap	275	2004/12/16 09:30:00	SUBMIT	
Dederang 330kV	Dederang Murray 1 330kV LINE	line	330	2004/12/16 10:00:00	STLTP	I-DDMS_P
Dederang 330kV	Dederang Murray 1 330kV LINE	line	330	2004/12/16 10:00:00	STLTP	V-DBUSS_L
Dederang 330kV	Dederang Murray 1 330kV LINE	line	330	2004/12/16 10:00:00	STLTP	V-DBUSS_T
Sydney West 330kV	Sydney W 5 132kV CAP	cap	132	2004/12/16 14:30:00	STLTP	
Sydney West 330kV	Sydney W 262B 330kV CB	cb	330	2004/12/16 14:30:00	STLTP	
Lower Tumut	Lwr Tumut Upr Tumut 64 330kV LINE	line	330	2004/12/16 15:00:00	STLTP	H-LTUT
Lower Tumut	Lwr Tumut Upr Tumut 64 330kV LINE	line	330	2004/12/16 15:00:00	STLTP	H-LTUT_15M
Wagga 330kV	Wagga Yanco 994 132kV LINE	line	132	2004/12/16 15:00:00	STLTP	N-X5_TRIP
Mudgeeraba 275kV	Mudgeeraba 3 110kV BUS	bus	110	2004/12/16 15:30:00	STLTP	
Berri 132kV	Berri 1 132/66/11kV XFMR	xfmr3	132/66/11	2004/12/16 15:30:00	PTP	S-MHNSW_1
Monash 132kV	Monash 62 132kV CAP	cap	132	2004/12/16 15:30:00	PTP	S-MHNSW_1
North West Bend 132kV	N_W_B 6021 132kV CB	cb	132	2004/12/16 15:30:00	PTP	S-MHNSW_1
North West Bend 132kV	N_W_B 6033 132kV CB	cb	132	2004/12/16 15:30:00	PTP	S-MHNSW_1
North West Bend 132kV	N_W_Bend Monash 1 132kV LINE	line	132	2004/12/16 15:30:00	PTP	S-MHNSW_1
Farrell	Farrell JohnButtrs 220kV LINE	line	220	2004/12/16 16:00:00	PTP	
George Town	GeorgeTown Comalco 5 220kV LINE	line	220	2004/12/16 16:00:00	SUBMIT	
George Town	GeorgeTown A 220kV BUS	bus	220	2004/12/16 16:00:00	STLTP	
Tomago 330kV	Tomago Newcastle 94 330kV LINE	line	330	2004/12/16 16:30:00	STLTP	
Millmerran 330kV	Millmerran 6002 330kV CB	cb	330	2004/12/16 17:00:00	STLTP	
John Lysaght Aust. 220kV	JLysaght Tyabb 2 220kV LINE	line	220	2004/12/16 17:00:00	PTP	
Gladstone 132kV	Gladstn132 Boyne Isld 7145 132kV LINE	line	132	2004/12/16 18:00:00	SUBMIT	
Geelong 220kV	Geelong Moorabool 1 220kV LINE	line	220	2004/12/17 09:00:00	STLTP	
Para 275kV	PARA 6520 275kV CB	cb	275	2004/12/17 14:30:00	PTP	
Wagga 330kV	Wagga Yanco 994 132kV LINE	line	132	2004/12/17 15:00:00	STLTP	N-X5_TRIP
Keilor 500kV	Keilor ats ln/a2 xfmr 220kV	cb	220	2004/12/17 15:00:00	STLTP	
North West Bend 132kV	N_W_Bend 1 132/66/11kV XFMR	xfmr3	132/66/11	2004/12/17 15:30:00	STLTP	
Morwell 220kV	Morwell 3 230/66kV XFMR	xfmr2	230/66	2004/12/17 15:30:00	SUBMIT	
George Town	GeorgeTown A 220kV BUS	bus	220	2004/12/17 16:00:00	STLTP	
George Town	GeorgeTown Comalco 4 220kV LINE	line	220	2004/12/17 16:00:00	STLTP	
Happy Valley 275kV	Happy_Vly W 275kV BUS	bus	275	2004/12/17 16:30:00	PTP	
Happy Valley 275kV	Happy_Vly 62 275kV CAP	cap	275	2004/12/17 16:30:00	PTP	
Morphett Vale East 275kV	Mrpht_VI_E Happy_Vly 275kV LINE	line	275	2004/12/17 16:30:00	PTP	
Newcastle 330kV	Newcastle A2 330kV BUS	bus	330	2004/12/17 17:00:00	SUBMIT	
Newcastle 330kV	Newcastle A2 330kV BUS	bus	330	2004/12/17 17:30:00	SUBMIT	
Gladstone 132kV	Gladstn132 Boyne Isld 7146 132kV LINE	line	132	2004/12/17 18:00:00	SUBMIT	
Farrell	Farrell Reece 1 220kV LINE	line	220	2004/12/17 19:00:00	PTP	

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Station Name	Equipment Name	Equipment Type	KV	End Time	Status	Constraint Set ID
Ballarat 220kV	Ballart220 Moorabool 2 220kV LINE	line	220	2004/12/18 14:30:00	STLTP	V-BAML_2
Ballarat 220kV	Ballart220 Moorabool 2 220kV LINE	line	220	2004/12/18 14:30:00	STLTP	V-ML_SLOW_RUNBACK
Heatherton 220kV	Heatherton B2 220/66kV XFMR	xfmr2	220/66	2004/12/18 15:00:00	STLTP	
Palmwoods 275kV	Palmwoods 2 132kV BUS	bus	132	2004/12/18 15:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 2 132kV BUS	bus	132	2004/12/18 15:30:00	MTLTP	Q-TR_OFFSET_-40
Palmwoods 275kV	Palmwoods 2 132kV CAP	cap	132	2004/12/18 15:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 2 132kV CAP	cap	132	2004/12/18 15:30:00	MTLTP	Q-TR_OFFSET_-40
Palmwoods 275kV	Palmwoods 6 132/110kV XFMR	xfmr2	132/110	2004/12/18 15:30:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 6 132/110kV XFMR	xfmr2	132/110	2004/12/18 15:30:00	MTLTP	Q-TR_OFFSET_-40
North West Bend 132kV	N_W_Bend 2 132/66/11kV XFMR	xfmr3	132/66/11	2004/12/18 15:30:00	STLTP	
North West Bend 132kV	N_W_B 6033 132kV CB	cb	132	2004/12/19 11:30:00	STLTP	
North West Bend 132kV	N_W_Bend 6225 132kV CB	cb	132	2004/12/19 11:30:00	STLTP	
Palmwoods 275kV	Palmwoods 4 132kV BUS	bus	132	2004/12/19 15:00:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 1 132kV CAP	cap	132	2004/12/19 15:00:00	MTLTP	Q-H9PW_50MVAR_CAP
Palmwoods 275kV	Palmwoods 6 132/110kV XFMR	xfmr2	132/110	2004/12/19 15:00:00	MTLTP	Q-H9PW_50MVAR_CAP
Bendigo 220kV	Bendigo Kerang 220kV LINE	line	220	2004/12/19 15:30:00	STLTP	V-BEKG
Bendigo 220kV	Bendigo Kerang 220kV LINE	line	220	2004/12/19 15:30:00	STLTP	V-ML_SLOW_RUNBACK
Hazelwood 500kV	Hazelwood Rowvill500 4 500kV LINE	line	500	2004/12/19 17:00:00	STLTP	V-HWRO4_C
Alcoa/portland 500kV	Alc/prtlnd Heywood 2 500kV LINE	line	500	2004/12/20 07:00:00	PTP	F-I_TL_0600
Alcoa/portland 500kV	Alc/prtlnd Heywood 2 500kV LINE	line	500	2004/12/20 07:00:00	PTP	F-V-HYML
Alcoa/portland 500kV	Alc/prtlnd Heywood 2 500kV LINE	line	500	2004/12/20 07:00:00	PTP	V*HYBT
Alcoa/portland 500kV	Alc/prtlnd Heywood 2 500kV LINE	line	500	2004/12/20 07:00:00	PTP	V-HYML_R
Mt Beauty 220kV	Mt Beauty dds 1 ln	cb	220	2004/12/20 10:00:00	STLTP	
Swanbank B 275kV	h1_sbk_b.fdr 8062 cb	cb	275	2004/12/20 13:00:00	MTLTP	
Callide 132kV	Callide 2 132kV BUS	bus	132	2004/12/20 14:00:00	SUBMIT	
Callide 132kV	Callide Calvale 7161 132kV LINE	line	132	2004/12/20 14:00:00	SUBMIT	
Calvale 275kV	Calvale 2 288/138kV XFMR	xfmr2	288/138	2004/12/20 14:00:00	SUBMIT	
Liddell Ps 330kV	Liddell PS Bayswtr330 34 330kV LINE	line	330	2004/12/20 14:30:00	STLTP	N-BWLD_ONE
Torrens B Ps 275kV	TIPS_B BC4 275kV CB	cb	275	2004/12/20 15:30:00	STLTP	
Mt Beauty 220kV	Mt Beauty dds 1 ln	cb	220	2004/12/21 09:30:00	SUBMIT	
Torrens B Ps 275kV	TIPS_B BC4 275kV CB	cb	275	2004/12/21 12:30:00	STLTP	
Liddell Ps 330kV	Liddell PS Bayswtr330 34 330kV LINE	line	330	2004/12/21 14:30:00	STLTP	N-BWLD_ONE
Sheffield	Sheffield Lemonthyme 220kV LINE	line	220	2004/12/21 16:00:00	SUBMIT	
Torrens A Ps 275kV	TIPS_A AC1 275kV CB	cb	275	2004/12/22 13:30:00	STLTP	
Liddell Ps 330kV	Liddell PS Muswlbk330 83 330kV LINE	line	330	2004/12/22 14:30:00	MTLTP	F-N-LDMU_83
Liddell Ps 330kV	Liddell PS Muswlbk330 83 330kV LINE	line	330	2004/12/22 14:30:00	MTLTP	N-LDMU_83
Torrens A Ps 275kV	TIPS_A AC4 275kV CB	cb	275	2004/12/22 14:30:00	STLTP	
South Pine 275kV	h2_spine.cplr 5072 cb	cb	275	2004/12/22 15:00:00	SUBMIT	
Glenrowan 220kV	Glenrowan 1 xfmr grp 220kV	cb	220	2004/12/22 16:00:00	STLTP	
Farrell	Farrell Reece 2 220kV LINE	line	220	2004/12/22 19:00:00	SUBMIT	

D-cypha Weekly Report

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Trading summary for week ending Monday 13/12/04

- Futures contracts traded this week = 35
 - Base = 15
 - Peak = 20
 - Caps = 0
- Options contracts traded this week = 0
- Volume of EFP trades this week = 0
- Volume of BTF trades this week = 30

- Futures & Options contracts traded to date = 24,872

- Open Interest as at COB Monday 13/12/04 = 8,849 lots

- Total MWh traded this week = 50,400

Average volume

- Average daily volume FY04-05 = 40
- December 2004 average daily volume = 12
- November 2004 average daily volume = 40
- October 2004 average daily volume = 74

Activity

- Volume on the bid and offer, counted at 4.10pm on 13/12/04 = 875 lots.
- Brokers with active orders this week include: CSFB, ICAP, JP Morgan, LQuay and Man Financial.
- Bids and offers have been consistently quoted across all four states in Quarterly and Cal/Fin Year Strip Products.
- Tight bids and offers have also been available in the Caps market.

Source: d-Cypha.

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