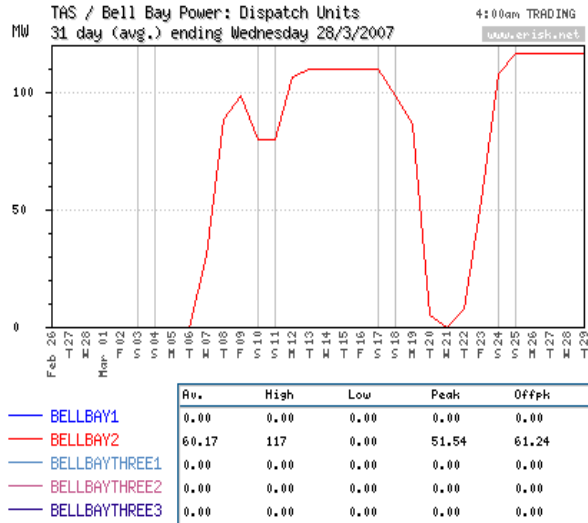


## Bell Bay, last 31 days



## Hydro Tasmania confirms: Bell Bay sale to Alinta for \$120m suggests a very fast-track path for new 203MW Tamar units

1

Tasmania was, step by step selling its electricity assets, and last weekend confirmed its offer to sell the three Bell Bay turbines to the Bell Bay operator, Alinta. The deal – if approved by Parliament – would signal the first private large private-power station for Tasmania, and an early win for the ex-Delta chief, Jim Hennessy, who has

crossed the line from a government firm, and now drives private generation investments, for Alinta.

**Drought crisis:** The Hydro's water storages were last week at 20.9 per cent and falling, in a long-term trend.

**What Alinta offered to buy:** Alinta would get:

- licences, approvals and permits;
- proximity to the gas pipeline;
- transmission lines, access to cooling water; and
- the gas turbines.

**Fast track plan:** Alinta said it intended to build a fourth more efficient turbine; "Tamar". Alinta had originally sought approvals to build the 203MW Tamar Valley Power Station on industrial land near George Town. The annual report said construction was scheduled for mid 2007. Bell Bay was already managed by Alinta Energy, and Alinta also owned the Tasmania gas pipeline.

**Pulp mill sub-plot:** The Alinta sale announcement was made after the Premier fast-tracked the Gunns pulp mill. The plan was obviously linked to the contentious Tamar mill.

**Gunns to sell to grid:** Gunns also intended to sell the grid using biomass fuel. It was also a gas and electricity buyer.

## contents

- 5 Lennon's lemon: Gunns exempt from air, water and waste pollution guidelines
- 6 Aurora D/E ratio 60:40: no Tasmania Hydro debt-transfer; burden likely for Transend
- 7 Premier happy with Aurora Energy monopoly distribution returns, debt servicing worries
- 7 2005/06: most NEM mis-pricing due constraints to manage transmission outages
- 9 Wednesday, 21 March: Tasmania's two negative prices of minus \$126.52/MWh and minus \$832.26/MWh in early afternoon
- 9 AEMC baulks at nodal pricing for NEM; proposes adoption of generator nodal pricing
- 10 QWC plan: 3 power stations in SE Queensland declared customers of Grid Manager

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# Top price for NEM week 432: McKay Power at \$279.35

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2

TAS			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Liap/Way/Cat	\$594,610	10,551	\$56.36
Bell Bay Power	\$489,779	8,666	\$56.52
John Butters	\$620,026	11,383	\$54.47
Tungatinah	\$328,343	5,928	\$55.39
Poatina	\$1,528,537	27,586	\$55.41
Tarraleah	\$431,045	7,769	\$55.48
Reece	\$465,951	8,853	\$52.63
Cethana	\$160,439	3,160	\$50.78
Tribute	\$103,809	1,935	\$53.64
Lemonthyme/Wilmot	\$153,120	2,875	\$53.26
Trevallyn	\$265,002	4,640	\$57.11
Mackintosh	\$243,980	4,397	\$55.49
Bastyan	\$209,016	3,879	\$53.88
Woolnorth Wind	-	-	-
Gordon	\$2,777,185	50,560	\$54.93
Vic->Tas	\$2,463,063	44,475	\$55.38
Devils Gate	\$134,640	2,503	\$53.80
Fisher	\$56,373	1,113	\$50.65
Meadowbank	85921.7694	1496.88	\$57.40
Lake Echo	174219.6055	3201.735	\$54.41
Repulse	-	-	-
Paloona	-	-	-
Cluny	-	-	-

**Electricity powers chlor-alkali plant:** The Gunns chlorine dioxide process was a chlor-alkali plant in which caustic (sodium hydroxide) and hydrochloric acid are produced, a sodium chlorate and chlorine dioxide plant. The chlorine dioxide process consumed sodium chlorate and hydrochloric acid in the production of chlorine dioxide (for bleaching), chlorine (recycled to produce hydrochloric acid) and sodium chloride (salt) was recycled back to the chlorate plant.

SA			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
North'n Power	\$4,784,637	87,354	\$54.77
Ladbroke	\$357,341	3,948	\$90.51
Osborne	\$1,533,594	26,752	\$57.33
Pelican Pt	\$4,028,678	70,324	\$57.29
Torrens Is. B	\$3,984,329	63,167	\$63.08
Vic->SA	\$279,337	5,066	\$55.24
MLink->SA	\$2,188	29	\$74.83
Torrens Is. A	\$591,151	7,672	\$77.06
Mintaro	\$152,633	1,043	\$146.33
Dry Creek	\$221,035	1,507	\$146.67
Playford	\$1,011,584	16,873	\$59.95
Snuggery	-	-	-
Pt Lincoln	-	-	-
Quarantine	\$329,985	3,504	\$94.18
Angaston Power	\$16,143	103	\$156.17
Hallett Power	\$585,660	5,653	
Lonsdale	-	-	-
Terminal Storage	-	-	-
Lake Bonney Wind	-	-	-

VIC			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Loy Yang A	\$23,118,938	348,944	\$66.25
Loy Yang B	\$11,556,159	173,189	\$66.73
Hazelwood	\$17,039,376	248,694	\$68.52
Yallourn	\$11,797,793	179,181	\$65.84
Anglesea	\$1,623,563	24,095	\$67.38
Energy Brix	\$1,424,633	20,521	\$69.42
Newport	\$515,840	13,714	\$37.61
MLink->Vic	\$666,129	7,864	\$84.71
SA->Vic	\$1,744,916	18,529	\$94.17
Snowy->Vic	\$3,907,229	27,965	\$139.72
Tas->Vic	\$2,857,397	16,979	\$168.29
Jeeralang	\$169,787	974	\$174.38
West Kiewa	\$258,409	2,112	\$122.34
Bairnsdale	\$728,612	8,431	\$86.42
Dartmouth	-	-	-
Eildon	\$66,519	429	\$155.13
Hume Vic	-	-	-
McKay Power	\$474,908	1,700	\$279.35
Clover	-	-	-
Valley Power	\$1,943,007	17,772	\$109.33
Rubicon	-	-	-
Laverton North	639249.1822	6337.115	
Somerton Power	766834.5845	5246.315	
Sunshine Energy	-	-	-
Longford	-	-	-

NSW			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Bayswater	\$28,534,669	372,414	\$76.62
Liddell	\$14,337,987	180,620	\$79.38
Mt Piper	\$14,661,558	176,312	\$83.16
Wallerawang	\$7,343,099	93,772	\$78.31
Vales Point	\$5,640,719	57,001	\$98.96
Munmorah	\$1,822,021	26,025	\$70.01
Eraring	\$28,480,583	348,504	\$81.72
Redbank	\$1,733,613	23,653	\$73.29
Smithfield	\$1,226,473	15,425	\$79.51
Snowy->NSW	\$16,697,040	148,358	\$112.55
Shoalhaven	\$667,238	13,274	\$50.27
Hunter Valley	-	-	-
Hume Hydro	-	-	-
Blowering	-	-	-
Northern Gas	-	-	-
Burrinjuck	-	-	-
Brown Mountain	-	-	-
Keepit	-	-	-
Broken Hill	-	-	-
Ergon Energy	-	-	-
DL Q->N	\$1,275,397	15,025	\$84.89
QLD->NSW	\$6,983,987	96,330	\$72.50
Pindari Hydro	-	-	-
West Nowra	-	-	-
Country En (NSW)	-	-	-

QLD			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Tarong	\$13,898,196	242,089	\$57.41
Millmerran	\$7,129,942	120,042	\$59.40
Swanbank	\$2,841,899	46,305	\$61.37
Stanwell	\$11,991,152	203,070	\$59.05
Callide B	\$4,847,468	83,351	\$58.16
Callide Power	\$7,698,822	133,727	\$57.57
Townsville	\$2,016,399	33,747	\$59.75
Gladstone	\$11,556,755	191,581	\$60.32
Collinsville	\$143,492	1,699	\$84.44
Swanbank C. D. E	\$2,917,198	47,280	\$61.70
Barcaldine	\$270,831	3,223	\$84.02
Callide A	-	-	-
Kareeya	\$834,299	14,784	\$56.43
Barron Gorge	\$504,470	8,827	\$57.15
Mt Stuart	\$58,217	1,014	\$57.43
Wivenhoe	\$124,777	2,282	\$54.69
Braemar Power	\$2,810,735	36,096	\$77.87
Mackay	-	-	-
Roma	\$89,517	714	\$125.29
Oakey	\$61,957	233	\$266.40
DL N->Q	-	-	-
NSW->QLD	\$10,108	175	\$57.79
Rocky Point	-	-	-
Tableland	-	-	-
Stapylton	-	-	-

**Salt and electricity:** The two main raw materials required for this integrated chlorine dioxide plant were salt (for the chlor-alkali production) and electrical energy (for both sodium chlorate and chlor-alkali production).

**Gunns goes for gas:** Planner Dr Esa Kari Vakkilainen said Gunn's choice of auxiliary fuel was not fuel oil, but natural gas. But that would breach emission limits specified in the development of new environmental emission limit guidelines for any new bleached eucalypt kraft pulp mill.

**Rubbery megawatts:** The sale of the turbine to Alinta, also would allow Hydro Tasmania to solve its cash flow problems with the proposed sale of its "105MW", second-hand gas turbines (which elsewhere were described as two "120MW") site and gas contracts to its rival, Alinta. Alinta was to transform this to "180MW of backup or peaking capacity located at the Bell Bay site, utilising the existing three gas turbines ... As part of the supply arrangements, Alinta will provide an additional 180 MW of open cycle generation capacity. This will allow Alinta to provide back-up electricity when required, as well as peaking capacity to the National Electricity Market."

**Alinta contracts electricity with Aurora:** Last October, Alinta entered into a conditional agreement to supply Aurora Energy with electricity from a new proposed Tamar, Bell Bay combined cycle gas-fired power station. Alinta said construction would start in 2007.

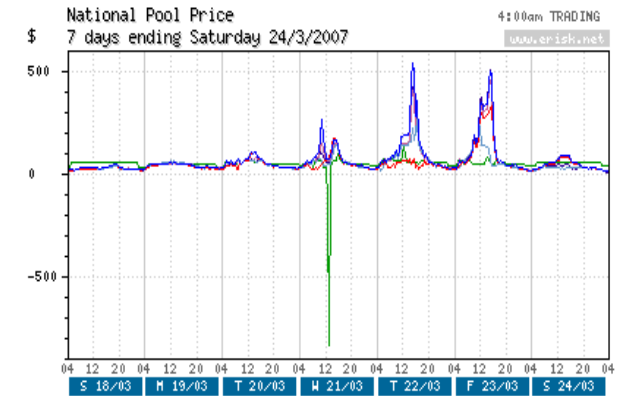
## the week in detail

- **NSW:** Average price \$74.80/MWh, up 85 per cent on the \$40.35/MWh the previous week, up 259 per cent on the \$20.84/MWh of the comparable week last year; maximum price \$546.19/MWh for the 30-minute trading interval ended 1530EST Thursday. Average demand 9155MW, up 4.1 per cent on the previous week, up 9.0 per cent on a year ago; maximum demand 11,871MW for the 1600EST interval on Thursday, up 6.9 per cent on the 11,105MW the previous week.

- **Victoria:** Average price \$67.07/MWh, up 6 per cent on the spike-affected \$63.02/MWh the previous week, up 197 per cent on the \$22.59/MWh of the comparable week last year; maximum price \$509.25/MWh for the 30-minute trading interval ended 1530EST Friday. Average demand 5979MW, up 5.9 per cent on the previous week, up 4.2 per cent on a year ago; maximum demand 8796MW in the 1600EST Friday interval, up 10.3 per cent on the 7976MW the previous week.

- **South Australia:** Average price \$54.96/MWh, down 9 per cent on the spike-affected \$60.60/MWh the previous week, up 50 per cent on the \$36.68/MWh of the comparable week last year; maximum price \$272.38/MWh for the trading interval ended 1700EST on Thursday. Average demand 1584MW, up 3.4 per cent on the previous week, up 2.2 per cent on a year ago; maximum demand 2416MW for the 1600EST Thursday interval, down 3.3 per cent on the 2498MW the previous week.

- **Queensland:** Average price \$56.47/MWh, down nearly 2 per cent on the spike-affected \$57.39/MWh the previous week, up 271 per cent on the \$15.24/MWh of the comparable week last year; maximum price \$334.47/MWh for the trading interval ended 1400EST Friday. Average demand 6287MW, down 1.6 per cent on the previous week, up 8.0 per cent on a year ago; maximum demand 7676MW for the 1600EST Wednesday interval, down 10.6 per cent on the record 8589MW the previous week.



	Ave.	High	Low	Peak	Offpk
NSW disp Pool Price (\$)	74.80	546.19	18.20	114.63	42.68
QLD disp Pool Price (\$)	56.47	334.47	17.76	78.00	39.11
SA disp Pool Price (\$)	54.96	272.38	17.52	80.69	34.21
Snowy disp Pool Price (\$)	68.61	464.21	18.55	101.07	42.44
VIC disp Pool Price (\$)	67.07	509.25	15.56	103.92	37.36
TAS disp Pool Price (\$)	55.46	135.34	-832.26	54.41	56.32

- **Tasmania:** Average price \$55.46/MWh, up 15 per cent on the \$48.40/MWh the previous week, up 90 per cent on the \$29.26/MWh of the comparable week last year; maximum price \$135.34/MWh for the trading interval ended 1300EST on Thursday. Average demand 1114MW, up 3.4 per cent on the previous week, up 6.5 per cent on a year ago; maximum demand 1365MW in the 0730EST Monday interval up 2.6 per cent on the 1330MW the previous week.

**Alinta contracts gas with Anzon, Beach:** A conditional 15-year gas supply agreement (with options for additional gas supply) was drafted with Anzon Australia Limited and Beach Petroleum.

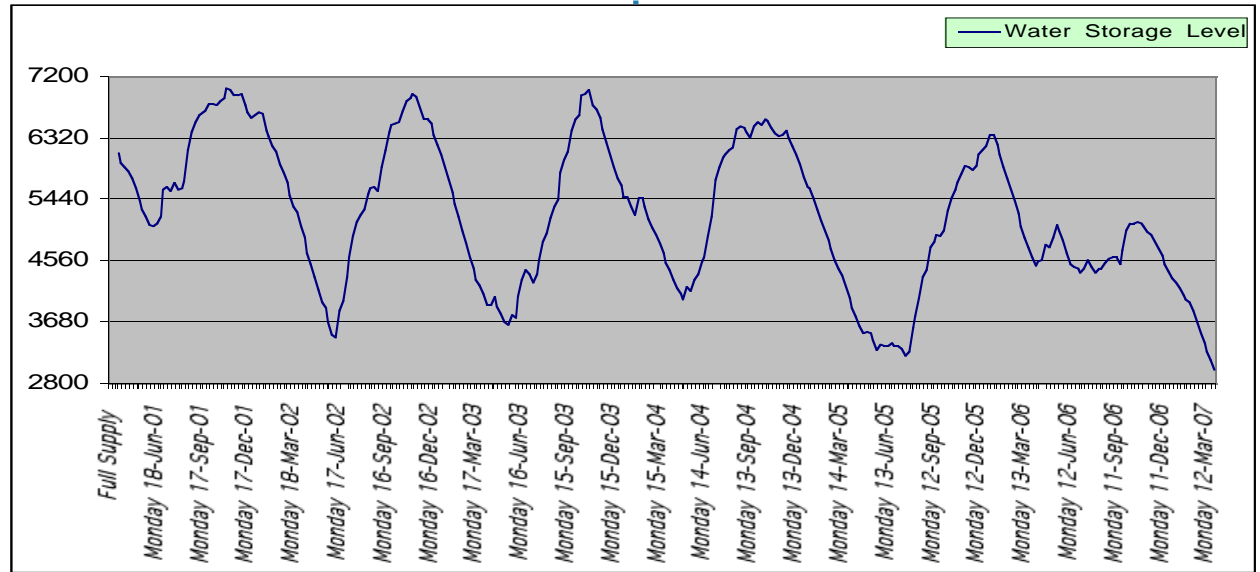
**Mystery configuration:** Alinta planned a new, combined cycle gas plant, but would also use the three existing turbines, said executive general manager of Alinta Energy, Jim Hennessy. Minister for Energy, David Llewellyn, will seek approval from both houses of Parliament for the sale of the Bell Bay Power Station site. Alinta would build a new 200MW gas-fired combined cycle power station – Tamar Valley Power Station – and use the older Hydro turbines 180MW back-up and peaking plant.

**In a release:** The Hydro confirmed it had signed a heads of agreement with Alinta Energy (Tamar Valley) Pty Ltd for the sale of Bell Bay Power Station site, including the Gas Turbines, a news release from Hydro Tasmania said. “We are in the process of finalising and documenting the terms of this transaction but believe we have negotiated a win-win outcome for both Alinta and Hydro Tasmania,” chief executive officer, Vince Hawksworth, said.

**Mooted sale terms:**

- upfront payment of \$30 million to Hydro Tasmania;
- agreement to terminate the gas *Pipeline Capacity Agreement* from April 2009, about 9 years early.

## Tasmania hydro storages fall to new low



“In today’s dollars, the PCA would have generated \$8.6 million per annum. The nominal value of the foregone revenue was \$90 million. The present value of the reduced revenue from the *Pipeline Capacity Agreement* would be offset by net capital cost savings and revenue from sale of electricity into the NEM from the gas turbines”, said Hennessy. Hydro Tasmania will continue to have “effective use” of the plant until Alinta’s Tamar Valley Gas Generator was commissioned.

**Roars off to China:** At the same time Hydro Tasmania expanded in China with its joint venture Roaring Forties for signing another joint venture agreement with Guohua Renewable Energy Investment Company Ltd

for three wind farms in China valued at AUD\$240 million; Lijin, Zhanhua and Hekou are situated in the Shandong Province, and would each have a 50MW capacity. Construction of the wind farms is anticipated to commence in the second half of this year, with full commissioning by June 2008.

**Alinta's gain: ready infrastructure:** “Bell Bay is a suitable site for development of further power generating capacity by Alinta, with the site’s existing licences, approvals and permits, proximity to the gas pipeline and transmission lines, access to cooling water, and the Gas Turbines all being of potential benefit for Alinta’s project,” he said.

**Hydro gets \$120m:** The benefit of the sale to Hydro Tasmania is \$120 million, with an upfront cash payment of \$30 million.

**Paying for capacity of transportation:** According to Hawkesworth: "A key feature of the agreement is that the *Pipeline Capacity Agreement*, under which we pay for an annual capacity to transport 10 petajoules of gas at an annual cost of \$8.6 million in today's dollars, will be amended to terminate on 31 March 2009.

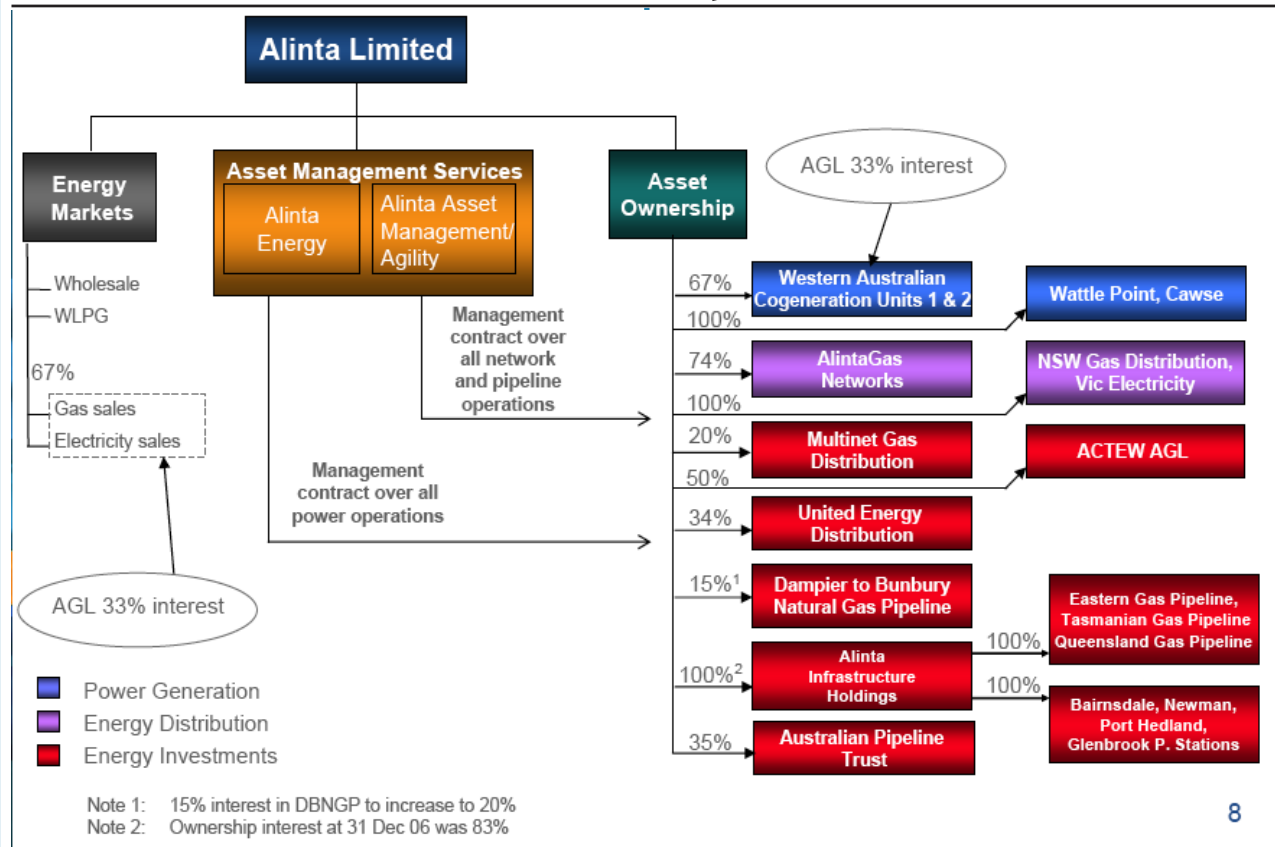
**Early termination of agreement:** "With the *Pipeline Capacity Agreement* having been set to run until 2018, its early termination from 31 March 2009 represents a saving for us of \$90 million. "This transaction is a logical resolution of the Joint Venture arrangements between Alinta and Hydro Tasmania in the current electricity market environment.

**Operating on gas more economical:** "Bell Bay Power Station has served the State well, particularly in recent years of below average rainfall. Converting Bell Bay to operate on gas was a sound commercial decision, saving us of the order of \$250m had we generated an equivalent amount of energy from oil.

**Bell Bay stays gas fired:** "But with the advent of Basslink, and with the proposed Alinta development, its time has passed. The agreement we are announcing today means the continued use of the Bell Bay Power Station site for gas-fired electricity generation".

**Condition of sale:** The sale is conditional on approval from both Houses of the Tasmanian Parliament.

## The Altintadean empire



## Lennon's lemon: Gunns exempt from air, water and waste pollution guidelines

The Gunns pulp mill will not have to meet the original tough air, water and waste pollution guidelines to pass the proposed new fast-track assessment, reported *The Mercury* (24/03/2007, p.1).

Financial Year Ended 31 December 2006  
28 February 2007

**Minister for Energy's double hat:** The Minister for Energy (who was also the Minister for Police and Emergency Management), David Llewellyn, last week said he had been advised by the Deputy Commissioner of Police that there would be no investigation by police into the allegation that the Premier had breached section 17A of the *Resource*

*Planning and Development Act 1997.*

Llewellyn said the Deputy Commissioner had advised that the matter had been reviewed and the conclusion reached that there was no matter to investigate.

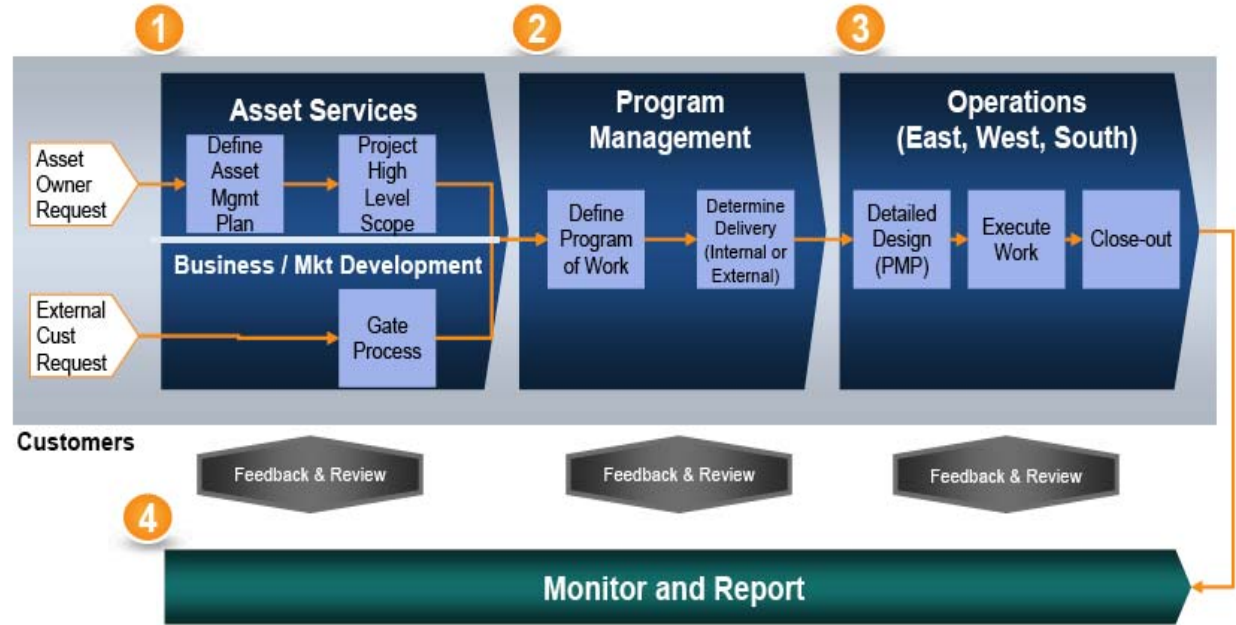
## Aurora D/E ratio 60:40: no Tasmania Hydro debt-transfer; burden likely for Transend

If Hydro Tasmania gets approval to sell State assets to the Alinta, it may avoid lesser evils. Energy Minister David Llewellyn told the Tasmania Legislative Council, *Government Business Scrutiny Committee*, on Friday 9 March 2007 that it was wrong to look at public-owned bodies like Aurora Energy and compare them to privately owned bodies in terms of debt equity. His comments showed Aurora was not likely to get any Tasmania Hydro debt transferred to it; Transend was more likely to carry the load.

**Demands for electricity infrastructure:**

"Clearly, we need to have the capacity to invest to continue to deliver on our purpose, which is to see the Tasmanian community prosper from our efforts. Our view is that our debt to equity ratio is about correct and in fact we are, as I mentioned earlier, increasing our debt a little bit in response to the demands from the Tasmanian community for electricity infrastructure".

## How to buy State assets, Alinta-style



**Aurora capacity to take on more debt?** A committee member asked the Minister if there was any capacity for Aurora to take on any more debt from other energy instrumentalities as was mooted at the Transend hearings earlier this week.

**"Wrong" to compare public and privates:** Llewellyn responded: "Debt to equity ratios and comparisons with businesses such as Aurora or Transend or even the Hydro are issues that I mentioned a bit earlier on in the week, things that are monitored on an ongoing basis. There are comparisons that one can make with bodies, other electricity entities around Australia. I think it is probably wrong to

Financial Year Ended 31 December 2006  
28 February 2007

look at public-owned bodies and compare them exactly to privately owned bodies".

**Debt to equity issue no problem:** "There was a lot of discussion about that particular issue when Transend, in the other place, was at our hearings earlier in the week. However, I think the debt to equity issue within Hydro is about right and I would not see much would change in relation to that".

**Debt to equity ratio around 60:40:** Aurora Energy chair, Peter Davis, said: "I think it is important to understand that Aurora has a role to play. As the minister has indicated, we have

had advice that looked at our debt to equity ratio; our current gearing level is a debt to equity ratio around 60:40. That 60 per cent has emerged as the most sensible and appropriate for a business of our type. We need to think about what Aurora is. It is a retail business that is facing competition and it is a regulated monopoly distribution business. So the debt to equity ratio we have, based on expert advice, is appropriate and it is important that we maintain it at around that level because Aurora needs to be able to respond to customers who want infrastructure built in this State".

**Reference: Government of Tasmania, Legislative Council, Government Business Scrutiny Committee, Friday 9 March 2007.**

## Premier happy with Aurora Energy monopoly distribution returns, debt servicing worries

**T**he Minister for Energy, David Llewellyn, told the Tasmania Legislative Council, *Government Business Scrutiny Committee*, on Friday 9 March 2007 that Aurora Energy employed 1,200 Tasmanians. The financial result was "a very sound core business, comprising a regulated monopoly distribution business and retail operations adapting to the gradual arrival of new competition, as well as Aurora actively pursuing opportunities for growth. As a result of this approach, Aurora returns will continue to be generally predictable and very stable".

**Llewellyn talks up Aurora future:** Llewellyn said: "I would like to make some opening comments in order to put into context our discussion about the performance of Aurora Energy and the challenges the company is planning to meet in the years ahead. I believe this is a very strong Tasmanian business, performing well as a result of very capable leadership, effective management and the commitment of more than 1,200 employees. A key feature of Aurora's performance is, in my view, its close connection with the Tasmanian community and that is reinforced by the fact that the 1,200-plus employees work from 17 different sites throughout Tasmania".

**Aurora diversify:** "Later this year it will be subjected to distribution and retail pricing determinations, following an investigation by the independent Tasmanian Energy Regulator. Aurora is conscious of the importance of ongoing vigilance to ensure that debt servicing does not become an issue. Obviously outcomes from the pricing determination will be critical to this. As I have already mentioned, Aurora has been impacted by increased costs, including the development of large systems associated with the National Energy Market entry. Offsetting this, Aurora is implementing some key initiatives that diversify into commercial opportunities that complement the core business".

**"actively pursuing opportunities":** "Aurora understands the evolving external environment and associated challenges and has refined its strategy and identified the strategic objectives critical to long-term business success".

**Reference: Government of Tasmania, Legislative Council, Government Business Scrutiny Committee, Friday 9 March 2007.**

## 2005/06: most NEM mispricing due constraints to manage transmission outages

**A** limited sample study for 2005/06 showed that majority of the mis-pricing were due to binding constraints applied to manage transmission outages, as distinct from those applying with system normal conditions.

**Mispricing not related to number of constraints binding:** The amount of mis-pricing is not directly related to the number of constraints binding since the number of constrained generators per constraint is not fixed. More detailed analysis is required to identify details of such impact.

**Possible extension of this analysis:** The results published in the report are from an initial review to analyse Dr Biggar's findings. This analysis could be extended to find other trends on constraining on/off generators including:

- **Analysis on the materiality of mis-pricing:** This is to quantify mis-pricing as the difference in the prices or the financial amount by applying it to the amount of constrained generation. This type of study will be based on several assumptions of price capping and the marginal impact on

constraints. It would have to assume no change in the participant behaviour.

• **Analysis of the impact of planned transmission outages on mis-pricing:**

This is to identify the mis-pricing directly due to transmission outages.

• **Analysis of the distribution of positive and negative mis-pricing:**

The analysis is to identify and quantify the instances of constrained on and constrained off generation.

**Increasing trend of mispricing in NSW, Qld, SA:**

This study confirmed the finding that there is an increasing trend of mispricing from 2003/04 for the regions NSW, QLD and SA. The Victorian region showed a decreasing trend.

**Generic causes:** There are some generic causes which may have contributed to the increased mispricing throughout the NEM. An increase in system demand would have contributed to an increase in congestion.

**A result of fully co-optimised formulation:**

The progressive conversion of option 8 (interconnector terms only on the LHS) constraints to a fully co-optimised formulation from July 2005 onwards would also have contributed to the increase in incidence of mispricing, while providing better control of the power system.

**Regional analysis:** A region by region analysis of mis-pricing was able to identify region-specific issues which contributed to trends in mispricing as summarised below.

**Victoria:**

- Changes in generation output especially in Hazelwood Power Station;
- Generators switching output from the 220kV network to the 500kV network (Yallourn W unit 1);
- The use of higher short-term rating for Hazelwood Transmission Station transformers from July 2004;
- Commissioning of fourth 500kV transmission line between Latrobe Valley and Melbourne metropolitan area in August 2005; and
- The impact of drought on Victorian hydro generators.

**New South Wales:**

- Multi-day network outages for work to provide long term capacity improvements;
- Increase in flow through QNI interconnector from Queensland;
- Increase in output from Bayswater and Liddell power stations;
- Increase in load in Newcastle area; and
- Change in constraint formulation to apply single constraint with both generator and interconnector terms instead of a constraint pair for generators and interconnectors separately.

**Queensland:**

- Directions and NSA to manage system conditions in 2001/02;

- Increase in voltage stability limit flows from central to north Queensland in late 2001;
- Application of dynamic voltage stability limit flows from central to north Queensland in February 2003; and
- System outages.

**South Australia:** The change in constraint formulation from interconnector only constraints to fully co-optimised constraints.

- The adoption of higher 15 minute rating for the Keith-Snuggery line in December 2004;
- An increase in generation from Lake Bonney and Canunda wind-farms; and
- A reduction in the Victoria to South Australia transient stability limit. (The increase in wind-farm outputs is one of the probable causes).

**Snowy:**

- The removal of 15 minute rating for Murray-Tumut lines in early 2002 reduced the line limit. This rating was restored in mid 2002; and
- The use of discretionary constraints to manage Murray and Tumut generation before fully-cooptimised constraints were adopted.

**Trend analysis says most incidents are situational:** As discussed above most of these reasons are specific to the region and the situation at the time, They are incremental and

once-only in character, rather than continuous and ongoing for more than one or two years. Therefore, it is not possible to comment on whether the apparent mispricing trends identified in the Dr Biggar's paper will continue in the future.

**Reference:** Impact of intra-regional constraints on pricing; Review of the results of the paper How significant is the mispricing impact of congestion in the NEM? by Dr. Darryl Biggar dated 09 March.

## Wednesday, 21 March: Tasmania's two negative prices of minus \$126.52/MWh and minus \$832.26/MWh in early afternoon

Tasmania recorded negative prices of minus \$126.52/MWh and minus \$832.26/MWh on Wednesday, 21 March.

**Two trading intervals:** The negative prices occurred in the 30-minute trading intervals ended 1300EST and 1330EST.

**One spike in late afternoon:** Tasmania also recorded a spike of \$106.07/MWh in the trading interval ended 1630EST.

**Negative prices cause big average price fall:** The two negative prices resulted in Tasmania's average price falling \$22.87/MWh (40 per cent) to \$34.48/MWh.

**Reference:** Pool Price for Tasmania for one day, Wednesday 21 March, in Price/Demand section of Erisk Net – Realtime NEM Data. <http://www.erisk.net>

## AEMC baulks at nodal pricing for NEM; proposes adoption of generator nodal pricing

The National Electricity Market (NEM) represents a limited form of nodal pricing, because only certain nodes are given an individual price that reflects local demand and supply conditions and the impact of network congestion, according to the Australian Energy Market Commission's *Congestion Management Review Direction Paper* (12 March 2007, p.66-67 & 81).

**Increase some nodes?:** One way of managing congestion is to increase the number of nodes at which the price is set equal to the local marginal cost of supply. As more nodes are given an individual price, congestion is more likely to be reflected in spot price differentials. As noted previously in Chapter 4.3, this is likely to have a range of costs and benefits. An increase in the number of nodes that are priced translates into an increase in the number of NEM regions.

**Full nodal pricing option:** At the extreme, there is full nodal pricing. The jurisdictions have made clear through the Ministerial Council on Energy (MCE) that they do not believe that the benefits of full nodal pricing would outweigh the costs. The Commission

also believes that full nodal pricing is beyond the scope of the Congestion Management Review (CMR). As noted earlier, the Terms of Reference (ToR) request the Commission to consider the implementation of congestion management mechanisms to apply to specific instances of material congestion, prior to consideration of regional boundary change. This suggests that only interim congestion management mechanisms that apply on a particular set of binding constraints or cutset are within the scope of the Review.

**Full nodal pricing too radical:** A move to full nodal pricing would be beyond the scope of the ToR by:

- applying to all congestion even when it is not material; and
- effectively pre-empting and obviating the consideration of regional boundary change as an ultimate solution to material and persistent congestion.

**Generator nodal pricing instead:** For these reasons, the Commission has no plans to investigate full nodal pricing any further. A less radical alternative to full nodal pricing but more fundamental than incremental changes to regional boundaries is the adoption of generator nodal pricing. This is an arrangement where individual prices apply to each generator node but not to bulk supply (i.e. load) nodes. The Commission considers that this option would not be precluded by the MCE's position on full nodal pricing. However, as with full nodal pricing, the Commission

believes this is beyond the scope of the Review, which is intended to address trading risks associated with the emergence of specific instances of material congestion. Consequently, the Commission intends to consider only localised forms of generator nodal pricing, where one or a “small” number of material constraints are involved. However, clearly the literature and experience on both full nodal pricing and generator nodal pricing would usefully inform this evaluation. Under a localised form of generator nodal pricing, consumers would either pay:

- the RRP, which would generate a settlement surplus if it was higher than the average nodal price at generators’ connection points; or
- a volume-weighted averaged regional price such that no settlement surplus (beyond losses) was produced.

#### **Need for basis risk management**

**instruments:** The key concern with even limited generator nodal pricing would again be the need for basis risk management instruments. Constraint Support Contracts (CSCs) or Financial Transmission Rights (FTRs) (see below under basis risk management) could be considered for this purpose.

#### **More study of limited generator nodal pricing:**

The Commission intends to further investigate the implications of limited generator nodal pricing for interim application in limited areas where congestion is material. The

Commission has clearly highlighted areas where it intends to maintain or commence work programmes to examine various options. In particular:

- more refined pricing approaches such as limited generator nodal pricing, Constraint Support Payments (CSPs), and constrained-on payments that do not involve funding using an uplift charge on energy transactions;
- improved basis risk management instruments, such as enhancements to the Inter-regional Settlement Residue (IRSR) framework of varying degrees, FTRs, CSCs, and Constraint Based Residues (CBRs);
- the provision of additional information, particularly on the current level and implications of congestion; and
- a review of clamping and any intervention alternatives for the management of counter-price flows.

**Feedback sought:** The Commission seeks stakeholder feedback as to whether these are the appropriate areas of attention for the CMR and if not, why this is the case.

**Reference:** Australian Energy Market Commission, *Congestion Management Review, Direction Paper, 12 March 2007, p.76-77 & 91. The Australian Energy Market Commission, PO Box H166, Australia Square NSW 1215. Email: aemc@aemc.gov.au. Phone: (02) 8296 7800. Fax: (02) 8296 7899. This document is available at: <http://www.aemc.gov.au/pdfs/reviews>*

## QWC plan: 3 power stations in SE Queensland declared customers of Grid Manager

The Queensland Water Commission, paper of proposed *Institutional Arrangements for Urban Water Supply Arrangements in South East Queensland, Draft Report for Consultation* planned to change the Water Act so the three power stations in South East Queensland that - now purchase water directly from dam owners, should instead purchase from retailers, who would in turn - buy from the grid. The Queensland Water Commission would act as policy-developer. The Grid Manager would operate the system. Under the proposals in this report, these power stations would become customers of the Grid Manager.

**The model today:** Local governments may declare service areas where they provide water supply and sewerage services. Where such a declaration was made, households and businesses were required to connect to the infrastructure owned by the local government. As water retailers, local governments were obliged to prepare and publish customer service standards, covering issues such as interruptions to supply, incident response, pressure and volume. Local governments also set the prices they charge for water services, consistent with requirements under the National Water Initiative.

**Water retailers in SE Qld:** Except for the power stations, most industrial users are customers of retailers. While the Queensland Water Commission, together with the Grid Manager, will be responsible for achieving Level of Service Objectives at a regional level, individual retailers will continue to be responsible for the standards of service to their customers, through managing their contractual positions and operating their retail activities and distribution networks. Local governments will also be required to apply and enforce water restrictions set by the Commission.

**Grid Manager functions:** The key responsibilities of the Grid Manager would be to manage the operation of the Water Grid. It will procure bulk water services and sell water at defined demand nodes to Grid Customers. The primary roles of the Grid Manager were planned as:

- operate/direct the efficient physical operation of the Water Grid to meet the requirements of the Regional Water Security Program and the System Operating Plan; and
- commercially provide the mechanism through contracts to share the costs of the Water Grid equitably amongst Grid Customers.

**Reference:** Queensland Water Commission, *Institutional Arrangements for Urban Water Supply Arrangements in South East Queensland, Draft Report for Consultation, February 2007*, website: <http://www.qwc.qld.gov.au>. Contact: Chief Executive Officer, Queensland Water Commission, PO Box

15087, City East QLD Australia 4002, ph: (07) 3227 8207, fax: (07) 3033 0887, email: [qwcenquiries@qwc.qld.gov.au](mailto:qwcenquiries@qwc.qld.gov.au). Closing date for submissions: Thursday 5 April 2007.

## Hydro Tasmania options: "we'll soldier on" - wants cash injection from government

**D**r David Crean, Chair of Hydro Tasmania, said Hydro's submission on a tariff rise was based on the competitive price that exists in the national market and is related to the price of new entry generation. "I do not know of many commodities or businesses that do not look for some price increases each year in the running of that business". Crean said Hydro was "on the record last year in saying that we asked the Government for a \$300 million equity injection ... If we don't get it, we will soldier on, as we have over the last 12 months ... With a stressed and stretched balance sheet as it is ... Well, we will soldier on".

**Reference:** Parliament of Tasmania, House of Assembly, *Government Businesses Scrutiny Committee meeting, Tuesday 6 March 2007*. This document is available at <http://www.parliament.tas.gov.au/hansard>

## Likely outcome in the Fed Senate: Greens to hold balance of power

**O**nly the Greens, among the minors and Independents, had been polling well enough to expect seats. It may be that some states split three senators each to the major parties. That happened in NSW and South Australia in 2004. Even throwing a few seats the other way and allowing for one or two unusual results, the overall likely outcome in the Senate will be the Greens holding the balance of power on their own, reported *The Canberra Times* (24/3/2007, p. B7). The polls showed the Greens' vote was holding up at around 7 to 7.5 per cent, about what they got in the Senate last Senate election when they got two new senators – Rachel Stewart in Western Australian and Christine Milne. Kerry Nettle (NSW) and Bob Brown (Tasmania) were elected in 2001 and likely to be reelected. It was unlikely that any Democrats will be elected. That left a lot of room for the Greens.

### In most Senate elections most states split 3, 2, 1:

- three seats go to the major party with the most votes;
- two go to the other major party and the
- single seat goes to a minor party or Independent.

It may be that Family First or the Democrats get a seat, but it is unlikely. They are not showing on the polling radar.

## 14 companies set to tap geothermal power to meet Australia's 800 year needs

According to Queensland Energy Minister, Geoff Wilson, the potential of the hot rocks lying deep beneath the surface of central and eastern Australia, if exploited, is big enough to meet all of Australia's power needs for 800 years. The effort to exploit this potential was now reaching substantial proportions with 14 companies having obtained government licences, mainly in South Australia, on commitments to spend \$500 million by 2011 on exploration and initial development, reported *The Australian* (24/03/2007, p.11).

### Enormous potential for geotherm in Australia:

While the task of capturing energy from hot rocks three to five kilometres underground is still in its infancy, Australia is considered to have the best geology in the world for this concept, including temperatures in granites laid down more than 500 million years ago that are up to twice as hot as similar rocks in other parts of the world.

### GHG emissions could substantially reduce:

Federal Environment Minister, Malcolm Turnbull, believed geothermal energy could provide up to 10 per cent of Australia's future electricity needs and substantially reduce greenhouse gas emissions from the power sector.

**Vast energy source:** Industry Minister, Ian Macfarlane, described the hot rock energy resources as "vast" and potentially providing a new path to a new electricity source.

## Stanwell sceptics say: ZeroGen "aptly named"

Recently overheard at lunch in an Eagle Street establishment was a Stanwell Corporation business development type who was not at all complimentary about the Queensland government-owned generator's billion-dollar clean coal technology project called ZeroGen, according to *The Courier Mail* (22/3/2007, p.68).

**Stanwell residents sceptical:** It seems ZeroGen is aptly named given that few people in Stanwell actually believe it will generate any electricity.

**Feds favour more modest projects:** ZeroGen does not seem to have much support at the federal government level either. The Feds have favoured other, more modest projects, for funding from their low emissions fund.

**Beattie flush with cash:** With Premier Peter Beattie flush with cash from the sale of the state's energy retailers and talk of committing several hundred million taxpayer dollars to the project, the whole deal has another AMC feel about it.

## Qld Govt - proud owner of ZeroGen, a CO2 dump operator in JV with Shell

Queensland Premier Peter Beattie told Parliament on 15 March 2007 that the ownership of ZeroGen Pty Ltd – responsible for a "clean coal" demonstration project – was to be transferred directly to the Department of the Premier and Cabinet.

**Technology to rescue jobs:** "Clean coal technology is vital to our energy sector and to the jobs of thousands of Queenslanders. The development of this vital technology will ensure that our enormous coal reserves continue to drive jobs and investment in this state while providing clean energy for millions around the world".

**ZeroGen project:** "Queensland is leading the way with the 80 megawatt ZeroGen project – a first of its kind; a clean coal power demonstration project – which involves integrated gasification combined cycle and carbon capture and storage. ZeroGen has the potential to allow us all to make large cuts in CO2 emissions. The proposed prototype power station will produce enough base load electricity to supply 80,000 homes from coal, which will substantially reduce greenhouse gas emissions compared to existing coal and gas-fired power stations. It could capture and store up to 420,000 tonnes of carbon dioxide a year. That is the equivalent of taking 93,000 cars off the road".

**Department of Premier and Cabinet takes over ZeroGen:** "Tomorrow the ownership of ZeroGen Pty Ltd will be transferred from the government-owned power generator Stanwell Corporation to the Department of the Premier and Cabinet".

**Qld Govt involvement "appropriate":** "It is appropriate that the Queensland Government takes up this opportunity to test clean coal technology on a commercial scale for new power stations in Queensland. Knowledge from the ZeroGen project will be critical if we are to deploy large-scale gasification and carbon capture projects in Australia and the world. ZeroGen is well advanced with its Environmental Impact Statement Process and feasibility study, stakeholder engagement and design".

**Shell gets 10pc interest:** "In July 2006 Shell Development signed up to provide specialist expertise for the ZeroGen clean coal project and will be offered a 10 per cent interest. The Clean Coal Technology Board was established in the same month and the Board has recommended the project be transferred to the Queensland Government".

**Construction starts in 2009:** "Construction is scheduled to commence in the first quarter of 2009 subject to funding and regulatory approvals. In the next five years the project is expected to deliver an operating clean coal power station prototype".

**The norm by 2020?** "By 2020, clean coal technology could become the norm for all new

power stations in Queensland. We have invited the coal industry and the Federal Government to participate and invest in the development of ZeroGen's prototype power station and that offer is still on the table. ZeroGen is a significant project, not only for the national and international power and coal industries, but for the local community. It will create around 700 jobs in the construction phase and up to 150 permanent jobs during its operation".

**Sales to China and India?** "Queensland could soon be in the position to sell its clean coal technology to China and India, some of the world's biggest consumers of coal – and therefore contributors to global greenhouse gas emissions".

**Reference:** Queensland Parliament, Record of Proceedings (Proof), First Session of The Fifty-Second Parliament, Thursday, 15 March 2007, p.17, website: <http://www.parliament.qld.gov.au/hansard/>

## NEM cools: turnover slumps \$69m (31.2pc) in week ending 10 March, AER analysis shows

**T**urnover in the energy market slumped by \$69 million (31.2 per cent) to \$152 million in the week from Sunday, 4 March to Saturday, 10 March to \$152 million, the Australian Energy Regulator (AER) said in its market analysis for the week.

**Lowest since first week of year:** The analysis showed that this was the second lowest turnover in 2007, behind the \$106

million in the week ending 6 January, which covered the New Year holiday period.

**Cost of ancillary services down:** The cost of ancillary services at \$267,000 represented 0.2 per cent of energy market turnover. This was down \$31,000 (10.4 per cent) on the previous week. The \$267,000 cost was the third lowest in 2007.

**Spot price average ranges from \$36-50/MWh:** The analysis showed spot prices for the week averaged between \$36/MWh in Queensland and South Australia and \$50/MWh in Tasmania.

**22.9pc variation in actual and forecast prices:** Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 77 (22.9 per cent) of the 336 30-minute trading intervals during the week.

**Demand forecast variations:** Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in around 20 per cent of all trading intervals across the market. These variations were most frequent in South Australia, occurring in more than 40 per cent of all trading intervals.

**Turnover and ancillary service cost statistics:** The following table shows energy market turnover and ancillary services costs since the start of the year:

Week ending	Energy turnover	Ancillary services cost
6 January	\$106 million	\$207,000
13 January	\$180 million	\$466,000
20 January	\$554 million	\$20 million
27 January	\$329 million	\$180,000
3 February	\$192 million	\$251,000
10 February	\$180 million	\$350,000
17 February	\$212 million	\$272,000
24 February	\$261 million	\$340,000
3 March	\$221 million	\$298,000
10 March	\$152 million	\$267,000

Reference: Australian Energy Regulator (AER) market analysis for week Sunday, 4 March to Saturday, 10 March, 20 March, 2007. Address: Level 11, The Tower, 360 Elizabeth Street, Melbourne Central. Melbourne. Vic. 3000. GPO Box 520, Melbourne. Vic. 3001. Phone: (03) 9290 1444. Fax: (03) 9290 1457. <http://www.aer.gov.au>

## Friday, 23 March: Melbourne scorcher pushes demand up: Spikes in all mainland regions

14

Spikes in all mainland regions resulted in average prices rising 2-110 per cent in NSW, Victoria and Queensland and falling 19 per cent in South Australia while spike-free Tasmania dropped 11 per cent to an overall range of \$58.51-\$128.57/MWh. A scorching 38 degrees in Melbourne sent Victoria's maximum demand to a near record 8796MW, up 778MW which was more than the

combined falls in the other regions, resulting in system-wide maximum demand going up 376MW (1.2 per cent) to 31,458MW. Top price of the day was the spike to \$509.25/MWh in Victoria for the 30-minute trading interval ended 1530EST. Victoria had the highest average price and Tasmania the lowest. The temperature ranges in the NEM capitals were: Sydney 22-27 degrees (23-27 on Thursday); Melbourne 18-37 degrees (17-34); Adelaide 25-31 degrees (17-35); Brisbane 21-30 degrees (21-30); and Hobart 15-29 degrees (11-26).

**Mainland raise regulation FCAS upped to 200MW:** NEMMCO increased the mainland rise regulation frequency control ancillary service (FCAS) to 200MW from 0820EST to 0920EST on Friday, 23 March to maintain the accumulated time error within the frequency operating standard. It invoked constraint set for this period.

**Blackwall SVC back after 14 hours 10 minutes:** NEMMCO advised that the Blackwall static var compensator (SVC) returned to service from an unplanned outage at 1450EST on Friday, 23 March 14 hours 10 minutes after going out at 0040EST. The outage caused transfer reductions between NSW and Queensland. Constraint set Q-BK\_VC operated for this period.

**Friday non-conformists:** NEMMCO declared the following scheduled generating units non-conforming over rebids not received during the trading day of Friday, 23 March:

- The 170.1MW capacity Tasmanian Wayatinah generating unit for -23MW from 0925EST to 0930EST.
- The 150MW capacity Victorian Anglesea power station for -11MW from 1400EST to 1435EST.
- The 350MW capacity Queensland generating unit Tarong#3 for 11MW from 1545EST to 1550EST.
- The 500MW capacity NSW generating unit Wallerawang C8 for 11MW from 2200EST to 2205EST, for 11MW from 2300EST to 2310EST and for 11MW from 2355EST to 0000EST Saturday, 24 March.
- The 500MW capacity NSW generating unit Liddell 4 for -241MW from 2330EST to 2350EST.
- The 500MW capacity NSW generating unit Liddell 3 for -19MW from 0100EST to 0110EST on Saturday, 24 March.
- The 420MW capacity Queensland generating unit Callide 4 for 34MW from 2340EST to 0035EST Saturday, 24 March.

**Generation picture:** In NSW, Liddell 3 returned in the 1330EST interval. Liddell 4 quit in the 0000EST Saturday interval. Vales Point Vales Point B6 and Munmorah 4 remained idle all day. In Victoria, Hazelwood 6 went offline in the 2000EST interval. Newport came back online in the 2130EST interval. Yallourn 1 was off all day. Jeeralang B 1 an B3, the two West

Kiewa units, the two Bairnsdale units, the two Eildon units, the two McKay units, Valley Power, Laverton North and Somerton operated at various times during the day. In South Australia, Ladbroke Grove 1 operated in the intervals between 0700-1900EST and Ladbroke Grove 2 in the intervals between 0730-1930EST.

Torrens Island B2 went offline in the 2300EST interval. Torrens Island A2 operated in the intervals between 1130-1830EST. Torrens Island A4 quit in the 2000EST interval. Torrens Island A1 and Torrens Island A3 were offline all day. Mintaro, the three Dry Creek units, Port Lincoln, the four Quarantine units, the two Angaston units and Hallett operated at various times during the day. In Queensland, Callide 2 went off the grid in the 0130EST Saturday interval. Barcaldine operated in the intervals between 0730-2100EST. Gladstone 2, Collinsville 2, Collinsville 3 and Collinsville 5 were off the grid all day. In Tasmania, Lake Echo quit in the 1700EST interval. Poatina 220, Reece 1, Reece 2, Cethana, Tribute, Lemonthyme, Trevallyn, Mackintosh, Bastyan, Devil's Gate and Fisher operated at various times during the day. Bell Bay 1, the three Bell Bay Three units, Woolnorth, Repulse, Palooa, Cluny and Butler's Gorge were offline all day.

**Interconnector flows:** The Victoria-South Australia Heywood interconnector averaged 201MW east, up 47.8 per cent on the average 136MW east on Thursday. Murraylink averaged 68.15MW east, up 30.8 per cent on the average 52.10MW east on Thursday. Vic-Snowy imports averaged 203MW, down 6.0 per cent on average imports of 216MW on

Thursday. Snowy-NSW exports averaged 909MW, down 13.3 per cent on average exports of 1049MW on Thursday. QNI averaged 725MW south, up 30.9 per cent on the average 554MW south on Thursday. Terranora (Directlink) averaged 99.49MW south, down 0.5 per cent on the average 100MW south on Thursday. Basslink averaged 53.90MW north, down 59.5 per cent on the average 133MW north on Thursday.

## Friday, 23 March: Multiple spikes in all mainland regions, top prices between \$237.08/MWh and \$509.25/MWh

**M**ultiple spikes with top prices of \$237.08/MWh in South Australia, \$334.47/MWh in Queensland, \$464.21/MWh in Snowy, \$504.28/MWh in NSW and \$509.25/MWh were recorded in all mainland regions on Friday, 23 March.

**15 spike intervals in four regions:** NSW, Victoria, Queensland and Snowy each had spikes in 15 30-minute trading intervals while South Australia had spikes in 12 intervals.

**Top of 37 degrees in Melbourne:** The spikes came as Victoria's maximum demand reached a near record 8796MW as Melbourne's top temperature reached 37 degrees (up 3) and mainland raise regulation was upped to 200MW to maintain an accumulated time error within the frequency operating standard.

**How prices moved:** The following table shows how prices moved in the spike intervals:

Trading Interval	NSW	Victoria	South Australia	Queensland	Snowy
0930EST	-	-	\$102.22/MWh	-	-
1000EST	\$141.13/MWh	\$142.94/MWh	\$138.21/MWh	\$125.34/MWh	\$134.46/MWh
1030EST	\$194.17/MWh	\$196.94/MWh	\$178.15/MWh	\$160.03/MWh	\$185.49/MWh
1100EST	\$158.02/MWh	\$159.79/MWh	\$147.78/MWh	\$133.45/MWh	\$149.46/MWh
1130EST	\$158.44/MWh	\$165.21/MWh	\$151.04/MWh	\$134.15/MWh	\$150.00/MWh
1200EST	\$193.13/MWh	\$199.00/MWh	\$177.08/MWh	\$175.94/MWh	\$179.92/MWh
1230EST	\$349.72/MWh	\$367.84/MWh	\$237.08/MWh	\$311.43/MWh	\$328.53/MWh
1300EST	\$351.66/MWh	\$376.39/MWh	\$145.00/MWh	\$299.41/MWh	\$335.28/MWh
1330EST	\$320.00/MWh	\$322.25/MWh	\$145.00/MWh	\$280.11/MWh	\$295.28/MWh
1400EST	\$333.85/MWh	\$338.44/MWh	\$145.00/MWh	\$280.13/MWh	\$310.66/MWh
1430EST	\$349.09/MWh	\$351.57/MWh	\$137.50/MWh	\$294.48/MWh	\$324.11/MWh
1500EST	\$453.29/MWh	\$458.02/MWh	\$122.49/MWh	\$306.82/MWh	\$419.32/MWh
1530EST	\$504.28/MWh	\$509.25/MWh	-	\$318.19/MWh	\$464.21/MWh
1600EST	\$487.08/MWh	\$487.60/MWh	-	\$334.47/MWh	\$450.00/MWh
1630EST	\$225.72/MWh	\$222.85/MWh	-	\$198.97/MWh	\$208.26/MWh
1700EST	\$146.08/MWh	\$146.86/MWh	-	\$133.28/MWh	\$138.66/MWh

Reference: National Price for NSW, Victoria, South Australia, Queensland and Snowy for one day, Friday 23 March, in Price/Demand section of Erisk Net – Realtime NEM Data. <http://www.erisk.net>

## Saturday, 24 March: NSW demand surge with mercury rising to 35 degrees

**A**verage prices rose 2-55 per cent on the previous Sunday, the nearest comparable weekend day, to a range of \$32.55-\$60.23/MWh. System-wide maximum demand rose 1694MW (7.1 per cent) on the back of a 1798MW jump in NSW, where Sydney's top temperature of 35 degrees was the highest of the week. Queensland edged up 9MW and Victoria, South Australia and Tasmania dropped between 22MW and 48MW. Top price of the day was the \$99.37/MWh in

NSW for the 30-minute trading interval ended 1500EST. Tasmania had the highest average price and South Australia the lowest. Temperature ranges in the NEM capitals were: Sydney 22-35 degrees (22-27 on Friday); Melbourne 12-19 degrees (18-37); Adelaide 14-20 degrees (25-31); Brisbane 21-31 degrees (21-30); and Hobart 11-16 degrees (15-29). Today in detail

**Saturday non-conformists:** NEMMCO declared the following scheduled generating units non-conforming over rebids not received during the trading day of Saturday, 24 March:

- The 150MW capacity Victorian Anglesea power station for -17MW from 0640EST to 0710EST, for -15MW from 0740EST to 0815EST, for -16MW from 0955EST to 1025EST and for -10MW from 1430EST to 1515EST.

**Generation picture:** In NSW, Liddell 4, Vales Point B6 and Munmorah 4 remained idle all day. In Victoria, Hazelwood 6 and Yallourn 1 were off all day. The two West Kiewa units, two Bairnsdale units, Valley Power and Laverton North operated at various times during the day. In South Australia, Ladbroke Grove, Ladbroke Grove 2, Torrens Island B2 and the four Torrens Island A units were offline all day. Quarantine 2 operated briefly during the day. In Queensland, Millmerran 1 went off the grid in the 1900EST interval. Callide B2, Gladstone 2, and Collinsville units 2, 3 and 5 were off all the grid all day. In Tasmania, Poatina 220, Trevallyn, Mackintosh, Bastyan and Devil's Gate operated at various times

during the day. Bell Bay 1, the three Bell Bay Three units, Reece 1, Reece 2, Cethana, Tribute, Lemonthyme, Woolnorth, Fisher, Lake Echo, Repulse, Palooa, Cluny and Butler's Gorge were offline all day.

**Interconnector flows:** The Victoria-South Australia Heywood interconnector averaged 59.70MW east, up 546.8 per cent on the average 9.23MW east the previous Sunday, the nearest comparable weekend day. Murraylink averaged 76.07MW east, up 230.9 per cent on the average 22.99MW east the previous Sunday. Vic-Snowy exports averaged 820MW, up 66.7 per cent on average exports of 492MW the previous Sunday. Snowy-NSW exports averaged 820MW, up 66.7 per cent on average exports of 492MW the previous Sunday. QNI averaged 563MW south, up 31.9 per cent on the average 427MW south the previous Sunday. Terranora (Directlink) averaged 73.36MW south, up 22.2 per cent on the average 60.01MW south the previous Sunday. Basslink averaged 423MW south, up 1.9 per cent on the average 415MW south the previous Sunday.