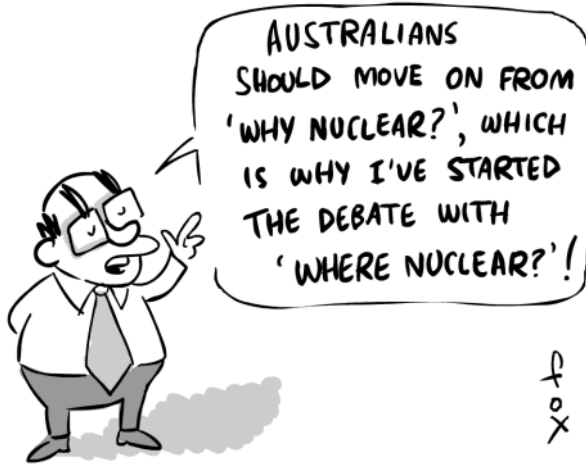


NEM nuc baseload \$38.20/MWh, p5
 Who pays for five NEM nuclear plants, p3
 1000MW risk at Tas Sheffield substation, p13

electricity week

ewn publishing

A MACHIAVELLIAN MASTERSTROKE



fox

Plan: Lloyds and Fed Govt build five NEM nuclear plants

1

A report prepared for the Australian Nuclear Science and Technology Organisation (ANSTO) by British nuclear proponent, Professor John Gittus contains extraordinary proposals. The nub of this proposal was the offer to part-fund five plants in a complex financial deal which required large subsidies and a 12-year take or pay contract at about \$40/MWh. Gittus also played down nuclear health risks.

Have I got a deal for you: Lloyds offers 5 Westinghouse 1000MW reactors for the NEM

ANSTO has paid for a report in which ANSTO was told how the author - a consultant to Lloyds of London - proposed Lloyds would take a 19pc stake - if government took a 56pc risk in five nuclear power plants for the NEM. It was, perhaps, part of a bid for the PM's "zero emissions fund."

Plan to list on the ASX: In the paper *"Introducing Nuclear Power to Australia: An Economic Comparison - A Report Prepared for the Australian Nuclear Science and Technology Organisation"*, at p. 24-25, Professor John H Gittus, FR Eng. D Sc. D Tech, Consultant, told how the firm he consulted to - insurer, Lloyds of London would fund the building of five US Westinghouse AP100 nuclear plants for the national electricity market. The plan:

- a 12 year electricity contract ;
- paid by the Federal government;
- for over 5000MW for 12 years;
- at a 20 per cent subsidy over market rates.
- federal government would earn about \$700m cash flow a year.

contents

- 3 Who pays for five NEM nuclear plants: consumers provide capital and then buy services: company lists on the ASX
- 5 ANSTO insures its reactors with Lloyd's of London
- 5 Australian nuclear generation cost: \$38.20/MWh - needs a carbon price to compete
- 5 Glow in the dark white paper
- 6 Monday, 5 June: NEM winter demand record smashed, with winter records set in Vic and NSW as cold snap continues
- 7 ANSTO director appointed to analyse ANSTO/Lloyd's nuclear plant proposal
- 7 ANSTO report compares new nuclear, coal-fired and combined cycle gas turbine (CCGT) power stations
- 8 The ANSTO pro-nuclear plan
- 8 Nuclear? Not in my electorate say Qld, WA, SA and NSW
- 9 ETSA Utilities to trial remote switch-off plan for air-con
- 9 Blackout buster: EcoSouth's solar-grid-battery system runs home for several hours

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

Published by EWN Publishing, PO Box 148, Balmain, NSW 2041. Ph: +612 9818 8877. Fax: +612 9818 8473. Editor: Laurel Fox-Allen.

Top price for NEM week 28 May - 3 June 2006: Oakey at \$242.98/MWh

ewn publishing

TAS			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Liap/Way/Cat	\$819,607	19,988	\$41.01
Bell Bay Power	-	-	-
John Butters	\$910,259	23,223	\$39.20
Tungatinah	\$439,711	9,373	\$46.91
Poatina	\$1,657,023	40,371	\$41.05
Tarraleah	\$467,647	12,127	\$38.56
Reece	\$1,130,814	24,077	\$46.97
Cethana	\$335,917	5,647	\$59.49
Tribute	\$220,254	2,758	\$79.86
Lemonthyme/Wilmot	\$372,829	7,731	\$48.22
Trevallyn	\$350,500	6,544	\$53.56
Mackintosh	\$514,499	12,946	\$39.74
Bastyan	\$479,155	12,381	\$38.70
Woolnorth Wind	-	-	-
Gordon	\$1,482,606	33,095	\$44.80
Vic->Tas	\$282,086	13,498	\$20.90
Devils Gate	\$246,117	4,327	\$56.88
Fisher	\$184,980	4,126	\$44.83
Meadowbank	177728.9923	3734.985	\$47.58
Lake Echo	6864.38955	214.065	\$32.07
Repulse	-	-	-
Paloona	-	-	-
Cluny	-	-	-

The Lloyds of London plan:

- Government and the stakeholders would provide the balance of a first of a kind (FOAK) loan insurance and would take their share of the Insurance Premium:
- commercial insurers that led the insurance would take their share too. The Insurance Premium would be paid retrospectively.

Five nuclear plants: Gittus told ANSTO: "This is a familiar arrangement in the insurance markets. In the present case (5

SA			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
North'n Power	\$2,593,461	64,213	\$40.39
Ladbroke	\$307,519	7,224	\$42.57
Osborne	\$1,107,970	24,610	\$45.02
Pelican Pt	\$1,953,885	40,165	\$48.65
Torrens Is. B	\$2,654,471	45,887	\$57.85
Vic->SA	\$1,940,822	53,587	\$36.22
MLink->SA	\$170,556	5,527	\$30.86
Torrens Is. A	\$1,488,313	25,272	\$58.89
Mintaro	\$16,934	110	\$153.83
Dry Creek	-	-	-
Playford	\$269,851	5,627	\$47.95
Snuggery	-	-	-
Pt Lincoln	-	-	-
Quarantine	\$22,872	181	\$126.14
Angaston Power	\$17,813	58	\$306.17
Hallett Power	\$83,025	727	-
Lonsdale	-	-	-
Terminal Storage	-	-	-
Lake Bonney Wind	-	-	-

VIC			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Loy Yang A	\$12,937,386	337,478	\$38.34
Loy Yang B	\$6,498,825	172,094	\$37.76
Hazelwood	\$7,959,146	212,478	\$37.46
Yallourn	\$9,234,471	244,615	\$37.75
Anglesea	\$979,840	25,029	\$39.15
Energy Brix	\$826,272	20,906	\$39.52
Newport	\$1,770,254	28,994	\$61.06
MLink->Vic	\$120,017	1,020	\$117.62
SA->Vic	\$61,267	483	\$126.75
Snowy->Vic	\$1,951,359	58,877	\$33.14
Tas->Vic	\$1,061,070	16,107	\$65.88
Jeeralang	\$226,087	2,053	\$110.12
West Kiewa	\$138,375	1,744	\$79.35
Bairnsdale	\$129,178	1,203	\$107.37
Dartmouth	\$75,862	708	\$107.21
Eildon	-	-	-
Hume Vic	-	-	-
McKay Power	\$346,730	2,789	\$124.32
Clover	-	-	-
Valley Power	-	-	-
Rubicon	-	-	-
Laverton North	-	-	-
Somerton Power	63163.3498	679.035	-
Sunshine Energy	-	-	-
Longford	-	-	-

NSW			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Bayswater	\$14,240,081	367,698	\$38.73
Liddell	\$7,723,038	194,693	\$39.67
Mt Piper	\$8,601,338	217,576	\$39.53
Wallerawang	\$5,828,797	141,704	\$41.13
Vales Point	\$5,506,535	138,910	\$39.64
Munmorah	\$217,211	6,851	\$31.70
Eraring	\$15,250,393	344,623	\$44.25
Redbank	\$978,682	25,032	\$39.10
Smithfield	\$666,781	15,873	\$42.01
Snowy->NSW	\$6,976,573	63,997	\$109.01
Shoalhaven	-	-	-
Hunter Valley	-	-	-
Hume Hydro	-	-	-
Blowering	-	-	-
Northern Gas	-	-	-
Burrinjuck	-	-	-
Brown Mountain	-	-	-
Keepit	-	-	-
Broken Hill	-	-	-
Ergon Energy	-	-	-
DL Q->N	\$557,219	14,765	\$37.74
QLD->NSW	\$3,216,492	99,852	\$32.21
Pindari Hydro	-	-	-
West Nowra	-	-	-
Country En (NSW)	-	-	-

QLD			
Generator	Income (\$)	Output (MWh)	Av Price (/MWh)
Tarong	\$11,168,023	304,325	\$36.70
Millmerran	\$4,516,456	136,392	\$33.11
Swanbank	\$1,869,760	45,146	\$41.42
Stanwell	\$7,491,496	188,936	\$39.65
Callide B	\$4,286,863	115,170	\$37.22
Callide Power	-	-	-
Gladstone	\$7,050,816	175,440	\$40.19
Collinsville	\$598,778	10,466	\$57.21
Swanbank C_D_E	\$2,000,006	47,713	\$41.92
Barcaldine	\$210,118	3,753	\$55.99
Callide A	-	-	-
Kareeya	\$464,723	12,899	\$36.03
Barron Gorge	\$311,484	7,487	\$41.60
Mt Stuart	-	-	-
Vivenhoe	\$33,270	1,229	\$27.08
Braemar Power	\$88,117	3,160	\$27.88
Townsville	\$1,284,924	32,147	\$39.97
Mackay	-	-	-
Roma	\$138,015	575	\$240.13
Oakey	\$96,684	398	\$242.98
DL N->Q	-	-	-
NSW->QLD	-	-	-
Rocky Point	-	-	-
Tableland	-	-	-
Staplyton	-	-	-

nuclear plants) the premium would be paid out of the revenues produced when the station begins to generate and sell electricity.. the essence of insurance is risk-transfer".

Who else gets a piece of the pie: "The insurer takes the risk that he will make a loss and the premium is calculated accordingly. Of course commercial insurers will expect the various other parties... Sponsor, Vendor, Shareholders, Bondholders, Banks to take their fair shares of the risks of the project, too. We analyse this distribution of risks between the parties and in the first Financial Plan arrive at a suggested partition, likely to be acceptable to the parties".

Who pays for five NEM nuclear plants: consumers provide capital and then buy services: company lists on the ASX

In the ANSTO Financial Plan Australia builds AP1000 reactors, and taxpayers fund it. Gittus wrote; "The question that immediately arises is this: how is the risk to be partitioned in a planned way between the Sponsor, Vendor, Shareholders, Bondholders, Banks?". Consumers do not get a mention, but would pay for it as taxpayers, and then consumers.

How Gittus dives it up: In his" First Financial Plan, the following is the partition of the

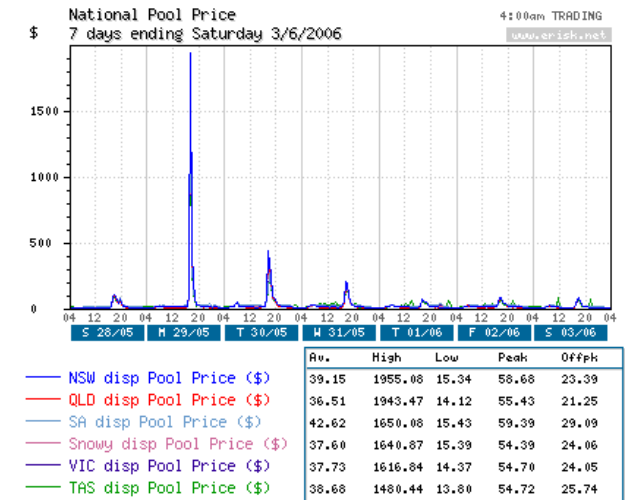
the week in detail

• **NSW:** Average price \$39.15/MWh, up 48 per cent on the spike-affected \$26.41/MWh of the previous week, up 48 per cent on the \$26.46/MWh of the comparable week last year; maximum price \$1955.08/MWh for the 30-minute trading interval ended 1800EST on Monday. Average demand 9639MW, up 4.6 per cent on the previous week, up 4.8 per cent on a year ago; maximum demand 12,544MW in the 1800EST interval on Friday, up 2.4 per cent on the 12,245MW the previous week.

• **Victoria:** Average price \$37.73/MWh, up 4 per cent on the spike-affected \$36.34/MWh the previous week, up 50 per cent on the \$26.41/MWh of the comparable week last year; maximum price \$1616.84/MWh for the 30-minute trading interval ended 1800EST on Monday. Average demand 6198MW, down 0.3 per cent on the previous week, up 2.8 per cent on a year ago; maximum demand 7627MW in the 1830EST interval on Monday, down 1.1 per cent on the 77130MW the previous week.

• **South Australia:** Average price \$42.62/MWh, down 12 per cent on the spike-affected \$48.57/MWh the previous week, down 7 per cent on the spike-affected \$45.69/MWh of the comparable week last year; maximum price \$1650.08/MWh for the 30-minute trading interval ended 1800EST on Monday. Average demand 1603MW, up 1.1 per cent on the previous week, up 1.8 per cent on a year ago; maximum demand 2168MW for the 1900EST interval on Wednesday, down 0.7 per cent on the 2184MW the previous week.

• **Queensland:** Average price \$36.51/MWh, up 52 per cent on the spike-affected \$24.02/MWh the previous week, up 69 per cent on the \$21.57/MWh of the



comparable week last year; maximum price \$1943.47/MWh for the trading interval ended 1800EST on Monday. Average demand 5766W, up 2.6 per cent on the previous week, up 3.5 per cent on a year ago; maximum demand 7076MW for the 1830EST interval on Wednesday, up 2.5 per cent on the 6903MW the previous week,

• **Tasmania:** Average price \$38.68/MWh, down 25 per cent on the spike-affected \$51.31/MWh the previous week, down 41 per cent on the spike-affected \$65.39.MWh of the comparable week last year; maximum price \$1480.44/MWh for the trading interval ended 1800EST on Monday. Average demand 1306MW, up 1.1 per cent on the previous week, up 5.2 per cent on a year ago; maximum demand 1656MW for the interval ended 0830EST on Tuesday, up 1.6 per cent on the 1630MW the previous week.

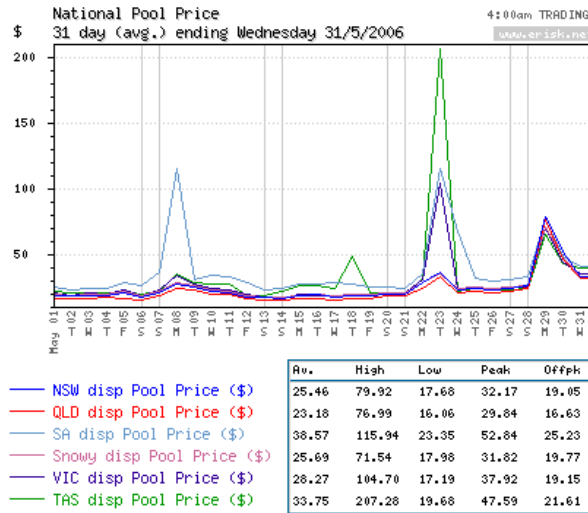
Construction Risks which we provisionally believe will be acceptable to the parties".

Insurers take 19 pc: "They will be paid to do this by means of a retrospective premium, taken out of the profits the station makes when once it is generating electricity. There will be a chance that for unforeseen reasons the cost exceeds the estimate and in that case the insurers will have to top it up. They may not recover this top-up out of premiums and this is the chance that they agree to take.

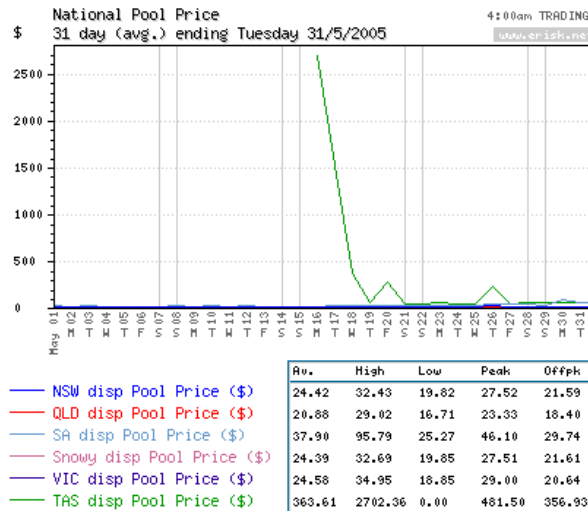
Government takes 56pc: "They will be paid to do this by means of a retrospective premium, taken out of the profits the station makes when once it is generating electricity. So Government should not be out of pocket". However there will be a chance that for unforeseen reasons the FOAK cost exceeds the estimate and in that case the Government will have to help the insurers to top it up. They may not recover this top-up out of premiums and this is the chance that they agree to take.

Banks take 25pc: Gittus said "The balance of the 25 per cent construction risk was shared equally between Shareholders, Banks, the Vendor and the Owner. The insurers, who are taking 19pc of the construction risk and the Government, which is taking 56pc will insist on this. Indeed they may well require the Vendor to take a substantially higher amount of risk under an EPC contract and we shall consider this in one of the other Financial Plans. The risk they take is that the stations will require extra FOAK money because, for example,

May 2006



May 2005



May in detail

• **NSW:** Average price \$25.46/MWh, up \$4.86/MWh (24 per cent) on the average \$20.60/MWh in April, up \$1.04/MWh (4 per cent) on the average \$24.42/MWh of May 2005. Average demand 8983MW, up 814MW (10.0 per cent) on the 8169MW of April, up 386MW (4.5 per cent) on the 8597MW of May 2005.

• **Victoria:** Average price \$28.27/MWh, up \$5.71/MWh (25 per cent) on the average \$22.56/MWh in April, up \$3.69/MWh (15.0 per cent) on the average \$24.58/MWh of May 2005. Average demand 6055MW, up 500MW (9.0 per cent) on the 5555MW of April, up 272MW (4.7 per cent) on the 5783MW of May 2005.

• **South Australia:** Average price \$38.57/MWh, up \$10.70/MWh (38 per cent) on the average \$27.87/MWh in April, up \$0.67/MWh (2 per cent) on the average \$37.90/MWh of May 2005. Average demand 1497MW, up 183MW (13.9 per cent) on the 1314MW of April, up 78MW (5.5 per cent) on the 1419MW of May 2005.

• **Queensland:** Average price \$23.18/MWh, up \$1.55/MWh (7 per cent) on the average \$21.63/MWh in April, up \$2.30/MWh (11 per cent) on the average \$20.88/MWh of May 2005. Average demand 5650MW, down 36MW (0.6 per cent) on the 5686MW of April, up 203MW (3.7 per cent) on the 5447MW of May 2005.

• **Tasmania:** Average price \$33.75/MWh, up \$0.42/MWh (1 per cent) on the average \$33.33/MWh in April. Average demand 1231MW, up 115MW (10.3 per cent) on the 1116MW of April. (Tasmania did not join the NEM until 29 May 2005).

there is an increase in FOAK costs, which it transpires, should have been foreseen".

Reference: "Introducing Nuclear Power to Australia: An Economic Comparison – A Report Prepared for the Australian Nuclear Science and Technology Organisation", p. 24-25, by Professor John H Gittus, FR Eng. D Sc. D Tech, Consultant, March 2006.

ANSTO insures its reactors with Lloyd's of London

Professor Gittus's Who's Who entry says he helps run Lloyd's of London Insurance Syndicate 1176, the biggest commercial insurer of nuclear power stations and other facilities in the world.

ANSTO to review ANSTO: In absurd development akin to Australian Wheat Board dealings The Prime Minister then appointed a an "independent" committee to consider the ANSTO nuclear options. However the chair he appointed was Dr Switkowski, a director or ANSTO. Another committee member was CSIRO. CSIRO controls ANSTO. The Federal Government controls CSIRO.

WWF refuses invitation: The board of the World Wildlife Foundation refused to allow executive director, Greg Bourne to join the committee. Dr Arthur Johnston and chairman of electricity firm Dulhunty Power Martin Thomas. They join George Dracoulis and Warwick McKibbin from Australian National University.

THE FEDERAL ENERGY
SUPER DOG DID AS
HIS NEW URANIUM TAIL
INSTRUCTED....



Listed on the UK stock exchange: Chaucer Holdings PLC listed on the London Stock Exchange provides the management, and capital required to underwrite insurance business at Lloyd's. Syndicate 1084, underwrites marine, non marine and motor insurance and Syndicate 1176, Nuclear.

Australian nuclear generation cost: \$38.20/MWh - needs a carbon price to compete

The Australian cost of nuclear generation was \$38.20/MWh and such plants would need large subsidies, with four plants across the NEM. That was the finding of a report commissioned by the CSIRO-controlled

Australian Nuclear Science and Technology Organisation (ANSTO). It was released after the ANSTO-hosted private firm, Silex licenced its laser enrichment stechnology to General Electric in May. The ANSTO plan required enrichment of nuclear fuels in Australia. Electricity forms a by-product of enrichment. ANSTO is the site of the Australian three research reactors, Moata, Hifar and Opal, and also of Silex. The report, by nuclear plant proponent and investor, costed secret plans for nuclear power stations, which the consultant - Professor John H. Gittus - argued, were economic:

- if a carbon price was set;
- if huge subsidies were provided; and
- if nuclear was able to earn carbon credits;
- if CO2 dumps were added to coal generation; and
- as this would cause a NEM-wide price rise above \$38.20/MWh.

Glow in the dark white paper

The Prime Minister signalled on 6 June that the government's energy white paper – with its focus on coal – would essentially be to be dumped just 12 months after it was handed down, allegedly because of the oil price shock, reported *The Australian Financial Review* (7/6/2006, p. 3).

cont. page 7

Monday, 5 June: NEM winter demand record smashed, with winter records set in Vic and NSW as cold snap continues

The continuing cold snap saw NEM winter demand soar to a record 31,889MW, smashing the previous winter record of 31,167MW set on 11 August last year by 722MW (2.3 per cent).

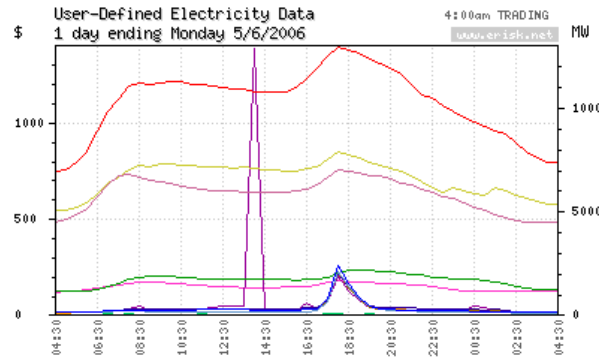
Vic up 1.3 per cent: The NEM winter demand record came as Victoria set a record of 7894MW, up 100MW (1.3 per cent) on the 7794 set on 23 June last year.

NSW rises 0.5 per cent: NSW had a winter record 12,952MW, up 68MW (0.5 per cent) on the 12,884MW on 23 June 2005.

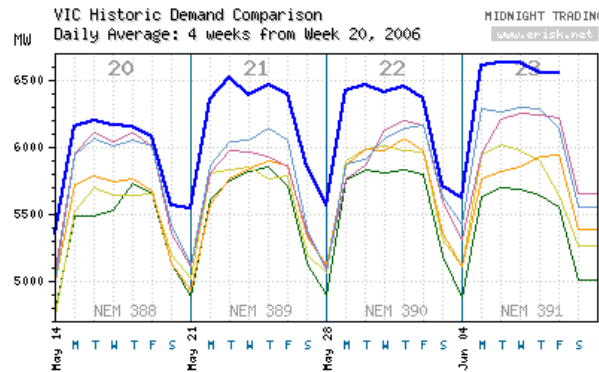
SA 43MW short of equalling record: South Australia's 2209MW maximum demand was 43MW short of its winter record of 2252MW set on 12 July last year.

Low temperatures continue: Temperatures in the NEM capitals were generally down on Sunday, with Sydney having a minimum of 9 degrees (down 1 degree), Melbourne 4 degrees (down 1), Adelaide 6 degrees (up 2), Brisbane 9 degrees (up 1) and Hobart 2 degrees (down 3).

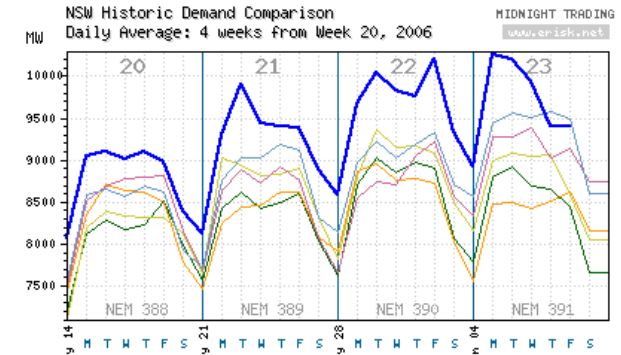
Reference: Pool Price for NSW, Victoria, South Australia, Queensland, Snowy and Tasmania in 6.52 a.m. predispatch for one day, Tuesday 6 June, in User Defined section of Erisk Net – Realtime NEM Data. <http://www.erisk.net>



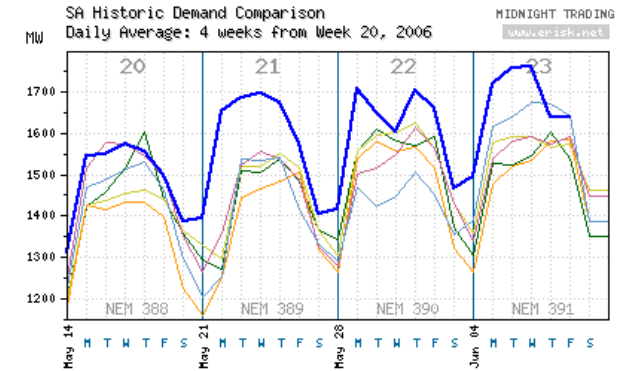
	Av.	High	Low	Peak	Offpk
NSW disp Pool Price (\$)	36.74	258.05	16.22	46.59	20.32
NSW disp Total Demand (MW)	10380	12952	6961	11420	8648
QLD disp Pool Price (\$)	30.35	233.26	14.77	37.70	18.11
QLD disp Total Demand (MW)	5899	7055	4485	6368	5116
SA disp Pool Price (\$)	41.68	222.57	16.26	56.98	26.18
SA disp Total Demand (MW)	1730	2209	1176	1880	1479
Snowy disp Pool Price (\$)	35.55	219.24	16.27	44.14	21.23
Snowy disp Total Demand (MW)	60.01	103	42.39	61.31	57.84
VIC disp Pool Price (\$)	37.23	221.87	15.13	46.74	21.37
VIC disp Total Demand (MW)	6652	7894	5107	7180	5772
TAS disp Pool Price (\$)	68.35	1388.45	19.44	94.16	25.32
TAS disp Total Demand (MW)	1403	1676	1152	1510	1226



- 2006 System Demand (plus Dispatchable Load)
- 2005 Daily Average (commencing 8/5/2005)
- 2004 Daily Average (commencing 9/5/2004)
- 2003 Daily Average (commencing 11/5/2003)
- 2002 Daily Average (commencing 12/5/2002)
- 2001 Daily Average (commencing 13/5/2001)



- 2006 System Demand (plus Dispatchable Load)
- 2005 Daily Average (commencing 8/5/2005)
- 2004 Daily Average (commencing 9/5/2004)
- 2003 Daily Average (commencing 11/5/2003)
- 2002 Daily Average (commencing 12/5/2002)
- 2001 Daily Average (commencing 13/5/2001)



- 2006 System Demand (plus Dispatchable Load)
- 2005 Daily Average (commencing 8/5/2005)
- 2004 Daily Average (commencing 9/5/2004)
- 2003 Daily Average (commencing 11/5/2003)
- 2002 Daily Average (commencing 12/5/2002)
- 2001 Daily Average (commencing 13/5/2001)

Minister applauds Lloyd's of London:

Science Minister Julie Bishop said a report commissioned by the Australian Nuclear Science and Technology Organisation showed that a nuclear power station was competitive with a newly built coal-fired station, reported *The Australian* (26/5/2006, p. 2).

ANSTO director appointed to analyse ANSTO/Lloyd's nuclear plant proposal

The Prime Minister was reported as saying: a new "independent" panel would consider the ANSTO/Lloyd's report. Under the plan Federal government would subsidise nuclear electricity by at least 20 per cent for 12 years, and form five plant would gain around \$700million a year. The panel plan:

- run from a secretariat in the Department of Prime Minister and Cabinet;
- made up of bureaucrats from the major policy departments and the CSIRO (CSIRO controls the Australian Nuclear Science and Technology Organisation).
- chaired by a board member of ANSTO.

The ANSTO nuclear report found:

- a privately owned nuclear power plant could make money;
- only if the government contributed 14 per

cent of the cost of building it; and

- paid 21 per cent of the electricity bills for the first 12 years.

AATSE supports nuclear: Dr Peacock president of the Australian Academy of Technological Science and Engineering, wrote to Howard last year offering to lead a fact-finding inquiry into the nuclear power option. A survey of AATSE found over 50 per cent supported nuclear energy.

Reference: Report by consultant Professor John H. Gittus on "Introducing Nuclear Power to Australia - an economic comparison" for the Australian Nuclear Science and Technology Organisation (ANSTO). Dated 4 March 2006, released 5 June 2006. ANSTO address: New Illawarra Road, Lucas Heights, NSW. 2234. PMB 1 Menai. NSW. 2234. Phone: (02) 9717 3111. Fax: (02) 9543 5097. <http://www.ansto.gov.au>

ANSTO report compares new nuclear, coal-fired and combined cycle gas turbine (CCGT) power stations

Professor John H. Gittus of Lloyd's of London presented ANSTO with financial model he developed allowed a comparison between the generation costs of new nuclear, coal-fired and combined cycle gas turbine (CCGT) power stations in Australia. Gittus said a comparison between the forecasts for Australia produced with this model and for 12 other countries published by

Nuclear Energy Agency (NEA) of the Organisation of Economic Cooperation and Development (OECD) showed "good agreement, lending confidence in the model".

Load factor of all 12 OECD countries used: He said the average cost of nuclear generation for 11 of 12 countries in this table (Japan was excluded since it was exceptionally costly) was \$38.58/MWh which was virtually indistinguishable from the \$38.20/MWh from the present model for Australia which used the same 85 per cent load factor used for the other 12 countries in the OECD study.

Abacadabra: Moreover, in all 12 countries nuclear was the least expensive, followed by coal and then CCGT, which was the forecast that the present model made for Australia.

NSW and Qld: Gittus said the costs of generating electricity from new power stations having the parameters of his model and interest rates corresponding to the rates of return achieved in 2002/03 by specified Australian states had been calculated and compared with actual average costs of generation for NSW and Queensland.

Nuclear power forecast to be competitive: His model forecast that nuclear power would be competitive with the actual costs of generation.

Reference: Report by consultant Professor John H. Gittus on "Introducing Nuclear Power to Australia - an economic comparison" for the Australian Nuclear Science and Technology Organisation (ANSTO). Dated 4 March 2006, released 5 June 2006. ANSTO address: New Illawarra Road, Lucas Heights, NSW

2234. PMB 1 Menai. NSW 2234. Phone: (02) 9717 3111. Fax: (02) 9543 5097. <http://www.ansto.gov.au>

The ANSTO pro-nuclear plan

On 25 May the Minister for Science, Julie Bishop, announced she had received the 400-page report called 'Introducing Nuclear Power to Australia', written by a consultant, Professor John Gittus, reported *The Sydney Morning Herald* (27/5/2006, p. 11). She declined to make the document public. ANSTO later published it on its website.

Well, gee whiz: Professor John Gittus was later revealed as a beneficiary of the industry, through his association with nuclear plant insurer.

Feeding the chooks: The Minister invited journalists to join her at Lucas Heights, where a second research reactor was soon to be opened. She neglected to invite *Electricity Week*.

Who, me? Both ANSTO and the Australian Safeguards & Non-Proliferation Office (ASNO) would not answer questions put to it by *Electricity Week*.

- ANSTO referred questions to ASNO.;
- ASNO asked for the questions in writing
- ASNO told *Electricity Week* it had not received the question. On the third provision of the questions, ASNO said it would "look at it".

- two weeks later ANSO had not replied.

Electricity Week questions:

Electricity Week asked

"noting;

- The PM has had talks with Canada and India and others about supply of enriched materials; and that
- GE has contracted to licence Silex technology laser enrichment proven; and that Silex operated as a private corporation; and
- law bans enrichment in Australia; and
- Lucas Heights is not licenced for enrichment; then

Q1: what level of activity would require registration of Silex as an enrichment plant ?

(as construction of enrichment plants in Australia require a change to the ARPANS Act. as section 10 of the *ARPANS Act. 89 Section 10* reads; "Nothing in this Act is to be taken to authorise the construction or operation of any of the following nuclear installations:

- a nuclear fuel fabrication plant;
- a nuclear power plant;
- an enrichment plant;
- a reprocessing facility.

The second set of questions were:

; "as Silex has imported and possibly exported nuclear materials for its enrichment experiments.

Q2 How was that these imports were not known by regulator, APANSA. (Ref Senate Committee), and

Q3 where in law or regulation does such an exemption to reporting to import or export of hazardous materials reside?

Q4 Were these imports known by ANSO?

The Silex annual reports for the past two years made no mention of waste or by products management. This suggests a Silex operational decision that private firms dealing in nuclear materials need not report waste obligations, contingency planning and volumes, so

Q5 Where in law or regulation does such a hazardous materials or risk reporting exemption reside?.

Nuclear? Not in my electorate say Qld, WA, SA and NSW

NSW Premier Morris lemma declared that no nuclear power stations would be built in the state while he was leader, reported *The Australian Financial Review* (6/6/2006, p. 6). A spokesperson for NSW Energy Minister Joe Tripodi said nuclear power stations were banned under the state government's Uranium Mining and Nuclear

Facilities (Prohibition) Act, but the federal government had the power to build reactors on Commonwealth land.

Not in Vic: Victorian Deputy Premier John Thwaites has called for the federal government to rule out any challenge to Victoria's laws if it chooses to push ahead with a nuclear power industry.

Not in Qld: Premier Beattie also said he did not want nuclear plants in Queensland.

Not in SA: The South Australian Premier Mike Rann says Cabinet has quashed any speculation on the issue. "A nuclear power plant would bankrupt our state," he said. "It would not be commercially viable and would not, in my view, be acceptable to the public.

ETSA Utilities to trial remote switch-off plan for air-con

In the first widespread Australian testing of new technology, ETSA Utilities would install devices to remotely turn off air-conditioners in about 2000 homes in the Glenelg area.

Power cheaper by 2010: ETSA CEO Lew Owens said, if successful, consumers would pay less for power by 2010. "Without having any impact on people's comfort levels, we would be able to make the network better and pass on the benefits to consumers," reported *The Advertiser* (7/6/2006, p. 11).

Plan to reduce overall demand: The Peakbreaker device turns off air-conditioner

compressors for a few minutes every hour on hot days, reducing overall demand for power. The extended trial follows the pilot installation of the units in 20 homes across Adelaide last year.

\$100 offered to participants: Homeowners with refrigerated reverse cycle air-conditioners would be offered \$100 to take part. Essential Services Commission chairman Pat Walsh said he hoped cheaper power would be the result.

More infrastructure needed: Glenelg was chosen for the trial because the area would need additional infrastructure – substations and transformers – to cope with projected demand if it was to avoid future blackouts. Other suburbs being asked to participate were Morphettville, Glengowrie, and Novar Gardens.

Blackout buster: EcoSouth's solar-grid-battery system runs home for several hours

People are installing solar-grid-battery systems to provide power, reported *The Advertiser* (5/6/2006, p. 63). EcoSouth Solar Electricity technical manager Chris Hart said that, typically, he may run a large fridge, small TV, a couple of computers and some compact fluorescent lights for several hours during a night blackout. "The same items would run all day, given a reasonable amount of sun," he says. "With additional rationing we

could get by for a number of days if the blackout was ever that long.

Vic independent MP Craig Ingram calls Snowy chief Terry Charlton, a "cockroach"

Victorian independent MP Craig Ingram said "He (Charlton) is on a wage four times that of the Prime Minister and ever since it started to go badly politically he crawled under a rock like a cockroach," he said. Snowy River campaigners have moved to protect the scheme from future attempts at privatisation amid angry calls for the head of Snowy Hydro to step down after the failed float, reported *The Australian* (6/6/2006, p. 6).

Anti-Charlton crusade: He launched a bitter attack on Snowy Hydro managing director Terry Charlton, who has campaigned hard for the scheme to be privatised to raise money to build new gas-fired plants.

Ingram to prevent Vic sale: plans to introduce a private member's bill preventing the state Government from selling its 29 per cent stake in the scheme without putting it to the parliament.

Greens in on the action, too: Greens in NSW were expected to introduce a similar bill aimed at preventing future attempts to sell the Snowy scheme.

\$2bn compo claim could still proceed:

Ingram also confirmed that a \$2 billion High Court compensation claim over the scheme may proceed despite the sale falling through.

I am not a cockroach: Charlton declined to respond directly to the comments but said the cancellation of the float had cost Snowy Hydro a vital opportunity to expand. "Unless it continues to grow, it's going to reduce in relevance as our competition grows," he said.

Greens eagle eye spotted Snowy error: no royal assent

One of the great unknowns in the Snowy story is what led the Federal Government to believe that it would be sufficient to simply get a motion passed in Parliament to approve the sale, and not have it passed with legislation, said an article in *The Australian Financial Review* (3 June 2006, p. 20).

Greens spotted the error: As soon as the Greens got eminent legal advice showing that the Government had pursued a very dubious path - since the vote of the Parliament on a motion instead of a Bill had not received the required royal assent as deemed necessary in the Snowy Corporation legislation - it brought the politics of Snowy back into the parliamentary arena with a vengeance.

SP AusNet releases first results since listing: revenue of \$757.5m profit of \$335.2m

SP AusNet, owner of Victoria's main electricity released its first results since listing on the Australian Stock Exchange in December. They were broadly in line with its prospectus forecasts and analysts' expectations, reported *The Australian Financial Review* (6/6/2006, p. 5).

- Earnings before interest and tax for the year to March 31 were \$363.7million from revenue of \$757.5 million.
- EBIT would have been \$446.1 million, 3.8 per cent ahead of prospectus forecasts of \$429.9 million, if the company had existed in its current form for the full 12 months.
- Net profit totalled \$335.2 million, including \$159.5 million from the Victorian energy retailing and generation business sold to TRUenergy before the float.
- SP AusNet is 51 per cent-owned by Singapore Power, which is in turn owned by the Singapore government's Temasek Holdings investment house.

B&B Wind to double capacity of SA's Lake Bonney farm

Investment fund Babcock and Brown Wind Partners would spend the \$400 million installing 53 more wind turbines which will generate 159MW of power. This will add to the 46 towers now at the site, near Millicent. In total, the completed wind farm will provide enough energy to power more than 130,000 homes. The current 67m high towers caused problems for firefighters in January, when a fire sparked by an electrical fault proved hard to put out because the tops of the towers were out of reach. The fire also triggered an automatic shutdown of the facility during a heatwave, contributing to blackouts, which left 63,000 homes without energy. Construction of the new turbines will start immediately and take about 18 months. The Lake Bonney development trumps AGL's \$263 million, 45 turbine Hallett wind farm, which is expected to be finished by December 2007.

InterGen and China Huaneng Group moot Qld buy-up

InterGen Australia, owned by global generating venture InterGen and Chinese power company China Huaneng Group, recently completed a refinancing of the debt on its \$1.5 billion Millmerran power station west of Brisbane. It also owns half of the Callide C power station in a joint venture with

Queensland government-owned generator CS Energy, InterGen Australia chief David Nelson, said he US-based operation was studying new projects.

Ready to buy: "We're interested in any opportunity. It doesn't have to be greenfield."

ActewAGL and TransACT offer discounts to encourage service bundling in Canberra

ActewAGL and TransACT are urging Canberra householders to bundle four services - electricity, natural gas, dial-up or broadband internet and phone - to get a 10 per cent discount off their electricity account, natural gas supply charge, standard ISP fees and phone line rental.

Hurry hurry hurry: The advertising campaign in *The Canberra Times* (3 June 2006, p. 25) also promotes a free Privileges Card offering savings of 20 to 50 per cent at over 200 restaurants and attractions. The card is valid for two years (retail price \$285) and entitles consumers to discount movie tickets at every Canberra movie theatre.

Three service package also available: Consumers can also bundle any three services (including electricity) and receive 5 per cent off the relevant charges, plus all the other rewards.

Babcock & Brown plans new power generation fund

Investment bank Babcock & Brown's new power generation fund, which would house the NRG Flinders assets, could be established by the end of the year, reported *The Sydney Morning Herald* (3 June 2006, p. 42). A planned purchase of the NRG Flinders assets will be funded from Babcock & Brown's own coffers and is expected to be finalised in the September quarter. The investment bank already has 7000MW under its management in a mixture of base load and peaking power generation capacity in Queensland, NSW, Victoria and South Australia, and holds coal and natural gas assets. All these assets would be considered for the new power generation fund. Following the acquisition of NRG Flinders - South Australia's largest power generator - Babcock & Brown would own seven power assets that could be folded into a new fund, including its Braemar gas-powered plant in Queensland, its NewGen Kwinana gas-fired plant in Western Australia and its Red Bank coal tailings power station in NSW, reported *The Australian* (3/6/2006, p. 33). Babcock's co-investors in the power assets would be invited to pool their assets into the new fund, but many are expected to hold them independently. NRG Flinders is wholly owned by Babcock. Oakey, in Queensland, is half-owned by Babcock, which owns 70 per cent of Braemar.

NRG Flinders decision late June: NRG Flinders company secretary Peter Georganis said a decision should be made by late June, but he would not say what companies were interested, reported *The Advertiser* (16/5/2006, p. 35).

Continues buying wave of SA power assets: The NRG Energy sale continues a wave of buying and selling that has resulted in new owners for SA power assets such as the Torrens Island Power Station and Murraylink interconnector. South Australians can reclaim at least some of the electricity businesses they lost when ETSA was privatised. Listed companies AGL, Origin Energy, Australian Pipeline Trust and Spark Infrastructure all have SA electricity assets.

Olympic Dam expansion could suck up 30pc SA generation: BHP Billiton's Olympic Dam mine consumes about 10 per cent of SA's electricity generation, but its expansion could lift that to 30 per cent.

Prominent Hill, other mines also drive demand: Electricity Supply Industry Planning Council chief executive David Swift said other mines such as Oxiana's Prominent Hill could also drive demand. "The things potentially causing a kick-up are mineral processing and also extra economic growth associated with the air warfare destroyers," he said.

Agreements may require Aust to provide access to resources

Australia's membership of the six-nation Asia Pacific Partnership of Clean Development and Climate might have to consider building nuclear power stations to fulfil its obligations, Professor John H. Gittus said in his report on "Introducing Nuclear Power to Australia - an economic comparison" for the Australian Nuclear Science and Technology Organisation (ANSTO).

38 million tonnes of emissions a year:

Gittus said the five measures Australian currently planned to mitigate global warming would, taken together, reduce Australia's greenhouse gas emissions by 38 million tonnes a year.

Equal cut by substituting nuclear power:

He said an equal reduction would be provided by substituting 4 to 5 gigawatt electricity (GWe) of nuclear generation for present and planned coal-fired power stations.

Three new nuclear power could do it: This would comprise, for example, three AP1000s (the Westinghouse AP1000) which received final design certification from the Nuclear Regulatory Commission (NRC) in January this year. The AP1000 gets its name from its 1000MW capacity.

What the US-led partnership is all about: In a joint press release on 28 July 2005, announcing Australia had joined the United

States, China, India, Japan and South Korea, four Australian Ministers said the six nations would "work together, in accordance with our respective national circumstances, to create a new partnership to develop, deploy and transfer cleaner, more efficient technologies and to meet national pollution reduction, energy security and climate change concerns, consistent with the principles of the UN Framework Convention on Climate Change (UNFCCC)". "Areas for collaboration may include, but not be limited to: energy efficiency, clean coal, integrated gasification combined cycle, liquefied natural gas, carbon capture and storage, combined heat and power, methane capture and use, civilian nuclear power, geothermal, rural/village energy systems, advanced transportation, building and home construction and operation, bioenergy, agriculture and forestry, hydropower, wind power, solar power, and other renewables.

Six of Aurora's 15 zone substations exceed firm load capacity, notes Tas regulator's reliability report

Six of the 15 zone substations of Aurora Energy, Tasmania's distribution network service provider (DNSP), had exceeded their firm load capacity, the Office of the Tasmanian Energy Regulator (OTTER) said in

a report on the power system reliability.

Where the substations are: A table in the report showed these zone substations were New Town, Derwent Park, Claremont, Geilston Bay, Bellerive and Westerway. The report said that in the unlikely event of a transformer failing at these substations, load shedding would occur.

Possible action in event of failure: Supply to customers would be restored, either by switching the distribution system where possible or replacing the failed transformer, which could take weeks.

Upgrade project: The non-firm supply from New Town, Derwent Park and Claremont would be addressed as part of the Hobart area supply upgrade project. This program had identified that the Geilston Bay and Bellerive zone substations would require modification or upgrade within the next three years to accommodate load growth.

Asset replacements at ageing substations: Ageing substation protection system asset replacements would be undertaken at that time.

Country zone planning: Of the ageing country zone substations, Zeehan would be upgraded in conjunction with wind farm developments and major load increases proposed during 2005 and 2006.

Plan to decommission three substations: It was proposed to decommission the ageing rural zone substations at Westerway, Gretna

and Hamilton within the next five years.

Reference: Report by Office of the Tasmanian Energy Regulator (OTTER) on reliability of Tasmanian power system for 2004/2005. May 2005. Address: Level 5, 111 Macquarie Street, Hobart. 7000. Tas. GPO Box 770, Hobart. 7001. Tas. Phone: (03) 6233 6323. Fax: (03) 6233 5666. Email: office@energyregulator.tas.gov.au http://www.energyregulator.tas.gov.au

Transend high impact scenario

Transend, Tasmania's transmission network service provider (TNSP), had responses ready to guard against the risk of high impact scenarios on power supply reliability, the Office of the Tasmanian Energy Regulator (OTTER) said in a report on the power system reliability.

Effects of extended outage: The report said an extended outage of a major substation such as Chapel Street, Sheffield, Farrell, George Town or Risdon due to a fire in a relay room or a major explosion would make it extremely difficult to maintain power supply reliability without shedding load.

Second 220kv Lindisfarne injection point planned: Transend had the following responses in place:

- planning was in progress for a second 220kV injection point at Lindisfarne, as part of the southern system development program;
- installing modern equipment as part of

planned substation upgrades. Such equipment is designed to minimise the possibility of fire and explosion;

- maintaining adequate stock of strategic spares to cover failure of key items of equipment, including transmission towers;
- installing fire suppression equipment in relay rooms at major substations;
- completion of a transmission line emergency restoration plan and a start on developing a substation emergency restoration plan; and
- completion of installing transformer blast walls at key substations.

Reference: Report by Office of the Tasmanian Energy Regulator (OTTER) on reliability of Tasmanian power system for 2004/2005. May 2005. Address: Level 5, 111 Macquarie Street, Hobart. 7000. Tas. GPO Box 770, Hobart. 7001. Tas. Phone: (03) 6233 6323. Fax: (03) 6233 5666. Email: office@energyregulator.tas.gov.au http://www.energyregulator.tas.gov.au

Transend to rearrange George Town 220kV bus to address risk of 1000MW of load loss via Sheffield substation fault

The connection of Basslink to the 220kV bus at George Town meant that more than 1000 megawatts (MW) of load could be lost by a fault on the 220kV bus coupler circuit during export, the Office of the

Tasmanian Energy Regulator (OTTER) said in a report on the power system reliability.

Low probability: The report said that although such a fault would have a significant impact, the probability of one occurring was very low.

Work due to be completed in 2008/09: Transend, Tasmania's transmission network service provider (TNSP), would be rearranging the bus to address this issue, with this work scheduled for completion in 2008/09.

Potential for severe disturbances: The report also said that Transend had indicated it was rearranging the 220kV busbars to overcome the potential for severe system disturbances around the Sheffield substation. This work was expected to be completed by the winter of 2007.

Most important substation in system: Sheffield was one of the most important substations in the system as west coast generation was channelled to the south and to George Town through this substation.

West coast generation hit by any fault: A fault on the Sheffield 220kV busbars would constrain west coast generation, resulting in possible out of merit generation. A fault on the 220kV "B" busbar could also cause severe system disturbances.

Reference: Report by Office of the Tasmanian Energy Regulator (OTTER) on reliability of Tasmanian power system for 2004/2005. May 2005. Address: Level 5, 111 Macquarie Street, Hobart. 7000. Tas. GPO Box 770, Hobart. 7001. Tas. Phone: (03) 6233 6323. Fax: (03) 6233 5666. Email:

office@energyregulator.tas.gov.au http://
www.energyregulator.tas.gov.au

Frequency control should improve with Basslink says reliability report

Frequency control following local disturbances within the Tasmanian power system should improve with Basslink in operation, the Office of the Tasmanian Energy Regulator (OTTER) said in a report on the power system reliability.

Reduced impact of drought and floods: The report said that based on current knowledge of expected performance, other expectations after Basslink was commissioned were:

- The provisions made by Transend (Tasmanian transmission network service provider) and National Grid (Basslink operator) should minimise any negative impacts on system security and reliability.
- The impacts of droughts and floods on the output of Tasmanian hydro-electric schemes should be lessened.

Reports on two protection schemes: Due diligence reports have been prepared by Transend on the frequency control system protection scheme (FCSPS) and the network control system protection scheme (NCSPS). This work should ensure satisfactory operation of these two complex schemes.

Reference: Report by Office of the Tasmanian Energy Regulator (OTTER) on reliability of Tasmanian power system for 2004/2005. May 2005. Address: Level 5, 111 Macquarie Street, Hobart. 7000. Tas. GPO Box 770, Hobart. 7001. Tas. Phone: (03) 6233 6323. Fax: (03) 6233 5666. Email: office@energyregulator.tas.gov.au http://www.energyregulator.tas.gov.au

Basslink positive transport bidding normally only for exports to mainland

Restricted market network service provider (MNSP) arrangements would apply to the Basslink interconnector between Victoria and Tasmania, the Office of the Tasmanian Energy Regulator (OTTER) said.

Reliability of power system: A report issued in May on the reliability of the Tasmanian power system for 2004/05 said the restrictions meant that positive transport bidding could normally only be used during export to the mainland.

Southward flow by agreement: However, by agreement, positive transfer bidding was also permitted to avoid southward flow that would accrue significant negative settlement residues. Such residues could occur under the rare conditions of substantial reduction in transfer capability between the Latrobe Valley and Melbourne.

Reference: Report by Office of the Tasmanian Energy Regulator (OTTER) on reliability of

Tasmanian power system for 2004/2005. May 2005. Address: Level 5, 111 Macquarie Street, Hobart. 7000. Tas. GPO Box 770, Hobart. 7001. Tas. Phone: (03) 6233 6323. Fax: (03) 6233 5666. Email: office@energyregulator.tas.gov.au http://www.energyregulator.tas.gov.au

Tas energy regulator details protection measures in place for Basslink operation

A frequency control system protection scheme (FCSPS) was used to ensure Tasmanian frequency remained within state standards, the Office of the Tasmanian Energy Regulator (OTTER) said in a report on the power system reliability.

High speed tripping of generation: The report said that in the case of a forced Basslink outage, the FCSPS would provide high speed tripping of generation during export and contracted customer loads during import. Studies had identified operational scenarios that could result in limits being exceeded. These scenarios would be avoided by applying constraint equations. Preliminary studies had identified that stability would be retained within specified limits.

Back-up systems installed: Back-up protection systems had been installed to trip generation, load or transmission elements should either the system protection schemes fail or following multiple contingency events.

Constraint Library Changes Report for the week 29 May 2006 to 4 June 2006

ewn publishing

Effective Date	Constraint Set	Constraint Equation	Action
30/5/06	Reason: Remove constraint from set and correct rating error in a predispatch constraint		
	Impact:Tasmanian Generation		
	T-LIPM	T>T_LIPM_110_5 T>T_LIPM_110_1	Modified Constraint(s) Marked for Archival
30/5/06	Reason: Further tuning of RHS calculation following Pre-Dispatch results		
	Impact:Improved outcome which should reduce the number of intervals that the constraint is likely to bind in pre-dispatch		
	Generic Equation:	Q>GLBC_811-812 X>GLBC_811-2_TRIP_PD	Modified Constraint(s) Modified
31/5/06	Reason: Transend outage advice for Communications on Chapel St to Gordon 220kV lines		
	T-COMMS_CSGO	T:T_COMMS_CSGO	New Set(s), New Constraint(s)
1/6/06	Reason: Minor change for Braemar Coefficient for MELL limit calc (lines 711-712 open) from 0.49 to 0.45		
	Impact:Minor impact on QNI-Qld generation when MELL calc is the lowest of the 4 calculated limits and then only when lines 711 & 712 (MiddleRidge-Swanbank) ha		
	Generic Equation:	Q^^NIL_TR XQ^^TAR_ML_1DS , XQTR3_MELL_20D	Modified Constraint(s) Modified Marked for Archival
1/6/06	Reason: New EMS points created to resolve DTS database issues		
	Impact:Victorian Generation + Interconnectors		
2/6/06	Reason: Conversion to Fully Co-Optimised		
	Impact:SA Generation + Interconnectors		
	S-SE_TX_1	V>>S_SETX_NPS_SETX, V>>S-SETX SETB KHTB, V>>S-SETX SETB SETX	New Constraint(s) added
	S-SE_TX_1	V>S_SE_TX V>S SE TX	Constraint(s) removed Marked for Archival
2/6/06	Reason: Required for planned outage		
	Impact:Qld Generation + Interconnectors		
	Q-BR_TX	Q:N_BCKTR_BCK2L-G Q:N_BCKTR_N3 Q:N_BCKTR_N4	Existing Constraint(s) added
Q-BR_TX	Q:N_BRTX_BI POT Q>>BCKBR PRE	New Constraint(s) added	
2/6/06	Reason: Required for planned outage		
	Impact:Qld Generation + Interconnectors		
	Q-X_SPTX_BKSP_BKBM	Q^^TCT_OFFSET_-60 Q^^TML_OFFSET_-70 Q^^TTB_OFFSET_-70 Q^^TWP_OFFSET_-70	New Set(s), Existing Constraint(s)