

Briefing Note



Commentary on the Electricity Legislation Amendment Bill 1995

by

Vicki Mullen and Stewart Smith

No 020/95

**Commentary on the Electricity
Legislation Amendment Bill 1995**

by

Vicki Mullen and Stewart Smith

NSW PARLIAMENTARY LIBRARY RESEARCH SERVICE

Dr David Clune (230 2484) Manager

Dr Gareth Griffith (230 2356) Senior Research Officer, Politics and Government

Ms Vicki Mullen (230 2768) Research Officer, Law

Ms Jan Newby (230 2483) Senior Research Officer, Statistics

Mr Stewart Smith (230 2798) Research Officer, Environment/Science

Ms Marie Swain (230 2003) Research Officer, Law

Mr John Wilkinson (230 2006) Research Officer, Economics

ISSN 1321-2559

ISBN 0 7310 5913 1

© 1995

Except to the extent of the uses permitted under the *Copyright Act 1968*, no part of this document may be reproduced or transmitted in any form or by any means including information storage and retrieval systems, without the prior written consent from the Librarian, NSW Parliamentary Library, other than by Members of the NSW Parliament in the course of their official duties.

Should Members or their staff require further information about this publication, please contact the author.

June 1995

Briefing Paper is published by the NSW Parliamentary Library

EXECUTIVE SUMMARY

This *Briefing Paper* mainly discusses the reform of the electricity supply industry, both nationally and in NSW, by way of background to the Electricity Legislation Amendment Bill 1995. The main points are:

- the Electricity Legislation Amendment Bill 1995 represents the first of four stages of reforms that have been foreshadowed as being necessary in NSW to achieving the operation of the national grid (pages 3-4);
- the electricity supply industry (both in NSW and nationally) has been subject to increasing scrutiny, particularly in the last five years, in terms of its economic efficiency and environmental impact (pages 4-10);
- the national grid process commenced in 1991 with a decision at a Special Premier's Conference, so that there would be 'competition between the State power authorities and anyone else who wants to start generating electricity'; it would also be a means of assisting more efficient production of electricity in order to improve the international competitiveness of manufacturing and energy-intensive industries (pages 5 and 10-13);
- the national reform of the electricity supply industry has become inextricably linked to the wider reform agenda flowing from the Hilmer recommendations for a National Competition Policy. However the prediction of the economic impact of such reforms has been a complex exercise (pages 13-15); and
- the reform of the national electricity market provides both opportunities and disincentives for the environmentally friendly production of electricity (pages 15-19).

CONTENTS

Short Summary of the Electricity Legislation Amendment Bill 1995	3
Background to reform of the electricity supply industry	4
The NSW Electricity Commission (Pacific Power) and its current functions and powers	4
Reform of the electricity industry	7
The national grid	10
The National Competition Policy and the electricity supply industry	13
Environmental issues	15
Commentary	19

SHORT SUMMARY

The amendments proposed by the Electricity Legislation Amendment Bill 1995 are relevant to the ongoing *structural* reform of the electricity supply industry (in NSW and nationally) to facilitate a competitive national industry in order to lower the cost of electricity to consumers (in particular business); as well as enabling the supply of electricity generated (publicly or privately) from the use of environmentally sound methods and renewable energy sources (such as solar and wind energy). These proposed amendments represent the first of four stages of reforms that have been foreshadowed as being necessary in NSW to achieving the operation of the national grid. The four stages are:

- (1) the passage of enabling legislation 'to give the Government the necessary powers to direct the industry bodies...in the implementation of restructuring; and secondly, to modify the boards of the industry bodies and their corporate charters to ensure that they are supportive, responsive, and effective in implementing the Government's reform program'¹;
- (2) the 'determination of generation [Pacific Power] and distribution sector arrangements'² with legislation to corporatise Pacific Power and distributors and to reduce the numbers of electricity distributors foreshadowed for the Budget session³;
- (3) the 'operational commencement of the new arrangements and the interim State market'⁴; and
- (4) the operation of the National Grid, which 'will depend on the National Grid Management Council's timing for the commencement of the national electricity market.'⁵

The key proposed amendments are as follows:

- the amendment of the *Electricity Commission Act 1950* to amend the governing structure of Pacific Power, with a board of directors in place of

¹ Ministerial Statement by the Hon MR Egan, MLC, Treasurer, Minister for Energy, Minister for State Development, Minister Assisting the Premier, and Vice-President of the Executive Council, *NSWPD*, 30/5/95, p 3.

² *Ibid.*

³ The Minister for Energy, 'Egan Announces Power Reforms', *Media Release*, 30/5/95.

⁴ *NSWPD*, op cit note 1.

⁵ *Ibid.*

the electricity commissioners: Pacific Power is to be subject to Ministerial direction;

- the amendment of the *Electricity Transmission Authority Act 1994* in order to reconstitute the board of directors and to enable the ETA to develop, implement, operate and administer a wholesale market for electricity (in preparation for the start of a national market)⁶: this would involve the establishment of a Market Operations Fund and a Market Settlements Fund;
- the amendment of the *Sydney Electricity Act 1990* in order to reconstitute the board of directors and to enable the variation (by means of a proclamation by the Governor) of the area of operation of Sydney Electricity: this would facilitate the amalgamation of parts of Sydney Electricity with adjacent electricity distributors; and
- the amendment of the *Electricity Act 1945* for the purposes of reconstituting the boards of directors of electricity distributors in a way that would facilitate future amalgamations of electricity distributors.

BACKGROUND

The proposed amendments to electricity legislation in NSW are set against the background of previous and recommended reforms of the electricity supply industry (both in NSW and nationally), which has been subject to increasing scrutiny, particularly in the last 5 years, in terms of its economic efficiency and environmental impact. The following information (on pp 4-13) gives a brief history of the NSW Electricity Commission (trading as Pacific Power) and its current functions and powers, background to the reform of the electricity industry generally and the National Grid. This information is taken from the Parliamentary Library's *Bills Digest* on the Electricity Transmission Authority Bill 1994 (No 36/94) by Vicki Mullen.

The NSW Electricity Commission (Pacific Power) and its current functions and powers

The Electricity Commission of NSW was established as a body corporate under the *Electricity Commission Act 1950*, which was proclaimed to commence on 22 May 1950.

After its establishment the Commission took over the responsibility for the generation of electricity which had previously been in the hands of several organisations in New South Wales. By 1957, the

⁶ The Minister for Energy, 'Egan Announces Power Reforms', *Media Release*, 30/5/95.

Commission had integrated the earlier generation and bulk supply bodies into a single generation authority and during the last 30 years of its operation has met the customer demands for electricity which have expanded by a factor of eight times...⁷

In 1979, the Fraser Government encouraged State Governments to develop resources infrastructure, due to the expected 'resources boom', through an 'infrastructure borrowing programme'.⁸ As a result the Electricity Commission engaged in the 'rapid construction of substantial new generating plant capacity to meet the expected growth during the 1980's.' However the expected industrial demand for energy did not eventuate and NSW was left with 'a level of generating plant over and above that which would normally be required to achieve adequate reliability of supply'.⁹ In order to counteract resulting inefficiencies, the Electricity Commission 'embarked on a major commercialisation process' resulting in increased profitability, price increases below inflation, improved productivity through workplace reforms and the establishment of a competitive market for the Commission's coal purchases as a result of the privatisation of collieries.¹⁰

In response to a report of the Industry Commission (see below) into the electricity industry, it was decided at the Special Premier's Conference of July 1991, that a national grid should be established 'with competition between the State power authorities and anyone else who wants to start generating electricity.'¹¹

On 16 October 1991, the Electricity Commission (Corporatisation) Bill 1991 was introduced into the Legislative Assembly for the purpose of establishing The Pacific Power Corporation of New South Wales Limited ('Pacific Power Corporation') as a State owned corporation within the scheme of the *State Owned Corporation Act 1989*. Certain assets, rights and liabilities of the Electricity Commission were to be transferred to Pacific Power and the Commission was to be dissolved. It was stated in the Second Reading Speech to the Bill that '[t]ogether with the Special Premiers Conference initiative to move towards an eastern States power grid, corporatisation of the Electricity Commission will create a new competitive market environment.'¹² On 12th November 1991, the then Opposition raised a number of concerns surrounding the proposed corporatisation of the

⁷ The Electricity Commission of New South Wales, *Strategic Plan, Meeting Customer Demands*, June 1989, p 1.

⁸ 'Plug power industry into competition', *The Australian Financial Review*, 16/4/92.

⁹ The Electricity Commission of New South Wales, op cit note 1.

¹⁰ *NSWPD*, 16/10/91, p 2254.

¹¹ 'Power grid must be independent', *The Sydney Morning Herald*, 8/8/91.

¹² *NSWPD*, 16/10/91, p 2254.

Electricity Commission including the possible privatisation of the Commission, the possibility of increased production of greenhouse gases, accountability issues, the real nature of the potential competition and efficiency gains, the future of employees of the Commission, executive salaries and the lack of consultation with the community.¹³ In light of opposition from the environmental movement, concerns about the accountability of the proposed Corporation and the possible referral of the Bill to a parliamentary committee, the Government withdrew the Bill from Parliament in December. However, the (then) Minister for Energy stated that the programme of commercialisation of the Electricity Commission would continue with the separation of the power stations into separate business units, and the change of the Commission's name to Pacific Power from 1 January 1992.¹⁴

In June 1993, the Council of Australian Governments

endorsed the creation of an interstate electricity transmission network through the adoption of separate network corporations in participating States. What is proposed is that the monopoly wires, that is transmission, be separated from generation to form the national grid.¹⁵

On 21 April 1994, the Electricity Commission (Amendment) Bill was introduced into the Legislative Assembly in order to enable the establishment of subsidiary companies of the Electricity Commission under the *Electricity Commission Act 1950* in relation to core activities.¹⁶ This Bill was passed and the Act, which amended the *Electricity Commission Act 1950* by inserting Division 2A (Subsidiary companies) into Part 3 of that Act, was proclaimed to commence on 17 June 1994.

The powers, authorities, duties and functions of the Electricity Commission are provided for by Part 3 of the *Electricity Commission Act 1950*. Section 8 outlines particular powers of the Commission with respect to electricity supply authorities. Section 9 outlines the general powers of the Commission to do the following:

- (a) maintain and operate and where necessary improve and extend all works for or in relation to the generation and supply of electricity for the time being vested in it, and construct any new, additional or supplementary works or acquire any works or property for or in relation to the generation and supply of electricity;

¹³ NSWPD, 12/11/91, pp 4285-4298.

¹⁴ 'Elcom plan shelved, not abandoned: minister', *The Sydney Morning Herald*, 14/12/91.

¹⁵ NSWPD, 21/4/94, p 1647.

¹⁶ *Ibid.*

-
- (b) supply electricity to any person within or outside the State on such terms as may be agreed upon between the parties;
 - (c) with the approval of the Minister conduct any business arising out of or ancillary to the generation and supply of electricity and construct any works or acquire any works or property and maintain and operate the same for the purposes of conducting any such business; and
 - (d) purchase electricity from any person within or outside the State.

Under Part 3, the Commission has further powers with respect to certain matters including the ability to make and enter into contracts, the supply of sufficient electricity for railways and road transport, the promotion and encouragement of the development and use of the natural resources of the State in connection with the generation of electricity and coal mining either in connection with the generation of electricity or for profit.

The Electricity Commission (now Pacific Power) is currently responsible for the generation and the transmission of electricity to 25 electricity supply authorities. These authorities, which are mostly county councils are responsible for the retail distribution of electricity to consumers.¹⁷

Reform of the electricity industry

In 1991, a report commissioned by the employees of the electricity industry (with financial support from the Electricity Supply Association) *Powering the Future: The Electricity Industry and Australia's Energy Future* examined the need for reform of the industry and stated that

...a national electricity industry strategy, which would incorporate national integration within an overall national energy policy has become a major economic, political and public administration priority. The urgency comes from the need for structural adjustment, from the impact of the current recession and the realisation of the environmental damage the industry has caused. All levels of government in Australia, the trade union movement, the private sector, and the community are putting the industry under minute scrutiny.¹⁸

¹⁷ Dalziel, I et al, *The economics of interconnection: electricity grids and gas pipelines in Australia*, ABARE, 1993, p 13.

¹⁸ Pluto Press Australia in association with the Public Sector Research Centre, University of New South Wales, *Powering the Future: The Electricity Industry and Australia's Energy Future*, 1991, p 1.

From an environmental perspective, calls were also made for reform on the basis that despite electricity supply exceeding demand, electricity commissions around Australia were still constructing power stations and because of oversupply, were stimulating rather than controlling the demand for electricity. As the production of electricity in Australia has been mainly based on the burning of coal, '[n]early half of Australia's emissions of the principal Greenhouse gas, carbon dioxide (CO₂), come from this industry.'¹⁹

In May 1991, the Industry Commission released its report titled 'Energy Generation and Distribution' which was to examine the electricity and gas supply industries with respect to the 'institutional, regulatory or other arrangements subject to influence by governments in Australia which lead to inefficient resource use' and 'advise on courses of action to reduce or remove such inefficiencies'.²⁰ The need for administrative and structural changes in the industry to overcome past inefficiencies were identified:

Analysis undertaken by the Commission suggests that, if the electricity supply industry's performance were as good as international best practice and cross-subsidies between users were eliminated, national output could expand by around \$2.2 billion annually.²¹

The recommendations of the Industry Commission to rectify serious impediments to efficient resource use in the electricity supply industry included the following:

- increase competition by, notionally separating (ring fencing) activities within two years and, second, fully separating activities as soon as possible thereafter by, for example, the separation of ownership of generation, transmission and distribution functions; the formation of a number of independent generating bodies; the formation of a public body to acquire and operate all transmission assets in New South Wales, Victoria, Queensland, South Australia and Tasmania; the creation of multiple distribution franchises and the provision of open access by all transmission and distribution bodies;
- corporatise all public bodies engaged in electricity generation and the transmission and distribution of electricity to place them on a commercial basis, at arms length from government;

¹⁹ Diesendorf, Dr M, 'The abuse of power', *Conservation News*, October 1991, Vol 23, No 7, p 5.

²⁰ Industry Commission, *Energy Generation and Distribution*, 1991, Terms of Reference.

²¹ *Ibid*, Vol 1, p 2.

-
- modify regulatory and other controls applying to private utilities;
 - progressively sell publicly owned electricity generation and distribution assets to the private sector;
 - implement other initiatives to increase efficiency with respect to pricing, the Snowy Mountains Hydro-Electric Scheme, new capacity for public utilities and load management and energy conservation measures; and
 - initiate a review by an independent body of the progress made in implementing reforms and options for further improving efficiency.²²

However, a note of warning about the fragmentation of the electricity industry in Australia for increased competition was sounded by Ross Bunyon, the General Manager and Chief Executive of Pacific Power, in a paper presented to the Energy and Minerals Outlook Conference in Sydney in June 1993.²³ Bunyon points out that Australia's electricity industry has made considerable efficiency gains without compromising consumer interests. As a result of the increased performance, he believes that the philosophy of 'divide and compete' would expose top performing sections of the industry to potential foreign takeovers:

The economic rationalists fail to acknowledge the realities of capital intensive, high-volume, low-margin industries such as ours. Their catch-cry is 'Divide and compete'. They fail to see that our competitors overseas are vertically integrated utilities that dwarf any in Australia. Some are as large as the entire Australian electricity industry. These cashed-up international players have targeted Australia, seeing it as ripe for picking off the spoils of any major industry break-up.²⁴

Bunyon believes that Australia needs to retain ownership of its top performing utilities in order to realise the potential for international opportunities, particularly in Asia. He mentions that Pacific Power has already marketed electricity related services to over 15 countries. These services have included large infrastructure project management, power station and transmission engineering, advanced power technologies, management, training, development and technical services.²⁵

²² Ibid, Vol 1, p 23.

²³ Bunyon, R, 'Australia's electricity supply industry: doing well, but under threat', *The Mining Review*, October 1993, Vol 17, No 4, p 10.

²⁴ Ibid, p 12.

²⁵ Ibid, p 13.

On 15 October 1993, the (then) Minister for Energy, Garry West announced that NSW would take part in trials for a national electricity grid, with just one generator (Pacific Power) after the Federal Government had 'backed away from its insistence that Pacific Power be broken up and that there be multiple generators in NSW'. The Minister also stated that:

If we move to multiple generating organisations in this state it will be done after a proper study has been made and after the government is convinced that such a move would be to the benefit of the state and all electricity consumers.²⁶

The national grid

The economic benefits of electricity grid interconnections have been identified as follows:

- the efficiency of resource allocation can be improved as 'interconnections between state grids can allow states with low cost power resources to export power to those states with high cost power sources.';
- interconnection between systems based on different technologies such as hydroelectric generation (which can respond quickly to changes in demand) and thermal coal stations (which are slower in response but provide cheaper power) can increase flexibility and reduce costs;
- lower reserve plant margins are needed to maintain supply which means that investment in new plant for this purpose may be deferred; and
- greater competition is possible in a larger interconnected network leading to efficiency gains.²⁷

The National Grid Management Council was established in July 1991 by a Special Premier's Conference²⁸ for the purpose of encouraging and initiating 'the further restructuring of the electricity industry in Australia so that the country can move ahead to more efficient generation, transmission, distribution, and use of electricity, thereby improving international competitiveness, particularly of manufacturing and energy-intensive industries.'²⁹ The specific tasks taken on by

²⁶ The Minister for Energy, *Media Release*, 15/10/93.

²⁷ Dalziel, I et al, op cit note 11, pp 15-16.

²⁸ The Minister for Energy, *Media Release*, 3/5/93.

²⁹ Landels, J, 'Electricity reform: the National Grid Management Council', in Galligan et al (eds), *Managing microeconomic reform*, Federalism Research Centre, 1993, p 105.

the Council have included:

- the development of a protocol effectively setting out the rules, responsibilities and technical requirements for the operation of the grid;
- the resolution of the complex commercial and technical aspects involved in a competitive customer market;
- the assessment of the nature and operating guidelines of the transmission structure;
- the consideration of the pricing principles to be employed under the protocol;
- the improvement of interstate connections; and
- the assessment of overseas experiences.³⁰

At the June 1993 meeting of the Council of Australian Governments, the progress made since the establishment of the National Grid Management Council was reviewed and 1 July 1995 was set as the new deadline for the structural changes to be put in place for the development of a national grid.

The interconnected States - Victoria, NSW and South Australia - and Queensland will pursue a transmission link structure in which they continue to control their individual networks. Under this proposal transmission operations will be separated from generation and run by separate corporations, although South Australia is 'considering the use of a subsidiary structure pending resolution of cost issues associated with separating transmission from its vertically integrated authority.'³¹

Key issues identified at the June 1993 meeting of COAG as still needing to be resolved before the reform process could continue were identified as:

- market trading arrangements;
- grid pricing and regulation;
- the budgetary impact of the reform process on the affected States;

³⁰ Ibid, pp 107-111.

³¹ Orchison, K, 'Milestones on the path to electricity reform', *Electricity Supply Magazine*, No 11, July 1993, p 4.

- tax compensation issues; and
- reform arrangements for the Snowy Mountains Scheme.³²

In August 1993, the Hilmer Report into National Competition Policy was released which identified the issue of the ownership of the national grid as a block to further reforms:

As with other 'essential facilities', the report wants the Government to ensure equal access opportunities to the grid for all existing and potential players.³³

In October 1993, negotiations between the NSW, Victorian and Commonwealth governments failed to reach an agreement on the issue of whether there should be multiple generators in the States.³⁴

On November 26, 1993, the Premiers of NSW and Victoria, signed a Memorandum of Understanding on the reform of the electricity industry:

Today's agreement provides for NSW and Victoria, which are the two major participants in the Snowy Mountains Hydro Electricity Scheme to develop mutually acceptable proposals for the commercialisation/corporatisation of the electricity generation and transmission operations of the SMHE Scheme.

It also provides the basis for ensuring that as the electricity industry is transformed, neither of the States will use their transmission networks to impede the flow of power.³⁵

On 16 December 1993, a joint statement on the National Grid was released by the Commonwealth Minister for Resources, Michael Lee, the NSW Minister for Energy, Garry West and the Queensland Minister for Minerals and Energy, Tony McGrady. In a News Release it was announced that

The Commonwealth, New South Wales and Queensland Governments have reached agreement to commence work on a preparatory study for an electricity grid interconnection between New South Wales and Queensland entitled 'Northlink'. This agreement has been formalised in a Memorandum

³² Ibid.

³³ 'Call for equal access to power grid', *The Australian*, 26/8/93.

³⁴ *NSWPD*, 13/10/93, pp 3705-3706.

³⁵ Premier of New South Wales, 'Historic Agreement on Interstate Electricity Industry Reform', *News Release*, 26/11/93.

of Understanding.

On 25 February 1994, the COAG meeting discussed the issues of federal compensation for the loss of State revenue with the onset of competitive reforms and pricing methods.³⁶

At the COAG meeting of August 1994, negotiations about federal compensation for the States for lost revenue as a result of reforms of the industry failed. 'Money is the issue because States lose income when they break up monopolies in industries like electricity. Much of that "monopoly rent" flows back to Canberra as income tax.'³⁷

On 13 October 1994, the (then) Minister for Energy, the Hon EP Pickering (in the Second Reading Speech to the Electricity Transmission Authority Bill 1994) stated

The Government is firmly committed to this national grid process, as long as these reforms lead to the introduction of a truly efficient, effective and competitive market in electricity. The formation of a separate transmission authority in New South Wales will complement both the national grid reform process or, if this does not eventuate, the further development of a competitive electricity market within New South Wales.³⁸

The National Competition Policy and the Electricity Supply Industry

The national reform of the electricity supply industry has become inextricably linked to the wider reform agenda flowing from the Hilmer recommendations for a National Competition Policy.

For an update on recent developments in relation to the implementation of the National Competition Policy between the federal government and the States, please see the Parliamentary Library's *Briefing Paper* 'Update on the Hilmer Report' (No 16/95) by Jan Newby. Of particular note was the release of the report by the Industry Commission on 10 March 1995 on the growth and revenue implications of the Hilmer and related reforms.³⁹ This report was requested by the Council of Australian Governments (COAG) at its meeting of 19 August 1994. The terms of reference specified for investigation a number of 'Hilmer-related' reforms including

³⁶ 'States will fight for cash cows', *The Sydney Morning Herald*, 4/3/94.

³⁷ 'How politics threatens micro reform', *The Australian Financial Review*, 5/9/94.

³⁸ *NSWPD*, 13/10/94, p 32.

³⁹ Industry Commission, 'The Growth and Revenue Implications of Hilmer and Related Reforms: A Report by the Industry Commission to the Council of Australian Governments', *Final Report*, Commonwealth of Australia, March 1995.

the 'necessary changes to allow a competitive electricity market to commence from 1 July 1995 or as soon as possible thereafter.'⁴⁰ In this report, the Industry Commission identified the following main elements of reforms to allow a competitive electricity market to develop:

- (i) open access to the eastern and southern Australian grid through the establishment of an interstate electricity transmission network;
- (ii) a cost reflective and uniform approach to transmission and distribution pricing;
- (iii) extension of the grid to Queensland (Eastlink) and Tasmania (Basslink) if economically justified;
- (iv) free trade in bulk electricity for private generating companies, public utilities and private and public electricity consumers;
- (v) separation of transmission from generation and distribution elements;
- (vi) competitive sourcing of generation capacity based on merit order dispatch of individual generators;
- (vii) a corporatised Snowy Mountains electricity generation company effectively competing for supply into the national grid; and
- (viii) national regulation of market conduct and national prices oversight with a code of conduct to cover other matters.⁴¹

Recent developments in the electricity supply industry were discussed in the Report. For an outline of particular developments in the States and Territories, see pp 226-238 of the Report. Essentially, structural reforms are being undertaken by the States for the purposes of moving away from a vertically integrated monopoly to pro-competitive structures. Tariff structures and pricing issues are being widely reviewed.

The issue of interconnection (including details of the South East Australian Grid, the National Grid, Basslink and Eastlink) is discussed at pp 238-242 of the Report. The economic benefits of interconnection are discussed in this Paper in the section on the National Grid above at p 10.

⁴⁰ Industry Commission, 'Economic Impact of Hilmer and Related Reforms', *Press Release*, 10/3/95.

⁴¹ Industry Commission, *op cit* note 39, p 223.

Of real significance are the conclusions by the Industry Commission concerning the impacts of reform on the electricity supply industry. It was generally stated that

the separation of utility activities and the creation of a national grid will encourage competition, cost reductions and productivity improvements. Similarly, the introduction of competitive neutrality will affect the commercial performance of GBEs.⁴²

In considering the likely impacts of reform, the following performance aspects of a GBE were considered: capital and labour productivity, productivity of other inputs (including energy), overall productivity, pricing, cost of primary energy, rates of return, dividend and other payments to governments and asset values.⁴³

Environmental issues

The Good, the Bad and the Ugly of Electricity Reform

The reform of the national electricity market provides both opportunities and disincentives for the environmentally friendly production of electricity. The positives of the proposed reforms include allowing any supplier of electricity access to the national grid including renewable energy sources. As well, the increased commercialisation of the distribution networks may favour remote area renewable stand alone power supply sources, as the cost of grid extension may be considerably greater. The disincentives include the amalgamation of the state based grid into a national network, allowing buyers of electricity to source electricity from the cheapest supplier. New, renewable sources of electricity will not be able to compete on price with the State funded coal fired stations in the short term.

The following discussion first relates to the environmental positives of the proposed electricity reform, and then some of the problems.

The Environmental Positives of Electricity Reform

Pacific Power notes that there is sufficient electrical generation capacity to meet demand for some time, and therefore a 'window of opportunity' exists to develop alternatives without the need to commit to existing technologies.⁴⁴ An up to date summary of the state of development of renewable energy sources in Australia is presented.

⁴² Ibid, p 242.

⁴³ Ibid, p 242-255.

⁴⁴ Pacific Power, 1994, *Draft Strategic Plan June 1994*.

Solar

There are two methods to utilise solar power, solar thermal systems which rely on recovering heat from the sun to drive steam turbines, and photovoltaic cells that turn sunlight directly into electricity. In Australia there are two competing technologies on the solar thermal power front, those that use parabolic troughs and those that use large hexagonal dishes. Both systems appear to have enormous potential. Already, nine solar thermal power stations in California using parabolic troughs generate a total of 345MW with gas back up. David Mills of the University of Sydney is researching the further development of this technology. Mills claims that by the Year 2000, this form of solar thermal electricity will be competitive across Australia.⁴⁵

The second thermal solar system has been developed by David Kaneff of the Australian National University. This system involves a "big dish", which is covered in mirrors and reflects light onto a central receiver. Temperatures up to 1500 degrees Celsius are produced, creating steam for electricity generation. Long term research on this parabolic dish has been carried out at White Cliffs in NSW.⁴⁶ Twenty eight of these dishes are being constructed in Tennant Creek, Northern Territory, to contribute two megawatts of electricity to the local grid. The developers claim that in desert locations, power can be generated for as little as 4 cents per Kwh, ie, cost competitive with coal.⁴⁷

Photovoltaic cells, which convert sunlight directly into electricity, is an alternative way to harness the energy of the sun. Professor Martin Green of the University of New South Wales is considered to be one of the world's leader in this technology. In December 1994, Pacific Power and Unisearch (the commercial arm of the University of New South Wales) committed \$64 million over five years to the University's photovoltaic cell project, forming the company Pacific Solar. By the end of the five year funding period, the company hopes to have developed a commercially viable solar cell, ie, cost competitive with coal generation. This means that, ultimately, individual homes will be able to have their own power station on their roof tops, and sell any excess power to the grid.

Wind Energy

Wind can be used to turn turbines and produce electricity. The most economical turbines are about 300kw - 600kw capacity and would typically be located as a

⁴⁵ Anderson, I., 1994, "Sunny days for solar power" in *New Scientist*, Vol. 143, No. 1932.

⁴⁶ New South Wales Office of Energy, 1994, *New South Wales Energy Review*, No.2.

⁴⁷ Anderson, I. 1994, *op.cit.* p.24.

"wind farm" of 3 to 6 MW occupying approximately 2 km square of land. The typical 300kw machine could have the following features:⁴⁸

- three-bladed 30 metre diameter rotor rotating at 40 rpm
- blades constructed from fibreglass or wood epoxy and which are able to change their pitch to optimise the angle to the wind
- nacelle and rotor placed on a 30m tower and able to rotate so that the wind turbine is always facing into the wind
- able to replace the combustion of 250 tonnes of coal per year which would supply the energy requirements of 70 homes.

Pacific Power has recently bought the 150kw wind generator which has been on trial at Malabar. Pacific Power is investigating wind energy potential around Cooma, Crookwell, Oberon, Kiama, Tilba and Gundagai, NSW.⁴⁹

Hydro-electricity

The Snowy Mountains Scheme is the largest hydro-electric scheme in the State, and in 1992-3 supplied seven percent of the State's electricity.⁵⁰ The advantage of hydro is that it can provide virtually instant electricity on demand and can be turned off when the need has passed. It is therefore a very good source of peak electricity supply. Several smaller hydro-electric operations are in place with other dams, including Wyangala Dam at Cowra and approvals for stations at Burrendong, Glenbawn and Copeton Dams.

Waste as a source of energy

Other alternative renewable sources of energy include the generation of electricity from waste products, where anaerobic digestion of waste produces methane which is used in an engine or turbine. Rice husks in the Riverina district of NSW are potentially able to fuel up to 23MW of electricity, and Pacific Power and the NSW Waste Recycling and Processing Authority have called for expressions of interest to own and operate a 5MW landfill gas development at the Lucas Heights tip.⁵¹

⁴⁸ Electricity Commission of NSW, 1991, *New and Alternative Technologies for Electricity Generation*.

⁴⁹ NSW Office of Energy, 1994, *op.cit.* p.32.

⁵⁰ NSW Office of Energy, 1994, *op.cit.* p.29.

⁵¹ Pacific Power, 1994, *op. cit.* p. 57.

Environmental Negatives of Electricity Reform

Pacific Power has noted that new electrical generation capacity would only be built when market forces make it commercially attractive.⁵² As shown below, electricity generation from fossil fuels is considerably cheaper than from renewable resources. Furthermore, increased competition and rationalisation of the grid will potentially make fossil fuel sourced electricity even cheaper. As a comparison, the emission of greenhouse gas is also shown.

Table 1 Costs of Electricity production

Mature Technology	Cost of Production cents/Kwh	Greenhouse gases Tonnes of CO2/Mwh
Pulverised fuel coal	3.2	0.87
Gas Turbine	4.3	0.63
Hydro	6.0	0
Nuclear	7.5	0
Wind	5.8	0
Emerging Technologies	Cost of Production cents/Kwh	Greenhouse gases Tonnes of CO2/Mwh
Integrated Gasification Combined Cycle ⁵³	4.1	0.72
Solar Photovoltaic	8-20	0

Cheap black coal has provided the fuel for 90% of the State's electricity generation for the last forty years, with Pacific Power currently consuming 21 million tonnes of coal per annum at a cost of \$710 million.⁵⁴ If this sort of commitment was given to the development of renewable resources, then electricity generation from these sources would be much cheaper.

⁵² Pacific Power, 1994, *Draft Strategic Plan June 1994*.

⁵³ This is a combination of proven and currently available component technologies to give higher thermal efficiency and lower carbon dioxide, nitrous oxides and sulphur emissions and lower water consumption compared to a normal coal fired plant.

⁵⁴ Pacific Power, 1994, *op. cit.* p.50.

The continued investment in the coal fired based electricity grid may prolong the use of coal, to the exclusion of clean, renewable sources of energy. The connection of the NSW electricity grid to Queensland is considered a vital part of the formation of a national market. Estimated to cost \$400 million, some observers have noted that for this amount of money, investment in renewable energy and energy efficiency measures in homes and industry would be cheaper and achieve the same result, with reduced greenhouse gas emissions.⁵⁵

COMMENTARY

The movement towards the development of a competitive national electricity supply industry is gaining increasing momentum almost to the point of inevitability. However, the future is uncertain and many results can only be guessed at. The Industry Commission itself, in its recent report on the impact of the Hilmer and related reforms, stressed that the exercise of assessing the impacts was 'technical in nature' and that

no single number can capture the full benefits of reform. Precision is neither attainable nor claimed. The lack of precision comes from two sources - the nature of the reforms in question and the nature of modelling assessments.⁵⁶

In NSW, the future of Pacific Power is of central importance to the performance of the industry in both NSW and nationally. The appointment of Professor Hilmer as Chairman of Pacific Power has great significance in light of his expertise and influence. The economics of the future structure of Pacific Power are crucial. For example, it has been commented that:

The cost of breaking up Pacific Power could be substantial, particularly in the short term. ... Undoubtedly it would be disruptive. More importantly, Pacific Power's chief executive, Mr Ross Bunyon, argues there are important economies of 'scale', and points out that the major US utilities are much larger than Pacific Power.⁵⁷

The actual level of real competition that would be created by the development of

⁵⁵ Lowe, I., 1995, "Finding the energy for a new tax" in *New Scientist*, 4 February 1995, No. 1963.

⁵⁶ Industry Commission, op cit note 39, pp 1-2.

⁵⁷ Mitchell, A, 'The physician heals himself', *The Australian Financial Review*, 26/4/95. See also Spalding, B, 'Competition in the Electricity Supply Industry', *Economic Analysis and Policy*, (1995) 25(1), 71 at 76-77.

the National Grid has been doubted⁵⁸ and further interconnections (for example between Queensland and NSW with the possible development of Eastlink) have been questioned as to whether they are the most cost efficient and environmentally sound way of dealing with future increases in electricity demand. Current and future developments in energy technology may also have a profound influence on the operation of a national grid (for example if individual residences can generate electricity in excess of their needs through the use of solar technology)⁵⁹.

In addition, the development by the National Grid Management Council of a code of conduct, market rules and details of connection and access rights and prices for the National Grid has not been completed and is proving to be an extremely complex exercise. It is currently proposed that these details will be finalised (including the establishment of bodies to administer the code of conduct and to manage the electricity pool) by July 1996.⁶⁰

It seems that the economic impact of the reform of the electricity supply industry is difficult to predict with any great degree of certainty. However one of the primary aims of reform, being reduced electricity costs to consumers, would be satisfied, with real savings forecast as follows:

[c]ompetition in electricity will save small and medium businesses an estimated 51% on their power bills, large businesses 25% and households 7% according to work undertaken by the Government Pricing Tribunal and the Industry Commission.⁶¹

⁵⁸ Ibid.

⁵⁹ NSWPD, 30/5/95, p 7.

⁶⁰ This information was received in communications with the Office of Energy. For further detail as to specific issues that need to be addressed before the national electricity market can commence, see Spalding, B, 'Competition in the Electricity Supply Industry', *Economic Analysis and Policy*, (1995) 25(1), 71 at 80-83.

⁶¹ The Minister for Energy, 'Egan Announces Power Reforms', *Media Release*, 30/5/95.

List of NSW Parliamentary



*To identify and fulfil the information needs of Members
of Parliament and the Parliamentary Institution.*

[Library Mission Statement]

- (A) BACKGROUND PAPER
- (B) BILLS DIGEST
- (C) BRIEFING PAPER
- (D) STATISTICS

(A) BACKGROUND PAPER

TITLE	NUMBER
<i>Sydney's Transport: Contemporary Issues, 1988-1992</i> by John Black and Peter Rimmer	1992/1
<i>Capital Punishment in New South Wales</i> by Catherine Gilbert	1993/1
<i>Women's Refuges</i> by Jaleen Caples	1993/2
<i>Censorship: Law and Administration</i> by Gareth Griffith	1993/3
<i>Lead</i> by Rebekah Jenkin	1993/4
<i>Cannabis: The Contemporary Debate</i> by Gareth Griffith and Rebekah Jenkin	1994/1
<i>NSW Elections 1984 to 1991: A Comparative Analysis</i> by Antony Green	1994/2
<i>Breast Cancer</i> by Rebekah Jenkin	1994/3
<i>Women's Health Policy in Australia</i> by Sharon Rose	1994/4
<i>The Rural Sector: A Changing Economy</i> by John Wilkinson	1994/5
<i>1991 New South Wales Legislative Assembly Election: Estimated Two-Candidate Preferred Results by Polling Place</i> by Antony Green	1994/6
<i>Comparisons of 1991 Census Characteristics: State Electoral Districts</i> by Jan Newby	1995/1
<i>Electing the New South Wales Legislative Council 1978 to 1995: Past Results and Future Prospects</i> by Antony Green	1995/2

(B) BILLS DIGEST

TITLE	NUMBER
<i>Legal Aid Commission (Amendment) Bill 1994</i> by Gareth Griffith	001/94
<i>Maritime Services (Offshore Boating) Amendment Bill 1994</i> by Sharon Rose	002/94
<i>Gaming and Betting (Race Meetings) Amendment Bill 1994</i> by Sharon Rose	003/94
<i>Lotteries and Art Unions (Amendment) Bill 1994</i> by Gareth Griffith	004/94
<i>Occupational Health and Safety Legislation (Amendment) Bill 1993</i> by Jan Newby	005/94
<i>Workers Compensation Legislation (Miscellaneous Amendments) Bill 1993</i> by Jan Newby	006/94
<i>Property, Stock and Business Agents (Amendment) Bill 1994</i> by John Wilkinson	007/94
<i>Crimes Legislation (Unsworn Evidence) Amendment Bill 1994</i> by Gareth Griffith	008/94
<i>Bush Fires (Amendment) Bill 1994</i> by Rebekah Jenkin	009/94

<i>State Emergency and Rescue Management (Amendment) Bill 1994</i>	
by Rebekah Jenkin	010/94
<i>Police Service (Complaints) Amendment Bill 1994</i>	011/94
by Sharon Rose	
<i>Timber Industry (Interim Protection) Amendment Bill</i>	012/94
by Rebekah Jenkin	
<i>Privacy and Data Protection Bill 1994</i>	013/94
by Gareth Griffith	
<i>Health Legislation (Miscellaneous Amendments) Bill 1994</i>	014/94
by Jan Newby	
<i>Retail Leases Bill 1994</i>	015/94
by Gareth Griffith	
<i>Environmental Planning and Assessment (Amendment) Bill 1994</i>	
by Rebekah Jenkin	016/94
<i>Mental Health (Amendment) Bill 1994</i>	017/94
by Sharon Rose	
<i>Crimes Legislation (Dangerous Articles) Amendment Bill 1994</i>	018/94
by Sharon Rose	
<i>Native Title (New South Wales) Bill 1994</i>	019/94
by Rebekah Jenkin & Gareth Griffith	
<i>Rural Lands Protection (Amendment) Bill 1994</i>	020/94
by Rebekah Jenkin	
<i>Motor Accidents (Amendment) Bill 1994</i>	021/94
by Rebekah Jenkin	
<i>Protected Disclosures Bill 1994</i>	022/94
by Gareth Griffith	
<i>Film and Video Tape Classification (Amendment) Bill 1994</i>	023/94
by Gareth Griffith	
<i>Constitution Further Amendment (Referendum) Amendment Bill 1994</i>	
by John Wilkinson	024/94
<i>Crimes (Detention After Arrest) Amendment Bill 1994</i>	025/94
by Gareth Griffith	
<i>Courts Legislation (Mediation And Evaluation) Amendment Bill 1994</i>	
by Rebekah Jenkin	026/94
<i>Criminal Procedure (Indictable Offences) Amendment Bill 1994</i>	
by Gareth Griffith	027/94
<i>Courts Legislation (Civil Procedure) Amendment Bill 1994</i>	028/94
by Rebekah Jenkin	
<i>Professional Standards Bill 1994</i>	029/94
by Vicki Mullen	
<i>Water Board (Corporatisation) Bill 1994</i>	030/94
by Vicki Mullen	
<i>Traffic (Penalty Defaults) Amendment Bill 1994</i>	031/94
by Gareth Griffith	
<i>State Bank (Privatisation) Bill 1994</i>	032/94
by Vicki Mullen	
<i>Tree Plantations (Harvest Security) Bill 1994</i>	033/94
by Gareth Griffith	
<i>Crimes (Prohibited Material) Amendment Bill 1994</i>	034/94
by Gareth Griffith	
<i>Community Protection Bill 1994</i>	035/94
by Gareth Griffith	
<i>Electricity Transmission Authority Bill 1994</i>	036/94
by Vicki Mullen	
<i>Forestry (Environmental and Fauna Impact Assessment) Bill 1994</i>	
by Stewart Smith	037/94
<i>Crimes (Dangerous Driving Offences) Amendment Bill 1994</i>	
and <i>Traffic (Negligent Driving Offences) Amendment Bill 1994</i>	038/94
by Marie Swain	
<i>Crimes (Home Invasion) Amendment Bill 1994</i>	039/94
by Gareth Griffith	
<i>Crimes (Threats and Stalking) Amendment Bill 1994</i>	040/94
by Vicki Mullen	
<i>National Environment Protection Council (New South Wales) Bill 1995</i>	001/95
by Stewart Smith	
<i>State Owned Corporations Amendment Bill 1995</i>	002/95
by Vicki Mullen	

(C) BRIEFING PAPER

TITLE	NUMBER
<i>National Competition Policy: Report by the Independent Committee of Inquiry (The Hilmer Report)</i> by Jan Newby	001/94
<i>Unsworn Statements of Accused Persons: The Case For and Against Abolition</i> by Gareth Griffith	002/94
<i>Female Genital Mutilation</i> by Sharon Rose	003/94
<i>Victims Compensation: Summary of the Review of the Victims Compensation Act (The Brahe Report)</i> by Gareth Griffith	004/94
<i>Gatt Uruguay Round: Summary of the Federal Department of Foreign Affairs and Trade Paper 'Uruguay Round, Outcomes for Australia'</i> by Jan Newby	005/94
<i>Heritage Conservation in NSW: The Legal Position</i> by Rebekah Jenkin	006/94
<i>Fisheries Management in NSW: The Fisheries Management Bill 1994</i> by John Wilkinson	007/94
<i>Bush Fire Control in NSW: Commentary on the Cabinet Committee on Bush Fire Management and Control Interim Report</i> by Rebekah Jenkin	008/94
<i>Vocational Education in NSW: Commentary on the Board of Vocational Education and Training Bill 1994</i> by Sharon Rose	009/94
<i>Commentary on the Building Services Corporation (Amendment) Bill 1994</i> by Sharon Rose	010/94
<i>Irrigation in Southern NSW: The Irrigation Corporations Bill 1994</i> by John Wilkinson	011/94
<i>The Regulation of Agricultural and Veterinary Chemicals: The Agricultural and Veterinary Chemicals (New South Wales) Bill 1994</i> by John Wilkinson	012/94
<i>The Proposed Privatisation of the State Bank of NSW: Background Issues</i> by Jan Newby	013/94
<i>Corporatisation of the Water Board</i> by Sharon Rose	014/94
<i>Sentencing Guidelines and Judicial Discretion</i> by Gareth Griffith	015/94
<i>Rural Assistance Schemes and Programs</i> by John Wilkinson	016/94
<i>Resource Security</i> by Rebekah Jenkin	017/94
<i>The Independent Commission Against Corruption: An Overview</i> by Marie Swain	018/94
<i>The Habitual Criminals Act 1957: A Commentary on Issues Relating to Persistent and Dangerous Offenders</i> by Gareth Griffith	019/94
<i>Drought in New South Wales</i> by John Wilkinson	020/94
<i>The Olympic Games: Past History and Present Expectations</i> by John Wilkinson	021/94
<i>Commentary on the Proposal to Provide for a Balanced Budget in the New South Wales Constitution</i> by Gareth Griffith	022/94
<i>Reform of Evidence Laws in NSW</i> by Vicki Mullen	023/94
<i>The Outlook for Agricultural Marketing Boards</i> by John Wilkinson	024/94

<i>The Uniform Consumer Credit Code</i> by Marie Swain	025/94
<i>Stock Disease in New South Wales: The Stock Diseases (Amendment) Bill 1994</i> by John Wilkinson	026/94
<i>Federal-State Borrowing Arrangements in Australia: The Financial Agreement Bill 1994</i> by John Wilkinson	027/94
<i>Reform of Defamation Law in New South Wales</i> by Vicki Mullen	028/94
<i>Waste Management in the Sydney Metropolitan Area</i> by Stewart Smith	029/94
<i>Sentence Indication Hearings Pilot Scheme</i> by Marie Swain	030/94
<i>The Western Division of New South Wales: The Western Lands (Land Purchase) Amendment Bill 1994</i> by John Wilkinson	031/94
<i>Residential Tenancies in Caravan Parks and Manufactured Home Estates</i> by Gareth Griffith	032/94
<i>Stormwater Quality and Urban Living</i> by Stewart Smith	033/94
<i>Commentary on the Children (Parental Responsibility) Bill 1994 and Summary Offences and Other Legislation (Graffiti) Amendment Bill 1994</i> by Marie Swain	034/94
<i>Maritime Services in NSW: Issues for Reform</i> by Vicki Mullen	001/95
<i>Water Resources and Water Strategies</i> by John Wilkinson	002/95
<i>Fixed Term Parliaments, with a commentary on the Constitution (Fixed Term Parliaments) Amendment Bill 1992</i> by Gareth Griffith	003/95
<i>Water Quality in NSW - An Overview</i> by Stewart Smith	004/95
<i>Enterprise Bargaining in New South Wales: An Overview</i> by Vicki Mullen	005/95
<i>International Treaties</i> by Marie Swain	006/95
<i>Victim Impact Statements</i> by Gareth Griffith	007/95
<i>Recycling in NSW</i> by Stewart Smith	008/95
<i>The Independence of the Judiciary: commentary on the proposal to amend the NSW Constitution</i> by Vicki Mullen and Gareth Griffith	009/95
<i>Coal Production in New South Wales</i> by John Wilkinson	010/95
<i>The Greenhouse Effect: Ramifications for New South Wales</i> by Stewart Smith	011/95
<i>Urban Consolidation and Dual Occupancy Development</i> by Marie Swain	012/95
<i>Selecting a Presiding Officer: methods of election and the concept of independence</i> by Gareth Griffith	013/95
<i>The Individual's Right to Privacy: Protection of Personal Information in New South Wales</i> by Vicki Mullen	014/95
<i>Regional Development in New South Wales</i> by John Wilkinson	015/95
<i>Update on the Hilmer Report</i> by Jan Newby	016/95
<i>Sydney, Transport and Ecologically Sustainable Development</i> by Stewart Smith	017/95
<i>Domestic Violence: An Overview of the Legislative Changes in NSW</i> by Gareth Griffith	018/95
<i>Women in Parliament</i> by Marie Swain	019/95
<i>Commentary on the Electricity Legislation Amendment Bill 1995</i> by Vicki Mullen and Stewart Smith	020/95

(D) STATISTICS

TITLE

NUMBER

Quarterly Statistical Bulletin by Jan Newby

Vol 1 No 1 October 1993
Vol 1 No 2 March 1994
Vol 1 No 3 May 1994
Vol 1 No 4 August 1994
Vol 2 No 1 November 1994
Vol 2 No 2 February 1995
Vol 2 No 3 May 1995

TITLE

Electorate Profile - *Parramatta* No 001/94 by Jan Newby
Electorate Profile - *Maitland* No 002/94 by Jan Newby
Electorate Profile - *Manly* No 003/94 by Jan Newby
Electorate Profile - *Coogee* No 004/94 by Jan Newby
Electorate Profile - *Cabramatta* No 005/94 by Jan Newby
Electorate Profile - *Camden* No 006/94 by Jan Newby
Electorate Profile - *Badgerys Creek* No 007/94 by Jan Newby
Electorate Profile - *Blue Mountains* No 008/94 by Jan Newby
Electorate Profile - *Gladesville* No 009/94 by Jan Newby
Electorate Profile - *Sutherland* No 010/94 by Jan Newby
Electorate Profile - *Murwillumbah* No 001/95 by Jan Newby
Electorate Profile - *Kogarah* No 002/95 by Jan Newby
Electorate Profile - *Drummoyne* No 003/95 by Jan Newby
Electorate Profile - *Moorebank* No 004/95 by Jan Newby
Electorate Profile - *Cessnock* No 005/95 by Jan Newby
Electorate Profile - *Hurstville* No 006/95 by Jan Newby
Electorate Profile - *Penrith* No 007/95 by Jan Newby
Electorate Profile - *The Entrance* No 008/95 by Jan Newby
Electorate Profile - *Bathurst* No 009/95 by Jan Newby
Electorate Profile - *Orange* No 010/95 by Jan Newby
Electorate Profile - *Bligh* No 011/95 by Jan Newby