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by

John Wilkinson

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1 INTRODUCTION

(a) Coal Output in New South Wales

Coal production formed the first phase of the great development of mineral extraction in Australia and, from the beginning of British settlement until the mid-1980s, New South Wales was the leading producer of coal in the nation. Coal was first discovered near Newcastle in 1796 and at Coal Cliff, towards Wollongong, in 1797. According to Robin Gollan, "New South Wales coal production rose from 4,000 tons in 1830 to 71,000 in 1850, and by 1860 it had reached 368,000 tons. From then on. . .the expansion was rapid; in 1880 it was 1,466,000 tons. . .By the end of the century the figure was over five million tons which grew to ten million by 1913."[1] During the 1920s, New South Wales maintained its position as the leading coal producing state in Australia with production in 1927 reaching just over 11 million tons - at that time 83% of all Australia output.[2]

In 1946, New South Wales remained the largest coal producing state (with output reaching 11,365,000 tons - 80% of Australian coal production), and during the next twenty-four years state production increased dramatically reaching 35,900,000 tons in 1970 (69% of overall Australian output). But by the late 1960s, Queensland had emerged as a competitor to New South Wales - with an output in 1970 of over 13 million tons (25% of national production). By 1985, Queensland finally overtook New South Wales in Australian coal production although New South Wales has remained not far behind. In 1987, Queensland produced nearly 88,100,000 tonnes of coal (or 49% of national output) and New South Wales produced just over 83,600,000 tonnes (47% of national output).[3] During financial year 1993-1994 nearly 102 million tonnes of raw coal was produced in NSW.[4]

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1 Robin Gollan, *The Coalminers of New South Wales: A History of the Union, 1860-1960* (Melbourne University Press, Melbourne, 1963), pp.3-10.

2 Of the other states in Australia, in 1927, Queensland produced just over 1 million tons, Victoria produced nearly 685,000, Western Australian output was just over 500,000 tons and Tasmanian production amounted to nearly 112,000 tons. See F.R. Mauldon, *The Economics of Australian Coal* (Melbourne University Press, Melbourne, 1929), pp.20,150.

3 Greg Smith, *Union/Employer Bargaining and the Australian Coal Industry Labour Market, 1968-1988* (PhD Thesis, University of New England, Armidale, 1993), pp.11-15.

4 *1995 New South Wales Coal Industry Profile* (NSW Department of Mineral Resources, Sydney, 1995), p.4.

(b) Location of Coal Producing Areas

It was during the nineteenth century that, as Robin Gollan has described, coal mining in New South Wales came to be based "in three main areas: the northern district, centred originally on Newcastle but moving at the end of the nineteenth century a few miles westward to the Maitland-Cessnock area; the southern district or the Illawarra, in the vicinity and to the north of Wollongong; and the western district in and around Lithgow."[5]

In the twentieth century the number of major coal producing areas has been expanded to five. According to the NSW Department of Mineral Resources *1994 New South Wales Coal Industry Profile*, "The Standing Committee on Coalfield Geology of NSW recognises five separate coalfields in NSW - Gunnedah, Hunter, Newcastle, Western and Southern."[6]

(c) Importance of Coal to New South Wales

Mining in NSW makes up 2% of gross State product at factor cost.[7] Coal mining accounts for 80% of the income from mining. In the area of exports, coal is the largest item exported from the state. During fiscal year 1992-1993 exports of coal from New South Wales reached $3.1 billion in value. An industry task force, established in 1990 by the NSW Minister for Minerals and Energy (on the recommendations of a state development strategy prepared for the Greiner Government), reported that "The NSW coal industry provides substantial wealth creation prospects for the State leading to employment, improved community infrastructure and environment. . .The coal mining industry is an integral part of two major industrial centres in New South Wales - Newcastle and Wollongong, as well as the Hunter Valley region."[8] Direct

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[5] Gollan, op.cit., p.3.

[6] *1994 New South Wales Coal Industry Profile*, introduction.

[7] Australian Bureau of Statistics, Catalogue No.5220.0, *Australian National Accounts: State Accounts 1991-92*, p.5. Douglas McTaggart and his colleagues define "factor cost" as "the value of a good measured by adding together the cost of all the factors of production used to produce it." See Douglas McTaggart, Christopher Findlay and Michael Parkin, *Economics* (Addison Wesley, Sydney, 1992), p.559. On a broader level the British-based economists Richard Lipsey and Colin Harbury define Gross National Product at factor cost as "the sum of all incomes earned by UK residents in return for contributions to current production that takes place anywhere in the world." See Richard Lipsey and Colin Harbury, *First Principles of Economics* (Weidenfeld and Nicholson, London, 1988), p.321.

[8] See *A Strategy for the Economic Development of New South Wales: Phase I Diagnostic*, report prepared by Booz, Allen and Hamilton for the NSW Department of State Development (NSW Department of State Development, Sydney, 1988), p.39; *New South Wales Coal Development Strategies*, report of the Task Force for Coal Development Strategies (NSW

benefits to the State include royalties from coal production, paid to the NSW Government in 1993-1994, amounted to $150 million; payroll tax paid to the NSW Government in 1992-1993, amounted to $60 million; land tax and rates paid in 1992-1993 amounted to $7 million.[9] Indirect benefits accrue to the State through the transport of coal by the NSW railways and the revenue from sales of electricity produced in the State's coal fired power stations. The coal industry is the State Rail Authority's largest customer, and in 1990 contributed about 23% of its operating revenue. Pacific Power (the trading name of the Electricity Commission of New South Wales) was estimated to have returned a surplus of $703 million in financial year 1992-1993.[10]

On a larger basis, the minerals industry, according to Professor Don Barnett in 1988, accounted for "5.7 per cent of Australia's gross domestic product and about 36 per cent of its export income."[11] Coal, in particular, on an Australia-wide level, is the biggest single export revenue earning mineral, bringing in $5.6 billion during financial year 1989-1990.[12] Regarding the breakdown of benefits from the coalmining industry, Australia-wide, Greg Smith has written that, "The revenue of coal producing firms was $5,336 million in 1984-85. Of this total, 30.4 per cent was disbursed as payments to suppliers, 20.7 per cent as payments to labour, 13.7 per cent as allocations to depreciation and interest, and 27.8 per cent as payments to government in the form of rail and postal charges, royalties and export duties, and income and other taxes. . .Net profits ($354 million) accounted for the remaining 7.4 per cent."[13]

Department of State Development, Sydney, 1990), executive summary.

[9] Figures provided by the NSW Department of Mineral Resources.

[10] *New South Wales Coal Development Strategies*, p.35; *Performance of NSW Government Businesses*, 4th.ed. (NSW Treasury, Sydney, 1994), p.49.

[11] Don Barnett, "The Minerals Industry in Australia" in Bruce McKern and Praipol Koomsup (eds.), *The Minerals Industries of ASEAN and Australia: Problems and Prospects* (Allen and Unwin, Sydney, 1988), p.118.

[12] *New South Wales Coal Development Strategies*, executive summary.

[13] Smith, op.cit., pp.26-27. Christopher Jay has written that from the 1970s "the growing prosperity of the coal industry was attracting the attention of government planners. . .Bill Hayden's first and last budget as Federal Treasurer in 1975 added an export levy on coal". See Christopher Jay, *The Coal Masters: The History of Coal and Allied 1844-1994* (Focus Publishing, Sydney, 1994), pp.182-186.

2 EMPLOYERS AND EMPLOYEES IN THE NSW COAL INDUSTRY

(a) Owners of NSW Coal Production

The mines established in Newcastle during the 1810s and 1820s were at first run by the Colonial Government then, in 1830, the Government handed the mines over to the Australian Agricultural Company (AAC) - an undertaking which had been established in Britain, in 1824, to engage in pastoral activities in New South Wales. Initially the AAC was given a monopoly over coal production in the area and, although the company eventually surrendered this prerogative in the late 1840s, it remained one of the most prominent coal producing companies through the 1800s.[14]

As the industry grew it came to be made up of both large-scale and small-scale operators but with the large-scale operators being the greatest producers of coal. J. and A. Brown, for example, which established itself through challenging the AAC's monopoly, was set up near Maitland in the late 1840s and in the early twentieth century became one of the largest producers in Australia.[15] These large-scale businesses were often associated ventures of shipping companies operating in the coastal coal carrying trade. A number of Australian coastal shipping operations were actually established for the very purpose of entering the coal shipping trade. Howard Smith, which became one of the largest shipping lines in Australia, was established in 1854 and pioneered the coal trade between Newcastle and Victoria during the 1860s. According to Christopher Jay, "Howard Smith. . .gradually acquired what became a controlling interest in Glasgow-domiciled Caledonian Coal by 1912, forming a new Australian-domiciled company as Caledonian Collieries Ltd on 2 January 1913. Howard Smith Ltd then neatly parcelled its coal and shipping interests into two subsidiaries, Caledonian Collieries and Australian Steamships Ltd, itself becoming the managing agent and holding company."[16] The Adelaide Steamship company, in the late 1800s, acquired a major interest in the Abermain, Seaham and East Greta collieries in the Hunter region.[17] Huddart Parker, which was set up in Geelong, was also established to operate ships in the coal trade. John Bach has written that, "The supplying of Newcastle coal to the growing urban communities in the south played a

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[14] Gollan, op.cit., pp.9-10. The AAC continued in coal production until the outbreak of the First World War when its coal activities were merged into the Hebburn Colliery. See Jay, op.cit., p.20.

[15] Jay, op.cit., p.16.

[16] Jay, op.cit., p.171. See also Paul Parker, *Rural to Resource Town: The Cost of Infrastructure and Coal-Based Growth*, CRES Paper No.4 (Centre for Resource and Environmental Studies, Australian National University, Canberra, 1986), p.22.

[17] Jay, op.cit., pp.57-58.

significant part in the early development not only of Huddart Parker, but of several other firms as well, including the Melbourne Steamship Company. The link between the collieries and the shipping firms was maintained, most of the latter owning or controlling major coal-mining enterprises."[18] Mauldon wrote in the late 1920s that "In Australia in 1927, 43 collieries, or a little over one-sixth of the total which produced coal, had an output of over 100,000 tons each. These together accounted for 70 per cent of the national production and the 39 of them within New South Wales for 62 per cent. This shows a considerable concentration of production within large collieries".[19]

Although the industry was dominated by a noticeably small number of large producers, there were, as Smith has termed them, a "numerous fringe of producers outside the top echelon" which produced the other 30% of national coal output.[20]

While the majority of coal mines are privately owned, there are a number which are owned by the various state governments - including New South Wales. In 1912 the ALP State Government of James McGowen passed the *State Coal Mines Act 1912* which empowered the State Government to operate coal mines on coal-bearing land purchased or resumed by the government. Four years later the Holman (ALP) State Government opened a mine at Lithgow on 40,200 acres of land, with an estimated coal supply of 240,000,000 tons.[21] The output of these state mines in the early twentieth century was a minor proportion of total Australian output compared to the output from privately owned mines. In the 1920s, according to Chris Fisher, "These mines contributed around 9 per cent of total Australia output".[22]

The above pattern of ownership has continued, in different forms, through to the 1980s. Greg Smith has noted that in the mid-1980s there were 7 major coal operators in New South Wales owning a total of 51 mines, and there were 20 lesser companies in the state owning a total of 34 mines. The Electricity Commission of NSW, by the 1980s, had become one of these 7 larger operators, owning eleven mines.[23]

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[18] John Bach, *A Maritime History of Australia* (Nelson. Melbourne, 1976) p.190.

[19] Mauldon, op.cit., p.74.

[20] Smith, op.cit., p.26.

[21] *Official Year Book of New South Wales 1917*, p.184.

[22] Chris Fisher, *Coal and the State* (Methuen Australia, Sydney, 1987), p.69.

[23] Smith op.cit., pp.25-26.

(b) Employees in NSW Coal Production

The number of employees in coal production in NSW grew as the industry expanded. In 1861 there were 979 coalminers in the then colony of New South Wales, of whom 900 were in the region around Newcastle.[24] By 1890 the number had risen dramatically to over 10,000. During the depression of the 1890s the total fell to around 9,000 but, by 1913, it had risen to 18,843. In the 1920s there were over 24,000 coalminers in New South Wales - the peak figure of employment in the NSW coal industry.[25] Again, the following depression of the 1930s saw that number fall to around 13,500 in the mid-1930s. Wartime production increased the coal industry workforce to around 17,000 and post-war industrial expansion saw that number rise to 20,000 by the early 1950s. From then onwards employment in coal production in NSW decreased to about 13,500 - 14,000 by the 1960s and 1970s. That number then increased to about 21,000 in 1982, and then fell to around 17,000 by the end of the 1980s and down to 13,700 by 1994.[26]

Because the original method of production was that of mining underground, and because New South Wales was the colony (and later state) which both originated coal mining and (until the 1980s) contributed the greatest output, the greatest area of coalmining employment, until recent years, has been in underground mining in NSW.[27]

3 STRUCTURAL CHANGE IN THE NSW COAL MINING INDUSTRY

(a) Growth and Transformation of Coal Production

As New South Wales itself was an arm of British settlement overseas, the original coal mining processes were brought across from England. This involved mining coal underground via the construction of shafts. The organisation of mining underground consisted of cutting a horizontal tunnel through a coal seam (a "bord") leaving the roof of the mine supported by islands of coal ("pillars").[28]

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[24] Gollan, op.cit., p.31.

[25] ibid., p.240.

[26] Gollan, ibid.; Smith, op.cit., pp.14,18. 1994 figures supplied by the NSW Department of Minerals and Energy.

[27] Greg Smith has written that in 1950 "NSW provided 74.6 per cent of Australian coal industry employment. . .with the great bulk of this employment (96.1 per cent) being in underground production." See Smith, op.cit., p.14.

[28] Jay, op.cit., p.157.

Chris Fisher has described the miner's task as follows,

> To get his coal the miner lay on his side before the leading wall of coal in his workplace, the 'face', perhaps raising and supporting his shoulder on the back of his shovel blade, and with his pick undercut the coal. Then with his pick he separated the face coal from the coal in the side walls (the 'ribs') and the large block thus left clinging to the roof and the wall behind he brought on to the floor of the working place by pick, wedges or explosives. Very hard coal he would get with explosives alone, without undercutting ('grunching'). He then loaded his coal by shovel or fork into skips and sent it to the surface. At the surface other workers weighed the coal and credited the miner with his tonnage.[29]

In the late nineteenth century, one-third of the coal produced was exported and the other two-thirds was consumed internally.[30] During the 1920s, however, most of the coal produced in New South Wales was either consumed within the State or within the rest of the nation.[31]

Consumption by the gas companies, railways, electric power stations, shipping companies, the steel industry, and the cement and brick-making industries was the principle stimulus for coal production in New South Wales in the period from the late 1800s onwards. The Australian Gas Light Company (AGL) was established in 1839 and, during the 1840s, contracted with the Australian Agricultural Company for coal supplies from Newcastle. AGL's Mortlake Works, opened in 1886, was then the largest gas producing works in the Southern Hemisphere. Gas production at that time used large quantities of coal: in 1936, for example, the Mortlake Works used 376,250 tons of coal.[32] The railways in NSW, in the early 1860s, adopted coal as the standard fuel after trials were undertaken in substituting coal for wood (which had, until then, been used for fuel in the developing railway system).[33] Twenty years later the Department of Railways opened a small power station in Redfern to light up the Redfern railway terminus. By the 1910s and the 1920s the railways and the Sydney City Council were competing with each other in the production of electric power. In 1904 the Sydney Municipal Council (forerunner of the

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29 Fisher, op.cit., pp.32-33.

30 Gollan, op.cit., pp.11-12.

31 Smith, op.cit., p.7.

32 Rosemary Broomham, *First Light: 150 Years of Gas* (Hale and Iremonger, Sydney, 1987), pp.39,81-82,136. During the 1920s, AGL obtained its coal from J. and A. Brown (Jay, op.cit., p.133).

33 John Gunn, *Along Parallel Lines: A History of the Railways of New South Wales* (Melbourne University Press, Melbourne, 1989), p.87.

Sydney City Council) opened its own power station at Pyrmont. Noel Butlin and his colleagues have recalled that "The first major power station in New South Wales, Ultimo, was built for the railways to run their ancillary electric tram services. . .By 1907, the Railway Department generated half the electric power in New South Wales. . .The railways opened a second station at White Bay, and began to sell power in competition with the Sydney City Council."[34] Development of power for the electricification of the suburban railway system (inaugurated in 1926) led to the expansion of the generating capacity of the railways' power stations.[35] And in 1929 the Sydney City Council opened its power station at Bunnerong.[36]

Coal in Australian coastal shipping had a dual role - both as fuel and as cargo. As well as forming a major cargo for Australian shipping (as outlined above) coal became the major fuel for Australian ships from the 1860s onwards when steam overtook sail as the principle form of propulsion.[37]

The influence of the steel industry on coal production in New South Wales began in 1912 when, as D.F. Branagan has noted, "the BHPCo accepted the advice of the American engineer David Baker to establish its steelworks at Newcastle. The decision was based on the quality of coal in the Borehole Seam".[38] Production of pig iron and steel began at BHP in 1915 and a second and third blast furnaces were completed at the Newcastle works in 1919 and 1921. Production of steel products at BHP Newcastle, during the 1920s, reached a peak output, in 1927, of nearly 166,000 tons.[39] BHP also opened its own coal mines. Donald Dingsdag has written that in 1923 "BHP, in association with Huddart Parker, developed the Elrington colliery on the Greta seam. . .In 1924, BHP leased a portion of the New Redhead Estates near Newcastle and developed the John Darling Colliery which began to produce by the end of 1928. From 1935 it also bought collieries in the southern district." In this respect, according to Dingsdag, BHP became "the first of the large

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[34] Noel Butlin, Alan Barnard and Jonathon Pincus, *Government and Capitalism: Public and Private Choice in Twentieth Century Australia* (George Allen and Unwin, Sydney, 1982), pp.254-255.

[35] John Gunn has noted that "In 1926 the two existing power plants at Ultimo and White Bay had installed capacities of 34,000 kW and 105,750 KW respectively." See Gunn, op.cit., p.314.

[36] Butlin, Barnard and Pincus, ibid.

[37] Bach, op.cit., p.141.

[38] D.F. Branagan, *A History of New South Wales Coal Mining*, paper presented at the third Edgeworth David Day Symposium (Department of Geology and Geophysics, University of Sydney, 1990), p.8.

[39] Colin Forster, *Industrial Development in Australia 1920-1930* (Australian National University Press, Canberra, 1964), pp.140-142.

'captive' producers. . .that is primarily producing for its own use".[40]

Cement manufacturing used coal to fire the boilers in the production process. Gavin Gilchrist has written that "Making cement takes a huge amount of energy": it "first requires vast amounts of coal, oil or gas to heat a kiln to 1300 degrees Celsius to make what is called clinker from limestone and clay. Second, it takes electricity, also in vast amounts, to power huge motors to grind the clinker into cement."[41] Brickworks also fired their boilers with coal.[42]

Coal use was clearly at its peak during the 1920s when it was the principle source of fuel for the railways, the power stations, the shipping, steel, gas, cement and brick industries.

Transformation of production in the coal industry was partly stimulated by threats to the position of coal as the pre-eminent fuel for transport and energy generation. Oil emerged as a competitor to coal in transport during the 1920s. Between 1921 and 1930, the number of motor vehicles in Australia for private use increased by around half a million, and the number of vehicles for commercial use increased by 100,000.[43] Private buses in Sydney increased from 180 in 1921, to 525 by 1927, and in 1932 the NSW government established its own bus service.[44] Australian shipping companies began to purchase diesel powered ships during the 1920s and on a global basis, according to Bach, "On the eve of World War II, one-quarter of the world's tonnage was diesel powered".[45] P.B. Beaumont has written that after the Second World War "it was essentially the increased competition from oil ...which made the prospect of a permanently reduced market share the most likely future development for the New South Wales coalmining industry."[46]

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[40] Donald Dingsdag, *The Restructuring of the NSW Coalmining Industry, 1903-1982* (PhD Thesis, University of Wollongong, 1988), pp.145-146.

[41] Gavin Gilchrist, *The Big Switch: Clean Energy for the Twenty-First Century* (Allen and Unwin, Sydney, 1994), p.246.

[42] Jay, op.cit., p.155.

[43] Forster, op.cit., p.30.

[44] Robert Gibbons, "The 'Fall of the Giant': Trams versus Trains and Buses in Sydney, 1900-1961" in Garry Wotherspoon (ed.), *Sydney's Transport: Studies in Urban History* (Hale and Iremonger, Sydney, 1983), pp.165-170.

[45] Bach, op.cit., p.319.

[46] P.B. Beaumont, "A Case Study of Structural Unemployment in Australia: The Coalfields of New South Wales During the 1950s" in *Australian Economic Papers*, Vol.15 no.26, June 1976, pp.28-29. Use of coal by the gas industry in fact continued to rise during the 1950s, peaking at

This was particularly evident in the dramatic expansion of motorised road transport. By the late 1960s there were over 3 million private motor vehicles registered in Australia, and large-size motor vehicles were being increasingly used to transport goods (with over 900,000 commercial vehicles being registered by the end of the same decade).[47]

Two examples of the changing relative position of the different fuels, according to Beaumont, "were that the Australian Gas Light Company of Sydney and the Gas and Fuel Corporation of Victoria in 1952-53 signed agreements whereby 50 per cent and 30 per cent respectively of their production would be derived from oil instead of coal."[48] Within the NSW railways, 550 steam locomotives were withdrawn from service by the department between 1956 and 1964, with the department purchasing, during the same period, 168 diesel-electric and 39 electric locomotives. During the 1960s large deposits of natural gas were discovered in Queensland, South Australia and Victoria and AGL, for example, made a decision in 1964 to abandon coal and reticulate natural gas. In the opinion of the historian of the Australian Gas Light Company, by the mid-1960s "The age of coal was over. Throughout Australia both governments and private enterprise saw natural gas as the answer for Australia's energy needs."[49] By 1971 steam locomotives had been completely withdrawn from servicing regular passenger routes in NSW and AGL had ended coal carbonisation at its Mortlake Works.[50]

In response to these developments, Federal and NSW Government initiatives in the late 1940s, as D.F. Branagan has recounted, "saw the widespread introduction of power borers. . .Continuous mining machines were also first introduced in 1949, and between 1953-1963 there was rapid progress in mechanisation, with four ripper type continuous miners in 1953 and 117 by 1963."[51] The number of coal mines in operation in New South Wales fell from 130 in 1948 to 86 in 1964. According to Beaumont, "Sixty of these were fully mechanised and together they accounted for 89 per cent of output and 83

984,000 tons in 1955. But from then on the use of coal declined. See Dingsdag, op.cit., p.313.

47 Peter Stubbs, *The Australian Motor Industry: A Study in Protection and Growth* (Cheshire, Melbourne, 1972), p.23.

48 Beaumont, ibid.

48 Broomham, op.cit., pp.186-190.

50 Gunn, op.cit., pp.451,459,470; Broomham, op.cit., p.191. Dingsdag has written that "oil, which had represented only 8.2 per cent of NSW primary energy consumption in 1952, gained 40.1 per cent of the market by 1971-72". See Dingsdag, op.cit., p.313.

51 Branagan, op.cit., p.9.

per cent of employment in the industry."[52] The mechanisation program continued during the 1960s and by 1970 only 1.8% of coal in NSW was gained by hand.[53]

Despite the competition from oil and natural gas, coal maintained much of its position as the major fuel input, during the 1960s-1980s, due to three significant developments. Firstly, NSW State Governments of the 1950s onwards decided to expand the number of power stations in New South Wales. This was partly undertaken on the basis of the availability of cheap coal.[54] According to the State Electricity Commission's outline of electricity generation in NSW "a program of power station construction near coalfields" took place "with the completion of Tallawarra, Wangi and Wallerawang by 1961." During the late 1960s two more power station were constructed at Vales Point and Munmorah, and in 1974 the Liddell power station was completed. Then, according to the Electricity Commission, "The '80s witnessed a period of the largest construction in the Commission's history ...Two of Australia's largest power stations were constructed at this time, Bayswater and Eraring. . .The first 500kV line between Kemps Creek and Eraring was in operation in 1984. . .Bayswater power station, which now supplies a quarter of the State's electrical requirements, was officially opened in 1988."[55] Secondly, following the Pacific War of 1941-1945, which temporarily ended the trade which had existed between Australia and Japan during the 1920s and 1930s, a shipment of coal from the southern NSW coalfields was sent in 1955. Two years later the Australia-Japan Treaty of 1957 laid the formal basis for renewal of trade and coal-buying missions from Japan began to visit Australia from 1958 onwards to purchase coal for the Japanese steel industry which revived in the late 1950s and expanded in the

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52 Beaumont, op.cit., pp.30-31.

53 Smith, op.cit., p.12.

54 R.H. Buchanan and his colleagues in chemical engineering at the University of NSW wrote in 1964 that "Coal is the only organic raw material available in NSW and Victoria at advantageous prices. . .many process industries have to have electricity at costs of less than 0.5d./kWh in order to compete on the world market. . .The cost of producing large blocks of power at high load factors in the coalfield stations is often less than 0.35d/kWh. . .These production costs in new stations in NSW. . .are only about five-eights that of new hydro power in Tasmania". See R.H. Buchanan, R.G. Burdon, D. Oedjoe and E. Lovett, "The Needs in the Process Industries for Low Cost Materials and Utilities and for Integration, Coastal Siting and Pipelining" in R.H. Buchanan (ed.), *Industrial Development in Australia with New Coal-Power Authorities* (West Publishing Corporation, Sydney, 1964), p.6.

55 "The Story of Electricity Generation" in *Network*, Vol.25 no.1, p.5-6. See also David Clune, *The Labor Government in New South Wales 1941-1965: A Study in Longevity in Government* (PhD Thesis, University of Sydney, 1990), p.54.

1960s and 1970s.[56] By 1964 the Premier of NSW, R.J. Heffron, could comment that "Undoubtedly the most far-reaching development in recent years has been the gradual, yet distinct, shift of trade from Britain to Asia. . .As a case in point, Japan has now become Australia's largest market for coal - the great bulk of the coal is mined in NSW".[57] Within ten years coal had become Australia's leading export - worth more than $1 billion (as against $920 million for wheat exports).[58] Thirdly, the oil prices rises of 1973 (introduced by the Arab nations during the Arab-Israeli War) and 1979 (instigated by the revolutionary Iranian Government) raised the price of oil from about $2.50 a barrel in 1973 to between $35-$40 a barrel in 1980.[59] Domestically, in response to these price increases, the Australian Government introduced a policy aimed at reducing the use of oil. Ian Lowe has recalled that "In 1978 ...the Fraser government introduced the policy of raising the price of Australian oil to equal the cost of imported oil. This policy contributed to a very significant increase of Australian oil to local refineries from about $2 a barrel in 1974 to about $26 a barrel in 1980. . .Australian total oil consumption fell by more than 10 per cent between 1978-79 and 1982-83."[60] Overseas, while Japanese steel companies reduced their use of coal during the 1980s, Japanese power companies, on the other hand, found it cheaper to use coal from Australia as a fuel.[61]

As a result of the stimulus of the above three factors combined, coal production revived dramatically in NSW, and in Queensland, to the point where, in 1984, Australia as whole became one of the world's largest exporters of coal.[62]

This dramatic expansion of coal production spurred the mechanisation of production even further: both through increasing mechanisation in underground mining and increasing the degree of open cut mining. In underground mining,

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56 Masu Uekusa and Hideki Ide, "Industrial Policy in Japan" in Hiromichi Mutoh, Sueo Sekiguchi, Kotaro Suzumura and Ippei Yamazawa (ed.), *Industrial Policies for Pacific Economic Growth* (Allen and Unwin, Sydney, 1986), p.151.

57 "Australia Looks to Asia" in *Far Eastern Economic Review*, Vol.XLIII, no.5, 20 January 1994, pp.217-218.

58 Michael Byrnes, *Australia and the Asia Game* (Allen and Unwin, Sydney, 1994), pp.68-71.

59 ibid., pp.74-78.

60 Ian Lowe, "Minerals and Energy" in Brian Head and Alan Patience (ed.s), *From Fraser to Hawke* (Longman Cheshire, Melbourne, 1989), p.115

61 Smith, op.cit., p.17.

62 J.N. Pierce, "Coal Exports Raise $3.5bn" in the *Sydney Morning Herald*, 16 January 1985, p.17.

coal produced by long-wall mining - in which powerful rotary cutters cut coal from a face about 150 metres long, working ahead of hydraulic roof supports and removing large quantities of coal with each pass - increased from 4.3% of production in 1979 to 39.6% of production by 1988.[63] Although, through the efficiency produced by greater mechanisation, underground mining survived as the predominant form of obtaining coal in NSW, open cut mining became the fastest growing method of extraction in the state during this re-expansion of coal production. Whereas during the 1950s and 1960s, as Greg Smith has written, "open cut mining grew, but remained very subsidiary to underground production, contributing 5% of NSW production in 1957-58 and 7.2 per cent in 1970-71", during the 1970s and 1980s open cut mining expanded dramatically in New South Wales and by 1988 nearly 42% of coal in NSW was produced in open cut mines.[64]

(b) Changes in Employment in Coal Mining

As outlined above, the era of the greatest employment in coal mining in New South Wales was during the 1920s when, because of coal's pre-eminent position as a fuel in the railways and in electricity, gas and steel production, there were 24,000 coalminers in NSW. From this peak of employment in the 1920s at least three phases of mechanisation have occurred to change the state of employment in the NSW coal industry.

The depression of the 1930s not only drastically cut the volume of coal production in New South Wales and led to many redundancies in the coal industry but it spurred mine owners to increase the degree of mechanisation in their mines - from a peak annual production rate of 11 million tons for the years 1925-1927, coal production fell to 6.4 million tons in 1931.[65] The proportion of coal being cut by mechanical means, however, rose from 20% in 1925[66] to 30% by the end of the 1930s. BHP was one of the leaders in the

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[63] Smith, op.cit., p.65.

[64] ibid., pp.12,16.

[65] As a result of the Depression, according to Dingsdag, "Consumption of coal more than halved in NSW factories from 1,318,880 tons in 1928-29 to 656,333 tons in 1931-32". The quantity of coal sold to the NSW railways "fell from 1,212,272 tons in 1928-29 to 896,147 tons in 1931-32". See Dingsdag, op.cit., p.186.

[66] Dingsdag has written that, "The first coalcutting machines used in NSW were pneumatic chainbreasts or pneumatic percussive picks in the Greta seam in 1903." These were introduced in the mines of J. and A. Brown (Jay, op.cit., p.43). There were, however, according to Dingsdag, a number of difficulties associated with these early forms of mechanical equipment including the length of time involved in shifting the machines around the coalface, the casing on the machines not being flameproof (and therefore easily capable of igniting gas), and the machines' flexible trailing cables being prone to be eaten by rats and mice. Nevertheless there was a

mechanisation process by being the first to introduce in 1935, according to Dingsdag, "the first 'fully mechanised' face unit in Australia, comprising a coalcutter, an electric auger and a mechanical loader in the Lambton colliery's newly developed Victoria Tunnel seam."[67] Consequently, while production rose again to 11 million tons by the end of the 1930s, employment in 1939 was down to just over 16,000 workers.[68]

The mechanisation program of the 1950s and 1960s in the NSW coal industry, outlined above, also led to a reduction in the number of miners in employment. Although in the early 1950s, an increase in coal production to 15 million tons in 1952 led to a postwar peak in coalmining employment of nearly 21,000 miners, the even greater use of mechanisation during the 1950s and 1960s led to the loss of 7,000 jobs by the end of the 1960s - with the coalmining workforce reduced to around 14,000.[69]

Expansion of open cut mining has been the third occurrence which has affected employment in NSW coalmining - particularly in relation to the rate of employment in the industry. Although production in New South Wales increased more than twofold during the 1970s and 1980s, from around 36 million tonnes in the early 1970s to over 80 million tonnes by the late 1980s, employment rose by only about half as much again: by around 5,500 employees to a total of about 19,500 workers by the late 1980s. This was indicated by the fact that although there were only around 400 workers in open cut mines in NSW in the early 1970s (compared to about 13,500 working underground), there were about 4,000 workers in open cut mines by the late 1980s (compared to around 12,500 working underground).[70]

(c) Changes in Ownership of Coal Mining

As outlined above, at its inception coal production in Australia was financed both by investors back in Britain and by settlers from the British isles now

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100% increase in the use of pneumatic machines during the 1920s (Dingsdag, op.cit., pp.146-179). J. and A. Brown was, again, in the forefront of mechanisation during the 1920s. Jay recalls that, in 1921, J. and A. Brown "purchased five coal cutting machines, and from then through to 1929 progressively converted the mine's internal energy system from steam to electricity, supplied to surface substations from the adjacent Richmond Main Power Station. Air compressors drove the Ingersoll coal cutting machines, rotary boring machines and pumps." (Jay, ibid.).

67 Dingsdag, op.cit., p.192.

68 Gollan, op.cit., pp.177,201,211.

69 Beaumont, op.cit., p.31.

70 Smith, op.cit., p.80.

living in the colony of NSW.[71] The Australian Agricultural Company which, during the late nineteenth century, supplied coal to the Australian Gas Light Company in Sydney, had been set up in England while J. and A. Brown was the result of the local endeavours of the Brown family, which had emigrated from Scotland. As also outlined above, the largest producers of coal in New South Wales in the first part of the twentieth century tended to be these same companies which evolved into domestic coal/shipping combines. In 1922, for example, Adelaide Steamship used its holdings in the Abermain and Seaham collieries to create Abermain Seaham Collieries - an operation which employed 2,200 workers and produced 7,000 tons of coal a day. In 1931, J.and A. Brown, which was then the largest privately owned coal company in the Hunter region, merged with the Adelaide Steamship-dominated Abermain-Seaham Collieries to form J. and A. Brown and Abermain Seaham Collieries Limited or JABAS.[72]

During the 1950s and 1960s locally-based companies still continued to predominate in production of coal in NSW. According to Jay, in the mid-1950s, the joint J. and A. Brown-Abermain Seaham Collieries (JABAS), with production of 1.5 million tons a year, was then the largest producer in Australia.[73] These same decades, however, also saw the development of a situation in which, as Dingsdag has described, "large, heavily capitalised mining concerns. . .slowly squeezed the small mine owners out of existence." By 1960, for example, the BHP mines produced 22% of NSW output, the newly formed Coal and Allied Industries (a 1960 merger of JABAS and the Howard Smith-controlled Caledonian Collieries)[74] produced 18%, and the State Mines and the mines belonging to the Electricity Commission produced just over 16%. By 1970 four major private owners were producing 55% of the state's output of 35,155,300 tons: these were BHP (19.27%), Clutha (18.89%), Coal and Allied (13.5%) and R.W. Miller (4.06%). The percentage of output produced by the mines belonging to the Electricity Commission and the State Mines, by 1970, had increased to 21.65%.[75] The proportion of Australian companies in coal production in New South Wales during the 1980s was still about 65% with Coal and Allied (which Howard Smith gained effective control of in 1979) being the largest producer in the state during the

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71 Gollan, op.cit., p.11.

72 Jay, op.cit., pp.15,60,128.

73 Jay, op.cit., p.168.

74 Jay, op.cit., p.173.

75 Dingsdag, op.cit., p.318-320. R.W. Miller was an operation established by a Scottish master mariner of the same name who had left Scotland and entered coal shipping operations between Newcastle and Sydney in the 1910s. In 1919, to secure his coal supply, he bought a coal mine and formed R.W. Miller and Company. See Jay, op.cit., p.195.

1980s.[76]

A new development in recent years has been the increased entry of overseas companies into the NSW coal mining industry and the gradual exit from the industry of the locally-based companies. In particular, multinational oil companies, responding to the first oil price rises of 1973, established operations in Australia. Paul Parker has described the entry of British Petroleum and Shell Oil into the coal industry in NSW as follows,

> BP entered the Australian coal industry by purchasing Clutha, the largest coal exporter in NSW. The acquisition was made in two purchases, 50 per cent in January 1977 and 50 per cent in July 1978, for a total of 350 million dollars. . .The decision by Shell to enter the coal industry resulted in the establishment of a small coal task force within Shell Australia in 1973. . . Production facilities were gained by purchasing interests in operating coal companies, Thiess Holdings and Austen and Butta in 1977 and Bellambi in 1979. The shipment of coal to overseas customers began in 1978 and. . .In 1979 Shell exported almost one-sixth of the total steaming coal exports from Australia...[77]

Indeed, with British Petroleum selling off most of its worldwide mineral interests (including coal) to the RioTintoZinc (RTZ) Company of Britain in 1989 (selling its coal interests in NSW and Queensland to ConZinc RioTinto of Australia), and with Howard Smith eventually selling its interests in Coal and Allied to CRA in 1991,[78] the leading producer of coal in New South Wales - Coal and Allied Industries - is now 70% owned by CRA which is itself 49% owned by RTZ of Britain, the largest mineral house in the world.[79]

An outline of the extent of overseas involvement in the New South Wales coal industry has been provided in a 1994 submission by the United Mine Workers

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[76] *1994 New South Wales Coal Industry Profile*, p.157; Smith, op.cit., pp.25-26; Jay, op.cit., pp.210-213.

[77] Parker, op.cit., pp.14-21.

[78] See BP Australia Holdings Ltd., *Annual Report 1989*, pp.12-13; Jay, op.cit., p.230.

[79] Bruce Hextall, "Coal Groups Cash in on International Woes" in the *Sydney Morning Herald*, 23 November 1993, p.25. This feature of overseas ownership is, of course, not a sole characteristic of the coal industry in New South Wales and Queensland. John Ravenhill has commented that, in Australia, even by the 1970s "With very few exceptions, such as metals, virtually all of the highly tradable sectors of the economy were dominated by subsidiaries of transnational corporations domiciled elsewhere." See John Ravenhill, "Australia and the Global Economy" in Stephen Bell and Brian Head (ed.s), *State, Economy and Public Policy in Australia* (Oxford University Press, Melbourne, 1994), p.80.

(UMW) to the Australian Coal Industry Council. According to the UMW submission, in 1992-1993 there were 5 European (mainly British) companies operating in the NSW coal industry - accounting for 16,626,000 tonnes out of a total of nearly 103 million tons produced overall; 23 Japanese companies accounted for 14,904,000 million tonnes of coal production in NSW; and 3 American companies accounted for 4,536,000 tonnes. European, Japanese and American companies overall now account for about 35% of production in NSW.[80]

4 LONG TERM ISSUES FOR COAL PRODUCTION IN NSW

(a) A Continuing Role for Coal as a Fuel

A primary consideration for the future of the coal industry is the continuation of a role for coal as a fuel, both domestically and overseas. As outlined above, whereas coal reached a pre-eminent position as a fuel input within Australia, during the 1920s, oil, and later natural gas, came to threaten the position of coal. Although the oil prices rises have lessened the non-transport uses of oil, use of natural gas in Australia, according to Michael Johnson and his colleagues, "has increased from a negligible share of total energy consumption

[80] According to a submission by the United Mine Workers (UMW) to the Australian Coal Industry Council, European equity interest in NSW coal mining operations in 1992-1993 was as follows: Agipcoal (95% of United Collieries); Europa Minerals PLC (50% of Preston Coal); Hanson PLC (100% of Ravensworth/Narama and 43.7% of Warkworth Mining); RTZ PLC (35% of Coal and Allied, 30% of Howick, 50% of Novacoal and 50% of KCC); and Shell (100% of Bellambi and 74.8% of Drayton). Japanese companies' interest in NSW coal mining in 1992-1993 was as follows: Chelsea Coal (3% of MacQuarie JV); Dia Coalmining (10% of Camberwell Coal); Idemitsu Kosan (100% of Muswell Brook Coal Company); Joban Kosan (1.7% of Coal and Allied); Kanematsu Corporation (10% of Metropolitan Collieries); Kawasho Corporation (3% of Oakbridge Limited); Kyodo Oil (10% of Clarence Colliery); Marubeni (14% of MacQuarie JV); Mitsubishi Development (40% of Howick JV, 49% of Ulan Coal Mines and 49% of Warkworth Mining); Mitsubishi Mining (3% of Drayton Mining); Mitsui Coal Development (3.8% of Drayton Mining); Mitsui Matsushima (27.5% of Liddell JV); Nippon Oil (10% of Bayswater JV and 23% of Oakbridge Limited); Nippon Steel (10% of Bulga Coal and 7.5% of Warkworth Mining); Nissho Iwai Corporation (7.6% of Coal and Allied); Sumitomo Group (5% of Wallerawang Collieries); Taiheiyo (10% of MacQuarie JV); Tomen Corporation (47.9% of Gunnedah Coal Company and 25% of Oakbridge Limited); Toyota Tsusho Mining (40% of Camberwell Coal); and Ube Industries (10.1% of Coal and Allied). American companies' interest in NSW coal mining during 1992-1993 was as follows: Caltex (55% of Bayswater JV); Esso (100% of Lemington Coal); and Exxon (36% of Ulan Coal Mines). See *Out of the Red - Into the Black*, submission by the United Mine Workers to the Australian Coal Industry Council study of the Queensland and NSW Black Coal Industry (Construction Forestry Mining and Energy Union, Sydney, 1994), pp.39-40.

to 17.4 per cent in 1989-90."[81]

Although natural gas has made inroads into coal's position as a fuel in electricity generation, it has been coal's ability to retain its predominant role as a fuel in this field, both in Australia and overseas, which has ensured the success of the industry domestically and led to some of coal's significance as a potential earner of export revenue.

Domestically, coal seems likely to retain this position in the immediate future because of its use in electricity production (despite its declining use in the NSW manufacturing sector). Michael Johnson and his colleagues observed in 1991 that "Coal-fired electricity generation currently accounts for about 97 per cent of total electricity generation in Queensland, 94 per cent in NSW". The projected steady increase in demand for electricity in New South Wales to the year 2000 and beyond seems set to maintain the domestic role of coal as a major fuel input.[82]

Overseas the position for coal appears to be the same. Despite the downturn in international steel production during the 1980s, which induced Japanese steel companies to reduce their requirements for coal,[83] according to reports in 1992, Japanese use of coal to generate electricity is set to double by the end of

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[81] Michael Johnson and Stephen Rix (ed.s), *Powering the Future: The Electricity Industry and Australia's Energy Future* (Pluto Press, Sydney, 1991), pp.11-12.

[82] Johnson et.al., pp.63,205. Although the Fraser government's introduction of the crude oil levy, in 1978, lessened industrial use of oil, it appears to have induced industry to turn to towards natural gas rather than coal. Alan Woodland has observed that although the use of oil in the NSW manufacturing sector declined by 10% between 1978 and 1985, the use of coal fell by about 20% (although the demand for electricity, during the same period, increased by about 50%). See Alan Woodland, "A Micro-Econometric Analysis of the Industrial Demand for Energy in NSW" in *The Energy Journal*, Vol.14, no.2, 1993, p.70.

[83] According to Radha Krishnan and Malcolm Tull, steel production in Japan "has dropped from around 119 million tons in 1973 to 106 million tons in 1988". See A. Radha Krishnan and Malcolm Tull, "Resource Use and Environmental Management in Japan, 1890-1990" in the *Australian Economic History Review*, Vol.34, no.2, September 1994, p.19. Brian Carroll has added that during the 1980s, Japan, feeling the effects of the worldwide recession induced by the second major increase in the price of oil, "began cutting back on imports from Australia, mainly in coal and iron ore. In 1982-83, a worldwide squeeze in base metal prices led to further cuts in export earnings. Australia's two major iron ore exporters, Hammersley and Mount Newman, accepted big price cuts for ore shipped to Japan." See Brian Carroll, *Australian Made: Success Stories in Australian Manufacturing since 1937* (Institution of Production Engineers Australian Council, Melbourne, 1987), p.148.

the century.[84] Indeed, two years earlier, in 1990, the managing director of Shell's gas and coal operations, Roland Williams, had been quoted as saying that in his opinion "the seaborne steaming coal trade would rise from an estimated 150 million tonnes" in 1989 to "between 230 million and 300 million tonnes" by the end of the 1990s.[85] Some doubts about these forecasts have, however, been expressed by analysts such as Professor Ferdinand Banks who cautioned in 1985 that,

> expectations were that the second oil price shock would result in an acceleration in the use of coal; but the worldwide recession following this event led to a very large fall in the demand for coal since. . .there was a dramatic fall in the demand for all energy materials. . .Coal consumption is still expected to grow almost everywhere during the remainder of this century, but anticipated growth rates are being constantly scaled down.[86]

Oil, in fact, seemed set to make a comeback against coal when in the mid-1980s, under apparent pressure from the USA, Saudi Arabia increased oil production dramatically - resulting in the price of oil falling in 1986 to around $10 a barrel. As oil became cheaper, companies which had turned to coal instead of oil began to procure oil again - leading to a drop in the price which could be gained by sellers of coal.[87] However, the Iraqi occupation of Kuwait, in 1990, drove up the price of oil, later in that year, to about $40 a

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[84] Coking coal is used in steel production; steaming coal is used in power stations (Jay, op.cit., p.178). In late 1976 the Electric Power Development Corporation of Japan, a Japanese government agency, announced that it would construct two new generating plants, fired by coal, to be operational by 1982. See John Slee (ed.), *The Australian Mines Handbook 1977-78* (Minex Services, Perth, 1978), p.32. Fifteen years later Richard Owen has reported that, "Electricity generation accounted for 40 per cent" of Japan's "total energy requirements in calendar 1990 and 31 per cent of this was fuelled by oil and liquid petroleum gas. According to Ministry of International Trade and Industry (MITI) forecasts, this will drop to 23 per cent by 1996 and to 14 per cent by 2001 while coal-fired generation will increase to 13 per cent by 1996 before doubling to 20 per cent by 2001." See Richard Owen, "Clean Coal as Energy Goal" in *The Australian*, 9 July 1992, p.12.

[85] Brian Gomez, "Local Coal Exports 'To Keep Share in Rising Global Trade'" in *The Australian*, 8 November 1990, p.21. In 1992 consultants Barlow Jonker, in a report prepared for the Australian coal industry, advised that the Australian steaming coal trade had the opportunity to expand by 80% between 1991 and 2000. See *Supply and Demand for Australian Black Coal to Year 2000*, report prepared for the Australian Coal Industry Council by Barlow Jonker, Sydney, January 1992, p.3.

[86] Ferdinand Banks, *The Political Economy of Coal* (D.C. Heath and Company, Lexington, Massachusetts, 1985), p.69.

[87] Smith, op.cit., p.167.

barrel. Although American intervention against Iraq brought the price of oil back to about $20 a barrel by 1992, and as low as $14 a barrel in 1993,[88] it appears to be the case, as Banks concluded in his study, that "it is inconceivable that oil will regain its former position."[89]

(b) Coal Reserves in New South Wales

Basing a possible future for the coal industry in NSW on servicing the expected coal requirements of Japanese (and other) electricity utilities, assumes, in the first place, the continued existence of substantial reserves of coal in the State. Until recently it was conventional wisdom that this was so. Pacific Power, in a publication produced in 1992, advised that "At present consumption rates, some 200 years' supply of black coal is known to exist in New South Wales."[90]

Recently, however, executives in coal-associated industries in NSW have revised these projections. Carl Weber, fuel sourcing services manager for Pacific Power, wrote in a paper presented in 1994 that "New South Wales is likely to face a serious shortage of economically mineable coal in the future". According to Gavin Gilchrist, Weber's revision is based on at least four factors:

> continued urban development in the Newcastle-Central Coast region has reduced the amount of coal that can be mined there ...expansion of the Wollemi National Park west of the Blue Mountains has reduced the amount of coal recoverable from the Western Coalfields; test drilling of the coal reserves in the Gunnedah Basin in north-western New South Wales has shown the resource to be much more modest than had been claimed; coal mining companies, including Pacific Power, no longer mine under cliffs and steep ridges along the western edges of the Blue Mountains, reducing the coal available there. . .[91]

The question of the actual extent of coal reserves in New South Wales has a fundamental bearing on the future of the industry - to proceed with plans to advance the industry in NSW necessitates, at the outset, ascertaining how

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[88] Michael Niemira and Philip Klein, *Forecasting Financial and Economic Cycles* (John Wiley and Sons, New York, 1994), pp.296-298; Carolyn Cummins, "Oil on Troubled Waters" in *The Australian*, 2 December 1993, p.23.

[89] Banks, op.cit., p.247.

[90] *Story of Coal* (Public Affairs, Pacific Power, Sydney, 1992).

[91] Gilchrist, op.cit., pp.12-13 citing Carl Weber, "Energy Resources", paper presented at the *Energy for Life Forum*, Pacific Power, Sydney, 28 February 1994.

much coal is actually available for mining. Negotiations with other sections of the government, and the community, implied in this issue seem likely to make resolution of this matter a long term question for the industry.[92]

(c) Ensuring Export Markets

As around 70% of saleable coal produced in NSW is exported (57.32 million tonnes out of 84.02 million tonnes in 1993-1994)[93], securing export markets is crucial to the future of the coal industry (assuming, fundamentally, that reserves of coal are available) - particularly since in the 1980s, as mentioned above, Australia overall became one of the world's largest exporters of coal.

One market alone has been vital to the Australian coal industry - Japan. As Michael Byrnes has expressed it, "Nothing has been more important for Australia in Asia than the Japanese game in the resources trade."[94]

Not only was it sales of coal to Japan, for steel production, between the 1950s and the 1970s, which helped to sustain the Australian coal industry when oil and gas appeared to be threats,[95] but during the 1980s, as outlined above, in response to the oil price rises of the 1970s the Japanese government-sponsored Electric Power Development Corporation began to change a large percentage of its fuel input from oil to coal - sourcing much of its coal from Australia.

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92 The industry task force established to examine New South Wales coal development strategies claimed that "National Parks are by far the largest causes of coal sterilisation. Figures compiled by the NSWCA show that at least 22% of coal resources available for economic mining (depths of less than 600m) occur in National Parks. The Wollemi National Park alone contains a very large proportion of this resource." See *New South Wales Coal Development Strategies*, p.49. (NSWCA: NSW Coal Association).

93 *1995 New South Wales Coal Industry Profile*, pp.3-4.

94 Byrnes, op.cit., p.65.

95 The American economic historian Jonathan Hughes has written that "By 1978, the Japanese, with a 30-35 per cent cost advantage over US producers, achieved 51 per cent of their raw steel output from continuous casting, compared to a mere 15 per cent in this country. . .The Japanese, with no iron ore or coking coal of their own. . .went for the flexibility of low-cost production based on the best-practice technology. . .By 1977, the Japanese had 25 blast furnaces, each capable of 2 million tons annually". Jonathan Hughes, *American Economic History*, third edition (Scott, Foresman and Company, Glenview, Illinois, 1990), p.560. On Australia's involvement in this expansion of the Japanese steel industry, Sandra Tweedie has written that "The benefits enjoyed by Australia through the huge expansion in minerals and energy exports to Japan through the late 1960s and 1970s peaked in 1976/77 when Japan's share of Australia's exports reached 34 per cent of total exports". See Sandra Tweedie, *Trading Partners: Australia and Asia 1790-1993* (University of NSW Press, Sydney, 1994), p.173.

This has led to a situation where, in the 1990s, Japan, for its part, obtains about half of its coal supplies from Australia and Australia, for its part, send about half, of all the coal it exports, to Japan.[96]

Although this situation would seem to run in an apparently mutually beneficial way, it is also a situation in which Australia's fortunes have become very dependent on those of Japan. During the early 1980s, as mentioned above, there was a slowdown in the Japanese steel industry influenced partly, according to David Potts, an economics editor of *The Australian*, by Japanese investment moving "out of heavy industry and into electronics" in response to the oil price rises of 1973 and 1979.[97] As the slowdown proceeded, Japanese industry took less Australian coal.[98] Richard McGregor recalled that "in 1986, the cuts forced by the steel mills created turmoil in the coal industry". Between 1987 and 1988 six mines closed in New South Wales with a loss of around 2,000 jobs.[99]

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[96] Byrnes, op.cit., p.80; Banks, op.cit., p.252; Smith, op.cit., p.54.

[97] Masu Uekusa and Hideki Ide write that the Industrial Structure Council of the Japanese Ministry for International Trade and Industry (MITI) "prepared a report in May 1971 entitled *Trade and Industrial Policies in the 1970s*, and in 1974 issued a revised version, *A Long-Term Vision on Industrial Structure*. In these 'visions' MITI announced the following. . .the encouragement of a shift from a capital-intensive and energy-intensive industrial structure to a knowledge-intensive and energy-conservative one centred on the high-technology, fashion and information-processing industries". See Uekusa and Ide, op.cit., p.154. For David Potts's observation see "Economy Confounds West" in *The Australian*, 30 May 1988, Japan '88 supplement, p.3. Karel van Wolferen adds that, with regard to videotape-recorder (VTR) production in Japan, "Investments in production capacity made by Japan's seven VTR manufacturers quadrupled output between 1979 and 1981 to 9.5 million units. Two years later the figure had almost doubled, reaching a peak of 33.8 million units in 1986." See Karel van Wolferen, *The Enigma of Japanese Power: People and Politics in a Stateless Nation* (MacMillan Paperbacks, London, 1990), p.398. Particular sectors of Japanese industry which suffered downturns in production during 1979 and 1980 were the shipbuilding and car manufacturing sectors. Daniel Todd has remarked, in regard to the Japanese shibuilding industry, that "The peak production years of 1974-75 were succeeded by fairly high levels of output in 1976-77, but by the end of the decade production had plunged disastrously." See Daniel Todd, *The World Shipbuilding Industry* (Croom Helm, London, 1985), p.292. The decline in Japanese car manufacturing, in the early 1980s, has been outlined in "Tough Times for Japan's Motor Trade", reprinted from *The Economist*, in *The Australian*, 24 December 1991, p.19.

[98] According to Tweedie, "by 1979/80, Japan's share of Australian exports fell to about 27%, similar to that prior to the minerals boom". See Tweedie, op.cit., p.173.

[99] Brad Norrington, "Militant Men of the Coal are a Dying Breed" in the *Sydney Morning Herald*, 2 June 1988, p.19; Smith, op.cit., p.18; *Register of Australian Mining 1988-89* (Resource Information Unit, Perth, 1989),

Consistency of export level is therefore just as much a vital consideration for NSW exports of coal as the export markets themselves. Exports may be the key to the coal industry's continued success, but maintaining the level of exports is an equally important objective.

A long range problem for Australia is that, despite assuming the position of one of the world's foremost exporters of coal, it is far from having the world's greatest reserves of coal. In the past the three greatest coal reserves in the world, as *Far Eastern Economic Review* pointed out in 1949, were considered to be in "Western Europe, Eastern United States and Northern China." China's reserves alone, in 1949, were estimated to be 240 billion tons.[100] Recently the existence of vast reserves of coal have been confirmed in Siberia. Australia's reserves of coal amount to only about 6% of the world total.[101] This means that New South Wales and Queensland are vulnerable to international buyers who have worldwide choices on which to base their commercial strategies. Japan, for example, does not congenially confine itself to dealing only with Australia in its search for coal but simply deals with Australia as one of a number of countries. The managing director of the Chubu Electric Power Company declared at an American coal convention in 1992 that "Because about 70 per cent of steaming coal for electric generation is from Australia we think that in conjunction with each mine's stability of supply, diversification of supply sources to countries other than Australia is necessary for aiming at securing stability of overall supply."[102]

Coal producers in NSW and Queensland are endeavouring to reduce their reliance on the Japanese market. Graham Armstrong has written that exports of coking coal between 1991 and 1993 had been "buoyed by sharp rises in sales to Korea and India as well as a 14 per cent rise in sales to Europe with Italy and France being particularly significant." However, Armstrong also confirms the continuing importance of the Japanese market for coal exports from NSW and Queensland in observing that, during the same 1991-1993 period, "total Australian steaming coal exports increased by over 12 per cent. . .underpinned

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p.267.

[100] Chi-Yun Chang, "The Natural Resources of China" in *Far Eastern Economic Review*, Vol.6 no.13, 30 March 1949, p.385. More recently Yingzhong Lu has written that "Coal is the backbone of the Chinese energy sector... Chinese coal resources are considered extremely abundant, based on the estimated potential geological resource of 3,200 billion tons or the measured reserve of 769 billion tons." See Yingzhong Lu, *Fuelling One Billion: An Insider's Story of Chinese Energy Policy Development* (Washington Institute Press, Washington DC, 1993), p.44.

[101] Banks, op.cit., p.52.

[102] Owen, ibid.

by an 11 per cent expansion in sales to Japan."[103]

(d) Implications of the Changes in Ownership

Change in the ownership of mines has, in recent years, led to consideration of the influence which these new entrants into the industry can exert with regard to Australia's position as a supplier of coal. Whereas during the 1920s and the 1930s the major coal mining companies tended to be locally based operators, by the 1980s, as Banks has pointed out, large Australian mining houses have been joined by foreign multinational companies in having "a decisive position in the determination of Australian coal output and exports."[104] Currently, Shell Oil and CRA (49% owned by RioTintoZinc of Britain) now form two out of the three largest exporters of Australian coal (the other being BHP).[105] In New South Wales 17% of the coal mining industry, in 1992, was Japanese owned.[106]

Strategically the problem is whether, in light of the coal industry's dependence on exports, the particular interests of the overseas companies are in harmony with those of local producers or with that of the country as a whole. During the 1920s the coal/shipping combines were at least locally-based companies which depended on maximising their returns in the local market. In the 1970s and the 1980s, at least part of the coal industry in New South Wales and Queensland has become the preserve of concerns which have the world as their domain and can afford to suffer losses in one part of the world as long as they also make gains in another part of it. This matter has surfaced in a related issue for the coal industry - pricing.

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[103] Graham Armstrong, "Australian Coal Production and Trade Trends" in the *National Economic Review,* No.29, July 1994, p.35.

[104] Banks, op.cit., p.94.

[105] Denis Riley, in his maritime history of BHP, has written that by 1983 "foreign buyers had developed an almost insatiable appetite for Australian coal and BHP was despatching shipments from mines in Queensland and New South Wales totalling nearly six million tonnes per annum." See Denis Riley, *The Iron Ships: A Maritime History of BHP* (BHP Transport, Melbourne, 1992), p.106. For details of the most prominent companies currently in coal production in NSW see the *Register of Australian Mining 1990-91*, p.355. BHP is the largest coal producer in Australia, followed by CRA and Shell. An indication of the close links between CRA and RTZ was provided in 1993 when it was announced in the press that Leon Davis, seconded from CRA's Melbourne office in 1991 to become mining director at RTZ, would return to CRA as managing director and chief executive. See Peter Alford, "RTZ Chief Takes over from Ralph" in *The Australian*, 26 October 1993, p.15.

[106] Byrnes, op.cit., p.92.

(e) Coal Pricing and Industry Behaviour

Pricing of coal has been a continuously contentious issue almost as old as the industry itself. Although it is currently prominent because Japanese companies set out to force a reduction in the price of Australia coal when Japanese production sank into recession in 1992[107], the cost of coal became an issue as long ago as the early 1870s.

According to Robin Gollan, "Towards the end of 1872 the five leading companies on the northern field formed the Northern Coal Sales Association (the Vend). . .the association had two. . .functions. It fixed a minimum price for coal and divided up the market amongst the several companies. . .the agreement. . .lasted until 1880. . .It was not re-formed until 1906". In 1912 several members of the Vend were prosecuted and fined under the Australian Industries Preservation Act 1906. However on appeal to the High Court, and then to the Privy Council, the original findings were overturned - although the fact of the existence of the Vend was not disproved.[108]

Just after the end of the First World War, in 1919, the NSW Government established a royal commission into the state's coal industry. The report concluded, amongst other findings, that the prices charged before 1919 did not seem to be justified.[109]

During the 1920s major mining companies in the northern coalfield of New South Wales maintained their interlocking relationships with shipping companies established in the late nineteenth century. Roger Mauldon observed in 1929 that,

> If the tonnages of coal hauled by the State railways during 1925-1926 for the respective enterprises be accepted as a reliable measure of proportionate output, it is seen that the Australian Steamships Ltd., which is connected with the Caledonian Collieries Ltd. through the holding company of Howard Smith Ltd, facilitated the marketing of 24 per cent of the northern output; the Adelaide Steamship Co. Ltd., which is largely interested in the Abermain-Seaham Collieries Ltd. and the East Greta Coal Mining Co. Ltd., of 22 per cent; Huddart Parker

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[107] Richard McGregor, "Coal Producers Take Price Cut" in *The Australian*, 20 January 1993, p.29.

[108] Gollan, op.cit., pp.14-16. The Northern Coal Sales Vend was possibly inspired by the Newcastle Vend which had existed in England between 1771 and 1844 and was, according to Arthur Birnie, "a combination amongst the Newcastle collieries to fix the price of coal in the London market." See Arthur Birnie, *An Economic History of Europe 1760-1939*, sixth edition (Methuen, London, 1949), p.249.

[109] Mauldon, op.cit., p.81.

> Ltd., controlling Hebburn Ltd., of 8 per cent; and McIlwraith McEachern Ltd., connected with Hetton Bellbird Collieries Ltd., of 5 per cent.

Mauldon concluded in 1929 that "the evidence of experience. . .is that. . .the artificial maintenance of a high-price policy has been possible and has been chosen by the major interests".[110]

Attempts by coal companies to maintain this approach to pricing were reduced by the onset of the Depression but the outbreak of the Second World War allowed the companies the opportunity to gain from the strategic importance of coal. Despite the Federal Government's declaration of control over the price of coal, in September 1939, the following month, according to Dingsdag, the "Associated Shipping Companies, of which the coal/shipping combines were prominent members. . .increased its rates by 20 per cent without notifying the Prices Commissioner."[111]

A partial attempt to remedy this situation was undertaken in 1946 when the Chifley federal government and the McKell government in New South Wales agreed to establish a Joint Coal Board (JCB). In its annual report for 1947-1948 the JCB declared that one of its main objectives would be to "ensure that Australia is provided with basic industrial fuel at the lowest possible cost. This means that in the long run the price of coal should be reduced in relation to the price of other commodities."[112] Consequently, as well as encouraging mechanisation to deal with the developing threat from oil, mentioned above, mechanisation was encouraged as a means of eventually lowering the price of coal. Mine owners were given taxation incentives to buy new equipment and between 1947 and 1959 coal owners in NSW spent $87 million on new machinery.[113] Between the 1950s and 1960s the Board managed to achieve part of its objective in reducing the price of coal, with average price of coal at the colliery falling from $6.45/ton in 1952 to $5.06/ton by 1966.[114]

The situation prevalent in the 1920s was, however, reversed during the 1970s and 1980s. Whereas, with most of the coal produced being sold domestically,

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[110] ibid., pp.78-82. The significance of secrecy in coal company operations has been highlighted by Christopher Jay in his history of Coal and Allied. In recounting the passing of John Brown, the head of J. and A. Brown, Jay observes that "Immediately after his death in 1930. . .six drayloads of company documents were taken from his house and disposed of". Jay, op.cit., p.84.

[111] Dingsdag, op.cit., p.220.

[112] Fisher, op.cit., p.168.

[113] ibid., p.170.

[114] Beaumont, op.cit., p.34.

suppliers during the 1920s were able to exert control over prices - during the 1970s and 1980s, with the dramatic effect of the export market on the coal trade, control became removed from suppliers and gradually moved to buyers. The development which allowed this to happen was the expansion in Queensland of coal production for export.

Queensland's saleable coal production in 1960-1961 was only 2,640,000 tonnes compared to 17,397,000 produced in New South Wales but by 1981-1982 coal production in Queensland had reached 34,276,000 tons. Not only was production in Queensland outside the control of the Joint Coal Board but the major share of coal output came to be produced from open cut mines owned by overseas companies. By the mid-1970s, when Japanese steel production was beginning to overtake even American steel production in efficiency, over 80% of coal mining in Queensland was produced by foreign companies. Despite the fact that at that stage only 15% of production in New South Wales was overseas owned, the overwhelming predominance of foreign ownership in Queensland meant that, on an overall level, coal production Australia-wide by that stage was already more than 50% overseas owned. Chris Fisher has pointed out that "One company in particular, Utah Mining (a subsidiary of General Electric), had developed open cut mines in Central Queensland and sold large quantities of coal to Japan below 'world parity' prices."[115]

In response to this situation, the Whitlam government in 1973 introduced export controls and price monitoring which superseded the role of the Joint Coal Board. Rex Connor, in particular, as Minister for Resources and Energy, took a leading role in negotiating with Japanese representatives for a higher price for Australian coal.[116]

Following the removal of the Whitlam government, the following Fraser government, with Doug Anthony placed in charge of Connor's portfolio, retained the form of the powers of control established by Whitlam but removed the substance of them, both in the context of what Anthony termed in 1978 the "mutual dependence" between Australia and Japan and in the context of what, after the second oil price rise, in the late 1970s, was seen as an emerging

[115] Fisher, op.cit., pp.180-188; Parker, op.cit., p.36. By the mid-1970s even the locally-based coal businesses, in NSW, were coming to rely on exports for sales. Jay observed that by the beginning of the decade "Exports were now more than half of Coal and Allied's total business." (Jay, op.cit., p.182). Utah Mining was purchased by BHP for $2.4 billion from General Electric in 1984, when Australia was emerging as the world's largest exporter of coal. This was at that time the largest transaction in Australian business history. See Riley, op.cit., p.106.

[116] ibid., p.190.

"resources boom" for Australia.[117] Rather than challenge the Japanese, as Connor had done, the Fraser government after 1975, according to Fisher, left "'commercial matters' to the coalowners" who by now tended not to be the locally-based interests which had dominated the industry in the 1920s but were now often either American or British companies working on the basis of special pricing arrangements with Japanese steel interests, or Japanese multinational companies themselves.[118] This was despite the fact that Anthony, as Deputy Prime Minister and Minister for Trade and Resources, raised the following issue in the House of Representatives in October 1978,

> The Australian Government's concern is that individual Australian companies face buyers who are co-ordinated or who have a high degree of consultation and who, as a result, can and do successfully play off one seller against the other. The result is prices, terms and conditions which do not reflect a fair and reasonable return. . .We are concerned about buying techniques which. . .are designed to depress the prices received for these raw materials.[119]

Gradually, during the 1980s, with Japanese steel production and car manufacturing slowing down, and with Japanese investment moving from heavy industry to electronics, the projections of the Australian resources boom were unrealised[120] and power over prices moved towards buyers. Although,

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[117] Although by 1980 the second major increase in the price of oil had led to a worldwide recession (and had accelerated the Japanese decision to change the emphasis of their industrial production), the Prime Minister, Malcolm Fraser, declared in his policy speech for the election held in that year that prospective development amounted to "$29,000 million. This development promises to be as important to Australia and individual Australians as anything in the last 35 years. Already new aluminium smelters and mines are being established in Australia along with the associated new towns, railways, roads and port facilities. The benefits of this will be felt nationwide." See Paul Kelly, *The Hawke Ascendancy: A Definitive Account of its Origins and Climax 1975-1983* (Angus and Robertson, Sydney, 1984), p.93.

[118] ibid., pp.214,216,221.

[119] Barnett, op,cit., p.136.

[120] Jay, ibid. According to Graham Larcombe the NSW Government in the early 1980s made a conscious decision to become involved in this perceived "resources boom" and, in Larcombe's account of this development, "the NSW Labour government joined its state rivals in the race to attract international capital to develop and use the state's energy resources. . .State policy instruments were crucial in the organisation of the transition of the state economy from an industrial base predominantly serving the domestic market, to a resource-based economy predominantly exporting natural resources and manufacturing commodities with a high energy component. . .The cornerstone of the Wran government's

during the early 1980s, there was an increase in the price of coal, Banks has described how in 1983, coking coal producers were informed by Japanese steel mills that,

> they would be unable to accept an appreciable part of the metallurgical coal they had bought on long-term contracts, and eventually many suppliers had to accept price cuts of up to 20 per cent on previously contracted sales. Later, further price and quantity cuts were introduced for supplies scheduled to be delivered during 1984 and 1985, although some coal-producing firms were able - at the expense of other firms - to negotiate increases in quantity in return for accepting decreases in price.[121]

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resources strategy had been the accelerated capital works program for the power industry. . .it is apparent that the resource-led recovery strategy has contributed significantly to the state's economic problems. . .it was already clear by 1982, with the cancellation of a number of projects and recession in international markets, that employment growth had been seriously overestimated." See Graham Larcombe, "New South Wales: The Political Economy of an Industrial State" in Brian Head (ed.), *The Politics of Development in Australia* (Allen and Unwin, Sydney, 1986), pp.105-112. In 1992 the Australian Bureau of Statistics commented, in its *Australian National Accounts: State Accounts*, that the fall in manufacturing's contribution to NSW Gross State Product, from 21% in 1981 to 15% by 1992, "was the largest fall of any industry." See ABS, ibid.

[121] Banks, op.cit., p.245. Smith, op.cit., p.57. Barnett notes that in 1983 the prices negotiated for coal contracts were "barely above the actual cost of production." See Barnett, op.cit., p.137. According to the *Register of Australian Mining*, the Japanese steel mills in 1983 "forced Australian coal producers to agree to an 18.18% drop in their price for hard coking coal, to $US54 a tonne, and a 20.96% reduction in the price paid for Newcastle-shipped soft coking coal to $US45.25. These reductions preceeded similar cuts in steaming coal prices of around $US12 to an upper limit of $US43 and it was clear that the industry, from shippers to miners, would have to ride out the worst downturn in its history." See the *Register of Australian Mining 1983-84*, p.53. *The Economist* reported that in 1983, on a worldwide level, British Petroleum made only $21 million on sales of $995 million and that Shell lost $18 million on coal sales of $672 million. See "Coal Men Dig Their Own Graves", reprinted in *The Australian*, 22 September 1984, p.20. A year later, in 1984, to relieve the situation in its own steel industry (also caused by the 1980-1981 recession) the Reagan administration persuaded the Japanese Government to cut back exports of steel to the USA by Japanese steel producers (principally Nippon Steel, Kawasaki, Nippon Kaikan, Sumitomo Metal and Kobe Steel) by 500,000 tons a year. While Australian coal producers hoped that Japanese steel exports could be maintained by increased sales to China, Alan Goodall reported in *The Australian* that "Hard coking coal exporters already have been told by Tokyo that their shipments for the year starting April 1 will be slashed 20 per cent." See Alan Goodall, "Coal Prices under Pressure as Japan Cuts Steel Exports" in *The Australian*, 8 December 1984, p.24.

These low prices continued during 1986-1988 as, according to Greg Smith, the international coal market entered "a depressed phase" because of the stagnation of the world crude steel market and a fall in the price of oil (as a result of increased Saudi Arabian output).[122] Between 1986 and 1988 coal prices fell by 13.7%.[123] The price cuts were part of the reason why companies in the NSW coal industry collectively made a loss during the six years between 1983 and 1988. According to the Task Force for Coal Development Strategies, "In 1988-89 the NSW coal industry recorded its first after-tax profit for six years. . . . The profit of $73 million, $48 million after tax and before extraordinaries, represented only a 5.8% return on shareholders funds or 3.82% if extraordinaries were excluded."[124] This poses the question of why participants stay in the coal industry when the returns are so low.[125]

One possible explanation put forward by Banks has ramifications that pervade the entire industry, if correct. Banks has commented that,

> while many producers of coking coal are not presently making a profit, most of these firms continue to ship coal in order to retain their claim

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[122] In 1987, Andrew Main reported that "In the latest round of talks in Japan, Australian coking coal suppliers had to accept tonnage cuts of between 15 and 30 per cent linked to price cuts of between $US5 and $US5.50 ($A8.25) a tonne to about $US44 a tonne. . . hard coking coal is a lot more valuable than steaming coal - used in power generation - which has been languishing at about $US30 a tonne." See Andrew Main, "NSW Coal Exporters Reduce Reliance on Japan" in the *Sydney Morning Herald*, 21 January 1987, p.24.

[123] Smith, op.cit., pp.21,117.

[124] The *Register of Australian Mining* commented that "despite record production and exports in 1985, many producers also faced low profits and a cost-price squeeze made worse by heavy debt repayments". See *Register of Australian Mining 1985-86*, p.55. According to report of the Task Force for Coal Development Strategies in New South Wales, "Annual surveys of the Australian coal industry have been carried out by Coopers and Lybrand on behalf of the Australian Coal Association for the last eight years, with separate figures being available for NSW since 1984-85. . .The industry members covered by the NSW surveys made total net losses of $347 million in the six years ended June 1989. . .The industry has been heavily dependent on non-interest bearing borrowings during the last five years. This is due to a number of coal companies receiving loans from parent or other related companies outside the NSW coal industry, without interest being charged. Such borrowings amounted to $457 million at 30 June 1989." See *New South Wales Coal Development Strategies*, pp.1,33-34.

[125] Another factor contributing to the coal companies costs of production is the fact that open cut mining, as Greg Smith points out, "is a vehicle requiring large amounts of capital" and the "capital charge (depreciation plus interest) figures more heavily" in their production costs. See Smith, op.cit., pp.27,159.

> to a share in a market that they feel will eventually expand. . .this kind of market behaviour cannot be described by any formal model in the arsenal of elementary or advanced microeconomics. . .in direct contradiction of the results predicted in microeconomics texts, many of the firms remaining in these markets are not those necessarily having the lowest costs, but enterprises that are subsidiaries of very large companies that happen to possess the financial resources required to subsidise long periods of unprofitable activity in anticipation of an upswing in demand.[126]

Banks's observation suggests that coal mining in New South Wales and Queensland may have become the preserve of companies, sometimes even with divergent energy interests, which can afford to balance losses in a first area of energy production against gains in a second, while waiting for the first area to become profitable again: persevering with low returns from sales to Japan while waiting for an upswing in demand. Indeed other energy economists, during the 1980s, pinpointed the same problem. If these observations are correct, then despite the huge volume of sales of coal to Japan and elsewhere, it seems that the profitability of companies in the coal trade will remain low because of the consistently low prices that may continue to prevail.[127]

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[126] Banks, op.cit., p.245. With British Petroleum quitting the coal industry in Australia in 1989, Banks's observation is, of course, not entirely valid but it might be applied to the activities of other participants in the coal industry. BHP's acquisition of Utah Mining (in 1984) was made at the very time that Japanese steel companies were forcing down the price of Australian coal.

[127] Other energy economists during the 1980s similarly highlighted the development of this feature of the New South Wales coal trade. Graham Larcombe observed in 1986 that in NSW there seemed to be "little concern at official level at the extent and implications of local natural resources being purchased by companies with competing energy sources (in the case of oil multinationals) and overseas customers (in the case of Japanese electricity utilities)." See Larcombe, op.cit., p.106. Most recently, the United Mineworkers Union, in its 1994 submission to the Australian Coal Industry Council, pointed to the same phenomenon highlighted by Banks but provided an explanation with a slightly different emphasis. The submission looked at the domestic and Australian operations of three Japanese companies: Nippon Oil, Marubeni and Idemitsu Kosan. The submission observed that "All these companies have rates of return which are less than their parent corporations, and which are less than the norms for Australian industry and for mining. . .Why does this happen. . .Where is the commercial rationale? The answer may lie in looking at the ratios of the investment relative to overall investments, and how the company makes returns on its major operations. In the case of trading companies, an ownership stake gives that company the leading right to trade that mine's coal. Trading companies receive commission on each tonne of coal sold - often from both the buyer and the seller. If the trader is a minority shareholder, the direct income to the parent body may be substantially greater that the subsidiary's share on the profits of the coal sale (if any). In the case of consumer's investment stakes, the answer

(f) Industrial Relations and Productivity

The coal mining industry, possible more than many others, has been renowned for the disputative nature of relations between owners and workers - a product, in a number of respects, of the difficult and dangerous conditions under which the miners worked.[128] The first union of miners in Australia was formed at a meeting in Waratah, near Newcastle, in 1860 and the first strike for higher wages was held in 1861. In the 1870s, when the Sydney Trade and Labour Council was being formed, the miners gained a reduction in hours to 10 hours a day. In 1886 the miners gained the agreement of the coal owners to an 8 hour day - the agreement becoming fully implemented throughout the industry by 1916. An Arbitration Court decision in 1940 fixed the work schedule for miners at a 40-hour week to be worked over five days.[129]

Injuries and fatalities were a regular occurrence at the mines in New South Wales and Gollan has described how in addition to "the large number of accidents which killed and maimed many underground workers every year, there were major catastrophes at Lithgow in 1886, Bulli in 1887 and Hamilton in 1889." The Bulli explosion, for example, killed 81 miners; the 1902 explosion at the Mount Kembla Coal Company's mine killed 92 miners. The 1920s and 1930s saw a recurring trend of miners being killed at work - over 80 workers were killed in NSW mines between 1928 and 1934.[130]

Coal-related sicknesses were also a constant hazard of working in the mines. A NSW Government Royal Commission on Safety and Health of Workers in Coal Mines, appointed in 1938, reported that in that same year there were 239 workers with pneumoconiosis in the Southern district alone (of whom 147 were still at work). Tuberculosis was another disease to which miners fell prone.[131]

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is more direct. For a power utility, 30% of the cost of operating a coal-fired power station may be fuel. . .If 90% of its assets are tied up in power stations, and just 5% in coal mines, it can afford to make a loss on its mine investment if it helps achieve lower fuel costs." See *Out of the Red - into the Black*, pp.42-43.

[128] A miner writing to the *Sydney Morning Herald* in the 1860s described having "in many instances to lie down in several inches depth of water" to hew the coal. See Gollan, op.cit., p.32.

[129] ibid., pp.33,38,52,65,69,215. The union was formally established as the Australasian Coal and Shale Employees' Federation (Miners' Federation) in 1915. See ibid., p.135.

[130] Stuart Piggin and Henry Lee, *The Mt Kembla Disaster* (Sydney University Press in association with Oxford University Press, Melbourne, 1992), p.1; Gollan, op.cit., pp.95-96,203.

[131] Dingsdag, op.cit., p.248,379.

Elimination of disease amongst miners even appears to have had a higher priority than mine safety. Disease eradication was a particular outcome of the establishment of the Joint Coal Board which had a directive to reduce the amount of sickness amongst coal miners. Dingsdag has written that, "The JCB's pioneering work in lung disorders, in particular the eradication of pneumoconiosis, made the NSW coalmining industry the envy of coalmining industries worldwide. However, the JCB did not strive for the same standards in safety and did not even appoint a safety officer until 1955".[132] This observation is borne out by the fact that even during the 1960s and 1970s disasters fatalities continued to occur. A fire at Bulli Colliery in 1965 killed four miners and an explosion at Appin Colliery in 1979 killed fourteen workers.[133] Lesser types of injuries incurred in working in mines include amputations, burns, concussion, fractures and dislocations.[134]

Because of the dangerous and unhealthy nature of the work, coalminers have tended to be resolute in taking advantage of opportunities available to them to gain improvements in wages and conditions. Miners have also attempted to be resolute in trying to preserve jobs. Both these objectives, particularly the second, led to clashes between miners and governments such as the confrontation over the closure of the Rothbury mine, at the onset of the Depression in 1929, when police opened fire on miners, killing one and wounding several others.[135] The Curtin (Federal) Government and the McKell (NSW) Government attempted to circumvent this pattern of relations in the industry by jointly establishing in 1946, along with the Joint Coal Board, a Coal Industry Tribunal which would deal solely with disputes in the coal industry.[136] This body exists to the present day.

It would seem that this disputative pattern of relations in the coal industry had the potential to prevent improvements in productivity in the industry. In reality, however, this has tended not to be so and, in recent years, there has even been a tendency towards a kind of consensus between miners and coal owners on the progress of productivity.

Conventional views on productivity in the coal industry have tended to be influenced by perceptions of a tradition of conflict in the industry, exemplified by an adversarial outlook emanating from the miners. On the progress of mechanisation in NSW coal mines before the First World War, for example,

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[132] ibid., p.376.

[133] *Explosion at Appin Colliery on 24th July 1979*, Report of His Honour Judge A.J. Goran, pp.25-30, 43.

[134] *Explosion at West Wallsend No.2 Colliery on 8th January 1979*. Report of His Honour Judge A.J. Goran, p.102.

[135] Gollan, op.cit., p.195.

[136] Fisher, op.cit., p.92.

Mauldon wrote that "The miners in New South Wales are strongly organised in hostility to the machines, more particularly to those electrically driven. . .The objection is taken ostensibly on grounds of safety. But the real grounds are fear of mechanisation as a displacer of labour."[137] Other explanations, however, discount the adversarial element in accounting for the slow progress of mechanisation, and instead attribute the responsibility for this outcome to strategies pursued by coal owners. Dingsdag has written that between the 1910s and 1920s "the large increases in pick and shovel production...occurred in the larger mines because of the owners' renewed reliance on hand-hewing to increase production."[138]

Essentially the pattern of the miners' union approach towards mechanisation, for instance, tended to be one of accepting the inevitable while attempting to get the best deal possible for members. This was demonstrated during the 1950s mechanisation program - particularly in regard to the issue of mining pillar coal, a crucial step in inducing coal owners to expand mechanisation. Dingsdag has described how "Decades and in some instances a hundred years of wasteful first working left billion of tons of easily, but most importantly, cheaply recoverable coal standing in pillars." By the late 1940s both the Joint Coal Board and the private coal companies had decided that mechanisation should be applied to the extraction of coal in pillars, despite the long-standing position of the union that, for safety reasons, pillar coal should only be extracted by pick and shovel. Eventually, at a hearing before the Coal Industry Tribunal in 1954, the miners' union abandoned its commitment to pick and shovel extraction of pillar coal in return for an additional wage loading for miners working on extraction by mechanical means. Once the miners relented, according to Dingsdag, "the effect of the resolution of the pillar question on mechanisation was instantaneous. Whereas only £11 million was spent in underground mines from 1947-1953 on 'development, re-organisation and equipment'. . .In the six fiscal years from 1954, £36,666,000 were spent on upgrading underground mines, comprising £23,792,500 on underground equipment". By 1960, 27.1% of total production was pillar coal mechanically mined.[139] According to Beaumont, the whole mechanisation program of the 1950s and 1960s which, as outlined above, led to the loss of about 7,000 jobs in the New South Wales coal industry, "would not have been possible without the co-operation of the Miners' Federation who at no stage seriously interfered with the introduction of mechanisation." In fact the union also substantially withdrew from the arena of industrial disputation in the early 1960s with coalmining accounting for only 10.7% of time lost, compared to 27.5% in the

[137] Mauldon, op.cit., pp.41-42.

[138] Dingsdag, op.cit., p.180.

[139] Dingsdag, op.cit., pp.339-349.

metals trade and 15% in the food and drink industry.[140]

This approach continued through the next decade. Greg Smith has commented that "the post war period up to the late 1960s saw the Miners Federation, in a largely underground-based industry, remain essentially on the defensive as it accommodated to the requirements of an extensive mechanisation program."[141]

During the 1970s, with the growth and increased profitability of the coal industry through the expansion of coal sales to Japan, the strategy of the miners' union, as Smith has put it, became "one of taking advantage of opportunities generated by favourable demand conditions." In 1971 the Coal Industry Tribunal awarded workers in the coal industry a 35 hour week. Miners gained increases in the wages in 1976, 1978 and 1982.[142]

Productivity in the mines increased both during the period of mechanisation in the 1950s and during the period of expanded sales to Japan in the 1970s and 1980s. Graham Larcombe has written that as a result of the 1950s modernisation program, "NSW underground mines became the most productive in the world. From the early 1950s to the mid-1960s, productivity increased fivefold."[143] During the 1970s and 1980s, according to Smith, the "traditional measure of labour productivity in the coal industry. . .raw coal output (in tonnes) per manshift" increased from 11.38 tonnes of raw coal per manshift in 1968-1969 (for all types of mines in NSW and Queensland together), to 24.68 tonnes in 1987-1988. In Smith's estimation the "overall increase in labour productivity over the period was 104.2 per cent." The key feature of this increase in productivity, according to Smith, has been that the "base level of productivity in open cut mining was much higher than in underground mines".[144]

After a period of gains during the 1970s and 1980s, the miners' union again

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[140] P.B. Beaumont, "Conflict in Coal: The NSW Experience" in *The Journal of Industrial Relations*, Vol.17, 1975, pp.46,53.

[141] Greg Smith, *Productivity and Industrial Relations in the Post-War Australian Coal Industry*, paper presented to the Economic History Society of Australia and New Zealand Conference, University of New England, Armidale, 6-10 July 1994, p.11.

[142] ibid., p.18.

[143] Larcombe, op.cit., p.98.

[144] Greg Smith, *Productivity and Industrial Relations in the Post-War Australian Coal Industry*, pp.22-23. Christopher Jay has noted that it was in the late 1970s that the largest producer in New South Wales, Coal and Allied, made a decision "to move heavily into the new, open cut mining areas of the Upper Hunter, in a dramatic break with a 133-year old tradition of basically underground mining." Jay, op.cit., p.213.

retreated to a more defensive position in the mid- to late 1980s when the Japanese recession of 1986 caused the downturn in the coal industry in NSW and Queensland, outlined above. In response to this, coal owners pressed for a reduction in miners' entitlements, pursuing, as Smith has described, changes "based on more continuous working arrangements in which the key ingredients were extensions to allowable periods of production and more flexible rostering." The Coal Industry Tribunal's decision of September 1988 largely accepted the employers' requests. Smith has outlined the main provisions of the 1988 decision as follows:

> (i) an award-recognised shift length of eight hours, replacing the previous seven hours, with provision made for extension by agreement;
>
> (ii) award-recognition of an employer's right to carry out non-productive and underground development operations seven days a week, underground production six days a week, and make-up production generally on a sixth day in the week;
>
> (iii) production to be spread over the whole year, where previously the award had allowed for a period of annual shutdown;
>
> (iv) production on overtime to be an award right, where previously overtime had been confined to maintenance and other non-production duties;
>
> (v) rosters to be award-recognised without any limits on their scheduling; the manning of such rosters to be determined by employers in accordance with a detailed procedure.[145]

In 1990 the Coal Industry Tribunal brought down a new award. A significant aspect of the award, designed to contribute to even greater productivity in the industry, is the broadbanding of classifications to introduce multi-skilling into the industry.[146] In March 1995 in Brisbane, against the background of continued cuts in the price of Australian coal (forced by recession-hit Japanese industry), a meeting of representatives from unions, employers and state governments - all concerned with the coal industry - agreed to further measures to increase the performance of the industry, including agreement from the United Mine Workers to a stronger enterprise focus in industrial

[145] ibid., p.20-24.

[146] Task Force for Coal Development Strategies, op.cit., p.63.

relations.[147]

Although the miners' union held strikes in the 1993, because the low prices offered for coal in the 1990s threatened to lead to further loss of jobs,[148] it would seem on an overall level that not only has the union never been in a position to really threaten the industry but that the situation has been the reverse: over the years the union accommodated to mechanisation, and participated in increasing productivity, while accepting the loss of thousands of jobs.

(g) Environmental Concerns over the Use of Coal as Fuel

At the very time that coal has re-emerged in significance in Australia, both in regard to its domestic role in electricity generation and in regard to its export potential, a complicating factor has intruded in the form of increasing concerns about the impact on the environment of a worldwide increase in coal-produced emissions. Ferdinand Banks has summed up the problem as follows:

> The chief polluting agent among the fossil fuels is coal, which contributes more than half of the man-made sulphur emissions, and 80 per cent of the sulphur emitted from stationary fossil fuel combustion. It has been estimated that in the United States, a 1,000-MW coal-fired electricity generation plant using 10,000 tons of coal a day would cause an annual emission of 8 million tons of carbon dioxide, 50,000 tons of sulphur dioxide, 20,000 tons of nitrous oxide, and between 25,000 and 250,000 of particulate matter, depending on how thoroughly the coal is washed before it is used and chimney gases are cleaned before being released.[149]

As well as pollution of the atmosphere, scientists have, since the 1970s, issued warnings about the so-called "greenhouse effect": an increase in global temperatures as a result of an expansion in the amount of carbon dioxide (and other gases) in the earth's atmosphere.[150] Jim MacNeill and his colleagues have written that a significant contribution to this accumulation of carbon dioxide comes from "fossil-fuel burning (coal, oil, natural gas) and

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147 David Beddall, Minister for Resources, press release, 5 March 1995. For an account in the press, see Joseph Dowling, "Peace Accord in Coal Industry" in the *Australian Financial Review*, 6 March 1995, p.7.

148 ibid., p.27.

149 Banks, op.cit., p.160.

150 ibid., p.168.

deforestation".[151]

During the 1980s (the very period in which Australia became one of the world's largest exporters of coal, and in which coal-based electricity production in New South Wales was expanded) governments elsewhere in the world in fact began to move against coal-produced emissions. Banks has recalled that in "1983, a law was passed in Germany specifying that new electrical power stations supplying over 300 MW must be capable of meeting especially rigid emission standards and that older power stations must conform to these same standards within six years."[152]

In the last years of the 1980s, and in the early 1990s, scientists held conferences calling on the governments of the world to take action to reduce carbon dioxide levels. In 1988 a Conference on the Changing Atmosphere was held in Toronto. The final statement of the conference, according to MacNeill, "called up on the world community to stabilise atmospheric concentrations of carbon dioxide, a goal that would require a 60 to 80 per cent reduction in fossil fuel combustion." Two years later, a world climate conference was held in Geneva attended by heads of state and ministers and delegates from 137 countries, and by 700 hundred scientists. Two days after the scientists had concluded their part of the conference, the six nations of the European Free Trade Association joined nations of the EEC in making a commitment to "take actions aimed at stabilising their emissions of CO_2. . .by the year 2000 in general at the 1990 level." According to MacNeill, "Canada, Australia and New Zealand adopted the same target, although with some hedging."[153] In 1992 the Earth Summit was held in Rio de Janeiro at which delegates from 50 countries, including Australia, signed a draft United Nations Framework Convention on Climate Change binding the signatories to a commitment to reduce "greenhouse gas" emissions. In March 1994 the convention came into force - a development endorsed by the Prime Minister.[154]

As well prevailing on governments to make in principle commitments to reducing carbon dioxide levels, researchers made particular suggestions about how this could be done. In the early 1980s, Professor William Nordhaus supported the strategy of a carbon tax to reduce the use of fossil fuel.[155] At the end of the 1980s, Alan Manne of Stanford University, and Richard Richels

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[151] Jim MacNeill, Pieter Winsemius and Taizo Yakushiji, *Beyond Interdependence: The Meshing of the World's Economy and the Earth's Ecology* (Oxford University Press, New York 1991), p.11.

[152] Banks, op.cit., p.154-155.

[153] MacNeill, op.cit., pp.75-77.

[154] Gilchrist, op.cit., p.46.

[155] Banks, op.cit., p.174 citing William Nordhaus, "How Fast Should We Graze the Global Commons" in the *American Economic Review*, May 1982.

of the Electric Power Research Institute, put forward the proposal, as outlined by MacNeill, that "emissions could be reduced to the desired levels by a variety of policy instruments, including a carbon tax. A low carbon tax of $29 per ton of carbon would serve until the year 2000. . .With energy efficiency improvements of 1 per cent a year, US energy demand by 2050 would be cut in half".[156]

Just at the moment when coal appears to have recovered some its position as a fuel, environmental concerns over carbon dioxide emissions, both overseas and at home, now seem set to have a dampening effect on the long-term worldwide demand for coal. Banks pointed out in 1985 that, overseas, "coal buyers are aware that environmental legislation in most countries cannot be regarded as predictable."[157] During 1990s nations have actually committed themselves to reducing levels of carbon dioxide in the atmosphere, and commentators, such as ABC Television's science reporter Gavin Gilchrist, are taking note of the fact that Pacific Power's new power station at Mount Piper (opened in the 1990s) has peak output emission levels of almost 1,200 tonnes of carbon dioxide every hour. This has led Gilchrist, amongst others, to advocate a moratorium on the building of new coal-fired power stations and investment in alternative (less CO_2 producing) energy sources such as solar power. As Gilchrist maintains, "Coal has been king for long enough...Now is the time ...to switch to...cleaner ways of providing energy".[158]

5 CONCLUSION

Looking back on this outline of the development of coal production in New South Wales and its progress during the 1980s, it seems that the significance of the coal industry has to be considered on two levels.

On the one hand, there does appear to be a valid future for coal on a domestic level. It has been singled out as a cheaply available fuel input to produce correspondingly cheap generation of electric power. It contributes to the State directly though royalties and payroll taxes and indirectly through revenue earned by the electricity generation authority by providing business for the railways.[159] Over ten thousand workers are employed directly in the mines

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[156] MacNeill, et.al., op.cit., pp.98-99 citing Alan Manne and Richard Richels, "CO_2 Emission Limits: An Economic Cost Analysis for the USA" in *The Energy Journal*, November 1989.

[157] Banks, op.cit., p.243.

[158] Gilchrist, op.cit., pp.284-285.

[159] There has been some debate over the role of the railways in coal transportation but R.L. Batterham and his colleagues have concluded that "Rail transport is much cheaper than road as a means of transporting export coal in the Hunter Valley in terms of net social cost." See R.L. Batterham, T.G. Mikosza and A.P. Ockwell, "Coal Transportation in New

and the steel industry is an important consumer of coal as are lesser industries such as cement. The coal industry is an important element in the life of Newcastle and Wollongong. It is still, indeed, an integral part of the industrial and social life of the State.

On an international level, in the arena of Australian exports, on the other hand, it is remarkable just how much the coal industry exemplifies the economic dilemmas which Australia faces today. Indeed, it has been what has happened to coal, in the arena of overseas sales, which has actually become one of the contributing factors to the growing state of concern about Australia's economic future.

It was the constantly declining returns for overseas sales of coal in the 1980s which contributed to the balance of payments crisis in the middle of the decade and which, in turn, led to profound consideration at a governmental level of the means to change this situation.[160] Robert Garran, economics correspondent for *The Australian*, has reported that it was Paul Keating's view, when Treasurer, that the 1986 decline in the value of the Australian dollar was a result of "the consequence of the sharp adjustment forced on the economy by a collapse in world prices for our main exports." Indeed the Prime Minister, Bob Hawke warned, in "an address to the nation on the economic situation", in June 1986, that "International prices for the things we export have fallen, in some cases catastrophically." The commodities to which he referred included "cereals, iron ore, coking coal, metal ores and minerals." He warned that the outcome of this situation was having "to accept reduced standards of living".[161] In August 1986 the Prime Minister warned again that "We are

South Wales: A Programming Analysis of Road and Rail Options" in the *Logistics and Transportation Review*, Vol.28 no.4, December 1992, p.366.

[160] Warnings about this situation were being issued by the Federal Department of Trade in 1984. According to reports in the press, an analysis by the department of Australia's trade relationships took the view that since 1970 "almost every other significant exporting country has been outstripping Australia in growth in export earnings. . .in concentrating on mineral and rural exports, Australia has been backing the slow-growth commodities whose growth is becoming progressively even slower." See John O'Hara, "Shrinking Markets Put Squeeze on Wealth" in the *Sydney Morning Herald*, 3 February 1984, p.9. The department's views were subsequently incorporated in a 1985 report by a panel of representatives from industry. See *Lifting Australia's Performance as an Exporter of Manufactures and Services*, report of the National Export Marketing Strategy Panel (Australian Government Publishing Service, Canberra, 1985).

[161] *Address to the Nation on the Economic Situation*, speech to the nation delivered by the Prime Minister (Honourable R.J.L. Hawke), 11 June 1986.

now in a crisis which is as great as the crisis of war."[162] Ann Capling and Brian Galligan have noted that it was the 1986 economic crisis "which highlighted the need to shift resources into the traded goods sector (export and import-competing industries)" for reasons later summarised by Brian Pinkstone:

> the real international prices obtaining for resource-based products seem destined to continue their long-term secular decline. . .Consequently, any conspicuous improvement in the contribution of exports to GDP must come from exports of manufactures and services.[163]

In 1987 the Federal Department of Industry, Technology and Commerce issued a publication on Australian industry which emphasised this point by declaring that "increased trade in manufactures - both exports and import replacement - is seen as a critical contributor to the long-run improvement in Australia's

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[162] Robert Garran, "Crisis, What Crisis?" in *The Australian*, 7 June 1993, p.29. John Lyons, "Economic Crisis as Great as the Crisis of War: PM" in *The Australian*, 18 August 1986, p.1. David Tomlinson commented in *The Australian* in December 1986 that "Our trade problem is the greatest single problem facing the Australian economy." See David Tomlinson, "'Lucky Country' Faces the Day of Reckoning" in *The Australian*, 3 December 1986, special report p.1. One direct outcome of this crisis was a cut in jobs in government services and a cut in social services. In the coal industry itself, as described above, the fall in coal prices in the mid-1980s led to the closure of six mines in NSW and the loss of 2,000 jobs.

[163] Ann Capling and Brian Galligan, *Beyond the Protective State: The Political Economy of Australia's Manufacturing Industry Policy* (Cambridge University Press, Melbourne, 1992), p.150; Brian Pinkstone, *Global Connections: A History of Exports and the Australian Economy* (Australian Government Publishing Service, Canberra, 1992), p.323-324. It is intriguing to note that the problems of resting the economic destiny of a country on raw materials exports were sounded decades before 1984 or 1986. Pierre Jalee wrote at the end of the 1960s, in regard to commodity exports from Third World countries, that "Everyone is more or less aware that since the Second World War the prices of raw materials exported by the Third World have generally fallen or risen considerably less rapidly than those of the manufactured goods which that same Third World imports. . .This leads a to deterioration. . .in what is known as the 'terms of trade' - that is, the relationship between the average unit value of exports and the average unit value of imports. In other words, the price the Third World receives for a given quantity of raw materials will serve to purchase less and less of this or that manufactured commodity." The factor behind this phenomenon, as observed by Jalee in 1969 (noting the phenomenon later perceived by the Australian Department of Trade in the 1980s) was that "There is an increasing propensity "amongst industrial nations "to trade more and more goods manufactured at home for similar goods from other industrial countries." See Pierre Jalee, *The Third World in the World Economy*, translated by Mary Klopper (Monthly Review Press, New York, 1969), pp.71-72,80.

balance of payments."[164]

There is, then, something illusory about phrases such as "world's greatest exporter of coal" which were being used in 1984 at the very moment when the prices earned by coal were declining.[165] Australia, in effect, is closer to being the world's largest producer of something that the world is inclined to pay less and less for. The illusory nature of this status has also been a key element in the great irony of the "resources boom". It was only a few years before the collapse in the price of coal (and other raw materials) in 1986 - and the renewed focus on manufactured exports to address the balance of payments crisis - that Federal and State Governments had used the prospect of a resources boom to shift the emphasis of development away from manufacturing.[166]

Coal from NSW and Queensland clearly reached its peak in value in the mid-1970s when Japanese steel companies, using improved production processes such as continuous casting, had advanced to having 25 blast furnaces collectively - and relied on coal to achieve "low-cost production". The Federal Government was even able to intervene to get a better price for coal than producers were able to obtain on their own. Once the second round of oil price increases occurred, in the late 1970s, however, and Japanese production shifted towards electronics, Japanese industrial concerns were able to obtain cheaper and cheaper prices for Australian coal as Japanese steel production stagnated in the 1980s. Coal prices fell even further when the price of oil dropped in 1986. Contributing to this situation has been the entry of worldwide companies, based overseas, into coal production in New South Wales and Queensland, some of which have been prepared to accommodate Japanese interests in selling coal at very low prices.

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[164] Department of Industry, Technology and Commerce, *Australian Industry New Directions* (Australian Government Publishing Service, Canberra, 1987), p.7. Two years later yet another report was published urging the expansion of manufactured exports. See *Australian Exports: Performance, Obstacles and Issues of Assistance*, report of the Committee for Review of Export Market Development Assistance (Australian Government Publishing Service, Canberra, 1989).

[165] J.N. Pierce, at that time *The Australian*'s energy and resources writer, remarked in his 1985 item on Australia's coal exports (footnote 62) that the total of 75 million tonnes exported in 1984 "means that Australia has probably taken the title of the world's largest coal exporter from the United States." See Pierce, ibid.

[166] In 1984, *The Australian* commented that "The most dramatic change in the Australian financial scene has been in the decline in the relative importance of the manufacturing sector. Twenty years ago the manufacturers were predominant among Australia's largest companies ...Today there are five mining companies among the top 10". See "Manufacturers Turn into Dinosaurs" in *The Australian*, 18 August 1984, p.20.

Although the requirements of Japanese electric power stations indicate a improvement in prospects for the coal industry in the late 1990s, executives in companies active in the industry have warned against placing too much faith in this development. Bob Flew, group general manager of BHP, advised in 1992 that "Australian producers or potential producers should adopt a cautious view of bullish world energy projections."[167]

Contributing to these concerns about the future of the industry is the continuation of this scenario in the form of the price cuts recently forced on Australian coal producers by Japanese industries once Japanese production sank into recession in 1992. Although between 1988-1990 coal producers in New South Wales and Queensland were able to gain increases in the price of their coal from Japanese power companies and Japanese steel mills, in early 1992, as Japanese industry began to slide into recession, Australian producers supplying the Chubu Electric Power Company were forced to accept price cuts of 95 cents a tonne.[168] At the beginning of 1993, Australian coal producers were once more forced to accept price cuts - 3.9% in the price of coking coal and 6.2 per cent in the price of semi-soft coking coal. Analysts were reported as believing that Australian exporters could lose about $369 million in revenue because of the cuts.[169] And at the beginning of 1994, Australian producers supplying coal to steel mills in Japan were forced to accept a price cut of 12%.[170] The cumulative effect of these cuts provoked the United Mine Workers to hold a highly publicised rally outside Federal Parliament to demonstrate their concerns about the inevitable continuation of job losses.[171]

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[167] See "Coal Producers Warned to be Cautious" in *The Australian*, 11 May 1992, p.21.

[168] See the *Register of Australian Mining 1989-1990*, p.333 and the *Register of Australian Mining 1990-1991*, p.353; Tom Ormonde, "Japanese Utility Sets Lower Prices for Thermal Coal" in the *Sydney Morning Herald*, 18 February 1992, p.21. The *Register of Australian Mining* commented that during financial year 1991-1992 "NSW coal miners made a collective profit of $144 million. . .But the historical statistics tend to gloss over the current situation. The recorded profit represented a margin of little over $2 a tonne of production. . .one can only wonder at the current profitability of the industry." See the *Register of Australian Mining 1991-92*, p.235.

[169] McGregor, ibid.

[170] The *Register of Australian Mining* reported that "The 1994 round of coal talks in which BHP Australia Coal Ltd accepted a massive 8% to 9.5% cut in the price of coking coals sold to Japanese steel mills sparked an unprecedented round of recriminations in the industry. . .Owners and operators of marginal coal mines in New South Wales and Queensland said profits overall would be wiped out." The journal reported the managing director of Clutha Ltd as describing the price cuts as "devastating" and "unbelievable". See the *Register of Australian Mining 1994-1995*, p.181.

[171] Joshua Frith and Richard McGregor, "Coal Miners Take Protest to PM" in *The Australian*, 2 March 1994, p.4.

As well as forcing continual price cuts on Australian coal producers, Japanese industry executives have made it clear that they intend to consider a country's usefulness to Japanese energy requirements on a worldwide basis, with no obligation to remain with any one nation for supplies, and with the option of being able to turn to other countries with plenty of reserves - such as China and Russia.

The financial trend of this situation in the 1990s was predicted by analysts before the Japanese recession of 1992 had even occurred. The task force appointed by the NSW Government in 1990, to consider coal development strategies, reported at the end of 1990 that, regarding Coopers and Lybrand's annual surveys of the Australian coal industry,

> Coopers and Lybrand found it difficult to forecast accurately the future of the NSW coal industry. They assumed that if there were no changes, in real terms, to net selling prices in the Australian currency, to production volumes and operating costs, and to taxation, the present pattern of profit results and cashflow would continue. This would mean (a) a continuation of the scenario of inadequate dividends and returns to shareholders; (b) an ongoing need for non interest bearing borrowings from shareholders or related parties; (c) an inability to make any significant reduction in borrowings and their attendant interest costs.[172]

Gross State Product (GSP) figures for 1992 reflect some of the realities of coal's contribution to the life of the State. While mining, as outlined above, formed 2% of New South Wales GSP, manufacturing contributed 15%; wholesale and retail trade contributed 15%; public administration, defence and community services contributed 15%; finance, property and business services contributed 12%; and transport, storage and communication contributed 9%.[173]

Not only is mining a small part of GSP but the long term outcome of diminishing returns for shipping huge quantities of coal overseas must sound a note of caution about re-emphasising potential returns from raw materials exports. The very experience of the 1986 crisis has indicated that, in the future, increasing *manufactured* exports seems to be the course that has to be taken.

Adding to the dilemma about the future of the coal industry in New South Wales are the increasing concerns about the amount of carbon dioxide emitted into the atmosphere by coal burning; the disputes that may occur in the future over reserves of coal in national parks; and the need to develop coal sales in

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[172] *New South Wales Coal Development Strategies*, p.34.

[173] ABS, ibid.

countries other than Japan to avoid the obvious difficulties entailed in dependency on the Japanese market.

On an overall level there is the fact that, even if revitalising overseas coal sales is considered worthwhile, coal has made a comeback, as a fuel, simply because oil, temporarily, is in the background. In the harsh judgment of Ferdinand Banks, "The problem with coal is, at bottom, extremely simple. Nobody, except the coal industry, really wants a return to the age of coal at the present time."[174] Coal is not valued as highly as oil in international commerce and production - it is a low value substitute temporarily prominent because of the relatively high price of its competitor.

At the moment, however, there is a definite enthusiasm amongst all participants in the coal industry to make the best of the opportunities that currently present themselves and there seems no doubt that if the predictions about Japanese requirements for power station coal eventuate, there is some reason for coal companies in New South Wales to engage in mining in the expectation of a worthwhile outcome.

[174] Banks, op.cit., p.69.