

Philip G. Laird

Senior Lecturer, University of Wollongong,
P O. Box 1144, Wollongong, N.S.W. 2500

AUSTRALIAN FREIGHT RAILWAYS IN THE TWENTIETH CENTURY

Abstract

The development of Australian Government railways this century, and the various steps in extending standard gauge track are considered. Proposals for new railways such as Alice Springs to Darwin, further gauge standardisation, and reconstruction of the Sydney-Melbourne line are also discussed.

A summary is given of railway electrification and the current operations of the five Government rail systems in Australia. Road-rail competition for freight is considered along with the recent role of Federal Governments in facilitating rail improvements. A more efficient rail network is advocated instead of continual subsidization of road and rail freight transport.

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INTRODUCTION

Australian Confederation began in 1901 with six States, each with its own Government rail system. At that time, there were some 20,125 kilometres of Government railways in Australia. Railways with a standard gauge of 1435 mm were then confined to New South Wales. Victoria railways had mostly a broad gauge of 1600 mm, Queensland, Western Australia and Tasmania had a narrow gauge of 1067 mm while South Australia had both narrow and broad gauge railways.

There are now five Government rail systems, with standard gauge extending into each of the six States and two Territories.

The Federal system, Australian National was formed in 1975 when it took over the former Commonwealth Railways with its Trans-Australian Railway and other railways extending into the two territories. Australian National also assumed full control on 1st March, 1978 of the former Tasmanian Government Railways and the non-urban South Australia State Railways. Each of the other four States of Queensland, New South Wales, Victoria and West Australia have state wide rail systems operating under State legislation and assistance. These rail systems are Queensland Railways (QR), State Rail Authority of N.S.W (SRA), V/Line, the State Transport Authority-Victoria (VL), and Westrail (WR).

This article firstly considers the development of mainline Government railway track in the twentieth century, and the various steps in extending standard gauge track. Proposals for new railways such as Alice Springs to Darwin, further gauge standardisation, and reconstruction of the Sydney-Melbourne line are then discussed. A brief summary is given of railway electrification and the current operations of the five Government rail systems in Australia. We consider road-rail competition for freight and the recent role of Federal Governments in facilitating rail improvements.

In conclusion, it is argued that it is in Australia's national interest to have a more efficient rail network rather than continual subsidization of road and rail freight transport.

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NEW INTERSTATE AND TERRITORY RAIL LINES

The Australian Constitution expressly allows the Federal Parliament (Section 51 (xxxiv)) to make laws for "Railway construction and extension in any State with the consent of that State". Federation proposals for Australia brought an implied promise to Western Australia that the Federal Government would build a rail link to that State (Bayley, 1973). Indeed completion of rail links in the nineteenth century between the four eastern mainland States provided an impetus to Federation, as noted (Barker, 1974), by the Victorian Premier on the joining of N.S.W. and Victorian railways in 1883 at Albury).

In 1911, the Commonwealth authorised the construction of a railway from Port Augusta to Kalgoorlie. Bayley (1973) notes that the Engineers-in-Chief of the railways of the mainland States were responsible for the choice of standard gauge, even though at that time, each end would meet a narrow gauge line. The railway, said to be laid 'from nowhere to nowhere' was completed in 1917 - despite the shortages of men, money and materials prevailing during the First World War. It was extended from Port Augusta to Port Pirie in 1937.

Railways built by the Commonwealth in the Northern Territory were from Pine Creek to Katherine River by 1917 and then Birdum by 1929. The Oodnadatta to Alice Springs Railway was built in 1926-29.

Years later, the Tarcoola to Alice Springs Railway Act, 1974 provided for the construction of a standard gauge railway with a new route. This was completed in 1980 under the allowed cost of \$145 million. In 1981, the narrow gauge railway to Alice Springs was closed. The North Australia line, which had ceased operations in 1976, was formally closed in 1981.

The Alice Springs Darwin Proposal

In 1878, work commenced at Port Augusta on a Great Northern railway, that reached Oodnadatta by 1891; whilst, in the north a railway from Darwin to Pine Creek was completed in 1889 (Bromby, 1982). As part of the transfer of the Northern Territory from South Australia to the Commonwealth in 1911, it was agreed that the Commonwealth would construct a railway from Darwin to the N.T./S.A. border. Whilst the Commonwealth reaffirmed this in a 1946 and 1949 Acts

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of Parliament, an action brought by the South Australian Government to the High Court in 1961 to get completion of the line by the Commonwealth failed on the grounds that no time was specified in the legislation. In 1980, following completion of standard gauge rail to Alice Springs, the Fraser Government announced it would construct the railway to Darwin by 1988. By 1984, some \$9 million had been spent for design work and planning of the new railway, and an Environmental Impact Statement had been placed on public display.

Shortly after the 1983 election, the new Hawke Government requested a 40% contribution from the Northern Territory Government to build the 1420 km railway at a cost of about \$578 million at June 1983 prices. As an alternative, the Commonwealth offered to upgrade the Alice Springs-Darwin road and improve rail services to Alice Springs. The Northern Territory Government declined to choose between these two options.

The Hawke Government then established an inquiry into transport services to be carried out by Mr. Hill, the Chief Executive of the State Rail Authority of N.S.W. The Hill Report, as seen by Federal Transport Minister Mr. P. Morris, concluded that *"it would cost Australia in excess of \$1 billion by the year 2000 to build and operate the railway"*; as such, *"the project cannot be justified on economic or social grounds"*. The Government later found no compelling defence reasons to build the railway.

These views are rejected by the Northern Territory Government. The importance of rail to Alice Springs for the southern region of the Territory is generally well recognised. A rail link to Darwin would be expected to assist in the growth of its port, and also bring benefits to the South Australia economy. (Bartlett and Bannister, 1983).

A report (Australian 17/10/84) by the Strategic and Defence Studies Centre of the Australian National University found the new rail link to Darwin would assist defence purposes. A final report by Canadian Pacific Consulting Services (1985) concluded that the extension of a standard gauge railway from Alice Springs to Darwin is viable in strictly economic terms for a broad range of traffic forecasts. This report notes that construction time could be reduced from nine years to four years, with further cost and time savings if use is made of 265 km of existing

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subgrade and bridges from the abandoned North Australia Railway. In addition, the Canadian Pacific report observes that fuel savings alone of the new railway exceeding 2 Billion litres over 50 years "will exceed the initial construction costs".

The Federal opposition has reaffirmed its support for construction of the new railway to Darwin in its 1984 transport policy.

Other related proposals include a railway from Darwin to Mount Isa, and a new "East-West" railway in the northern part of Australia. There have also been proposals for the Mt. Isa-Townsville railway to be of standard gauge, or at least capable of conversion.

The Brisbane-Wallangarra Proposal

Queensland Government is conducting a feasibility study into constructing a new southern rail link to service coal exports from the Darling Downs (The Australian and Courier Mail, 9 October, 1984). This railway would involve a several kilometre tunnel through the Toowoomba Range and be electrified at a total cost of about \$200 million. Although the new railway is dependent on coal prices rising, if constructed as a dual gauge railway with a standard gauge link to Wallangarra in N.S.W., it would facilitate grain exports and interstate rail traffic. It may be noted that the present Sydney Brisbane railway, despite recent improvements, remains deficient in alignment with some sharp curves and steep grades.

GAUGE STANDARDISATION

References to the need for a uniform railway gauge for Australia predate Confederation in 1901. For example (Barker (1974));

If, therefore, full benefit is to be derived from the railways, a uniform gauge must be established, at all events on the through lines. (quote from the Report of Major General J. Bevan Edwards on the Military Defences of Australia, Sydney, 9th October, 1889).

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In 1897, the Premiers of New South Wales, Victoria and South Australia agreed at a meeting on the desirability of a uniform rail gauge, with their Railway Commissioners later agreeing on conversion to standard gauge.

After Confederation, it was hoped that the new Federal Government would help sort out the gauge muddle. Dr. Bradfield (1915) noted the importance of settling the gauge question in his report on electrification of Sydney's railways. And in commenting on the completion in 1917 of the Trans-Continental railway, the Western Argus in Kalgoorlie (Barker, 1974) said

The railway just completed has improved Australia's ability for defence, and it will be still further improved when a uniform gauge can be instituted throughout all Australian States.

In 1921, a Royal Commission on the Matter of Uniform Railway Gauge reported. It estimated the cost of conversion of all Australian railways to standard gauge at 57 million pounds, and recommended a first stage scheme at a cost of 21 million pounds. A new standard gauge link from Grafton to South Brisbane was commenced in 1924 and opened in 1930.

In 1945, Sir Harold Clapp as Director-General of Land Transport in the Commonwealth Department of Transport (and former Chief Commissioner of Victorian Railways) recommended gauge standardisation in mainland Australia of some 13,550 kilometres of existing track and construction of 2,560 km of new standard gauge track plus new locomotives and rolling stock at a cost of about 76.8 million pounds. The Commonwealth Rail Standardisation Agreement Act of 1946 offered conditional assistance to N.S.W., Victoria and South Australia. However, by 1949 N.S.W. had failed to ratify the agreement and the Chifley Government passed a new Act offering assistance to South Australia and the Northern Territory. The south-eastern lines in South Australia were converted from narrow gauge to broad gauge under the terms of the 1949 Act on the basis that they would later be converted to standard gauge.

The Menzies Government elected in 1949 established a Parliamentary Committee on Rail Standardisation that observed (Wentworth, 1956)

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While there may be considerable doubts as to the justification of undertaking large scale standardisation of Australian railways under present circumstances, there can be no doubt that the standardisation of certain main trunk lines is not only justified, but long overdue.

The Wentworth report (with indirect support from a minority Labor Party report) recommended three immediate standard gauge projects; Wodonga to Melbourne at about 10 million pounds, Broken Hill to Adelaide via Port Pirie at about 13.5 million pounds, and Kalgoorlie to Perth and Fremantle at 18 million pounds. The Committee considered these measures would "provide a cheaper and more efficient interstate transport system than can be obtained in any other way, and will thus save the roads and minimise capital outlay".

The Commonwealth supported standard gauge between Albury and Melbourne. That was completed in 1962, with net freight tonnage increasing by 32.5% in the first year with an annual average increase of 8.6% thereafter to 1973 (Nayda, et al, 1984). Facilitated by forecasts of major mineral traffic from Koolyanobbing to steelworks at Kwinana in Western Australia, a standard gauge line from Perth to Kalgoorlie was opened in 1968. The following year, standard gauge linked Port Pirie to Broken Hill. Freight services and the 'Indian-pacific' commenced over the 3961 km Sydney to Perth standard gauge track in 1970. A new standard gauge connection to Adelaide was initially stopped by the Commonwealth in 1977. Instead, Australian National converted some broad gauge track to standard gauge from Crystal Brook to Adelaide. This allowed direct Sydney-Adelaide and Perth Adelaide standard gauge freight services to commence in 1982, and was followed by passenger operations to a new terminal in Adelaide in 1984. The project was funded by Loan Council borrowings and not on a Federal grant aid basis, at a cost of about \$92 million.

Changes in Australia's railway network and the growth of standard gauge are shown in Table 1.

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Table 1

AUSTRALIAN GOVERNMENT RAILWAYS Route Kilometres

GAUGE	1901	1954	1984
Broad	6,175	9,710	7,449
Standard	4,580	11,710	15,176
Narrow	9,487	21,290	16,172
	20,242	42,710	38,797

References: For 1901 and 1954, Commonwealth Official 1907 and 1955 Year Books;
for 1984, Railways of Australia 1985 Year Book.

New Proposals for Gauge Standardisation

A recent Bureau of Transport Economics (1984c) three year study provides an economic evaluation of providing standard gauge rail lines to the ports of Brisbane, Melbourne and Geelong.

A new port area at Fisherman Islands near Brisbane is connected to Queensland's narrow gauge network, with interstate rail freight being changed to the standard gauge network at Acacia Ridge. The most favourable construction option is suggested as conversion of 41 km narrow gauge track completed in 1980 from Parkinson Marshalling Yard to Fisherman Islands to dual gauge track. The estimated cost at June 1982 prices was \$7.2 million. The report suggests there is little advantage at present to Queensland Railways for such expenditure.

At Melbourne, Swanson Dock is the major port area for the handling of overseas containers and is connected to Victoria's broadgauge rail system. The BTE report suggests that benefits could be obtained by dual gauging some 10.4 km of rail track plus a short section of new standard gauge track at a cost of about \$2 million. Other options were a new standard gauge track at \$3.5 million, or conversion of relevant broad gauge track to standard gauge. The later option is not acceptable whilst Victoria retains its broad gauge system.

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The standardisation option least favoured in the BTE report was that of providing standard gauge rail access between southern N.S.W. and the Port of Geelong. Amongst the options considered were provision of new standard gauge track, or dual gauging 142 km track at a cost of some \$18 million between Tocumwal (on the N.S.W.-Victorian border) and Mangalore (a rail junction between Albury and Melbourne); and, Melbourne to Geelong.

Another major gauge standardisation proposal is that of Adelaide-Melbourne. A recent paper (Nayda, et al (1984)) refers to 1983 studies by Australian National and V/Line. From this, it appears that prospects for conversion of one Adelaide-Melbourne track from broad gauge to standard gauge, plus conversion of a major part of the Victorian and the entire South East part of South Australia rail networks could be justified on commercial grounds. The benefits would include rail system operational cost savings, and rail traffic expansion.

One reason for gauge standardisation projects being more attractive now is the availability of relatively low cost gauge conversion techniques, using track maintenance machines. Such were used on the Adelaide-Crystal Brook project in converting some broad gauge track to standard gauge at a cost of about \$7,500 per kilometre at an average rate of 2.5 km per day.

SYDNEY-MELBOURNE Since 1980, there has been 3 major proposals to really upgrade Australia's major intercapital rail link. These are in addition to the recently completed Centralised Traffic Control signalling on the 140 km single line section between Albury and Junee (as recommended in an earlier BTE Report (1975)). Both this section and the 485 km Sydney-Junee double track section include some steep grades and tight curves. The Albury-Melbourne standard gauge section in Victoria is basically single track. The overhead clearance on the line are such as to prevent 'piggy-back' loadings of semi-trailers - as is now possible between Perth in W.A. and Parkes in N.S.W.

The first recent proposal was that in 1980 by the Federal Government to assist the N.S.W. and Victorian Governments to electrify the Sydney-Melbourne railway. This offer was made after a detailed study. However, "because of the low priority

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given to the project by the N.S.W. and Victorian Governments", the offer was withdrawn by the Commonwealth in 1981. The most recent proposal, also involving electrification, was by CSIRO in 1984. This involved a new double track line passing through Canberra and would, like the TGV new track and trains in France, be orientated towards high speed passenger travel. A more modest proposal is "The Bicentennial High Speed Railway Project" of the Institution of Engineers, Australia. This 1981 proposal envisaged, for a cost of \$200 million,

1. Construction of a new double track 68 km section between Cullerin and Yass to bypass one of the worst sections of the existing railway (with steep grades and sharp curves).
2. In connection with the above, a 43.5 km single spur line to North Canberra.
3. Bypassing of three short sections with steep grades between Albury and Junee to improve freight operations.
4. Improved Sydney - Canberra - Melbourne passenger services with XPT trains.

It is understood that no Government is, as yet, particularly enthusiastic about any of these proposals, and the State Rail Authority of N.S.W. regards the Sydney-Brisbane railway as in more urgent need of upgrading. However, the N.S.W. Government has made a start on a new East Hills-Glenfield railway. When completed in 1987, this direct southern link will provide less congested rail access to Sydney.

The most recent Sydney-Melbourne rail grade easement was the completion in 1946 of the Bethungra spiral north of Junee for Sydney bound traffic. The present outmoded rail alignment may be compared with the continual upgrading of the Hume Highway, and the present \$300 million commitment to making a four lane highway between Sydney and Melbourne. It may also be compared with part reconstruction and 25,000 Volt A.C. electrification by 1988 of over 400 km of the North Island Main Trunk Railway in New Zealand - which has had CTC signalling since the mid fifties.

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ELECTRIFICATION

Railway electrification in Australia was for many years confined to the suburban systems of Melbourne and Sydney that respectively commenced operations with 1500 volts DC equipment in 1919 and 1926. After the second world war and before the widespread use of diesel - electric locomotives, N.S.W. had proposed further electrification to Lithgow, Newcastle, Port Kembla and Goulburn (Overseas Railways, 1949). Extension of Sydney's 1500 vol DC system took place to Lithgow in 1957, Gosford in 1960, Newcastle in 1984, and Wollongong in 1986. The recent projects used Loan Council approved borrowings.

It is generally recognised that N.S.W. low voltage electrification has probably gone too far. The new Maldon Port Kembla railway, now under delayed construction, will be at 25,000 volts AC and will use dual voltage locomotives. There are also proposals (e.g. N.S.W. 1979 Coal Strategy Study) for 25,000 volts AC electrification of N.S.W. coal railways to Port Waratah and Kooragang near Newcastle.

The first stage of Brisbane's suburban electrification was opened in 1979 with a 25,000 volts AC system. This has since been extended. Queensland is now also electrifying its coal railways. The first stage is expected to pay its cost of \$600 million within 9 years from operating savings, and the first coal train to be hauled by electric locomotives in Queensland is due in late 1986.

Westrail announced in 1985 that it would electrify its suburban railways.

SYSTEM SUMMARY

Various features of Australia's five Government rail systems for 1983-84 are given in Table 2. All systems had deficits that year, which with the exception of Westrail, were lower than the 1982-83 financial year. Reasons for these deficits, which became significant in the seventies, are many and are discussed, for example, by Dodgson (1978), BTE (1981a) and the ARRDO 1981 Report on Rail.

In addition to paying rail deficits, some State Governments are also meeting loan repayments (e.g. \$99.549 million during 1983-84 in N.S.W. for the S.R.A.), and capital works. One

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estimate (Norley and Kinnear, 1984) of capital expenditure on Australia's Government railways in 1981-82 was \$810 million. This may be contrasted with a total road expenditure in 1981-82 of \$2428.5 million (BTE, 1984).

Each of the five Government rail systems in Australia has different productivity, and all are making some effort to reduce deficits and improve efficiency. One major problem is staff levels and industrial relations. A particularly bad example is currently afforded by the State Rail Authority of N.S.W., with the critical Macken (1980) Report into industrial relations and its reference to a "railway ethos" of malaise pervading all levels of railway service. More recent references to the SRA include absenteeism amongst some employees taking "Trifectas" of up to 3 days sick leave without a medical certificate, and compensation which is now under review. The SRA was also afflicted with some 49 days of major strike action in 1984-85 (SRA 1985 Annual Report). These strikes were mainly over the issue of reducing train crews from 3 to 2 persons; a change that has come about in both Westrail and Queensland Railways without such strike action.

Westrail (1984) has made proposals for more commercial operations, along with compensation for clearly identified Community Service Obligations (CSOs) and the freedom to offer services by all land transport modes. Westrail notes that in many countries such as New Zealand and Canada, legislative changes have enabled railways to operate commercially and competitively. Queensland railways retained management consultants in the early eighties, and have since moved to more efficient operations that show an operating profit of \$107.8 million in 1984-85 (QR 1985 Annual Report) with a record coal haul of 52.3 million tonnes that year. Australian National has been the subject of two Federal Parliamentary Inquiries, and there is bipartisan support for its operations to 'break even' by 1988.

The Victorian V/Line released in 1985 a draft discussion paper for a 5 year Corporate Plan that includes a "more market orientated multimodal approach to transport services" and implementation of statutory objectives of managing and operating freight services at a profit.

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TABLE 2

RAIL SYSTEMS SUMMARY 1983-84

SYSTEM	AN	QR	SRA	VL	WR	Total
Route kilometres						
Broad	2001	-	-	5448	-	7449
Standard	3636	111	9884	332	1213	15,176
Narrow	1813	10,120	-	-	4239	16,172
Total	7450	10,231	9884	5780	5452	38,797
Mainline	4970	5450	5780	2820	3420	22,440
Electrified	-	317	563	417	-	1297
Freight						
Million tonnes	12.1	53.1	46	10.5	19.9	141.6
Billion tonne-kilometres	5.9	15.4	11.7	3.1	3.9	40
Passengers Million	34	37.6	202.2	4.4	38	245
Employees Thousands	9.3	25.8	40.8	20.8	7.8	104.5
Working Expenses	325.2	725	1218	674	258.5	3,200.7
Gross Revenue	227.1	718	823	307	228.3	2,303.4
Deficits (in \$million)	98.1	7	395	367	30.2	897.3

References: Railways of Australia, 1985 Year Book, ABS Rail Transport and for mainline distances, ARRDO 1981 Report on Rail. Some figures are rounded off. Note State Transport Authority of South Australia rail operations moved 85.4 million passengers in Adelaide in 1982-83, and have staff seconded from AN not included in the above AN number of employees, also there were 80.2 million Victorian metropolitan rail passenger journeys in 1983-84.

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A current feature of the Australian rail network is the importance of coal and mineral freight traffic, and the relatively small amount of interstate freight traffic. An analysis of ABS data for 1982-83 shows that some 83.5 tonnes of coal and other minerals were carried by Australian Government railways or some 67% of all freight on a tonnage basis. The total interstate freight moved by rail was only about 6.2 million tonnes or a mere 5% of the total 124.1 million tonnes carried in 1982-83 by rail; it is also less than an ABS estimate of about 7 million tonnes of freight moved interstate by road.

Recent moves to attract more interstate freight include the formation in 1985 of a National Freight Group by Australia's rail Commissioners to Co-ordinate intersystem freight, plus the introduction of 'Superfreighters' between Sydney and Melbourne, Adelaide and Brisbane for overnight movement of containers. Premium freight services have also been introduced between Sydney and Perth, plus fast container services between Adelaide and Perth. The Federal Transport Minister has suggested that Australian National may seek to obtain running rights onto track owned by other rail systems (Australian Transport, May, 1985).

By way of contrast between Australian railways and Canadian Government railways, it is noted that in 1983-84, for an operating cost of \$A3200.7 million, the five Australian Government rail systems performed a 40 Billion tonne kilometre freight task (plus moving passengers, etc.); and, Canadian National Railways (1985 Annual Report) with an operating cost of \$C3,485 million had a 115.4 BTKM freight task in 1984. Canadian National is a Federal Crown Corporation, with long distance passenger rail transport in Canada being the responsibility of another Federal Crown Corporation, VIA Rail.

ROAD-RAIL FREIGHT COMPETITION

As discussed by the Bureau of Transport Economics (1984a), before World War II coastal shipping handled the bulk of interstate trade in Australia, and intrastate haulage was predominantly by rail. After World War II, there has been substantial development of the road freight industry, with the control of interstate road transport by the States being considerably weakened by a series of court decisions in the early fifties. Since 1969 there have been major moves by all mainland states to

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deregulate intrastate road haulage. These changes are reflected in a major increase in the freight task performed by road. This is shown in Table 3.

TABLE 3

AUSTRALIAN DOMESTIC LAND FREIGHT TASK
Billion tonne-kilometres

MODE	1970-71	1981-82
1. Government rail	25.2	37.4
2. Non-Government rail	13.8	27.4
3. Sea	72	98.2
4. Road	27.3	60.1
Total	138.3	223.2

Reference BTE (1984a), Tables 3.1 and 11.1.

In 1979 State Governments agreed to meet blockading truckies demands for removal of a small tonne-kilometre charge and increased legal weight of load limits. Numerous reports have indicated a lack of cost recovery from the road freight industry, particularly for heavy rigid trucks and articulated trucks. The Bureau of Transport Economics (1984a, p85) notes that 'there is ample evidence that heavy trucks are currently not paying for the damage they impose on Australian roads' and suggests 'the achievement of consistent cost recovery targets for both road and rail at the same time'. This submission also notes a number of other reports finding that heavy trucks do not meet their full attributable road costs; they were the 1972 Board of Inquiry into the Victorian Land Transport Systems, the Southern Western Australia Transport Study in 1977, Commission of Enquiry into the N.S.W. Road Freight Industry (McDonnell, 1980) and Pricing Tasmania's Roads (Taplin, 1981), plus many Australia-wide studies and a 1979 Transport Pricing and Cost Recovery Seminar organised by the Federal Department of Transport.

The National Road Freight Industry Report (May 1984) also found that the heavy vehicle sector has not been meeting the full cost of its operations. The May Report makes a useful distinction between 'user charges' (e.g. vehicle registration fees and some fuel taxes) and 'general taxes' (e.g. sales taxes, custom

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duties and most fuel taxes). Whilst adopting a narrow view of road system costs, the May Report (1984, p266) found a deficit rate on road cost recovery from articulated vehicles of about 0.6 cents per tonne kilometre. However, the May report recommended against an immediate truck weight distance road user charge. Such charges have been in use in New Zealand since 1978 and are now in use in ten American States (AASHTO, 1984). The May Report also stressed that any changes in road user charges should reduce the level of road freight activity "by as small an amount as possible".

In June 1985, the Federal Minister for Transport directed the Inter-State Commission (1985) to investigate matters relating to cost recovery arrangements for road freight vehicles and buses engaged in interstate trade and commerce, and to take into account cost recovery in respect to interstate rail services. Although the Inter-State Commission was not due to report until 30 April 1986, Federal Parliament in November 1985 in passing the Interstate Road Transport Charges Act fixed the maximum registration fee for an articulated vehicle for 1986-87 as \$1400.

Cost recovery from intrastate road freight activity and reservation of any intrastate freight to rail are matters for the various State Governments to consider. The May Report (1984, Chapter 10) noted a widespread view that Government rail systems compete unfairly with road, a total annual rail freight deficit in excess of \$300 million for 1981-82, and recommended that the full cost of rail freight be met by shippers. The report also recommended that "reservation of freight traffic to railways (should) be practised more selectively ...". Although pollution considerations in urban areas "may justify reservation of some freight traffic to rail", the Inquiry chose not to pursue questions of road congestion, or air and noise pollution.

The McDonnell Report (1980) took a broader view than the May Report as to what road system costs may be attributable to the road freight industry, and included a discussion of the cost of road accidents involving heavy trucks. Using McDonnell's methodology for costs, Laird (1985) showed that a 'Road freight deficit' for NSW of about \$317 million for 1981-82 far exceeded the published NSW rail freight deficit.

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The National Association of Australian State Road Authorities (1986) Review of Road Vehicle Limits (RORVL) gives conditional recommendations for increased vehicle mass and size limits. However, as noted by Dobinson and Prince (1985), the case for relaxing truck weight regulations is very much dependent on the level of funds governments allocate to roads. The RORVL study notes the concern of Local Government at the already increased expenditure on local roads as a result of truck operations, and estimates that by increasing maximum weight limits for articulated trucks from 38 to 42 tonnes could lead to a loss of 3 million tonnes per annum of rail freight to road. The introduction of "B train" trucks could double this effect.

RECENT FEDERAL GOVERNMENT AND NATIONAL INTERESTS

The former Liberal Country Party Transport Policy of 1976 included a commitment to improve the efficiency of Australian National and a statement

We will assist the States both in a long term plan to replace non-standard gauge railway with standard gauge railway, and more immediately, in programmes for the modernisation and rationalisation of State rail systems.

The Coalitions 1984 Transport Policy also expresses concern about the performance of Australian National, and "the continued heavy subsidisation of railway losses by State Governments". It favours an "integrated interstate network arrangement rather than ... the rigid state administration that presently applies". The Coalition

accepts that the Commonwealth has a role to play in mainline upgrading and in the provision of satisfactory standard gauge links to export ports

Current Australian Labor Party policy also favours a comprehensive national policy covering the carriage of inter-system railway freight, and,

Upgrade and maintain to a national standard, designated railway routes of national importance, including the completion of the programme of standardisation of inter-capital links.

It then appears that in Australia, there is potential bipartisan support for mainline rail upgrading.

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Developments

Federal Government initiatives since 1974 affecting rail include:

1. Formation of the Australian National rail system.

This was by the Whitlam Government and the States of South Australia and Tasmania in 1975 using a section (51 (xxxi)) of the Constitution allowing the Federal Government to acquire, *... with consent of a State, of any railways of the State ...*

2. Construction of the Tarcoola-Alice Springs railway.
3. Connection of Adelaide to standard gauge.
4. Establishment of the Australian Railway Research and Development Organisation in 1977.
5. The National Railway Network (Financial Assistance) Act 1979-1983.
6. States Grants for Urban Public Transport, 1974-78 and 1978-81.
7. Establishment of the Inter-State Commission.
8. Availability of limited funding for Urban Public Transport under the Bicentennial Road Development Program and for rail from 1986 from the Australian Land Transport (Financial Assistance) Act 1985.
9. Formation of a Rail Industry Council in 1986 "to seek to develop a viable strategy for the reconstruction and revitalisation of Australian Railways".

Mainline Upgrading Fund Requirements

It is understood (Norley and Kinnear, 1983 and 1984) that in 1983, ARRDO completed two reports "The National Rail Network - Investment Requirements and Funding Options" (83/14) and "Investment in the Melbourne-Cairns Corridor" (83/21). Whilst the two ARRDO reports are yet to be released, from the available references as cited above, the mainline rail investment study has indicated a requirement for funds

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amounting to \$2.7 Billion over the five years 1983-84 to 1987-88. Major items were locomotives (\$860 million), Permanent Way (\$641 million), Electrification (\$465 million), Wagons (\$358 million) and gauge standardisation (\$190 million). The investment programme also includes \$500 million for Melbourne-Sydney-Brisbane-Cairns upgrading with a rate of return of 13% in real terms. These detailed studies followed the ARRDO 1981 Report on Rail that had recommended that the Commonwealth Government increase rail funding to at least \$83 million a year from 1982-83 to 1986-87 (see also ARRDO, 1983).

As seen by Hugh Lunn (The Australian, 15/6/79) "Over the next decade tied money must be given to States to rebuild to a high standard on concrete sleepers that rail line that travels from Brisbane, through Newcastle, Sydney, Wollongong, Albury, Melbourne, Adelaide and on to Perth. Just as tied money is given for the building of major highways

Federal funding of rail.

Some figures since 1974 are shown in Table 4 that also shows Commonwealth Budget Outlays for road transport. The Federal Government since 1923 has contributed funds for roadworks, mostly in the form of grants under Section 96 of the Constitution that allows grants to the States for specific purposes. (BTE, 1984b). The Commonwealth has under the States Grants (Roads) Act 1977 accepted the responsibility for fully funding works on the National Highway network. This consists of some 16,000 kilometres of declared National Highways (including the major intercapital road links) and certain Development Roads.

By way of comment on the Federal funding of rail, the then N.S.W. Minister for Transport, Hon. P. Cox on 1st March, 1983 wrote (to Community Transport Concern, 1983), that his Government had been "pressing the Commonwealth for some time for an increased level of funding for public transport, but the present Federal Government's record has been niggardly to say the least". Mr. Cox also noted the ARRDO recommendations for continuing the National Railway Network Assistance Scheme at an increased level of funding, and considered that the Federal money for public transport under the ABRD scheme "falls well short of what is realistically required".

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TABLE 4

FEDERAL FUNDING OF RAIL
and
URBAN PUBLIC TRANSPORT (UPT)

Amounts rounded to millions of
dollars not adjusted for inflation.

	NSW	VIC	QLD	SA	WA	TAS	TOTAL
1. UPT Agreement 1974-78	65.4	53.9	38.1	21.1	6.1	3.7	188.3
2. States Grants (UPT) Act 1978-81	43.8	37.5	21.9	12.5	6.3	3.1	125
3. National Railway Network (Financial Assistance) Act 1979 Loan Funds	22.8	19.1	20.3	-	3.9	-	66
4. ABRD Bicentennial Roads UPT 1982-88							
a. Notional Allocation	54.8	44.6	40.7	14.2	24.4	6.9	187
b. Approved to 1984	39.7	15.9	34.6	11.4	16.2	5.0	122.8
c. Spent 1983-84	5.9	4.6	8.3	-	1.1	-	19.9
	1974-75		1978-79		1981-82		1984-85
Road Transport Road Grants	363		508		685		1,245
Other	41		41		37		38
Rail Transport Australian National	24		109		77		93
Other	12		-3		23		-6

Reference: Commonwealth Budget papers and Annual Reports. The 1984-85 figures are estimates, and the negative amounts for other Rail Transport indicates repayments of railway loans. Note that the Road grants and Urban Public Transport grants are non repayable grants.

Export Railways

Australian exports of coal and wheat require efficient land transport to compete with exports from other Pacific Rim countries. Whilst Queensland has large coal trains and is now electrifying its coal railways, the NSW coal trains are presently limited to about 4000 tonnes. Southern and Western NSW coal exports by larger ships are restricted to Port Kembla. Although construction had started on a new Maldon Dombarton rail link to serve Port Kembla at a cost of about \$160 million, the NSW Government has delayed its completion. This is in contrast with an ongoing \$1650 million rail construction program in Western Canada that includes a new electrified coal railway in North East British Columbia, rail upgrading by Canadian National to Prince Rupert with its new coal and wheat port facilities, and Canadian Pacific reducing the ruling gradient of its mountain railway to Vancouver to 1 on a 100. It may also be noted that NSW exports wheat through a mixture of ports served by all three rail gauges. The Australian Land Transport Program may provide grants for interstate mainline railways; it is suggested that the Federal Government should provide incentives for certain export railways as well.

Energy

Any Government could also be expected to be concerned about the long term implications of encouraging freight onto road through under recovery of road costs due to heavy trucks and inadequate support of mainline upgrading. With declining self sufficiency in Australia's proven oil reserves, the Australian Transport Advisory Council (1979) views (as qualified in the light of updated information including BTE (1981)) are still relevant.

Transport is almost wholly reliant on petroleum fuels and there are no widely available fuel substitutes at this time.

Nevertheless, rail is relatively energy efficient compared to road for long distance freight ... (and) ... does have fuel substitute options, such as coal-oil slurries or electriciation ...

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The present modal split in transport is determined by numerous factors, including government regulation and pricing policies. As far as possible pricing and cost recovery policies should be consistent across the modes so as to encourage use of modes appropriate to particular tasks. Appropriateness may be defined broadly as minimising the total social cost of transport services, including externalities.

CONCLUSION

The world's railways are enjoying a comeback, with their role being more carefully defined according to a series of articles in the Economist (Faith, 1985). As in the United States, Australia's major railway battle is with road transport.

In Australia, the combination of five different administrations for its Government railways plus three different gauges of track impose severe constraints on railway operations. These constraints are compounded by parochial State viewpoints such as Queensland and Victoria's aversion to standard gauge. Whilst a more efficient rail network will need better management, it will also require infrastructure improvements.

The willingness of all Governments to encourage a growing road freight industry enjoying hidden road subsidies is also a problem in Australia. Accordingly, it is suggested that consideration to further increasing vehicle weight limits should be deferred until the various State Governments have obtained much more cost recovery from the commercial road freight industry for road system costs.

This paper has briefly examined the role of the Commonwealth in developing Australia's rail network. It is suggested that this ongoing role should be expanded, at least to include a National Rail Inquiry similar in scope to the National Road Freight Industry Inquiry. Otherwise, the current Federal Transport Minister's assessment (The Australian 27/10/84) of the national rail system as "a hotch potch of rail systems and an inefficient unreliable network" remains valid, and Mr. Morris may continue to condemn "every Government since Federation for failing to give the country a national rail system in anything but name".

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