
5 National Competition Policy-related infrastructure reforms

Infrastructure services are important inputs to Australian industries, including those in country Australia. This underlines the need for the efficient provision of electricity, gas, water and road transport services, especially for producers exposed to international competition. Intergovernmental reforms to improve the provision of these services began more than a decade ago, and were incorporated in the National Competition Policy (NCP) in 1995. These reforms have already provided significant benefits for Australia as a whole, but outcomes vary considerably across sectors and regions.

5.1 Introduction

The potential gains from reforms in the electricity, gas, water and road transport sectors are substantial. As these services are important inputs to most industries, their more efficient provision has a significant role to play in improving industry competitiveness. Moreover, access to infrastructure services is essential to a basic quality of life. All Australians, whether in urban or country areas, have an interest in ensuring that such services are accessible, affordable and efficiently provided.

Spurred by evidence of inefficiencies and inequities in service delivery, governments began to introduce reforms in most of these areas more than a decade ago. The NCP reform package builds on these initiatives. In addition to the three intergovernmental agreements, it incorporates earlier infrastructure commitments made by Australian governments in the early 1990s. These include:

- the 1992 agreement by Australian Transport Ministers on a national approach for road transport reform to improve efficiency and safety, and reduce the costs of regulation;
- the 1993 agreement between the Commonwealth, New South Wales, Victoria, Queensland, South Australia and the ACT to form a competitive interstate electricity market;

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- the 1994 Council of Australian Governments (CoAG) initiative to provide for free and fair trade in gas between and within the States and Territories; and
 - the 1994 CoAG initiative to implement a framework for the efficient and sustainable reform of the Australian water industry, including pricing, investment, allocation and institutional reforms.

In essence, NCP requires infrastructure providers to address structural, access and competitive neutrality issues. Its focus is on removing legislative barriers to entry and other impediments to effective competition. Amongst other things, the reforms have involved the separation of regulatory and commercial functions, and of the natural monopoly and potentially competitive components of service provision. Most government infrastructure providers have also been commercialised or corporatised so that, where feasible, they can compete on an equal footing with each other and any private sector counterparts.

Progress in implementing the reforms varies across the four sectors. Reform is most advanced in the electricity sector and there has also been substantial progress in the gas sector. In contrast, in the water and road transport sectors, the bulk of the reform task lies ahead for most jurisdictions. A supplement to the draft report provided details of agreed reforms and chronologies of the changes made by each jurisdiction in the four sectors (PC 1999a). The supplement is available from the Commission on request. Updated information is contained in the various volumes of the National Competition Council's (NCC) *Second Tranche Assessment of Governments' Progress with Implementing National Competition Policy and Related Reforms* (NCC 1999b).

This chapter looks at the impacts of reforms to date in the four sectors. The focus is on impacts on rural and regional Australia. However, in keeping with the terms of reference, each section also provides a brief synthesis of the Australia-wide effects of the reforms. The latter material draws heavily on: Commission research (particularly PC 1998e) and on work it has undertaken for the Steering Committee on National Performance Monitoring of Government Trading Enterprises (SCNPMGTE 1998); and, on recent work undertaken in Victoria by the Office of the Regulator-General (ORGV 1998, 1999a).

To help assess the impacts of the reforms, the Commission has used a number of broad indicators, including price, productivity, costs, service quality, employment levels and environmental outcomes. However, it is important to recognise that these broad indicators can have several dimensions. For example, in looking at prices, movements in aggregate price levels, price impacts on individual groups of users, and the alignment between prices and costs of supply are all relevant. Further, in assessing outcomes against these indicators, it is often difficult to separate the

impact of the NCP from other economic and social influences (eg technological change). Caution is therefore required in assessing whether, say, all employment, price and service quality changes in the infrastructure sectors are due to competition policy.

It is also important to bear in mind that any changes in community service obligations (CSOs) funded by governments may have a significant impact on some users — particularly those in country Australia where there is greater dependence on CSOs.

As discussed in chapter 4, NCP is neutral as regards the existence and level of support provided through CSOs. Rather, it promotes the explicit identification and costing of each CSO. In practice, however, there are likely to be links between CSO payments and the NCP reforms. For example, making infrastructure subsidies transparent and explicit may render them more vulnerable to reduction or removal as part of budgetary processes. Any decisions made by governments to change existing CSOs are discretionary choices — such changes are not mandated by NCP. It is unclear what effect improvements in the efficiency of service provision could have on the cost of meeting CSOs.

Finally, the Commission notes that the information available on the distribution of the benefits and costs of NCP-related infrastructure reforms between country and urban areas is far from comprehensive.

5.2 Electricity

Electricity supply businesses have assets of more than \$60 billion and, in 1996-97, combined sales of more than \$12.5 billion (ESAA 1999c, p. 1).

Electricity accounts for around 18 per cent of Australia's final energy consumption and some 66 per cent of the commercial and 42 per cent of the residential segments of the energy market (AGA 1998b, p. 31).

The manufacturing sector is the largest user of electricity. Within the sector, electricity is a particularly important input for non-ferrous metal manufacture — primarily alumina and aluminium — and pulp and paper production (around 8 and 7 per cent of the value of intermediate inputs, respectively). Both of these industries are located mainly in regional areas.

Until the late 1980s, electricity supply in Australia was characterised by publicly-owned, vertically-integrated monopoly suppliers which operated in separate, extensively regulated, State markets. This industry structure gave rise to significant

over-manning and over-investment, particularly in the generation segment, and inflated electricity costs and prices. Also, electricity tariffs bore little resemblance to the cost of supplying different classes of users.

The electricity reforms

In July 1991, CoAG agreed to reforms intended to improve competitiveness in the electricity industry. The key reforms involved industry restructuring — in particular, the separation of generation, transmission and distribution — and the formation of a national electricity market in southern and eastern States. In April 1995, these reforms were reaffirmed and extended under the NCP.

Progress in implementing the reforms

Since the 1991 CoAG agreement, there has been unprecedented change in the structure of the major electricity utilities. Key elements of these changes include:

- *New South Wales* — the creation of three competing generation entities, an independent transmission business and the consolidation of 25 distributors into six new distribution utilities.
- *Victoria* — the separation (and subsequent sale) of all major power stations, all five distribution businesses and the transmission utility.
- *Queensland* — the splitting of the major generator into three independent government businesses, the formation of a separate corporation to operate the State's transmission infrastructure, the retention of the seven distribution corporations and the creation of three new retail businesses. However, the Government subsequently amalgamated the six regional distribution corporations into a single corporation.
- *South Australia* — the creation of separate entities responsible for generation and transmission and distribution functions. The Government is now in the process of selling its generation and retail and distribution assets.
- *Western Australia* — the separation of electricity supply from gas supply and its establishment as a corporatised business, together with the sale of one of the State's power stations.
- *Tasmania* — the separation of the State's vertically-integrated electricity supplier into three entities responsible for generation and system control, transmission and retail/distribution.

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- *Australian Capital Territory* — the ‘ring fencing’ of the Territory’s electricity distribution and retail activities within the government-owned water and electricity corporation.

In December 1998, the Northern Territory Government announced a range of reforms to improve the efficiency of its integrated Power and Water Authority. It intends progressively to open generation and retailing of electricity to competition. In March 1999, generation, transmission and distribution, and retailing were established as separate ‘product lines’ (Northern Territory Treasury 1999).

In addition to these changes in the structure of the traditional supply utilities, there have been some new entrants, mainly in the retail sector (eg there are now more than 20 retailers selling electricity in New South Wales).

An important element of the structural changes has been the corporatisation or commercialisation of all government electricity utilities. This has sharpened the commercial disciplines on managers, as well as placing public utilities on a competitively neutral footing with their private sector counterparts.

Greater commercial disciplines on electricity utilities, in turn, have precipitated pricing reforms to bring electricity charges more into line with underlying costs. In particular, electricity providers have sought to recover a higher proportion of system costs from residential consumers, leading to significant savings for business users (see below). However, to ensure that the pace of such price restructuring is manageable, all jurisdictions have established arrangements to oversight the charges levied by electricity utilities.

After a number of delays, the National Electricity Market (NEM) became fully operational in December 1998. The NEM has introduced competition into the generation and retail sectors — it permits eligible users to negotiate directly with suppliers of their choice. Specifically, the NEM provides for:

- a common wholesale market serving interconnected jurisdictions;
- a single controller despatching generators in the interconnected jurisdictions;
- customer entitlements to purchase electricity either from the spot market or under contract with a supplier of their choice; and
- a market settlement function handling spot and forward trading in the market, and the contractual requirements of wholesale customers and generators.

The NEM currently encompasses some 60 entities in New South Wales, Victoria, South Australia and the ACT. Queensland and Tasmania are expected to participate when the necessary grid connections are completed. All participating jurisdictions

are providing for the staged introduction of the contestable market, in which all users will eventually be able to benefit from having the ability to choose their supplier and negotiate price. At present, the contestable market (in participating jurisdictions) is available to all customers whose usage levels are greater than 160MWh.

As well as improving operating efficiency, the various competitive forces now at work in the electricity sector should lead to improved investment outcomes. For example, because spare capacity can now be shared across all jurisdictions participating in the NEM, the overall need for reserve generation capacity will be reduced. Competition should also address past problems of ‘gold-plating’ and excessive investment in coal-fired base load generating capacity.

Overall, the NCC assessed that the reform program was now well established in most jurisdictions. At the same time, it noted that jurisdictions were at various stages of reform and that considerable work remained to be done to see the full benefit of the reforms flow through to users (NCC 1999b, vol. 1, pp. 182-3).

A snapshot of jurisdictional progress in implementing the key elements of the electricity reforms is provided in table 5.1.

Table 5.1 Status of jurisdictions’ progress in implementing the electricity reforms, as at 30 June 1999

<i>Reform</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
Structural separation	✓	✓	✓	✗	□	□	□	□
NEM – introduction of NEC and NEL	✓	✓	□	na	✓	□ in-prin com	✓	na
Third party access	✓	✓	□	□	✓	□ enacted	✓	□
Independent pricing and access regulatory bodies	✓	✓	✓	✗	□	✓	✓	✗
Retail competition	□ >160MWh	□ >160MWh	□	✗	□ >160MWh	✗	□ >160MWh	✗

Note: The summary in the table is only a broad indication of progress. It does not purport to provide a complete picture of the details of reform implementation contained in the NCC’s second tranche assessment.

✓ – implemented □ – implementing ✗ – little or no progress na – not applicable.

NEM – National Electricity Market; **NEC** – National Electricity Code; **NEL** – National Electricity Law; **in-prin com** – in-principle commitment; **w/sale mkt** – wholesale market; **MWh** megawatthour.

Sources: Commission evaluation based on information contained in NCC (1999b) and submissions.

Participants' views on the reform process

Many participants acknowledged the improvements in efficiency and the resulting cost savings from the reform process, particularly for larger business users. For example, the Tumut Shire Council (sub. 43, p. 2) said that power costs for some large industries in the town had fallen, leading to '... improved viability for those industries and some job gains'. Some also pointed to improvements in service quality, although opinion in this area was more divided (see below).

Such benefits notwithstanding, an important theme in submissions and discussions was the need for continuing support in country areas to offset the higher costs of electricity supply. Put simply, there was a view that, in some regions, the provision of current services and/or investments to upgrade facilities would not be viable under purely commercial pricing regimes. In this regard, Great Southern Energy commented:

... we believe that the current level of cross subsidies to our 50 000 isolated or rural customers is \$22 million annually. Clearly when all customers are contestable and network pricing is fully user pays or price locational this level of cross subsidy may not be sustainable. It is highly likely that Governments will need to fund this gap as a Community Service Obligation. (sub. 67, p. 4)

Another major concern raised in many submissions was the loss of direct employment opportunities in country areas as electricity services are restructured and rationalised. Participants provided a variety of information on the extent of these job losses (see below). Some identified the cumulative effect of employment losses as a threat to the continuing viability of some smaller towns. Others documented the wider social consequences. For example, the LaTrobe Shire Council reported that:

Many of those who lost full time jobs have remained in the area ... In some cases those who have remained are hoping for better times, but many have been unable to sell their houses to finance a new life elsewhere. Of particular concern is the large pool of highly skilled but narrowly experienced workers in their 40s and 50s who now find themselves with few prospects. (sub. 75, p. 5)

Not all participants presented a gloomy picture on the employment front. Apart from the stimulus provided by lower electricity charges for some business users in regional areas, participants said that rationalisation of maintenance depots was creating new employment opportunities in some larger country centres, partially offsetting losses in smaller towns.

Other reform issues raised by participants included concerns about:

- increases in connection charges subsuming any gains from lower usage tariffs;

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- current network pricing regimes not recognising the proximity of users to generators in some parts of Australia, leading to inappropriate investment decisions and impeding regional development;
 - the absence of arrangements which permit small users to aggregate their requirements to achieve the size needed to be eligible to negotiate in the contestable market segment of the NEM;
 - intrusive regulatory frameworks eating into the efficiency gains from the reforms and introducing instability and inconsistencies between jurisdictions;
 - implementation of the reforms being too rapid in some regional areas; and
 - possible elimination of single phase electricity in some rural areas as a result of regulatory dictate.

Impacts of the reforms

At the State and national levels, the electricity reforms have already delivered significant benefits. Cost efficiencies have paved the way for significant reductions in usage charges to many users. Service quality outcomes have been more mixed. The employment effects have also varied but, across the sector as a whole, there have been substantial employment reductions, related in part to the need to reduce over-manning.

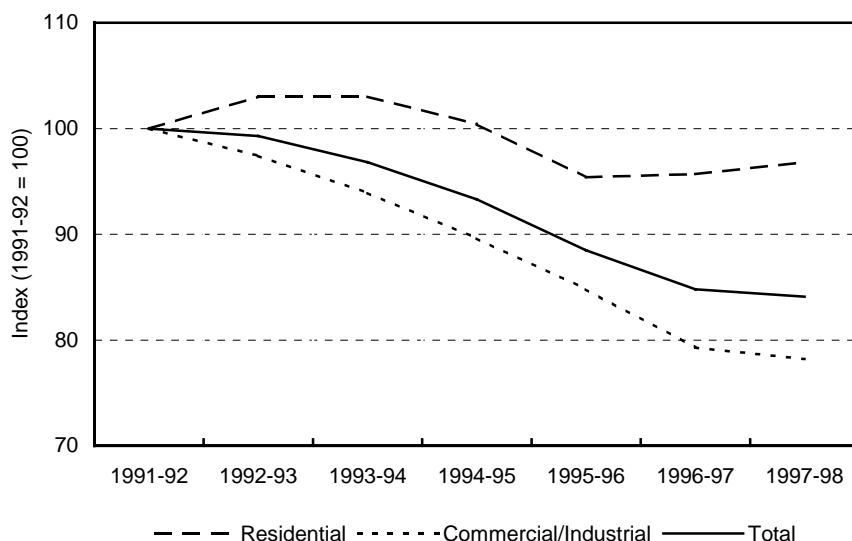
Prices

There is a range of evidence pointing to significant falls in usage charges in most jurisdictions since the commencement of the electricity reforms. While not all of the reductions are attributable to the reforms, the structural changes which have occurred undoubtedly explain much of the reductions.

The most comprehensive up-to-date information on prices is compiled by the Electricity Supply Association of Australia (ESAA). This shows that, between 1991-92 and 1997-98, real average prices for all Australian users fell by 16 per cent (see figure 5.1).

- Commercial industrial users received the largest reductions — about 22 per cent — compared with around 3 per cent for residential users.
- The size of the reductions varied markedly between jurisdictions, with the largest declines in average prices being in New South Wales and Western Australia (25 and 18 per cent, respectively) and the smallest reductions in Tasmania and Queensland (2–3 per cent).

Figure 5.1 Real price index for residential and commercial/industrial electricity users, Australia, 1991-92 to 1997-98



Sources: ESAA (1999a) and unpublished data for 1997-98.

Declining operating costs in public utilities — which collectively service around 75 per cent of electricity customers — underlie most of these price reductions (PC 1998g). The NCP requirement for independent price regulation has helped to ensure that cost reductions have been passed on to users. Price regulation has also facilitated a realignment of prices across user groups, leading to larger price falls for commercial users in most jurisdictions.

The advent of the NEM has intensified price competition, with progressively more business users able to choose their electricity supplier. Two studies (Deloitte Touche Tohmatsu 1998 and ACM 1998) found that electricity bills for New South Wales and Victorian businesses which have been able to select their own supplier under the NEM have fallen by 25–30 per cent on average, and by up to 60 per cent in some cases.

Similarly, a recent ESAA (1999b) survey of contestable customers in the mining, manufacturing, retailing, health, education and government sectors in the New South Wales, Victorian and Queensland markets found that:

... average price reductions received by respondents this time was 25.1 per cent — against 26.8 per cent in the first survey — [which] suggests that the retail price of electricity may be bottoming out. Nonetheless, some respondents received price reductions of an astonishing 80 per cent.

... Interestingly, the new (lower consumption) contestable customers — businesses consuming 160MWh to 750MWh a year — report price cuts similar to those gained by

larger firms. This suggests that electricity retailers have been passing on the full benefit of lower wholesale electricity prices to small(er) and big customers. Queensland customers report rates of price reductions similar to those being received in New South Wales and Victoria despite much higher pool prices in the northern market region. (ESAA 1999b, p. 30)

The Queensland Government (sub. D302, p. 12) indicated that contestable customers in the State had so far achieved total savings estimated at \$90 million per year. In New South Wales, the Government estimated that since May 1995, electricity customers have received savings of around \$930 million in real terms on their power bills (NCC 1999b, vol. 3, NSW, p. 57).

Recently, there has been renewed speculation about whether low wholesale ('spot') market prices observed during 1998 are sustainable. A survey by NUS International (AFR 1999) of prices charged for high voltage users in New South Wales and Victoria in the 12 months to April 1999, which showed significant increases in prices, lends some support to this. Nonetheless, the 1999 survey also showed that average Australian high voltage charges are the third lowest of the 17 countries surveyed.

Service quality

Service quality has become an increasingly important source of competitive advantage for electricity suppliers, particularly with the advent of the 'contestable customer'. According to the PC (1998e, p. 66), most distributors have implemented programs to improve customer service.

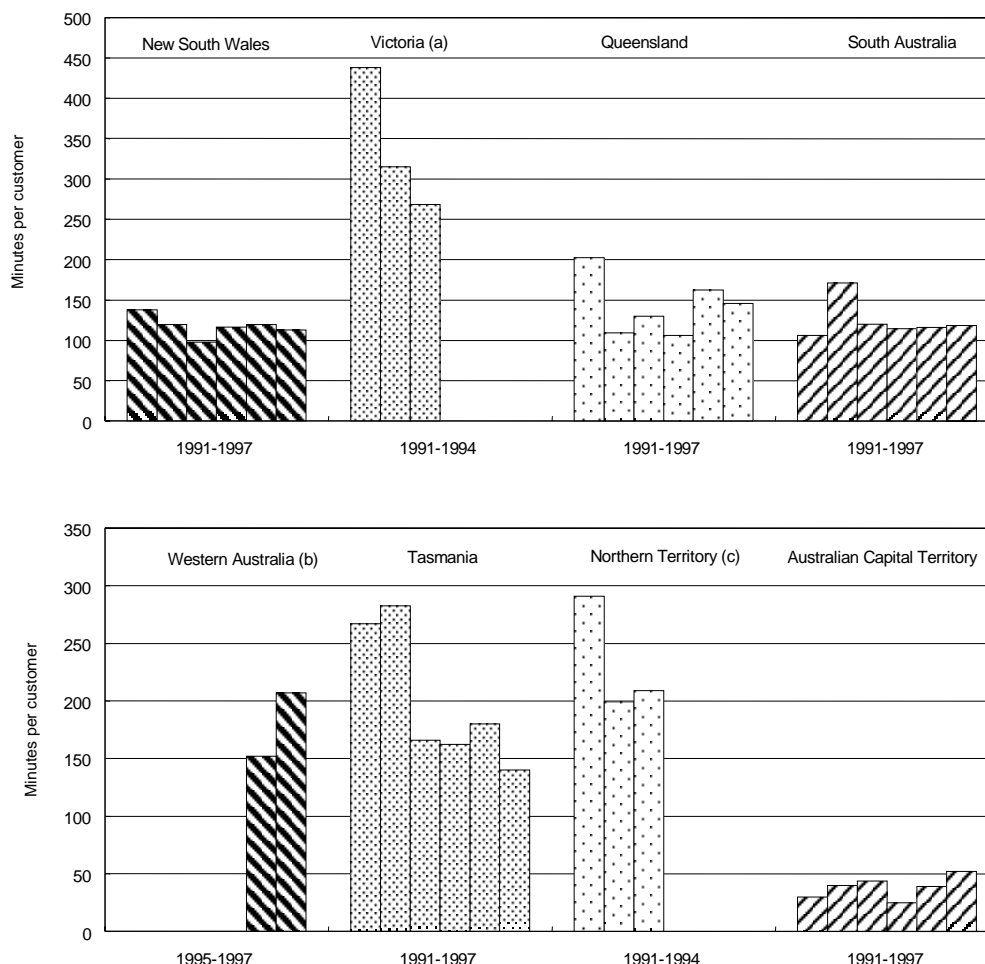
For most customers, reliability of supply is the key measure of service quality. Two measures of reliability which are commonly used in the industry are the 'average loss of supply per customer' and the 'average outage duration'. The former measures the total time (on average) that a customer is without power over a year, while the latter measures the average duration of power loss for each interruption.

As figures 5.2 and 5.3 indicate, these data fluctuate from year to year, which is not surprising given that most outages are caused by storms, fires and industrial disputation. Although the data suggest some differences between jurisdictions, it is difficult to discern any overall trend in these indicators.

A more recent study by the Victorian Regulator General reported some improvement in service levels. For example, it stated that reliability of supply:

... is substantially better than under the SEC [State Electricity Commission] prior to 1995, and has generally improved over the period 1995 to 1998. (ORGV 1999b)

Figure 5.2 Loss of supply per customer, 1991-92 to 1996-97



Note: Loss of supply factor equals total number of customer minutes interrupted divided by the average number of customers.

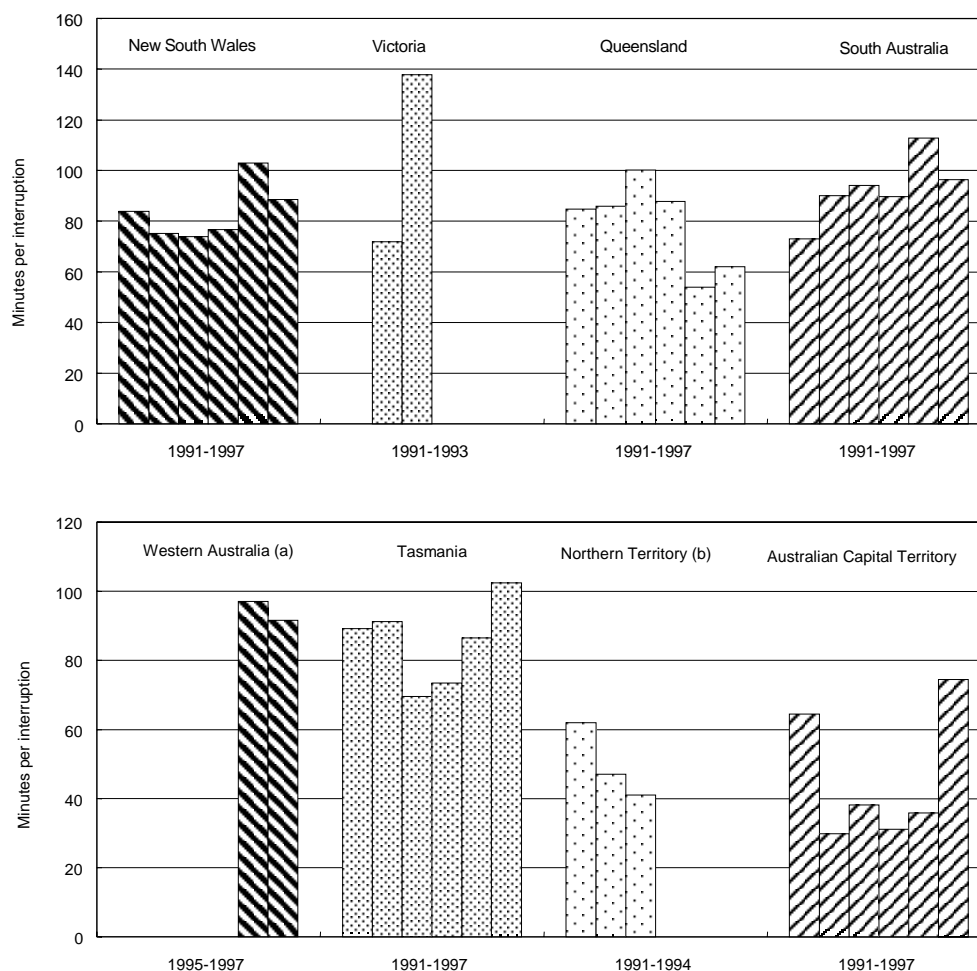
a Data were not provided for Victoria for 1994-95. Victorian generators and distributors were not monitored after 1994-95. **b** Data were not provided for Western Australia for the years before 1995-96. **c** Data were not provided for the Northern Territory for the years after 1992-93.

Source: PC (1998e).

Shareholder outcomes

According to the PC (1998e), in most jurisdictions, there was a substantial increase in the profitability of electricity government trading enterprises (GTEs) over the period 1991-92 to 1996-97. Improved profitability has led to increased payments to owner governments.

Figure 5.3 Average outage duration by jurisdiction, 1991-92 to 1996-97



Note: Average outage duration equals total number of customer minutes interrupted divided by total number of customer interruptions.

a Data were not provided for Victoria for 1994-95. Victorian generators and distributors were not monitored after 1994-95. **b** Data were not provided for Western Australia for the years before 1995-96. **c** Data were not provided for the Northern Territory for the years after 1992-93.

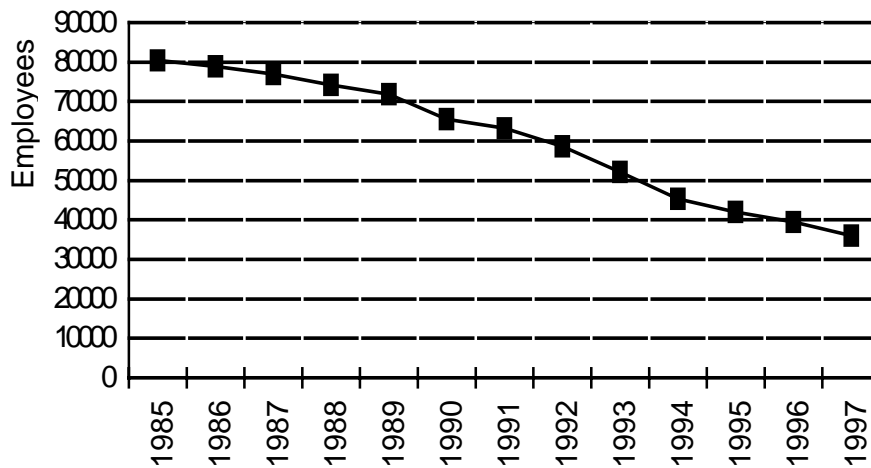
Source: PC (1998e).

Employment outcomes

To improve efficiency, State governments have sought to address overstaffing in their electricity utilities. This saw total employment in the electricity supply industry decline from slightly more than 80 000 in 1985 to around 37 000 in 1997.

As shown in figure 5.4, much of this decline occurred prior to implementation of the NCP in 1995. However, reductions in employment have continued since then, with increased competition providing incentives for the outsourcing of non-core activities, the centralisation of services and the implementation of new technologies.

Figure 5.4 **Employment in the electricity supply industry, 1985 to 1997**
(number of employees)



Source: Information supplied to the PC by the ESAA.

This decline in electricity employment has occurred against a backdrop of increasing electricity consumption. As a result, labour productivity in the industry has improved substantially.

The environment

Many electricity GTEs have increased their environment-related expenditure in the last few years. A substantial amount of this investment has been directed to renewable energy sources. Between 1991-92 and 1996-97, carbon dioxide emission levels (as a proportion of electricity generated) declined or remained stable in all jurisdictions where GTE data were collected (PC 1998e, p.79).

Regional impacts of the reforms

While the electricity reforms appear to have delivered benefits to Australia as a whole, in rural and regional Australia the outcomes to date have been more mixed. For example, while many users in country Australia (eg large businesses) have benefited from large price reductions, smaller users in some areas have experienced price increases. Similarly, while rationalisation of maintenance depots has resulted in a net fall in employment, some regional centres have gained extra jobs, sometimes at the expense of jobs in adjacent small towns.

Price outcomes

Participants provided a range of information on the price impacts of electricity reform in country areas. Some, particularly larger users, said that usage charges had fallen sharply. For example:

- Shoalhaven Council and the Dairy Farmers Co-operative at Nowra reported savings of more than 30 per cent.
- Fletcher International, located at Dubbo, said that its power bill had fallen by 50 per cent, providing an annual saving to the company of some \$800 000.
- The Town Advancement Group said that town electricity costs in West Wyalong had fallen by 30 per cent.
- Hastings Council told the Commission that it had negotiated a 25 per cent reduction in charges, providing a \$10 saving for each ratepayer.
- Australian Inland Energy said that mining companies operating in the Broken Hill area will benefit from reductions in charges of around 24 per cent.
- The Grampians Region Water Authority reported that electricity costs had fallen by 25 to 30 per cent at its 'contestable' sites.
- Ballarat Hospital reported a 20 per cent reduction in its power bill.

In contrast, some participants reported increases in usage charges. For instance, the Cooma Shire Council told the Commission that tariffs in the Cooma region had increased by around 5 per cent. However, in response, the distribution utility, Great Southern Energy, stated:

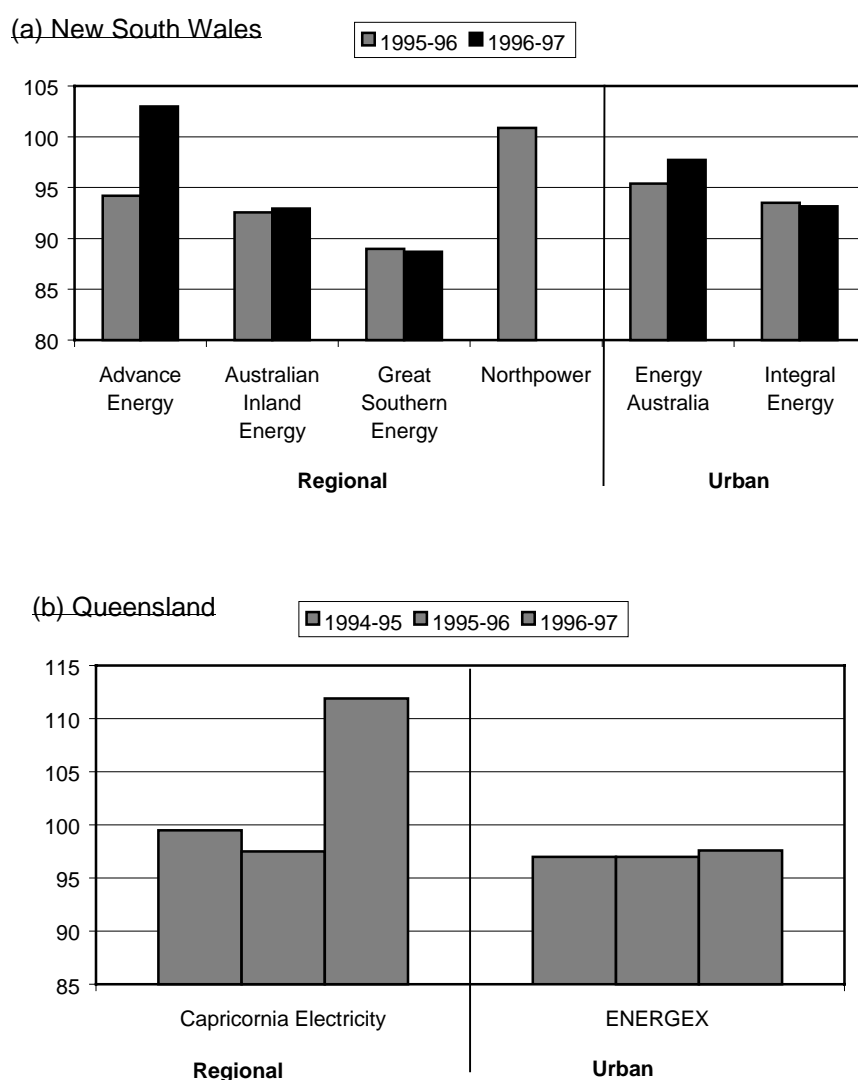
This statement may refer to the increase on obsolete tariffs ... the majority of customers in the Cooma region have received substantial decreases in electricity charges. (sub. D293, p. 3)

A number of participants said that savings in usage charges had been offset to a greater or lesser extent by higher connection charges. The Tumut Shire Council commented:

Lower power charges has led to a policy of full cost recovery on asset works for new connections, sometimes making those connections totally uneconomic. An example in Tumut was a new industry in a new subdivision which was fully provided with power being levied \$30 000 for some upgrading in the power supply. This type of upfront cost is prohibitive to many start-up industries and is a significant inhibition to economic development. (sub. 43, p. 3)

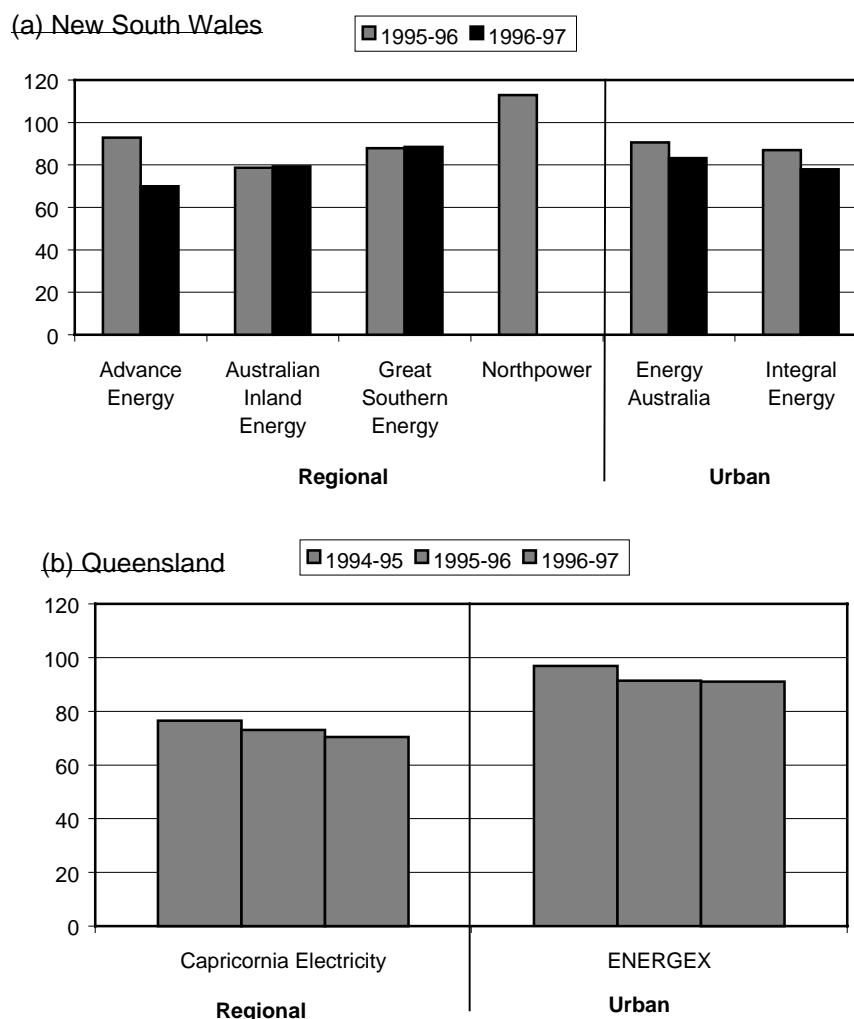
The SCNPMGTE has collected information on changes in usage charges for both residential and business consumers for a number of urban and regional electricity suppliers in New South Wales and Queensland (see figures 5.5 and 5.6). However, the information is limited in terms of both the suppliers covered and the period covered. In these circumstances, it is difficult to draw any firm conclusions.

Figure 5.5 Average price (residential) of selected electricity suppliers in New South Wales (1995-96 and 1996-97) and Queensland (1994-95 to 1996-97)
(\$/MWh)



Source: Derived from SCNPMGTE (1998).

Figure 5.6 Average price (commercial/industrial) of selected electricity suppliers in New South Wales (1995-96 and 1996-97) and Queensland (1994-95 to 1996-97) (\$/MWh)



Source: Derived from SCNPMGTE (1998).

Data — albeit dated — on under- and over-recovery of costs for different classes of New South Wales electricity users shows that if charges are likely to reflect costs more closely under the NEM, then regional businesses could benefit from falling prices, while the opposite could be true of regional residential users (see table 5.2). Adverse impacts for some country users of a rebalancing of usage charges are likely to be ameliorated by ongoing cost savings from improved efficiency in service delivery. Access to the NEM appears to have been a major contributor to the price benefits already received by mining companies, larger local governments and agriculture-based firms located in regional Australia (such as the agri-food processing companies and cooperatives).

Table 5.2 Average level of cost recovery^a in New South Wales, 1994-95

<i>Distributor</i>	<i>Domestic</i>	<i>Small to medium business</i>	<i>Medium to large business</i>	<i>Rural</i>
	%	%	%	%
Northern Rivers	5	20	58	-39
Oxley	-7	15	10	-2
Namoi Valley	11	27	7	-44
New England	0	23	20	-40
Peel-Cunningham	11	19	6	-16
Southern Mitchell	25	25	-2	-19
North West	-7	5	-4	4
Ophir	-2	26	9	-45
Monaro	12	36	-	-108
Murray River	-7	26	21	-41
Murrumbidgee	-20	17	16	-
Northern Riverina	20	19	1	-38
Southern Riverina	-4	25	16	-38
Southern Tablelands	0	6	2	-54
South-West	16	30	24	-17
Tumut River	-4	3	7	-37
Ulan	7	29	5	-36
Western Power	7	24	8	-14
Central West	2	21	14	-29
Sydney	-2	20	-1	-
Orion	-12	15	2	22
Prospect	-4	21	8	-14
Illawarra	-20	22	20	4

Notes: Positive values indicate over-recovery and negative values indicate under-recovery. The figures have been rounded.

^a Based on the 'Kain' method of distributing joint costs across users.

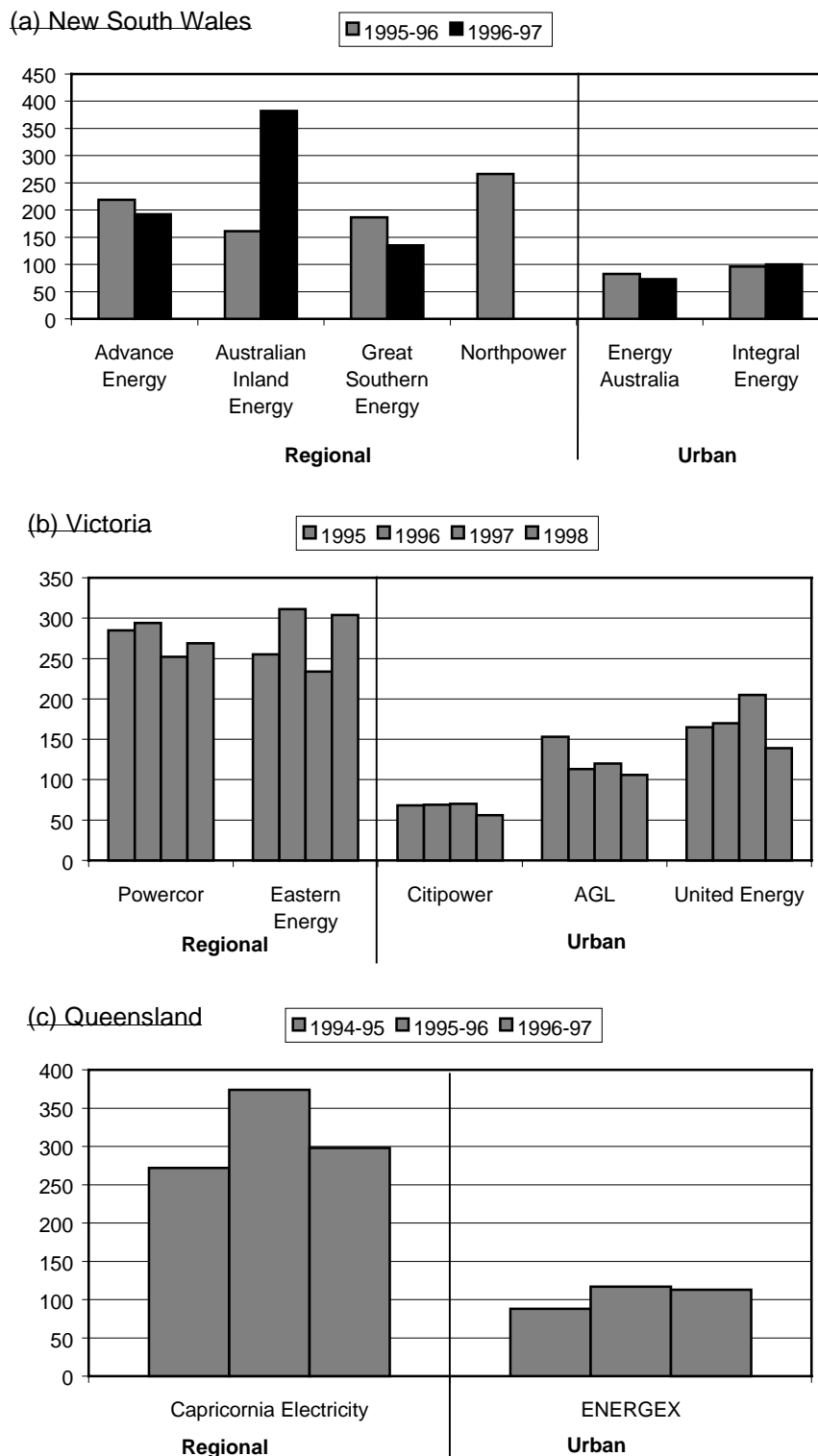
Source: Government Pricing Tribunal of New South Wales (1995, p. 7).

Service quality

Many inquiry participants suggested that price benefits from the electricity reforms have come at the expense of lower service quality — particularly in regional areas. For instance:

- The Rivmilk Co-operative at Wagga said that downtime costs due to poorer service were offsetting the gains of cheaper power.
- Ulmarra Shire Council reported more and longer outages, poorer response times and lower maintenance without any offsetting cost reductions.
- The Tumut Shire Council (sub. 43, p. 2) reported longer response times to outages and poorer maintenance of street lighting.

Figure 5.7 Average loss of supply per customer, for selected regional and urban suppliers of electricity in NSW (1995-96 and 1996-97), Victoria (1995 to 1998) and Queensland (1994-95 to 1996-97)
(minutes/customer)



Source: Derived from SCNPMGTE (1998).

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- The Junee Shire Council (trans., p. 976) said that the time taken for street lighting repairs, which must now be reported by property owners, is greater than under the old County Council structure. In the circumstances, the Shire Council was concerned about legal liability in the event of an accident due to poor lighting.
 - The Queensland Chicken Growers Association (sub. 94, p. 2) said that members had reported a steady decline in the reliability of supply.

Some other participants said that their quality of service had been maintained or improved. For example:

- De Bortoli Wines at Griffith indicated that services had improved significantly, while charges had been reduced.
- The Albury Shire Council said that its costs had fallen by \$250 000 a year without any reduction in service quality.

And Great Southern Energy stated that:

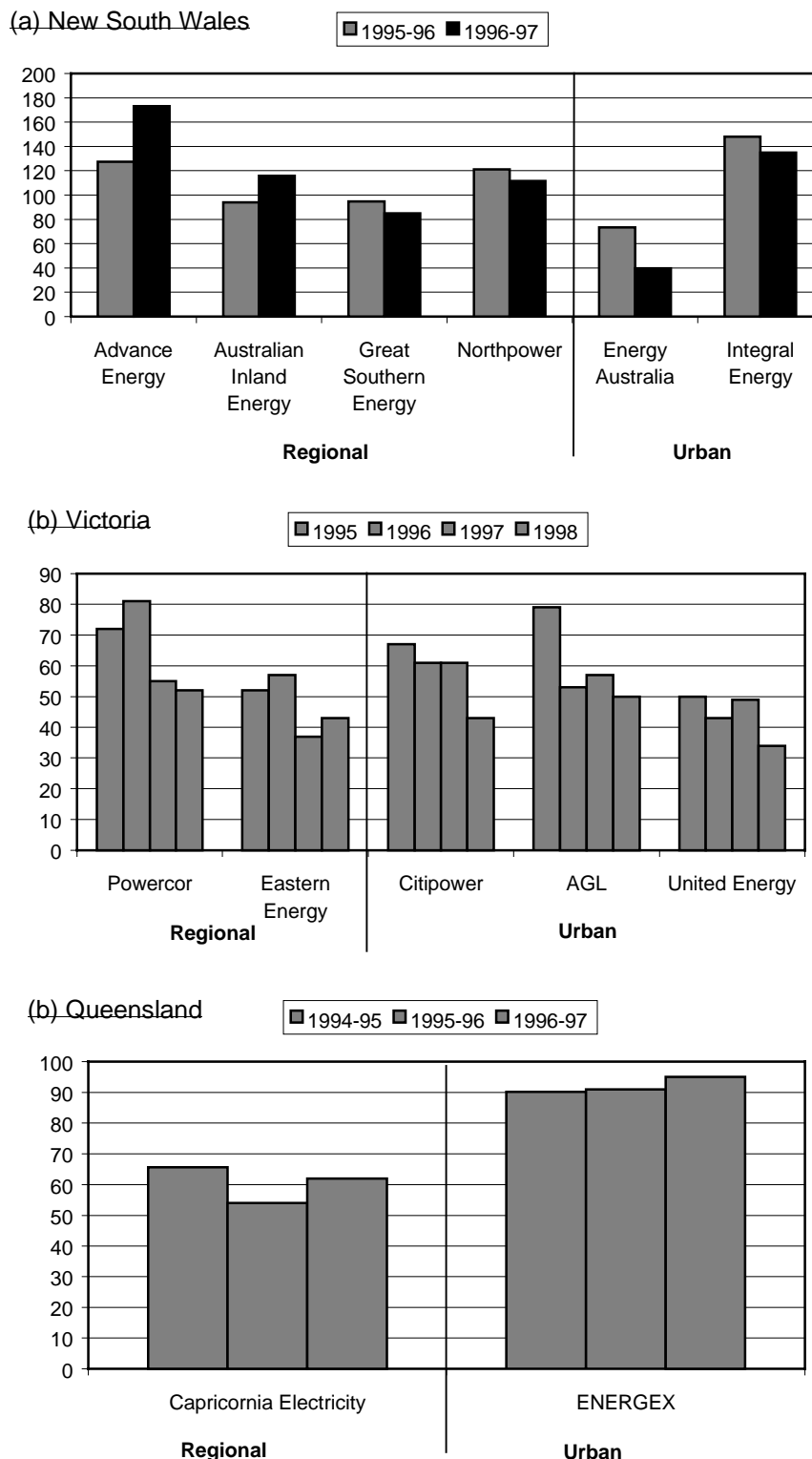
Reliability measures have indicated that outage times for customers have reduced since the establishment of Great Southern Energy and the use of technology to automate the distribution system and to therefore reduce system outages. (sub. 67, p. 4)

The Office of the Regulator General of Victoria (ORGV 1998) reported that service standards (such as time to restore supply) have improved, the number of restrictions of supply for non-payments of bills has fallen and innovative ‘customer friendly’ payment methods have been introduced. The information collected by the SCNPMGTE (1998) covers only two jurisdictions and a short period of time. However, it confirms the mixed story for regional Australia emerging from the anecdotal evidence. As shown in figures 5.7 and 5.8, average loss of supply and average outage duration has increased recently in a number of the regional utilities in the Steering Committee’s sample, but has fallen in others.

Employment impacts

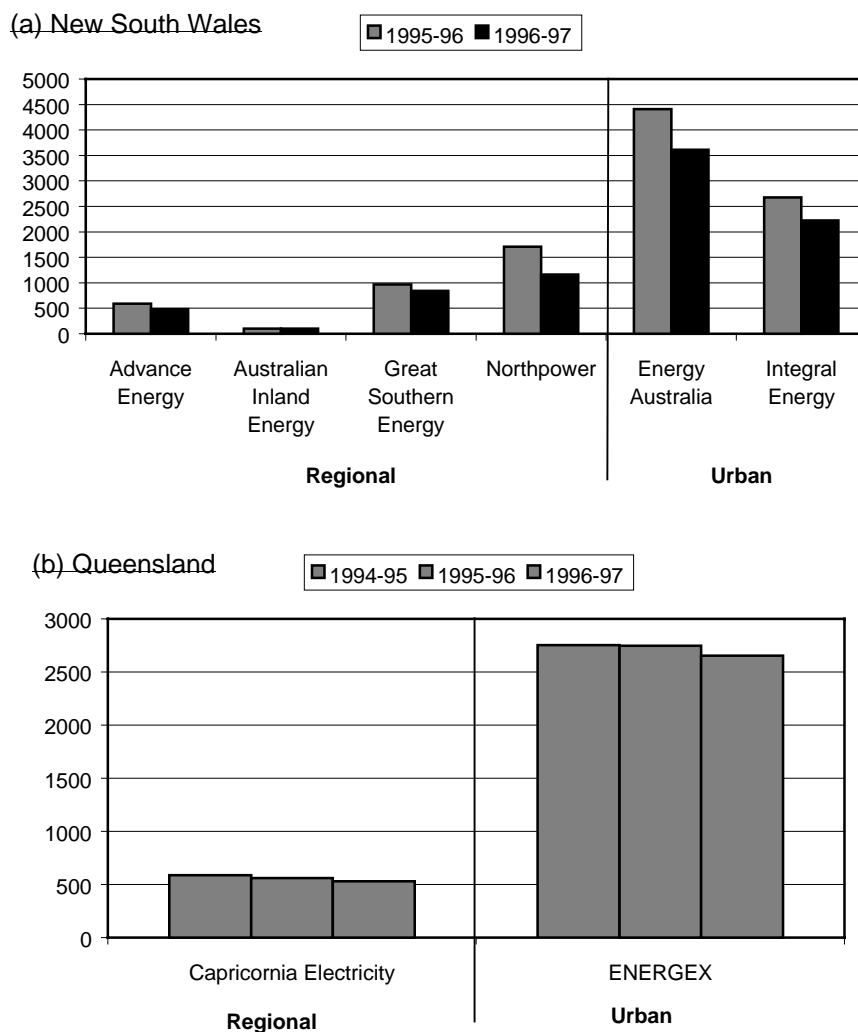
As noted earlier, many participants drew attention to the loss of public sector employment losses in country areas as a result of labour shedding and the rationalisation of service centres. Most significantly, the LaTrobe Shire Council (sub. 75, p. 1) said that, as a direct result of electricity reform, its region had lost between 6000 and 8000 jobs, equivalent to 10 per cent of the Shire’s total population. Large job losses also occurred in Port Augusta and the Hunter Valley.

Figure 5.8 Average outage duration for selected regional and urban suppliers of electricity in NSW (1995-96 and 1996-97), Victoria (1995 to 1998) and Queensland (1994-95 to 1996-97)
(minutes)



Source: Derived from SCNPMGTE (1998).

Figure 5.9 Average total employment of selected regional and urban electricity suppliers in NSW (1995-96 and 1996-97) and Queensland (1994-95 to 1996-97)
(number of employees)



Source: Derived from SCNPMGTE (1998).

Figure 5.9 provides a perspective on the overall reductions in employment by regional and urban suppliers in New South Wales and Queensland. In addition, participants provided a range of anecdotal information on the impacts of the rationalisation of service centres. For instance:

- The Bland Shire Council told the Commission that the number of local service employees in West Wyalong had fallen from 20 to 4.
- The Tumut and Cooma–Monaro Shire Councils (sub. 43, p. 2 and sub. 48, p. 2), which are now serviced by Great Southern Energy, reported that rationalisation of the electricity supply arrangements had led to job losses in their areas of 50

and 80, respectively. Great Southern Energy (sub. D293, p. 6) agreed that employment had been reduced, but contended that the job losses were 27 in Tumut and 34 in Cooma.

- The Glenelg Shire Council (Portland) reported that the closure of Powercor's service centre had reduced employment in the region by 200.
- The South Grampians Shire Council (Hamilton) said that the shire had lost 72 electricity jobs since 1991.

Labour shedding in regional areas has been, proportionately, little different from that in urban areas (see figure 5.9). Moreover, while the reforms have resulted in the closure of service outlets in some small communities, employment in larger centres which have become 'regional headquarters' has increased.

The overall employment reductions have contributed to significant improvements in labour productivity which, in turn, have created the scope for reductions in costs and prices in regional and urban areas alike. As noted in a meeting at Traralgon in the LaTrobe Valley, in the absence of the structural reforms there would still have been some employment reduction as a result of technological changes.

In absolute terms, employment losses in urban areas have been higher than in regional areas. However, the capacity of smaller country towns to absorb employment losses is generally less than in the larger cities and regional centres. This is particularly the case when such losses are added to employment reductions stemming from some other parts of the NCP and economic change more generally.

FINDING 5.1

In regional Australia, large users of electricity have enjoyed significant reductions in usage charges. As access to the contestable market (ie ability to choose supplier and negotiate price) is extended, direct price benefits for other businesses and households should also occur. Employment in the sector has fallen in both urban and regional areas.

5.3 Gas

Natural gas, which accounts for 18 per cent of Australia's primary energy consumption, is our fastest growing energy source (AGA 1998b, p. 30). It is expected to account for around 28 per cent of the primary energy market by 2010.

Natural gas is an important business input and alternative energy source to oil and coal. The metals, chemicals, glass, brick and cement, and electricity generation sectors are major industrial users of natural gas. It is also used in nearly three

million households, mainly in Victoria and New South Wales, with 100 000 new residential customers being added each year.

Australia's natural gas industry developed on a State basis, with exploration, production and distribution oriented to meeting the needs of individual jurisdictions. This has typically involved a single production joint venture providing a State's entire gas needs via a dedicated pipeline to a single gas retailer. Government ownership of utilities and extensive regulation of private gas suppliers have been other features of the industry. Further, legislation in some States has restricted the flow of natural gas both within and beyond State boundaries. Such restrictions were generally intended to avoid the risk of future gas shortages, or to ensure that gas was available to underpin industrial development within a State.

The dominance of a few producers, the existence of monopoly suppliers, the absence of interconnections between systems and a lack of third party access to gas pipelines, all served to limit competition in the gas industry. As a result, costs and prices were well above efficient levels and investors lacked incentives to expand the network. This penalised households and businesses alike.

The gas reforms

Gas reform commenced in the late 1980s with initiatives such as the Commonwealth's attempted privatisation of the Moomba–Sydney pipeline and the removal of the State Energy Commission of Western Australia's monopoly over gas supply.

Reform in the sector assumed a higher priority in 1991 with the release of a Commonwealth Government strategy paper (DPIE 1991). This focused on the development of free and fair trade and an integrated national pipeline grid, and the introduction of open access to pipelines on commercially non-discriminating terms.

Under subsequent CoAG agreements in 1992 and 1994, the following reforms were to be implemented by July 1996:

- the removal of all legislative and regulatory constraints to free and fair trade in gas;
- the introduction of a uniform framework for access to gas transmission pipelines;
- the corporatisation of the remaining government owned utilities;
- structural separation (or 'ring fencing') of publicly- and privately-owned vertically-integrated transmission and distribution activities; and

-
- the reform of gas franchise arrangements (with no deadline for implementation).

In April 1995, CoAG brought these reforms within the framework of the NCP reform process.

Progress in implementing the reforms

Since their inclusion in the NCP, gas reforms have progressed in three key areas — the development of a national access regime, the removal of legislative and regulatory barriers to competition and the structural reform of gas utilities.

- All relevant jurisdictions have now passed legislation giving effect to a National Access Code prepared by the Gas Reform Task Force. Each relevant jurisdiction has since applied to the NCC for certification of their access regimes.
- While the States and Territories did not meet the 1996 deadline for the complete removal of legislative and regulatory barriers to free and fair trade in gas, significant progress has been made in most jurisdictions. For instance, the Western Australian Government has reaffirmed its commitment to seek expressions of interest for a second pipeline to be constructed along the western seaboard without any legislative or regulatory barriers. A public review of the *Cooper Basin (Ratification) Act 1975* in South Australia identified a number of instances where the costs of restrictions on competition exceed the benefits. The South Australian Government is currently seeking further public comment on these matters.
- Within the NCP framework, there has been continuing structural reform of gas facilities. Some specific initiatives have included the privatisation of the Moomba–Adelaide pipeline in South Australia, the State Gas Pipeline in Queensland and the Dampier–Bunbury transmission pipeline in Western Australia. Further, all government-owned gas utilities have now been corporatised and, in some cases sold (eg the Victorian gas utilities) or prepared for privatisation. The latter has involved the separation of vertically-integrated transmission and distribution networks. Private sector gas utilities in jurisdictions other than South Australia and the Northern Territory have completed ‘ring fencing’ of their transmission and distribution activities.

Overall, the NCC, in its second tranche assessment, considered that gas reform was one of the major success stories of NCP. It said that, while some issues remain in relation to retail and intra-field competition and the finalisation of access arrangements in a few States, gas reform was largely complete. (NCC 1999b, vol. 1, pp. 8–9)

A snapshot of jurisdictions' progress in implementing the key elements of the gas reforms is provided in table 5.3.

Table 5.3 Status of jurisdictions' progress in implementing gas reforms, as at 30 June 1999

<i>Reform</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas^a</i>	<i>ACT</i>	<i>NT</i>
Third party access								
• NGPAC operational	✓	✓	□	✓ ^b	✓	na	✓	✓
• NGPAC certification	✓	✗	□	✓	✓	na	✓	✗
• phasing of transitional arrang'ts & derogat'ns	□	□	□	□	□	na	□	na
Free and fair trade								
• removal of legislative & regulatory restric'ns	□	□	□	□	✗	na	✓	□
• upstream competition	na	□	□	□	✗	na	na	✗
Institutional reform								
• structural separation	✓	✓	□	✗	□	na	□	✗
• corporatisation	✓	✓	✓	□	na	na	na	na
Independent pricing and access regulation								
	✓	✓	✗	✗	✗	na	✓	□

Note: The summary in the table is only a broad indication of progress. It does not purport to provide a complete picture of the details of reform implementation contained in the NCC's second tranche assessment.

✓ – implemented □ – implementing ✗ – little or no progress.

^a There is currently no natural gas industry in Tasmania. However, the Government signed the 1997 Gas Agreement and intends to introduce access legislation during 1999, with a view to the possible introduction of natural gas to Tasmania by 2002. ^b Although operational, it is not applicable to key pipelines until 1 January 2000 under code derogations.

NGPAC – National Gas Pipelines Access Code; **na** – not applicable.

Source: PC evaluation based on information contained in NCC (1999b) and submissions.

Participants' views on the reform process

Only a few participants commented in any detail on the gas industry reforms. This probably reflects the fact that greater significance is attached to other infrastructure reforms due, in part, to:

- natural gas not being reticulated in most of country Australia; and
- a fairly widespread perception that gas reforms will generate benefits that significantly outweigh any associated costs, including in regional Australia.

This latter point was made strongly by the Australian Gas Association (AGA), which contended that:

The process of gas reform, through improving the accessibility of natural gas as a clean, efficient and competitive energy source, has already influenced the locational decisions in favour of, and lowered business costs in, regional communities.

Natural gas pipeline infrastructure allows major energy users to invest in regional communities, and benefit from the economic and environmental advantages of natural gas. These are usually sizeable community investments, with substantial economic flow on effects in local employment. (sub. 38, p. 5)

Similarly, the Western Australian Chamber of Minerals and Energy pointed to the role of gas reform in stimulating new investment:

Recent years have seen billions of dollars worth of investment either committed or mooted into mineral projects. A key factor in making those investments economic has been the availability of cheaper energy as a result of deregulation, and energy is often one of the most significant cost inputs. (sub. 29, p. 3)

While supporting the general thrust of the reforms, the AGA (sub. 38 and trans., p. 881) expressed concerns that the benefits from gas reform could be reduced by:

- regulatory uncertainty and discretion in the application of the National Gas Access Code which, it claims, adds to compliance costs;
- the economic regulators not allowing adequate rates of return, commensurate with the risks, to encourage the further expansion of investment in pipeline infrastructure and thereby help underpin basin to basin competition; and
- delays in the pipeline approval procedures at the State level — involving approvals for access, pricing of access, the environment, cultural heritage, technical engineering etc.

The Australian Pipeline Industry Association (APIA) claimed that the industry was currently facing unacceptable delays and costs associated with inefficient regulatory approval arrangements. It said:

Some States are much better than others in terms of co-ordinating that overall process. Some States take a parallel approach and look at all these issues at once and give a final pipeline licence within a very reasonable timeframe of around eight months. Other States — and I would note New South Wales as the particular case in question for recent developments — can take more than two years. (trans., p. 883)

The APIA indicated that it took 28 months to obtain the necessary approvals for the interconnect project between Wagga Wagga and Albury. The costs of such delays were currently being absorbed for major projects, but, according to the Association, if those same delays were to be imposed on lateral pipeline developments servicing mining and other discrete regional markets, that would be a very significant impediment in the overall process.

Impacts of the gas reforms

The available evidence indicates that the NCP gas reforms are building on earlier reforms and providing significant benefits to many parts of Australia. In urban areas, the primary benefits have been price reductions — particularly for business users — and improvements in service quality. In country areas, the main benefit has been the stimulus provided to the extension of the gas network and the associated business opportunities which this has created.

Of course, these gains have not come without some costs. With the reforms to pricing structures, usage charges for some residential users have risen. There have also been employment reductions in the gas industry as public utilities, in particular, have addressed overmanning and inefficient work practices. However, given the concentration of the network in urban areas, these costs do not appear to have been very significant for country areas.

Accessibility of gas

The dismantling of barriers to interstate trade in gas — coupled with structural reforms, privatisation and increasing levels of competition — has accelerated the expansion of natural gas networks into country Australia. Those areas which have recently gained, or should in future gain, access to natural gas include:

- the Murray Valley area between Chiltern in Victoria and Deniliquin in New South Wales;
- Mildura and surrounding areas;
- the Bellarine Peninsula to the south of Melbourne;
- Yandina, Nambour, Gympie and Noosa in Queensland; and
- Kalgoorlie/Boulder, Mandurah, Busselton and the northern goldfields (Leonora) in Western Australia (AGA 1998a).

However, the Regional Development Council of Western Australia (sub. D262, pp. 2–3) cautioned that not all new connections were direct outcomes of, or conditional on, the NCP reforms and that some, such as Mandurah's access to the Dampier to Bunbury pipeline had been planned for many years.

A list of some of the main cities and towns which have been connected to gas in recent years is provided in table 5.4. This list is far from exhaustive, covering mainly those centres at the end of the extended pipelines. The AGA provided a further list of 91 towns across Australia which have been connected to the network

between 1990 and 1999. Figure 5.10 gives a graphical indication of the past and prospective expansion of the network.

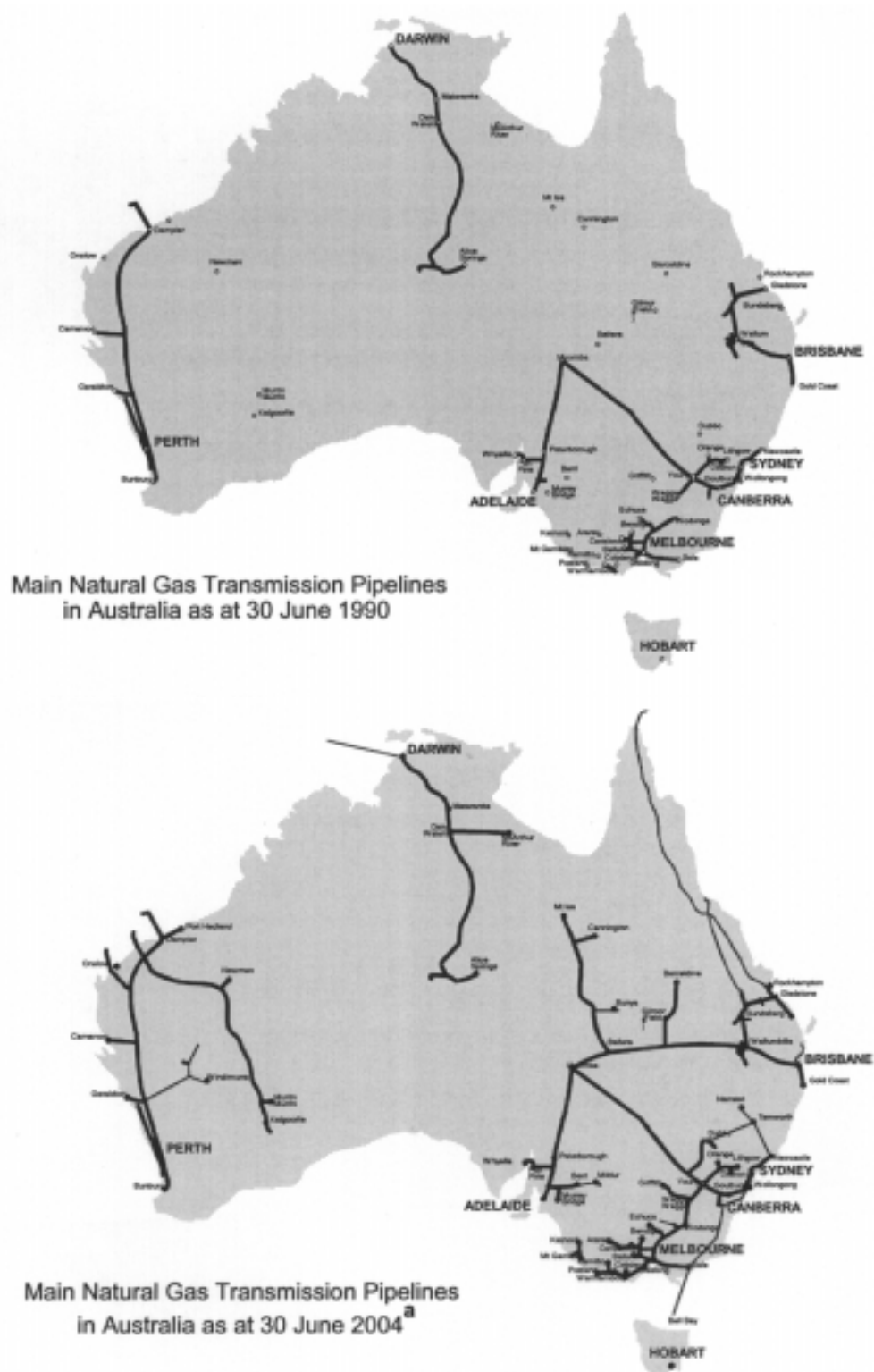
Table 5.4 Expansion of the gas pipeline network — main cities and towns^a etc connected between 1990 and 2004

<i>State</i>	<i>1990–1995</i>	<i>1995–1999</i>	<i>1999–2004</i>
New South Wales	Narrandera Leeton Griffith	Wagga Wagga Dubbo	Wilton Gunnedah Tamworth Narrabri
Victoria	Echuca Portland Hamilton Cobden	Ararat Stawell Horsham Lara	Baddaginnie Mildura
Queensland	Rockhampton Blackall Barcaldine Ballera	Wallumbilla Moura Roma Mount Isa Cannington	Townsville Gladstone Gympie Bundaberg Bunya
Western Australia	Onslow Varanus Island Thevenard Island Tubridgi Griffith Port Hedland	Newman Kambalda Yarraloola Wiluna Jundee Murrin Murrin Burrup Peninsula Karratha Kalgoorlie	Windimurra
South Australia	Snuggery Mt Gambier Katnook Berri Murray Bridge		
Northern Territory	McArthur River Mine		
Tasmania			Bell Bay
Kilometres expanded	2123	4411	6294

^a The towns listed are generally those at the end of the extended pipelines. Many more towns have been connected along the way (see text).

Source: Information supplied by the Australian Gas Association.

Figure 5.10 Expansion of the gas pipeline network from 1990 to 2004



^a Proposed pipelines, which are to be constructed between 1999 and 2004, are indicated by the thin lines.

Source: Maps supplied by the Australian Gas Association.

Greater access to natural gas in country Australia has created opportunities to establish new activities — for example, electricity cogeneration. It has also allowed existing firms (and some households) to substitute gas for other energy sources such as electricity and diesel fuel. In some uses — for example, process heating and, in remote areas, electricity generation — these alternative energy sources are inherently less economic than gas. Along with lower prices for some existing gas users in regional areas (see below), this has improved regions' competitiveness and growth prospects. As the AGA noted:

... natural gas allows enterprises in regional Australia to compete more effectively with businesses located in major urban areas, encouraging the decentralisation of production and distribution. (sub. 38, p. 5)

The AGA went on to note that new pipeline proposals, totalling 11 000 kilometres, which are currently under consideration will:

... have strongly positive regional effects. The pipeline projects identified by the AGA entail estimated investment of around \$6 billion over the next several years. (sub. 38, p. 4)

Gas prices

While the available information on changes in gas prices is not comprehensive, some general trends are apparent. In aggregate terms, usage charges have fallen in real terms — particularly for business users, who have benefited from a rebalancing of charges between business and households, as well as from the improvements in the efficiency of service delivery. For residential customers, outcomes have depended on whether cost savings made possible by improved efficiency have outweighed the price-raising effects of the rebalancing of charging structures. For example:

- NUS International (NUS 1999) found that, Australia-wide, gas prices for industrial and residential users fell by an average of 22 per cent between 1994 and 1998;
- in Western Australia, usage charges for residential users fell by 9 per cent in real terms between 1991-92 and 1996-97. Charges for business users (excluding contracts negotiated by major industrial users) fell by more than 10 per cent over the same period (PC 1998e, pp. 104-5);
- in Victoria, business customers enjoyed an average real price fall of more than 8 per cent over the period 1991-92 to 1996-97. In contrast, charges for residential customers increased by a little over 7 per cent during this time (PC 1998e, p. 105); and

-
- the Independent Pricing and Regulatory Tribunal (IPART 1997) estimated that more than 400 industrial and commercial gas users in New South Wales would receive cost savings averaging 20 to 25 per cent following the approval of a new access regime for gas distribution services provided by AGL.

Price reductions for industrial and commercial users have also been evident in country regions previously connected to the gas network. For instance:

- following gas deregulation in the Pilbara region in 1995, usage charges for large industrial users typically fell by more than 50 per cent (see box 5.1);
- the Western Australian Treasury (sub. D282, p. 3) cited a recently announced 25 per cent reduction in prices for gas from the Goldfields pipeline as a result of further competition in the gas supply market; and
- during a recent Industry Commission study (IC 1998b) of Australia's aluminium industry, Queensland Alumina Limited (QAL) said that:

In response to the National Competition Policy reforms ... the Queensland Government sold its interest in the State Gas Pipeline which runs from Wallumbilla to Gladstone ... QAL's gas transportation tariff immediately reduced by around 25 per cent and the tariff pricing principles provide for further incentive pricing as pipeline throughput increases. (IC 1998b, p. 77)

QAL anticipates further falls in gas prices in Queensland following moves by the State Government to approve access arrangements, along with licences to build pipelines linking the south west Queensland gas fields with existing markets in south east and central Queensland.

The combined impact of better access and lower prices on the competitiveness of user industries and the investment climate can, for example, be seen in the Pilbara and Goldfields regions in Western Australia and the Riverina area of New South Wales (boxes 5.1 and 5.2).

The aggregate reductions in gas prices during the 1990s have been underpinned by strong productivity gains (see figure 5.11). Industry-wide:

- customers per employee have more than doubled between 1992 and 1997; and
- real 'controllable' costs have declined by more than 40 per cent.

Open access arrangements for pipelines and the introduction of competition into some gas markets appear to have been particularly important in driving these productivity gains. Alcoa emphasised this point in the context of its alumina refinery operations in the south-west of Western Australia. According to the company, the access arrangements which now apply to the Dampier to Bunbury pipeline have allowed it to deal directly with gas producers rather than purchase gas

from the pipeline owner (which had a gas purchase contract with the joint venture partners in the North West Shelf project). Alcoa said that the access provisions had seen the company receive offers for the supply of gas from a number of suppliers. (IC 1998b)

Competitive pressures, and the likelihood of lower prices and/or better service (see below), will increase once all gas markets, including the residential market, become fully contestable in July 2002.

Box 5.1 Gas deregulation in Western Australia

In Western Australia, the phased and still incomplete deregulation of the gas market has seen gas prices for large industrial users typically fall by more than 50 per cent — particularly in the inland nickel and Goldfields areas. This has improved prospects for mineral extraction and processing.

Deregulation has been a catalyst for several major investments, notably the construction of the \$400 million Pilbara–Goldfields gas pipeline and associated infrastructure (mainly power generation plant, valued at \$270 million, as well as a \$250 million natural gas development off the north west coast), and the reticulation of gas in Kalgoorlie.

Perhaps more importantly, the pipeline cuts through some of the State's most significant mineral production areas, from the iron ore regions in the north west to the nickel and gold belt to the north of Kalgoorlie. Mines in these areas previously generated power on-site using diesel generators. Access to cheaper energy has cut production costs and has been credited by businesses as providing a stimulus to new investment.

Cheaper energy may also help Western Australia to develop major downstream processing industries (to supply major Asian markets) — industries which previously were deterred by relatively high energy costs.

The Goldfields–Esperance Development Commission (GEDC) (sub. D290, p. 10) said a perception had emerged recently in the region that the Goldfields Gas Transmission (GGT) tariffs were too high. This it said was demonstrated by the fact that many Kalgoorlie businesses were currently reluctant to enter into contracts with AlintaGas. The GEDC also pointed to Anaconda Nickel Limited's decision to enter into a joint venture with StateWest Power to build a \$100 million stand-alone pipeline to supply Stage 2 of the company's \$1 billion Murrin Murrin laterite nickel project — rather than purchase GGT gas, which it considered uneconomic for Stage 2. The Development Commission was sceptical whether any gas benefits would ever flow to the southern regions of Western Australia, as the markets were simply too small.

Sources: Chamber of Commerce and Industry, Western Australia (sub. 183, pp. 17–8) and Minerals Council of Australia (sub. D220, p. 2).

Box 5.2 Regional benefits of the Wodonga–Wagga Wagga pipeline

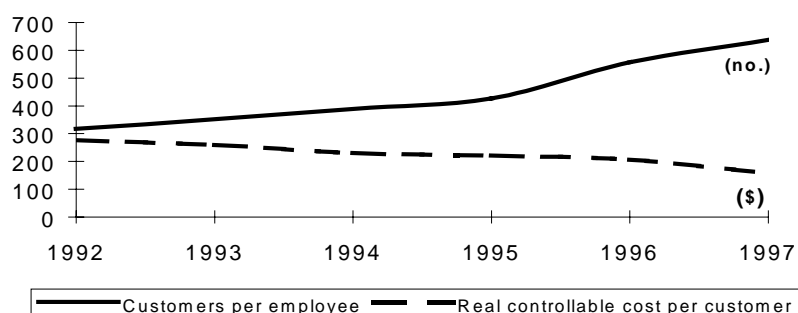
The expansion of gas supply in recent years to the Riverina and Dubbo/Parkes regions has boosted their economies. According to the AGA, in the Riverina region, access to natural gas in 1993 has increased employment and activity in existing industries, and assisted the establishment of new industries. In fact, the assessments indicate that many industries relocated in order to gain access to cheaper energy.

The AGA also noted that there could be long-term economic benefits in the Riverina region from the reticulation of natural gas to towns along the main pipeline. It said that larger firms could be attracted to the region based on access to gas, low cost land and labour, and existing transport infrastructure. For example, there is apparently scope for the energy-intensive food processing industry to move or expand from Wagga Wagga along the route of the pipeline.

The Association also pointed to the ongoing benefits to the Riverina from the maintenance of the pipeline and the operations of the compressor station.

Source: Australian Gas Association (sub. 38, p. 6).

Figure 5.11 Gas industry performance indicators, 1992 to 1997



Note: Controllable cost covers operational and maintenance costs of gas distribution at the firm level.

Sources: AGA (1998b) and information supplied by the AGA for 1997.

Service quality

The importance of service quality was highlighted by the failure in mid-1998 of the Longford gas plant, which denied gas to users throughout Victoria for some time. Information on service quality in the gas sector — which pre-dates the Longford incident — is limited and does not differentiate between outcomes in metropolitan and country areas.

There is some evidence of improvements in Victoria and Western Australia. For example, in Victoria, the proportion of calls for assistance answered within 20 seconds increased from 64 per cent to 84 per cent between 1991-92 and 1996-97. In

Western Australia, AlintaGas' response rate rose from 52 per cent to 81 per cent over the same period. According to the Western Australian Treasury (1998), AlintaGas' responses to 'broken mains/service faults' and to calls about 'gas smells' have also improved. The number of unplanned interruptions to gas supply in Western Australia has fallen since 1994-95, although interruptions in that year were higher than in 1992-93.

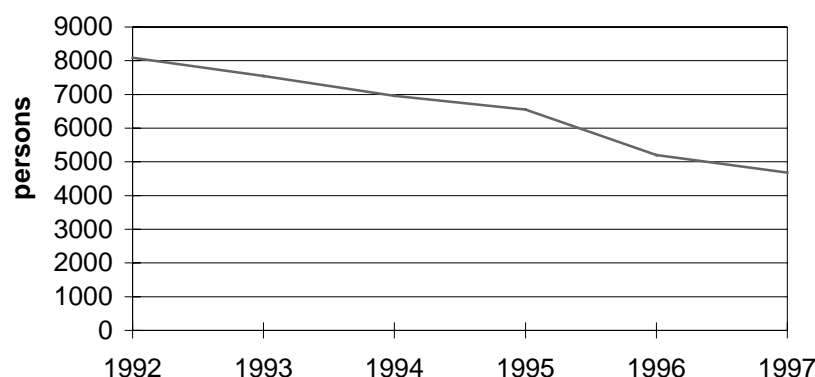
Employment effects

Apart from price increases for some residential users, the major adverse effect of the gas reforms has been a loss of employment in the industry. Information supplied by the AGA indicates that, between 1992 and 1997, six major gas distributors reduced their workforce by more than 40 per cent — equivalent to around 3400 jobs (see figure 5.12).

However, two points need to be made about these losses. First, most are likely to have been in metropolitan areas where the bulk of the sector's workforce is located. Second, there are several offsets to the employment losses shown in figure 5.12:

- increased employment in firms providing services to gas suppliers as a result of greater contracting out by suppliers;
- employment gains resulting from the expansion of the gas network into country Australia — both during the construction phase and after the network becomes operational; and
- higher employment in user industries which have become more competitive as a result of the fall in gas prices.

Figure 5.12 Total employment of six major distributors in the gas industry, 1992 to 1997



Sources: AGA (1998a) and information supplied by the AGA.

Indeed, because much of the expansion in the gas network has been outside the major metropolitan centres, the likelihood of an overall employment gain in country Australia is high.

Other impacts

According to the AGA, in some parts of Australia, the reforms will facilitate the evolution of specialist energy retailers who will compete vigorously for market share to the benefit of users:

In Australia, we are now seeing the emergence of ‘energy companies’ as the retail arms of former electricity distributors are becoming involved in gas marketing and the retail arms of former gas utilities are becoming involved in electricity marketing. ... In this increasingly competitive environment, gas retailers face the challenge of delivering gas as cheaply as possible, while providing better service to consumers who seek increasing quantities of this environmentally friendly fuel. (1998a, p. 136)

Improved access to services and lower prices resulting from the gas industry reforms could also give rise to environmental benefits. The largest potential gains arise in electricity generation from the substitution of gas for fossil fuels in large-scale generation plants and increased use of gas-fired cogeneration plants.

FINDING 5.2

The main impact of NCP gas reforms in urban areas has been a rebalancing of usage tariffs between businesses and households, which has seen large price falls for business users and more modest falls for households in all States except Victoria, in which there have been modest increases. For country Australia, the main benefit has been the stimulus provided by the extension of the gas network and the associated opportunities this has created for existing and new businesses.

5.4 Water

The water industry is one of Australia’s largest, with assets valued at over \$90 billion in replacement cost terms. Some \$40 billion of these assets are in country areas. Around 90 per cent of water supplied to non-metropolitan areas is used to irrigate crops and pastures.

In the past, government provision of water infrastructure was often used to support regional development in rural and remote Australia. An example is the subsidised development of the Fairbairn Dam in Queensland, which has contributed to economic growth in the Emerald shire since 1973.

Water is scarce in most parts of Australia. Yet often it has been poorly managed, misused and over-exploited. In recognition of these problems, reforms to improve pricing structures and the efficiency of service provision commenced in urban areas in the early 1980s. In country areas, however, the likely adverse social and economic impacts of such reforms on some sectors of the community posed a major stumbling block to change.

In January 1994, the Working Group (1994) which developed the CoAG water reforms identified the following problems in the water industry:

- a need to refurbish water assets in rural areas for which, in general, adequate financial provision had not been made;
- impediments to the transfer of irrigation water from low value broadacre agriculture to higher value uses in horticulture, crop production and dairying;
- service delivery inefficiencies;
- pricing regimes which often led to over-charging of commercial and industrial users of water services, the over-allocation of water (especially for irrigation purposes), environmental degradation and misallocation of investment; and
- a lack of clear definition of the role and responsibilities of government bodies involved in the industry.

Environmental degradation and its associated economic and social costs are particular problems in this sector. In this regard, the NCC observed that:

Many of Australia's river systems are in deep crisis. Outbreaks of blue-green algae, excessive diversions of natural flows, increasing pollution and rising instream salinity are all taking their toll. Native fish populations, and wetlands and streams, have been affected. There are salinity problems in many farming areas such as those in the Murray Darling Basin, and water quality and reliability is at risk in some catchments. (1998a, p. 207)

In recognition of concerns for the sustainability of New South Wales' water resources, the Government commented recently that:

The competing claims on our water resources necessitates a balancing act between maintaining natural processes within our riverine and groundwater systems while also supplying human, industrial and agricultural enterprises with necessary water.

It is the Government's expectation that establishing the appropriate balance will involve a combination of increasing water use efficiency, better flow management, the possible return to the rivers of some water now being diverted, and application of more environmentally sensitive land-use practices. These measures, in concert with market forces and associated regulation to protect basic aquatic ecosystem health, will lead to outcomes which achieve the best long term economic, social and environmental productivity from our water resources. (DLWC 1998)

The water reforms

The water reforms seek to improve the economic viability and ecological sustainability of water supply. In this regard, it is widely recognised that reform of financial arrangements alone would not necessarily address important environmental and social impacts, while over-emphasis on the environment would put the future of important rural industries at risk. Furthermore, short-term exploitation of the resource would undermine the interests of future generations.

In February 1994, CoAG endorsed a reform framework for the Australian water industry, to be implemented progressively through to 2001. Of the original commitments, the reforms of particular importance for this inquiry, in terms of their overall impact on rural and regional Australia, are:

- *Pricing reform* — involving consumption-based pricing and full cost recovery (including, where practical, a return on the written-down replacement cost of assets); the reduction or elimination of cross-subsidies; making any remaining subsidies transparent and, ideally, paid to the service deliverer as a community service obligation (CSO); and the setting aside of funds for future asset refurbishment and/or upgrading of government-supplied water infrastructure — for urban water services by 1998 and rural water supply by 2001.
- *Investment reform* — where investment in new rural water supply schemes, or in the extension of existing schemes, is to proceed only if an appraisal indicates that it is economically viable and ecologically sustainable.
- *Allocation and trading reforms* — requiring the implementation of comprehensive systems of water allocations or entitlements, including allocations for the environment, with water property rights separated from land title and clearly defined in terms of ownership, volume, reliability, transferability and quality, and with trading in allocations or entitlements by 1998 (including interstate trading where feasible).

With the April 1995 signing of the NCP agreements, implementation of these CoAG-initiated water reforms became a formal requirement under NCP. Further, the coverage of the reforms was extended to include groundwater supplies (both artesian and sub-artesian) and drinking water quality standards — the latter seeking to address water quality and health issues for country towns and cities alike. Subsequent reports undertaken for the Standing Committee on Agriculture and Resource Management (SCARM) and the Agricultural and Resource Management Council of Australia and New Zealand (ARMCANZ) have provided guidance on some specific implementation issues associated with the reform package. These have included reports on asset valuation, cost recovery, water allocation, groundwater and competitive neutrality issues.

The NCP package is designed to reinvigorate the water reform process, particularly in rural areas. In recognition of the more extensive public consultation likely to be required in these areas, the timetable for implementation of many of the rural water reforms is longer than that proposed for the urban water reforms.

Progress in implementing the reforms

Progress in implementing the reforms has been uneven across water use categories and between jurisdictions.

Urban

For water services supplied to households and businesses in cities and country towns, progress is well advanced in most States and Territories:

- consumption-based charging has been introduced progressively and property-based charges largely phased out. Overcharging of commercial and industrial users relative to households is being reduced or removed;
- there have been institutional reforms to increase the commercial disciplines on, and the accountability of, those entities delivering water and sewerage services. In most jurisdictions, urban water authorities have been moved out of government departments and corporatised. In some, commercial functions have been separated from policy and regulatory functions. In others, regulatory functions are provided for in legislation. For example, the Office of the Regulator General in Victoria has legislated (non-price) responsibilities with respect to metropolitan Victorian water authorities; and
- there has also been a significant increase in contracting out by urban water authorities. Of particular significance was the decision made by the South Australian Government in 1996 to contract out the entire management and operation of Adelaide's water supply to United Water.

Rural

Administrative reforms to improve the efficiency of the authorities delivering bulk water to irrigators have been put in place (many of these authorities also deliver water for town supply). As in the case of urban supply, administrative reform has sometimes involved the creation of independent regulatory bodies. For example, under New South Wales legislation, Independent Pricing and Regulatory Tribunal of NSW (IPART) has responsibility over the pricing of bulk water supplies to rural users.

Progress in implementing other reforms — involving rural (ie irrigation) water pricing, investment appraisal for irrigation projects, environmental water allocations, water property rights and the trading of water entitlements — has often been slow and variable. In these areas, there have been some significant differences between the States in their interpretation of, and approaches to implementing, some of these reforms. Partly because of this, in its second tranche assessment of governments' progress, the NCC (1999b) assessed that all jurisdictions, with the exception of Victoria and the Northern Territory, will be subjected to supplementary assessments (prior to the payment of the second component, in 2000, of the second tranche of competition payments) for a varying range of non-compliance with water reforms. The Commonwealth has withheld 25 per cent of Queensland's 1999 payment because of non-compliance with the investment appraisal principles for new water infrastructure.

A snapshot of jurisdictions' progress in implementing the key elements of the urban and rural water reform packages is provided in table 5.5.

Implementation issues

Implementation of the water reforms can be considered to fall within three distinct regional groupings — *metropolitan urban* (MU) water and sewerage services, *non-metropolitan urban* (NMU) water and sewerage services, and rural *irrigation* water. The issues, their complexity and the extent of consultation required to resolve them often differs quite considerably. For MUs and NMUs, the reforms are largely completed or well established.

In the case of rural irrigation water, however, there is a perception (particularly in New South Wales) that some reform initiatives may not be leading to appropriate or intended outcomes.

Water pricing

Nearly all pricing concerns raised by participants related to the implementation of the CoAG pricing reforms for rural water. In general, there was acceptance of the principle of full cost recovery pricing. For instance, the NSW Irrigators' Council said that it:

... supported the principle of all users paying, on a beneficiary pays basis, of the cost of the efficient supply of water. (sub. 211, p. 3)

Table 5.5 Status of jurisdictions' progress in implementing the urban and rural water reforms, as at 30 June 1999

<i>Reform (original date due)</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>MDBC</i>
Cost reform & pricing									
<i>– urban water (1998)</i>									
• full cost recovery	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗	na
• two-part tariff	✓ most l'ger urban	✓	✓ most l'ge LGs	✓ major urbans	✓ urban ✗ bulk	✗	✓	✓	na
• reduction/elimination of cross subsidies	<input type="checkbox"/>	<input type="checkbox"/>	✗	✗	<input type="checkbox"/>	✗	<input type="checkbox"/>	✗	na
• remaining subsidies made transparent	<input type="checkbox"/>	<input type="checkbox"/>	✗	✓	✓	✗	✓	<input type="checkbox"/>	na
• +ve rate of return	✓	✓	<input type="checkbox"/> some l'ge LGs	✓	✓	✗	✓	✗	na
<i>– rural water (2001)</i>									
• full cost recovery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>	na	<input type="checkbox"/>	<input type="checkbox"/>
• consumption-based pricing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	na	<input type="checkbox"/>	<input type="checkbox"/>
• reduction/elimination of cross subsidies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗	na	<input type="checkbox"/>	na
• remaining subsidies made transparent	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✓	✗	na	✓	na
• rate of return	<input type="checkbox"/>	✓	✗	✗	<input type="checkbox"/>	✗	na	<input type="checkbox"/>	<input type="checkbox"/>
• sinking fund	<input type="checkbox"/>	✓	<input type="checkbox"/>	✗	<input type="checkbox"/>	✗	na	<input type="checkbox"/>	na
• investment appraisal	✓	✓	✓	✓ ecol ✗ econ	✓	<input type="checkbox"/>	✓	✓ ecol ✗ econ	na
Allocation & trading									
• environmental allocation	<input type="checkbox"/> reg ✗ other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
• water property rights, separate from land	<input type="checkbox"/> reg/gw ✗ unreg	✓	✗	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	na
• trading in water entitlements (1998)	<input type="checkbox"/>	✓	✗	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✗	<input type="checkbox"/>
Institutional reform									
• separate roles (1998)	✓	✓ rural <input type="checkbox"/> urban	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• holistic approach to resource managem't	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	na
• ICM approach to water management	✓	✓	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓
• performance comparisons	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	na
• community consultation	✓	✓	✓	✓	✓	✓	✓	<input type="checkbox"/>	✓

Note: The summary in the table is only a broad indication of progress. It does not purport to provide a complete picture of the details of reform implementation contained in the NCC's second tranche assessment.

✓ – implemented ☐ – implementing ✗ – little or no progress na – not applicable

MDBC – Murray-Darling Basin Commission; **+ve** – positive; **bulk** – bulk water; **LG** – local government; **ecol** – ecological; **econ** – economic; **reg** – regulated; **unreg** – unregulated; **gw** – groundwater.

Sources: PC evaluation based on information contained in NCC (1999b); ARMCANZ High Level Steering Group (1999); and submissions.

In relation to the concept of ‘beneficiary pays’, the Council sought recognition that irrigators are not the only beneficiaries. Landholders, towns and other water users — including the community for recreational purposes and the environment — also benefit from, for instance, government expenditure on dams and/or actions taken by governments (which can have financial consequences for irrigators) to improve the health of a river system.

Most of the concerns raised were by New South Wales irrigator organisations, usually as part of more general concerns about changes being made in New South Wales to access to water for irrigation purposes (discussed below) and the costs of that water. Of these, the following three specific pricing issues are discussed below:

- charging for capital costs, for existing and/or new water infrastructure;
- the requirement for a depreciation charge and/or a sinking fund annuity for asset refurbishment and replacement purposes; and
- accounting for transmission losses.

In New South Wales, it is relevant to note that, from an NCP perspective, bulk (or headworks) water pricing is the only area of concern, as the retail price of water within the State’s off-stream irrigation schemes is now essentially in the hands of the irrigators themselves.

The New South Wales Government (sub. D283) emphasised that rural water prices were increasing from a very low base and that bulk water charges represented only a relatively small component of on-farm costs — 1–2 per cent for a large cotton farm and 5–7 per cent for a large rice farm. That said, it must also be recognised that irrigators have made substantial on-farm investments in channels, land forms and pumping and irrigation equipment in order to use effectively the water they have been allocated.

The predominance of New South Wales concerns about water pricing reform may simply reflect the stage of implementation in that State. The Victorian irrigation industry began to address the implementation of pricing reforms back in the early 1990s, while in many other States their impacts are yet to be fully considered.

Return on capital

In relation to charges for capital, the CoAG water pricing reforms for rural water specify:

- the achievement, wherever practicable, of positive real rates of return on the written-down replacement costs of rural water supply assets by 2001; and

-
- the setting aside of funds for future asset refurbishment and/or upgrading of government-supplied water infrastructure.

Initial concerns about varying interpretations among the States and Territories of the pricing and asset valuation principles required to meet the CoAG reform objectives were addressed subsequently by the CoAG Expert Group (1995) and SCARM (1997). As a result, compliance with the reform milestones is deemed met if cost recovery currently falls within a defined range — the lower bound being set at pricing for commercial viability, with an upper bound of full cost recovery, including a return on capital. The upper bound is to be achieved, where practical, by 2001.

Many irrigator groups argued that the capital costs of existing water infrastructure were sunk and, therefore, that no contribution to a rate of return should be expected. For instance, Murray Irrigation claimed that:

The capital invested in headworks and water distribution infrastructure has no alternative use and the investment is sunk. ... The original costs bear no relationship to the current use of the assets. (sub. D288, p. 1)

Similarly, Murrumbidgee Irrigation stated that:

The value of existing assets is irrelevant to today and tomorrow's pricing as there is no alternative use of the capital or asset. The investment is sunk and the inherent value of that investment is itself a function of the revenue derived from water prices. ... Pricing to cover the cost of capital should only apply to capital invested in new assets and not sunk investments, nor their renewal or replacement ... [which should be] ... funded by customers through annuity contributions. (sub. D272, pp. 3–4)

As noted by Murrumbidgee Irrigation, the value of established water infrastructure assets is a function of the revenue derived from water prices. This introduces an element of circularity to the application of the pricing and asset valuation rules. As explained by Marsden Jacob Associates:

... the current price is used to determine economic value but then the guaranteed rate of return on the economic value is used to determine price. (1997, p. ESiii)

This circularity means that a range of charges could legitimately be included in water prices charged by bulk water supply authorities, which would have differing price (and wealth) effects for irrigators.

In its determination of rural bulk water prices in New South Wales for 1998-99 and 1999-2000, IPART has not included a charge for a rate of return on existing assets, effectively treating them as sunk assets with no opportunity cost. For charges beyond operation, repairs and maintenance, however, it has included the costs of maintaining the service capacity of the infrastructure assets.

Clearly, existing irrigation infrastructure assets have value. Those values are reflected as part of the market values which irrigators place on bulk water.

As supplies of bulk water are scarce, the value placed by irrigators on those supplies reflects not only the prices charged by bulk water authorities, but also the demands for water for use in irrigation. Such demands are subject to considerable fluctuation in response to seasonal conditions, market-driven variations in the relative profitability of different forms of irrigated agriculture, the uncertainty of entitlement due to increasing environmental requirements and opportunities to trade bulk water to other locations and uses within river systems. CoAG water trading reforms (see below) have enhanced those opportunities and the relative scarcity of water is now reflected more accurately in transfer prices.

The water reforms have influenced more than irrigation infrastructure values. Prior to reform, prices charged for bulk water were insufficient to recover the costs of its provision. This benefit to (old but not new) irrigators, along with the benefits of irrigation, was capitalised in the value of irrigation land. However, the separation of water rights from land titles, as required under the CoAG reforms, has seen this value split into a value for the land that is able to be irrigated and a value of the water right — with the apparent effect of a transfer of value from the land to the water right.

As the value of bulk water rights is influenced by the prices charged for its provision, the inclusion of a zero rate of return on valuable existing sunk assets necessary for bulk water provision, avoids having to address difficult valuation/pricing problems. It also increases the value of those water rights.

Consistent with the lower bound of commercial viability, IPART has included a charge to cover the refurbishment and upgrading of existing bulk water assets in the prices charged for bulk water in the form of provisions for renewals annuities. In this regard, Murray Irrigation said that:

... we have to look forward. What is it going to cost to maintain the asset and should it be maintained? This is a really valid issue in terms of the future cost of these assets, and long-lived infrastructure must be maintained to extend its useful life. We have to ask questions like, “Will the asset be replaced? When will it be replaced? How much will it cost? What technology will apply?” Some of those questions are actually quite hard to answer. So what we would advocate is the use of a mixture of debt financing and an annuity for planned expenditure. This way you take the lumpiness out of it but you maintain your infrastructure. (trans., p. 260)

The differing treatment within and between the States and Territories of public capital invested in irrigation on the basis of the extent to which existing assets can be regarded as sunk has been held as being consistent with the ARMCANZ

guidelines for the implementation of the CoAG water reforms by its High Level Steering Group. The independent assessment of implementation of the agreed full cost recovery pricing for rural water under the NCP will be undertaken as part of the third tranche assessment (see chapter 4).

IPART's determination of New South Wales' bulk water prices emphasises the need for a sound basis for future development of water and involves a pragmatic approach to improving cost recovery pricing for rural water. Under it, there is provision for bulk water supply authorities to cover provision for asset refurbishment and upgrading of existing schemes, as well as the day-to-day operations of them.

Prices for bulk water from new irrigation infrastructure are to be set so as to include a return on capital. In this way, the opportunity costs of public investment in new irrigation infrastructure will be reflected in the price of bulk water for irrigation purposes.

Depreciation and sinking fund issues

The agreed requirement for full cost recovery in the pricing of rural water implies that bulk water prices include an appropriate charge above operating, repairs and maintenance costs for the depreciation of long-lasting assets. Conventional accounting practice has been to allocate the capital costs of such assets over their effective lifetimes using depreciation schedules chosen to approximate the diminution in value. On this basis, representative depreciation allowances are determined and included as part of prices for full cost recovery. However, in common with normal commercial practice, cash flows from the depreciation allowance and the financing of asset refurbishment and replacement are not explicitly linked.

A requirement of conventional accounting methods is that all assets whose value diminishes over time are subject to depreciation. The exclusion of some such assets, on the basis of their being sunk investments, would make inadequate allowance for refurbishment and replacement purposes.

The CoAG rural water reforms, by specifying that funds be set aside for future asset refurbishment and/or upgrading of government-supplied water infrastructure, explicitly link part of the depreciation allowance with the financing of refurbishment and upgrading. This has led to concern that there could be double counting in the charge included for depreciation of assets when determining full cost prices. For instance, Murrumbidgee Irrigation argued:

... it is entirely inappropriate to impose an allowance for depreciation and an annuity to finance refurbishment. Only the cost of consumption of the asset as represented by the future need for cash should be incorporated into pricing ... (sub. D272, p. 4)

As indicated above, IPART price determinations include the cost of funds set aside for refurbishment and upgrading of assets which it treats as sunk investments. This avoids double counting and is consistent with the CoAG's financing requirement for refurbishment and upgrading, and with including depreciation allowances to provide for the diminution in value of all irrigation assets in determining bulk water prices.

The treating of some existing irrigation assets as sunk investments for determining bulk water prices has taxation implications if applied to privately owned irrigation assets. Murray Irrigation said that, where irrigation boards are privately owned, assets need to be valued in order to claim depreciation against taxable income. Although unrelated to NCP, this may raise concerns about the taxation treatment of privatised irrigation boards. For instance, Murray Irrigation believed that assets with a low book value but higher replacement cost should be depreciated on their replacement cost, or that the Government should legislate to allow annuities for future replacement to be tax deductible.

Accounting for transmission losses

The Commission understands that Victorian bulk water providers are required to address transmission losses in their bulk entitlements and that some private irrigation schemes have already sought to address such losses in their pricing structures. In contrast, a number of New South Wales participants said that accounting for these losses in the State's bulk water delivery systems is non-existent and may give rise to inefficiencies in the utilisation of what is a scarce resource subject to increasing demands.

Caldwell and MacPhillamy (sub. 214) said that, in the Lachlan River system in central New South Wales, if a farmer at the bottom end of the system makes a request for 1ML of water, up to 6ML must be released from the dam. The MIA Council of Horticultural Associations (MIACHA) (sub. D242, p. 2) said losses along the Murray River may be even higher. However, despite such high transmission losses, the downstream farmer is presently paying the same price for a given quantity of water as an upstream counterpart. Caldwell and MacPhillamy suggested that there may be inefficient (ie incorrectly priced) downstream trading of water on the Lachlan to the detriment of upstream farmers and their communities. Such inefficiencies in water usage could increase as trade in water entitlements becomes more widespread.

The feasibility of differentiating water charges on the basis of transmission losses — as occurs, for instance, in the electricity industry — is a difficult and complex issue. In response to the draft report, Goulburn-Murray Water and a few other participants considered that much of these water transmission losses constituted environmental flows and that the remainder did not warrant the administrative costs involved in its recovery. The MIACHA (sub. D242, p. 2) believe it is an emerging issue, along with the associated issue of accounting for delivery quality, but they and others consider that there are more important issues to resolve in the interim.

Reflecting the views of a number of participants, the Association of Rural Water Authorities (sub. D296, p. 1) considered that defined water system areas should be regarded as whole entities and that transmission losses should not be reflected in pricing for the following reasons:

- the practical and engineering difficulties in precisely measuring varying losses in different sections of water system areas;
- differential accounting and recording requirements potentially leading to increased costs;
- net productivity of water, even allowing for any cost of transmission losses, is not necessarily lower in downstream areas; and
- the potential impact on communities who currently accept the appropriateness of rating/charging on an overall basis and are generally concerned about differential charges.

Notwithstanding these concerns, the Commission considers that accounting for transmission losses in surface water systems is an issue which will become more important as the value of water increases. To a large extent, the issue turns on the degree to which transmission losses represent environmental flows. It also has implications for the importance and use of groundwater resources downstream.

In addition to the inclusion of capital costs, depreciation and/or sinking fund annuities and, eventually, transmission losses in the implementation of full cost recovery pricing under the CoAG water reforms, there is the issue of the ‘spill-over’ effects of water use. In this regard, the Commission observes that the ARMCANZ High Level Steering Group has stated:

Priority needs to be given to identifying and including the costs of resource management and environmental degradation into [water] pricing. (1999, p. 4)

Investment appraisal — new rural water infrastructure

The perception in Queensland is that the NCP's investment appraisal requirement for all new rural water infrastructure virtually precludes the construction of new dams required for further, especially inland, development in that State. The Hon. Rob Borbidge MLA, Queensland (sub. D279) argued that the developing nature of Queensland's economy, as compared with the more mature economies in New South Wales and Victoria where infrastructure development for irrigation purposes had largely been completed, was constrained by NCP.

The Queensland Government (sub. 202) recently promised to spend \$1 billion over 15 years on new water storages. In doing so, it and the Queensland Farmers' Federation (sub. 90) argued that subsidies for new water infrastructure are allowable under general NCP provisions, provided that they are transparent and defined as CSO payments.

In commenting on these issues, the NCC noted that:

... water reform will mean that ... governments will need to look closely before deciding to invest in new dams.

But, it does not preclude investment in new dams, nor does it prevent governments from subsidising water where this is justified for legitimate social reasons. The CoAG water agreement does allow governments to provide genuine CSOs to disadvantaged communities. At the same time, it does not provide scope for governments to circumvent the pricing reforms through the adoption of contrived definitions of CSOs. (Samuel 1998a, p. 5)

More specifically, the NCC said that:

While the Strategic Framework does not make provision for subsidised pricing arrangements for new schemes or extensions to existing schemes, the Council accepts that in exceptional circumstances it may be possible to argue a case for subsidisation of new schemes. An example of this may be where a dam provides a community recreational facility as well as an irrigation facility ... The Council will need strong economic justification if it is to assess that a jurisdiction that subsidises new investment has met its NCP obligations.

Allied to this is a requirement that the process of assessing economic viability be robust. For example, the Council would have serious reservations about an assessment that a project is economically viable where government capital grants are included as a benefit and where viability is assessed on the basis of a less than commercial rate of return. (1998f, p. 6)

In its recent second tranche assessment of Queensland's progress in implementing the NCP water reforms, the NCC (1999b, p. 476) recommended the suspension — until at least December 1999 — of 25 per cent of that State's 1999 competition payment for non-compliance (on a number of counts) with its commitment to:

... conduct robust independent appraisal processes to determine economic viability and ecological sustainability prior to investment in new rural schemes, existing schemes and dam construction. (NCC 1999b, p. 469)

This recommendation was accepted by the Commonwealth Government. The principal concern was with Queensland's St George Off Stream Storage proposal. The Council noted that, of all the options modelled:

... the preferred option was that which provided the greatest economic disbenefit [and] ... also appears to have had the least environmental support. (NCC 1999b, p. 475)

Consequently, it assessed that the decision to proceed with this project was neither economically viable nor ecologically sustainable, and that 'a credible and convincing net benefit to the community' had not been demonstrated. The Queensland Government (sub. D302) questioned the NCC's assessment:

Queensland questions the NCC's technical capacity to assess the merits of this scheme or to 'second guess' the legitimate decision making process of the Queensland Government on matters of public interest. ... Further, the NCC has ignored detailed information provided by the Queensland Government which clearly demonstrated that water development projects were justifiable both economically and ecologically. (sub. D302, p. 3)

The substance of Queensland's concerns (and those of any other State government) could be considered in the scheduled review of the NCC (see Chapter 11).

The Commission notes that NCP does allow governments to provide subsidies on behalf of the wider beneficiaries of new dams, provided that they can demonstrate legitimate social reasons for doing so. However, even in the absence of studies which provide evidence of justifiable net public benefits, there is nothing effectively preventing the Queensland Government from proceeding with its proposed water infrastructure projects, provided that it is prepared to forgo competition payments.

The Commission concurs with the NCC's desire to see thorough appraisals of new water infrastructure investments. It is, however, concerned that any inappropriate application of the social benefit concept could weaken the discipline imposed by the investment appraisal reforms. This, in turn, highlights the importance of publishing benefit-cost studies of major new infrastructure investments and clearly identifying the nature and magnitude of social and environmental benefits and costs — thereby enabling informed judgements to be made about the relative significance of the latter.

The Commission notes that the concept of 'net present value', as applied in a cost-benefit analysis of long-lived assets such as a dam, recognises that there are early large capital costs which have to be fully recouped over the economic life of the

project. It recognises equally that current users should not be expected to bear all of these up-front costs. An investment in new water infrastructure does not have to operate on a positive cash flow basis from day one. As is the case with all large infrastructure investments, operating losses will be usual in the early years and do not in themselves invalidate the possible long-term net benefits. Accordingly, in the early years of a dam's life, when the quantity of water supplied is small relative to that which will be supplied in later years, charges faced by individual users will not cover full costs. Thus, there is no 'penalty' for early users of such assets.

RECOMMENDATION 5.1

All benefit–cost studies of major new water infrastructure investments should be publicly available and clearly identify the nature and magnitude of any social and environmental benefits and costs.

Allocations and property rights

NCP requires jurisdictions to recognise the environment as a legitimate user of water and make appropriate allocations. This has increased irrigators' awareness of the measures being used by governments to address this issue — particularly in over-allocated systems, where the required reduction in allocations and the consequent impacts are likely to be most significant.

The over-allocation problem appears to be greatest in New South Wales. In this regard, the NSW Irrigators' Council commented that:

Over the last few years, licences have been progressively changed to volumetric entitlements, water trading has been allowed and restrictions on agricultural uses of water removed. In a country where there is more land to farm than there is water presently available, demand for water is increasing. There is demand from existing entitlement holders for maintenance of historic use and for further development. There is demand for water entitlements for new irrigation investments. There is increasing demand from tablelands farmers for irrigation development. There is the traditional competition between farming and grazing; and there is demand for water by other industries, particularly mining, fishing and urban water. Claims now exceed the water resources available in most years. (sub. D280, p. 2)

This imbalance has resulted in a significant change in policy direction in recent years. In particular, Murray Irrigation (sub. D288), Murrumbidgee Irrigation (sub. D272), the Southern Riverina Irrigation Districts' Council (SRIDC, sub. D295), the NSW Irrigators' Council (sub. D280), Phillip Caldwell (trans., pp. 907–36), Colly Cotton (trans., pp. 154–68) and Macquarie Food and Fibre (trans., pp. 1049–59) complained that certain actions and inactions of the State Government were contributing to the erosion of their water allocations, without compensation. They indicated that this decline in the reliability of their allocations

was occurring partly as a result of the Government's inaction on the provision of secure 'property' rights to water — originally required to be implemented by 1998. Other contributing factors are:

- the legislated separation of water rights from land titles in regulated river systems, which has resulted in the activation of 'sleeper' and 'dozer' (ie previously unused or only occasionally used) licences; and
- the administration of the 'MDBC cap' and 'translucent dam' policies, designed to address the current imbalance between extractive use and the environment.

Caldwell and Macphillamy (sub.214) indicated that, under recent State Government water-sharing proposals, irrigators in the Lachlan Valley would see their allocations reduced by 45 per cent. Similarly, Murray Irrigation (trans., p. 236) stated that the reliability of its customers' allocations has been cut to 87 per cent — down from an average historical usage of 111 per cent of the bulk water allocation. This, it said, translated to a loss of 269 000ML of water, or \$104 million (ie around \$400/ML on the permanent transfer market) to local irrigators.

The administrative withdrawal of allocation has created uncertainty which was claimed to be having an adverse impact on affected irrigators and their communities. This uncertainty has led to a call for 'full Torrens Title' to be recognised in the development of water property rights, whereby if its use were to be withdrawn by governments, compensation would be due. The NSW Irrigators' Council (sub. D280) and others considered that there is also a need for tradable infrastructure access rights to the storage and delivery systems. This, it said, would entail the adoption of a system of entitlements based on 'capacity sharing' — rather than the existing system of 'annual allocations' — as a means of providing water users with a transparently secure water right. In terms of defining the specific characteristics of an effective property right for water entitlements, Macquarie Food and Fibre suggested:

It needs to be separate from a land right. It needs to be specific and have appropriate tenure, allowing for long-term planning. It needs to be exclusive, where the benefits and costs associated with a right are attributed to the owner. It needs to be enforceable and enforced, and it needs to be transferable and basically bankable. (trans., p. 1057)

For efficient trade in water allocations or entitlements to occur, both buyers and sellers must be confident that they clearly understand which rights are being traded. Box 5.3 compares water rights as they currently exist in Victoria with those in New South Wales.

Box 5.3 Water property rights — a comparison of the New South Wales and Victorian systems for the provision of water entitlements

This box provides a brief overview of the water entitlements and rights systems existing currently in Victoria and New South Wales.

Key items	Victoria	New South Wales
Allocations		
Initial allocation	<ul style="list-style-type: none"> a 3ML/ha water right, as a 'high security' allocation and a 3ML/ha water right, as a 'sales water' allocation. 	<ul style="list-style-type: none"> a 6ML/ha water right, all as a 'general security' allocation. can purchase 'high security' water or convert 'general security' (50% conversion factor).
'Sleeper' and 'dozer' licences	<ul style="list-style-type: none"> when implementing MDBC cap, found gravity scheme irrigators using both 'high security' and 'sales' water allocations. river pumpers only ever used 'high security' allocation. Government withdrew pumpers 'sales' allocations. 	<ul style="list-style-type: none"> when implementing MDBC cap, found public gravity scheme irrigators had high activation of water licences. private river pumpers initially had low activation. under-used allocations allowed to be activated and sold on the transfer market. allocation 'clawback' experienced by general security licence holders.
Entitlements/rights		
Nature of water entitlement	<ul style="list-style-type: none"> bulk entitlements (3 types), which define the relationship between the Crown, bulk entitlement holders, users and the environm't. <i>source</i> entitlements — the right to harvest direct from a waterway, with specific rights to volume, capacity share and passing flow. <i>delivery</i> entitlements — the right to divert from a regulated waterway operated by another authority, with specific rights to volume, security and restriction. <i>hybrid</i> entitlements — a bit of both. 	<ul style="list-style-type: none"> seven broadly specified water <i>values, permissions and rights</i> covering such things as: recreational water rights; off-allocation flows; riparian water rights and farm dams; unregulated and regulated river water licences; high yield bore licences; mining companies and corporate water licences; and water licences for the Sydney and Hunter Water Corporations, and irrigation trusts and corporations.
Nature of water right	<ul style="list-style-type: none"> volumetric ; perpetual separate from land title tradeable and enforceable. 	<ul style="list-style-type: none"> varies between regulated and unregulated river systems. irrigation licence — 5 years. others — 10 to 20 years.
Water trading		
Nature and extent of trade	<ul style="list-style-type: none"> direct farmer to farmer transactions, through a water broker or via a water exchange. temporary transfer: up to 20 000ML p.a. permanent transfer: up to 250 000ML p.a. 	<ul style="list-style-type: none"> direct farmer to farmer transactions, through a water broker or via a water exchange. temporary transfers: between 190 000ML and 650 000ML p.a. permanent transfers: between 10 000ML and 50 000ML p.a.
Processing of transfer	<ul style="list-style-type: none"> temporary — a few days. permanent — two months (average). 	<ul style="list-style-type: none"> temporary — 4 to 8 weeks. permanent — up to two years.
Key trading constraints and impediments	<ul style="list-style-type: none"> channel capacity; 2% pa limit on permanent transfers out of one system; and compliance with the Murray-Darling Salinity and Drainage Strategy. 	<ul style="list-style-type: none"> varying trading rules within individual schemes, including restrictions on which rights can be traded and how far.

Sources: Discussions; transcripts; submissions; DLWC (1998); and NCC (1999b, vol. 3).

In line with the views of many irrigator groups, Murray Irrigation said that, while the basic problem has been caused by the Government issuing too many licences, the whole entitlements issue has been exacerbated by the fact that:

Currently, environmental allocations are not a fixed point in the water debate and the green goal posts are constantly shifting. This situation is causing significant uncertainty in New South Wales and will only be resolved by the introduction of clearly defined entitlements for water users and the environment, including in-stream uses. ...

In the case of over-committed resources, ... the only equitable and efficient way of reallocating over-committed resources is to purchase entitlements and allocate these entitlements to specific, defined environmental purposes. (sub. D288, p. 3)

Over-allocation is a particularly difficult issue. Users have made (often significant) investment decisions on the basis of existing water allocations or long-standing access rights. These rights are becoming increasingly formalised and tradeable, thereby highlighting and increasing their value.

Some argue on equity grounds that there is a case for some 'clawback' of over-allocated water rights from those who have benefited from that over-allocation. Others argue that if governments decide to attenuate existing water rights, then those right holders should be compensated. The MIACHA (sub. D242, p. 3) estimated that a voluntary buy-back scheme in the Murrumbidgee Valley (assuming 15 per cent over-allocation) would cost between \$175 million and \$350 million, and up to \$1 billion across New South Wales.

In providing for environmental flows, the Commission observes that governments have two main options to consider. The first would be to give an 'environmental flow manager' a defined capacity share of the storage capacity (coupled with a continuous accounting system for sharing inflows), which would generally involve some form of uncompensated allocation 'clawback'. The second would be to purchase the additional water for environmental uses from existing users. The latter approach would achieve two things. It would compensate those who forgo established water entitlements; and it would clarify the opportunity cost of allocating water between environmental and commercial uses so that society could make an informed choice between them. However, this option may be difficult to implement in the absence of well-established, extensive water markets and because of current differences between States in the nature of entitlements and restrictions on allowable trade.

At the same time, those landholders, irrigators, towns and other water users along a river, will be among the groups benefiting from action which improves the environmental health of the river.

The Industry Commission (IC) recently considered the issue of how to address environmental allocations in over-allocated systems in its report on Ecologically Sustainable Land Management (IC 1998a, pp. 249–53). In that report, the Commission concluded that an ‘environmental flow manager’ should be appointed in each river system and vested with an initial viable minimum ‘passing flow’ allocation — which would generally not be tradeable, at least for a minimum ‘learning’ period — and thereafter be required to manage environmental flow requirements by buying and selling entitlements in the open water market.

The information presented to this inquiry does not contradict this finding. The Commission also notes that a detailed implementation framework has been developed by Marsden Jacob Associates (1999) for progressing the allocation, rights and trading reforms in New South Wales.

The NCC recently assessed New South Wales’ progress in implementing these reforms for second tranche payment purposes. The Council noted that while water entitlements for regulated rivers and groundwater licences “may be sufficient to meet mere reform commitments”, entitlements for unregulated rivers remain linked to the land title and are not measured volumetrically (NCC 1999b, vol. 2, p. 318). Consequently, the NCC considered that New South Wales had not fully met its reform commitment in this area.

The Commission considers that the provision of secure and well-specified water property rights is essential to ensuring that beneficial water markets operate efficiently. Any unnecessary delays in implementation adds to uncertainty and postpones the potentially significant gains from this reform for regional Australia. In particular, without effective specification, the potential benefits of trade in water could be greatly diminished.

For this reason, the Commission is concerned that an agreement has apparently been made to extend the timeframe for jurisdictions to ‘substantially complete’ their water allocation and trading reform commitments — from the original end date for full implementation of 1998 — to 2005 (see NCC 1999b, vol. 2, p. 319).

Other impediments to water trading

Water trading is seen to be strongly correlated with regional jobs growth in Victoria, as more profitable uses of water, such as viticulture and horticulture, involve more intensive farming. In recognition of these potential gains, the Government has given priority to the removal of impediments and restrictions to trading. However, in New South Wales, participants identified a number of impediments to the more widespread, permanent trade in water rights (ie in addition

to the lack of secure rights discussed above). They include the time taken to approve transfers, administrative restrictions on the breadth of trade and the lack of appropriate and timely information relevant to water trading.

The SRIDC (sub. D295) and others indicated that permanent transfers of water entitlements can take several seasons to process in New South Wales. They said this was due principally to the extensive *Environmental Impact Statement* requirements and the absence of appropriate water resource management plans in many areas.

Administrative restrictions are also often imposed by various irrigation schemes on who can transfer what and where on the water market. The desire of many local governments and irrigation schemes to retain the water rights within their boundaries reflects three objectives:

- to capture the regional gains from the more profitable use of that water;
- to avoid reductions in land values and thus, the impact on overall ratings; and
- to ensure that the fixed costs of operating schemes do not have to be borne by a small number of users, thereby avoiding possible price increases for the remaining irrigators.

The SRIDC (sub. D295) also claimed that more appropriate and timely allocation and pricing information was required to promote trading, particularly permanent trades. For instance, it said that allocation announcements made on a monthly basis, as occur presently in the Murray Irrigation District, have raised concerns about the efficient operation of market markets. The Council believed that such announcements could be provided, at the very least, on a weekly basis.

Concern about the potential for market failure due to the existence of information asymmetries in water markets will be overcome by governments' widespread dissemination of additional research in this area and the further development of water exchanges (ie clearing houses and information repositories for water trades).

Economic and social impacts

Much of the benefit from water reform will come from the more sustainable exploitation and efficient allocation of a scarce resource which is subject to increasing demands, and more efficient investment in infrastructure. To achieve these outcomes, water prices for many users will have to increase to reflect more closely the costs of its provision. Thus, the water sector is different from sectors such as electricity where much of the potential gain lies in reducing the price of services. That said, the extent to which water prices actually rise will depend largely on the ability of service deliverers (and regulators) to increase efficiency and

contain costs. In addition, if water trading allows water to be allocated to higher valued (ie more profitable) uses, the value of agricultural production is likely to increase. Higher water prices do not necessarily mean that there will be a smaller farming sector (see 'Water trading' section below).

The modest progress to date in implementing the reforms, particularly in rural water, means that the detailed impacts have yet to become apparent. Again, this is in contrast to the electricity and gas sectors, where the reforms are further advanced.

Price effects

Household and commercial supply

Most of the information on the impacts of the reforms on the price of water services relates to households and businesses in metropolitan areas. Between 1991-92 and 1997-98, real prices for metropolitan urban water fell in New South Wales and Victoria — in the former by about 30 per cent — but rose in other jurisdictions.

Within metropolitan areas, business customers have generally fared much better than households. This has reflected a realignment of charges to ensure that households pay a more appropriate share of system costs. The benefits to business from such realignments are reflected in the findings of a study by NUS International (1998). It indicated that the price of water services for commercial users in Sydney and Melbourne fell, on average, by nearly 40 per cent in 1997. This sharp drop in prices was due primarily to the restructuring of charges in Melbourne, where the State Government has fully implemented consumption-based pricing and eliminated cross-subsidies between the commercial and residential sectors.

Price outcomes have not been adverse for all urban households. The Victorian Government (1998, p. 9) indicated that, in Melbourne, the move to cost-based pricing has resulted in lower bills for 85 per cent of properties. Subsequently, the ORGV reported that, since 1 January 1998, the water and sewerage bill of an average household in Melbourne has fallen by approximately 20 per cent, or \$135 a year (in 1997-98 prices). Similarly, it said that water customers in regional Victoria have received an average 18 per cent reduction in their bills over the same period.

Aggregated price information is generally not available for water services in country towns, but anecdotal information suggests that the pattern of outcomes may be similar to that in metropolitan areas. For example, the Emerald Shire Council, in Queensland, told the Commission that individual businesses in its town will, on average, be about \$270 a year better off under a two-part tariff structure to be implemented during 1999. At the same time, the move away from property-based

charges has resulted in higher prices for some domestic users, particularly for larger households and those with a lower property value. The Council went on to indicate that, to achieve full cost recovery, it needed to raise its prices for sewerage by 88 per cent, and for water by 41 per cent.

Again in Queensland, the Boonah Shire Council (trans. p. 729) indicated that full cost recovery for its raw water supply would imply a tenfold increase, from \$8300 to \$83 000, in its bulk water charge. It said that this would mean a 20 per cent increase in rates, or \$44 per annum, for its water users. The Queensland Government responded by informing the Commission that:

Under the terms of the old water supply contract, water was supplied to the Boonah Council at \$7.30/ML. The full commercial price of the water is assessed by State Water Projects (SWP) to be \$93/ML. At \$7.30/ML, the price of water supplied to the Boonah Council was amongst the lowest in the State. Neighbouring councils such as Ipswich and Beaudesert pay bulk water charges of \$110/ML for water supply from the South East Queensland Water Board.

It is understood that a price path until 2004 (to provide for a gradual increase in water prices) will be negotiated by SWP with the Boonah Council. (sub. D302, p. 9)

It is important to note that the adverse effects of water pricing reform in some country towns have been ameliorated by the provision of explicit CSO support. For example:

- in 1996-97, the South Australian Water Corporation received \$72 million from the South Australian Government to fund CSOs. The Corporation's major CSO is the provision of services in country areas at the same price as in Adelaide;
- in the same year, the Western Australian Government provided its Water Corporation with \$182 million for CSOs — mainly the provision of services outside the metropolitan area at less than full cost; and
- in Victoria, the Hardship Grant Scheme was extended to rural Victoria.

Irrigation water

The Commission received little specific information on the impact of reforms to date on prices for irrigation water. Undoubtedly, however, increases in prices have been significant in some schemes as water authorities have sought to implement cost recovery requirements. For example, Murrumbidgee Irrigation (sub. 125) indicated that it had to absorb a 260 per cent increase in the price of bulk water over the last four years. Many irrigators also indicated that high security water had become more expensive due to the uncertainty surrounding environmental allocations.

A number of participants commented in general terms on the impacts of recent and prospective price reforms. For instance:

- the Mallee Catchment Management Authority (sub. 60) said that, in Victoria, water pricing reform has already led to a significant reduction in the irrigation of pasture and, facilitated by water trading, an increase in the irrigation of high value horticultural crops; and
- the Murrumbidgee River Management Board (sub. 124) suggested that efficient pricing of bulk water delivery — necessary to contain price increases from full cost recovery of irrigation water — was achievable if bulk water were to be made contestable from the private sector.

A recent study (Samaranayaka *et. al.* 1997) examined the effects of increased water charges on agricultural activities in the Murray–Darling Basin, the Kerang–Cohuna (Victoria) district and Murrumbidgee Irrigation Area (MIA) (New South Wales). The study indicated that higher charges for irrigation water are unlikely to have uniform impacts across agricultural pursuits or regions:

- for the MIA, the study found that an increase in water charges in 1995-96 from \$13/ML to \$25/ML would not have made irrigated rice sufficiently less profitable to induce a shift to dryland cropping; and
- in contrast, it found that in the Kerang–Cohuna region — where irrigation water is used primarily for irrigated pasture (beef/sheep) — increasing water charges in 1995-96 from \$17/ML to \$27/ML would make irrigated pasture less profitable than dryland pasture.

Cost of service delivery and service quality

Institutional reforms in the urban and some rural parts of the water sector have improved the efficiency of service delivery. For instance, during its visit to the wheatbelt area of Western Australia, the Commission heard that the institutional culture has changed from one of development and service provision to cost efficiency and profit. Reduced costs of service delivery have enabled larger price reductions for some users and dampened the level of increase required for others as part of the move to more efficient and sustainable pricing structures.

More specifically, the Victorian Government (1998) indicated that institutional reforms in that State had delivered a saving of \$150 million over a five year period. (These reforms involved the disaggregation of Melbourne Water in 1994 into three metropolitan urban retail businesses, the disaggregation of the former Rural Water Corporation into four separate water businesses and the amalgamation of small water boards into 15 new water businesses.)

Moreover, the Victorian Government said that these cost savings have not been achieved at the expense of service quality. Indeed, it claimed that:

The new industry structure has increased water companies' responsiveness to customer needs, and has resulted in fewer restrictions to supply and more sensitive debtor management. (Victorian Government 1998, p. 9)

In New South Wales, however, the NSW Irrigators' Council (sub. 211) strongly criticised the apparent lack of effort by the State's monopoly bulk water supplier, the Department of Land and Water Conservation (DLWC), in pursuing efficiency-improving reforms in its service delivery. The Council, commenting on DLWC's submission to the 1998 IPART inquiry on bulk water prices, said:

Not only had there been no fundamental reform in the supply of water that would have delivered cheaper and more effective supply but the functions and costs had increased significantly. (sub. 211, p. 2)

The NSW Irrigators' Council (sub. 211, p. 2) also noted that IPART had, in an earlier report, said that 'if the Department could become more efficient then prices, under full cost recovery, would not need to rise'.

Water trading

There are few estimates of the benefits realised to date from water trading because of the early stage of development of the market.

Marsden Jacob Associates (1999, p. 3) estimated that the 863 145ML traded in New South Wales in 1997-98 increased the value of irrigated agriculture by \$65 million — \$30 million from temporary transfers and \$35 million from permanent transfers.

The Victorian Government indicated that, by the year 2000, interstate water trading will increase output in the Victorian horticulture and dairying industries by \$50 million a year. It said that:

The resulting increase in agriculture production is expected to create new jobs. Moving water to users who value it more highly also has the capacity to make new developments possible without the need to construct new dams. (Victorian Government 1998, p. 8)

Specific new enterprises made possible by water trading in Victoria include 'Boundary Bend', a vegetable farm at Robinvale in Northern Victoria, and Nangiloc vineyard, near Mildura, which purchased water rights from a citrus farm in Wentworth, New South Wales. Menindee, in New South Wales, is another area which has benefited greatly from being able to purchase water entitlements on the open market.

Similarly, the Mallee Catchment Management Authority commented that:

Since the water industry in Victoria was deregulated and water became a tradable resource, there has been more than 5000 hectares of new irrigation in the region ...

Growth in new plantings of wine grapes has been significant, with seven wineries in the Mildura district crushing a total of 290 000 tonnes per annum of grapes or 35 per cent of Australia's production. Water reform has allowed the industry to respond to higher winegrape prices. There is a similar rate of expansion in vegetable production in this region.

The new horticultural developments have brought massive investment into this region. On-farm capital investment is in the order of \$37 000 per hectare for winegrapes and \$12 000 per hectare for vegetables (excluding the cost of water and land) ... It has been estimated that the total farm-gate production value of the new developments in the Victorian Mallee is currently \$50 million per annum. (sub. 60, p. 2)

Of course, increased agricultural output in Victoria from water trading will be partially offset by reduced output in those States and regions providing the additional water to the growth areas. For instance, Murray Irrigation Limited (sub. 170) considered that the lifting of water trading restrictions will have significant negative impacts on some communities on the New South Wales side of the Murray. In terms of their incidence, it said:

The impacts will be greatest where the returns per megalitre are lowest and the opportunities for diversification are least. (sub. 170, p. 7)

Hence, the overall increase in national agricultural output will be considerably smaller than the figures reported above. That is, unless there is a significant reduction in water wastage (brought about by the reforms).

Recent estimates suggest that there *is* considerable room for reducing wastage and improving water efficiency in the irrigation sector. For instance, in the delivery phase, Thomas (AATSE & IEA 1999) found that as much as 40 per cent of all water channelled to irrigating farmers was being lost to evaporation and seepage. Along the Murray, the Cooperative Research Centre for Freshwater Ecology (*The Age* 1999, p. 7) estimated that about 15 per cent of water released from that river's dams disappeared in leaky channels before it reached the farm. This is not only unavailable for irrigation, but may also contribute to raising the level of groundwater, thus increasing salinity problems. On farms, the CRC noted that many irrigators are still using wasteful techniques such as flood and spray irrigation. The Land and Water Resources Research and Development Corporation (*The Age* 1999, p. 7) suggested that irrigators should be able to achieve from 70 to 85 per cent water use efficiency, but noted that many, especially flood irrigators, were still operating at below 50 per cent efficiency.

Under the MDBC water cap, the value of water will continue to rise. Accordingly, farmers will have an incentive to improve their water use efficiency — not only by installing more water-efficient irrigation technologies, but also by improving irrigation management and changing enterprise mix towards less water-intensive uses. Similarly, off-farm, this rising value will ensure that the replacement of open earthen channels with piped systems will become increasingly economic. These outcomes are reflected in the results of a recent study (AATSE & IEA 1999) — see box 5.4.

Box 5.4 CoAG reforms and water caps — results from modelling done in the ‘Water and the Australian Economy’ study

The *Water and the Australian Economy* study (AATSE & IEA 1999) modelled three scenarios for Australian water use from 1995-96 to 2020-21 — a ‘*Trend*’ scenario in which existing trends continued without any water limits; a ‘*Non-adaptive*’ scenario which took account of water limits but did nothing to adapt to them; and, an ‘*Adaptive management*’ scenario which included a range of CoAG-style water market reforms.

Under the ‘*Trend*’ scenario, the study found that, in the absence of any resource restraint, the irrigation industry’s demand for water could increase by as much as 66 per cent by 2020-21, pushing total water use to 33 000 gegalitres a year (compared with 20 000 gegalitres in 1995-96). This rapid increase was considered to be unsustainable and would soon outstrip available water supplies.

The second ‘*Non-adaptive*’ scenario indicated that water limits would stifle the potential development of the irrigation industry in Australia, cutting its potential growth by as much as a half in the Murray–Darling Basin, and two thirds off the potential incomes of intensive irrigators in the Basin’s western half.

Under the ‘*Adaptive*’ scenario, the study found that CoAG-style reforms to water trading, water pricing, full cost recovery, and water use efficiency would recover the economic gains lost in the second scenario, because they would allow water to be transferred to its most profitable uses and, at the same time, allow new irrigation developments to proceed. Australia’s water use was estimated to grow to 27 400 gegalitres by 2020-21, with no increase in use in the Murray–Darling Basin. Under this scenario, the study also found that:

- the Australian economy would grow at almost the same rate as in the ‘*Trend*’ scenario;
- the share of agriculture in the economy would remain much the same, although the regional distribution of activities would be different;
- there would be more efficient use of water in existing activities; and
- there would be a comparative shift to more intensive forms of irrigated production.

Source: AATSE & IEA (1999).

The Commission notes that both New South Wales and Queensland have recently announced specific programs to promote water use efficiency (*Riverine Grazier* 1998; *Cotton Australia* 1998). In New South Wales, the Government has allocated \$25 million (out of its \$33.4 million Water Reform Structural Adjustment Program) to fund the Irrigated Agriculture Water Use Efficiency Incentive Scheme for a five year period. This scheme is intended to help irrigators plan, adopt and monitor best irrigation practices and water efficient technologies. Similarly, the Queensland Government has allocated from \$0.5 to \$1 million annually, for an indefinite period, under its Water Use Efficiency Initiative. In New South Wales, the Government's provision of 'privatisation dowries' to address deferred maintenance in irrigation schemes, should also help in fixing up leaky channel problems.

A number of participants believed that the separation of water entitlements from land title to facilitate water trading could adversely affect some regional communities. The Association of Rural Water Authorities (ARWA) in Victoria stated:

Tradeability of water entitlements has assisted the market in directing water to higher valued enterprises and provided flexibility and benefits for people wishing to adjust their enterprise or leave the irrigation industry. However, there may be some long term issues about the resultant viability of the areas from which water is taken. (sub. 82, p. 5)

The Western Australian Water Users Coalition went further, suggesting that such adverse impacts may give rise to a case for compensation for affected communities:

Where such reforms adversely affect stakeholders or diminish existing rights then the affected parties should be paid equitable compensation. Compensation should reflect the true loss, including market value and any consequential losses such as severance, disturbance and injurious effect. (sub. 157, pp. 5–6)

In the Commission's view, negative impacts on some regional communities are unlikely to be of sufficient magnitude to warrant impeding trade in water by maintaining links between water rights and land title. As the AWRA quote indicates, the benefits of unimpeded transfer in ensuring that the best use is made of available water supplies are widely accepted. This is not to deny that the negative impacts of water transfers might be significant for some communities. Adjustment assistance issues are discussed in chapter 13.

Water quality standards

This aspect of supply was highlighted by the mid-1998 water quality problems experienced at Sydney Water Corporation. This incident demonstrated the need for appropriate contract specification and monitoring.

The National Water Quality Management Strategy is directed at improving drinking water quality in rural areas. The goal is achievement of 1987 World Health Organisation standards.

The Victorian Government (1998, p. 10) indicated that water supplied to 58 per cent of the non-metropolitan population met the bacteriological standards, up from 27 per cent in 1992-93. Full compliance is expected by 1999-2000. Further, the Victorian Government intends to spend \$1 billion to ensure that virtually all country towns in Victoria have water which meets all international standards by 2001. Similarly, the New South Wales Government has committed \$855 million to upgrade its country town water supply and sewerage treatment works.

Environmental outcomes

As noted in the introduction to this section, a major goal of the NCP water reforms is to improve the sustainability of water use in Australia. The strategies for achieving this outcome include:

- The move to consumption-based water charges, which increases the cost of water for many users encourages them to reduce their water use. Not only does this defer or obviate the need for new infrastructure to satisfy growing demand, it also reduces the environmental impacts of waste water and sewerage effluent disposal. For example, in Queensland, 10 of the 17 largest local councils have implemented two-part tariffs for town water, reducing water usage by 20 per cent in the first year.
- The specification of water for environmental flows as part of the water trading regime ensures that ecological sustainability is taken into account.

Employment impacts

There has been a significant reduction in direct employment by water authorities during the 1990s. However, the net effect on employment is difficult to determine as water authorities have outsourced many of their activities, both core and non-core. Also, many policy and regulatory functions are now performed by organisations external to the water supply industry.

In rural areas, centralisation of service provision has led to employment losses in the water industry in smaller rural communities. These have been partially offset by gains in employment in the larger regional centres. For example, the Gwydir Valley Irrigators' Association (sub. 114) indicated that some of the 50 water jobs recently lost in Moree had transferred to Tamworth. In this regard, the employment story to date in country Australia is much the same as in the electricity sector.

FINDING 5.3

NCP water reforms have resulted in significant increases in charges for many users, particularly irrigators. Notwithstanding improvements in the efficiency of service delivery, these increases are likely to continue. At the same time, the reforms are providing benefits to the environment through, for instance, greater incentives to reduce wastage, thereby leading to more efficient investment in water infrastructure. However, more progress on reforms intended to improve water property rights and their tradability is necessary in order to enhance the prospects of achieving a net increase in the value of agricultural output.

5.5 Road transport

The road transport sector is a vital part of the Australian economy. It directly employs around 193 000 people or 2.3 per cent of total employment (ABS 1998d, p. 50) and accounts for slightly more than 2 per cent of gross domestic product (GDP).

Country Australia relies heavily on road transport to bring in goods and to move goods out to users and ports. As the Chamber of Minerals and Energy of Western Australia commented:

Reduced transport costs mean that regional products effectively become cheaper in their final markets, increasing the competitiveness of the producing areas. This is an extremely important consideration in minerals commodity markets.

A less obvious impact is that lower transport costs reduce the delivered price of imports into the regions. This again enhances regional economies by boosting competitiveness but also delivers lifestyle benefits by making necessities and leisure goods cheaper. (sub. 29, p. 4)

The South Australian Government made a similar observation:

The obvious benefit to rural and regional Australia lies in the continuing reduction of the cost of transporting goods into or out of the location. Such cost savings in the transportation of goods will increase the scope for competitive pricing that regional exporters can offer buyers of agricultural and mining products. Conversely, the lower

cost of transporting goods into remote regions should (eventually) result in price reductions at the consumer level. (sub. D298, p. 16)

Residents of rural communities also depend on road transport for access to services such as health services provided by regional hospitals and face-to-face financial services. More generally, road transport serves to facilitate social interaction among people in isolated communities.

The Commonwealth, State, Territory and local governments are all involved in regulating road transport. This has led to a multiplicity of regulations across Australia which increase compliance costs for transport operators and others travelling interstate (see box 5.5). Also, charging systems, such as registration fees, bear little relationship to the costs of road damage by large vehicles and there are concerns about the safety record of some sections of the industry.

Box 5.5 Differing regulatory regimes for road transport

Submissions to the review of the National Road Transport Commission (Independent Committee 1996) outlined a range of 'grass roots' concerns relating to the lack of uniformity and/or consistency of road transport regulations, including different:

- registration paperwork;
- enforcement approaches;
- speed limits;
- provisions for mandatory signage on trucks;
- log books;
- permit requirements;
- approaches to exemptions and penalties; and
- inspection and administration fees and procedures.

Source: Independent Committee (1996, p. 43).

The road transport reforms

Concerted efforts to improve the efficiency of Australia's road transport sector on a national basis began in the early 1990s with the signing of the Heavy Vehicles Agreement and the Light Vehicles Agreement and the establishment of the National Road Transport Commission (NRTC) to develop the reform program. A Ministerial Council comprising Australian Transport Ministers was established to oversee the implementation of the reforms and the NRTC.

In October 1992, Australian Transport Ministers agreed on a national approach to reform in six key areas:

- uniform heavy vehicle charges;
- uniform arrangements for transportation by road of dangerous goods;
- vehicle operation reforms covering national vehicle standards, roadworthiness, mass and loading laws, oversize and overmass vehicles, and road rules;
- a national heavy vehicle registration scheme;
- a national driver licensing scheme; and
- a consistent and equitable approach to compliance and enforcement of road transport laws (NCC 1998b, pp. 138–9).

In 1995, under the Implementation Agreement of the NCP, governments recommitted themselves to ‘effective’ observance of the road transport reforms.

In comparison with other areas of reform, the NCP Implementation Agreement provides only very general guidance to governments on their obligations in the road transport area. In its 1996-97 Annual Report, the NCC (1997a, p. 139) noted that, following consultation with relevant agencies, it had concluded that these obligations ‘... should involve the timely development and implementation of heavy vehicle regulation’. Seemingly, the requirement to progress road use charging reforms has been delayed. In this regard, the Balanced State Development Working Group commented that:

The lack of a cost recovery strategy works to the competitive disadvantage of other modes and leads to excessive use of roads. (sub. 205, pp. 3.5–3.6)

The under-recovery of road transport costs and the competitive disadvantage this places on rail transport was also raised by the South Australian Government (sub. D298). The costing and charging of road transport relative to rail is discussed in the Commission’s draft report on *Progress in Rail Reform* (PC 1999e). In that report, the Commission recommended that the Commonwealth Government should establish an inquiry into the provision, funding and pricing of roads in Australia.

However, proposals to reduce diesel fuel excise for both road and rail transport as part of the tax reform package should reduce transport costs in the country.

Progress in implementing the reforms

Compared with the electricity and gas sectors, progress in reforming road transport regulation has been slow. However, since the early 1990s, some important changes have been made. These include:

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- the introduction of standard registration charges and processes for heavy vehicles;
 - better road access for B-doubles and road trains;
 - simplified driver licence classifications and easier conversions of interstate driver licences;
 - improved medical standards for drivers; and
 - safer load restraint practices (Independent Committee 1996, p. 23).

Much of the effort to date, however, has involved putting in place the institutional and legislative arrangements to support future reform initiatives. In terms of practical, ‘on the ground’ reform, progress has been much slower than originally envisaged.

This slippage has reflected a number of factors, including:

- delays in the passage of legislation by Parliaments;
- State and Territory government concerns with the NRTC’s reform process — such as the use of generic ‘template’ legislation; and
- State and Territory differences in the approach to individual aspects of reform (such as environment-related regulations).

In response to concerns raised by the NCC over slippage in implementing the reforms, a 19 point plan as a framework for the second tranche assessment was developed by the Standing Committee on Transport (SCOT) supported by the Australian Transport Council (ATC) of ministers in December 1998 and endorsed by CoAG in May 1999. The NCC (1999b) has undertaken an assessment of each jurisdiction’s progress in implementing the 19 point plan (as at 30 June 1999), as part of determining their eligibility for receiving the second tranche payments. While the Commonwealth is not eligible for the payments, Commonwealth reforms are integral to the national reform program. For the third tranche assessment, a further 12 reforms, if endorsed by CoAG, are intended to be added to the reform agenda (NCC 1999b).

A snapshot of jurisdictions’ progress in implementing the road transport reforms is provided in table 5.6.

With the exceptions of the registration scheme and driver licensing, reform implementation is now widespread. New South Wales and Victoria have implemented all of the 19 reforms and Western Australia, the ACT and the Northern Territory received approved exemptions in certain areas. In Western Australia and South Australia the number of reforms to be completed is relatively

large. However, all States and Territories are due to complete implementation of the 19 point plan by 2000. The NCC has not recommended payment reductions at this stage, but will undertake a supplementary assessment prior to March 2000 to determine whether payments should be made from that point (NCC 1999b).

Table 5.6 Status of jurisdictions' progress on NCP road transport reforms, as at 30 June 1999

<i>Reform</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>C'wealth</i>
Carriage of dangerous goods	✓	✓	✓	✓	✓	✓	^a	✓	✓
Registration scheme	✓	✓	^b	✗	✗	✗	✗	✓	✗
Driver licensing	✓	✓	✗	✗	✗	✗	✗	✗	na
Common mass and loading regulations	✓	✓	✓	✗	✗	✓	^c	✓	✗
Heavy vehicle standards	✓	✓	✗	✗	✓	✓	✓	✓	✗
Truck driving hours	✓	✓	✓	◆	✓	✓	□	◆	na
Bus driving hours	✓	✓	✓	◆	✓	✓	□	◆	na
National mass and dimension limits	✓	✓	✓	✓	✗	✓	✓	✓	✓
One driver/ one licence	✓	✓	✓	✗	✓	✓	✗	✓	na
Improved network access	✓	✓	✓	✓	✓	✓	✓	✓	✓
Common pre-registration standards	✓	✓	✓	✓	✓	✓	✓	✓	na
Common roadworthiness standards	✓	✓	✓	✓	✓	✓	✓	✓	na
Safe carriage and restraint of loads	✓	✓	✓	✗	✗	✓	✓	✓	✓
National bus driving hours	✓	✓	✓	◆	✓	✓	□	◆	na
Interstate conversion of driver licences	✓	✓	✗	✗	✓	✓	✓	✓	na
Alternative compliance systems	✓	✓	✓	✓	✓	✓	✓	✓	✓
Option of 3 and 6 month licences	✓	✓	✓	✓	✓	✓	✓	✓	✓
Driver offences and licence status	✓	✓	✓	✓	✓	✓	✓	^d	na
Links to databases to exchange driver and vehicle information	✓	✓	✓	✓	✓	✓	✓	✓	na

Note: The summary in the table is only a broad indication of progress. It does not purport to provide a complete picture of the details of reform implementation contained in the NCC's second tranche assessment.

✓ completed ✗ incomplete ◆ exemption (uses comparable code) □ 'de-facto' delivery of reform

^a Legislation has been implemented, but requires amendment to Commonwealth legislation. It is being implemented in practice using emergency orders. ^b Effectively in place, but legislation amendment is not due until September 1999. ^c Mostly implemented. ^d Effective, with privacy guidelines due July 1999.

na not applicable

Sources: PC evaluation based on information contained in NCC (1999b); discussions with the NRTC; and submissions.

While progress in implementing the NCP reforms has been slow until recently, on-going reforms in other areas, such as in petrol pricing and efforts to improve investment appraisal requirements for new road expenditure, are also influencing the competitiveness of the road transport sector.

Economic and social impacts

Given the slow progress in road transport reform, it is not surprising that evidence of the economic and social impacts of NCP-related policy changes in this area is generally lacking. Most of the limited commentary in discussions and submissions related to lack of progress and implementation difficulties. For example:

- a tourist coach operator in Nowra said that he was still unable to obtain a licence to pick up passengers in Victoria when on-route from Nowra to Melbourne;
- a funeral director said that there were additional costs of transporting bodies across State borders, due to the lack of mutual recognition of relevant legislation between New South Wales and Queensland; and
- some participants, including the Mackay, Hinterland & Whitsunday Combined Local Authorities Association (sub. 173), argued that, without adequate investment in road infrastructure, the benefits of road transport reform will be diminished.

However, a few participants provided specific examples of benefits and costs apparent to date. For instance:

- during discussions with Capricorn Tourism in Rockhampton, the Commission heard that NCP has reduced administrative and compliance costs for interstate coach operators;
- the Department of Transport and Regional Services (sub. 207, p. 22) said that information emerging from its regional case studies undertaken for this inquiry indicates that one high volume customer has seen a 30 per cent fall in road freight charges, spread over a number of years, despite his location 'at the end of the transport route'; and
- the Local Government and Shires Association of New South Wales (sub. 197) alluded to the adverse impact of increased mass limits for heavy vehicles on the roads and bridges network. It indicated that, while increased mass limits may assist rural Australia through the more efficient transportation of produce from the farm gate, local government in New South Wales is of the view that 'higher limits must be accompanied by higher charges'.

In respect of road transport costs, the Tamworth City Council said:

... but certainly road transport, the costs have continued to come down, particularly with bigger operators with B-doubles and the like of that. (trans., p. 122)

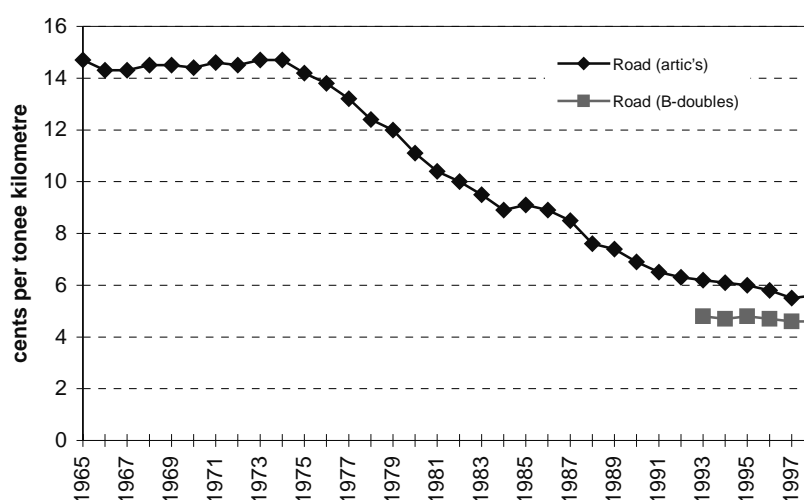
The Northern Territory Government said:

The reforms have increased the productivity of road transport, allowing lower per unit transport costs for rural and remote areas. The reforms may also strengthen the viability of rural and remote operators as these are likely to be able to make more intensive use for the higher payloads allowable than their city based competitors. (sub. D303, p. 3)

While limited information is available on changes in freight rates over time on routes between rural centres and between metropolitan and rural centres, information provided by the Bureau of Transport Economics indicates a continuing reduction in the real costs of road transport on the Melbourne to Sydney route during the 1990s (see figure 5.13).

Furthermore, the Independent Committee (1996, pp. 49–53) said that more consistent regulations have improved the opportunities for businesses to operate across State borders, and that more consistent and reliable enforcement has led to a more level ‘playing field’ for all transport operators.

Figure 5.13 Real freight rates — Melbourne to Sydney, 1964 to 1998
(1997-98 prices)



Melbourne-Sydney freight rates (average both ways. 1997-98 = 100).

Source: Data supplied by Bureau of Transport Economics.

The South Australian Government (sub. D298) commented that uniform road transport regulation such as the setting of upper mass limits was detrimental to South Australia. It said:

... the setting of upper mass limits should be done in relation to the design and condition of the roads and bridges and the nature of the traffic on the route in question. If some South Australian roads can appropriately accept higher mass limits, with the productivity benefit this implies, then artificially imposed uniform mass limits are inappropriate. (sub. D298, p. 6)

It is the case that the benefits of uniformity are not without costs for individual jurisdictions in terms of benefits forgone in some areas of the reform program. However, for the nation as a whole, such costs must be weighed against the added costs of disparate upper mass limits under a more flexible approach. As the issue of national uniformity versus jurisdictional flexibility is likely to arise in other areas of the NCP reforms (eg water reforms), an appropriate forum to review this issue is the CoAG review of the operation and terms of the NCP which, under the Competition Principles Agreement, is to be undertaken in 2000.

While a significant body of evidence on impacts has yet to emerge, the *potential* effects of road transport reform have been considered at length. The NRTC expects road transport reform to benefit the community in several ways, including:

- transport cost savings, leading to lower consumer prices;
- improvements in the competitiveness of industries and, thus, a boost to their production and employment prospects;
- improved road safety; and
- more efficient bus transport leading to greater use of public transport and thereby to lower congestion and pollution, as well as to fewer pollution-related health problems. (NRTC 1998, pp. 1–2)

In 1996, the NRTC commissioned a study (Smith et al. 1996) in order to quantify some of these impacts. The study estimated that full implementation of the road transport reforms relating to standards and the operation of heavy vehicles would increase GDP by more than \$1.2 billion a year, with around two-thirds of this gain arising from the Mass Limits Review proposals. The study projected that around \$500 million would accrue as a direct benefit to road transport operators — mainly through reduced operating costs — with the remainder reflecting the flow-on cost savings to business and consumers. It did not systematically address the likely distribution of the gains across urban and regional Australia, but pointed to variations in outcomes across Australia. For example, the NRTC study concluded that:

The distribution of this [direct] benefit is likely to be very uneven across operators, with the probability that many will make no gain and some will face losses. (Smith et al 1996, p. 45)

To assess the impacts of increased mass limits on government revenue, the NRTC and Commonwealth Department of Transport in 1998 commissioned a study by the National Institute of Employment and Industry Research (NIEIR 1998). The study indicated that the Commonwealth Government would gain significant revenue from an increase in mass limits. The States and Territories would not experience a significant increase in revenue as the revenue sources available to the States and Territories were less directly growth-related than those of the Commonwealth and smaller in absolute scale. The analysis indicated that there would be increased economic activity throughout Australia and projected the prospective consumption gains to be around \$3 billion in present value terms, which was far in excess of the projected cost of upgrading roads and bridges to carry the increased mass limits.

The Commonwealth has allocated funds to assist the States and Territories in the upgrading of roads and bridges for mass limits above the current limits of 42.5 tonnes. However, the cost of upgrading roads and bridges and the level of Commonwealth funding available for this work has caused delays in implementing mass limits in some jurisdictions. By August 1999, increased mass limits, albeit on limited networks in some cases, were implemented in all jurisdictions, except for New South Wales and the ACT. In New South Wales, the increased mass limits were restricted to vehicles registered under the Federal Interstate Registration Scheme to parts of the national highway network.

To increase mass limits, the New South Wales Government is calling on the Commonwealth Government to provide additional funding from the increased revenue available to it from the changes in mass limits to assist in upgrading roads and bridges in New South Wales (Minister for Roads and Minister for Transport Wales (New South Wales) 1999). The ACT Government is also seeking further funding from the Commonwealth in order to upgrade bridges within the ACT in a timely manner before it increases the mass limits.

In short, there is little substantial evidence on the impacts of NCP-related road reforms due to the slow progress in implementing these reforms. The introduction of the 19 point plan as a framework for the second tranche assessment is a positive indication that steps are being taken to progress the reforms, which offer substantial gains in the form of lower costs.

FINDING 5.4

The modest progress in road transport reform has meant that the projected benefits have yet to be fully realised in both country and city areas. Nonetheless, country areas have derived some benefit to date from the reductions in regulatory overlaps and inconsistencies between jurisdictions. Also, better road access for newer technology, such as B-doubles, and increased competition have seen productivity increase and freight rates fall.

5.6 Conclusion

Collectively, the NCP reforms in electricity, gas, water and road transport represent a major change to the provision of infrastructure services in Australia. If implemented comprehensively and effectively, they offer the prospect of significant gains for Australia as a whole (see chapter 10).

The reforms in the four sectors have many common elements. Therefore, despite the variable rate of progress in implementation, it is not surprising that outcomes to date have a number of similarities. For example, there have been significant changes in the institutional and/or regulatory frameworks in all four sectors. In electricity and gas, for instance, there have been reductions in the costs of service delivery, reflecting rationalisation of service provision and various initiatives to improve productivity, which have generally led to price reductions. As part of the efforts to reduce costs, there has been a reduction in direct employment in each of these sectors.

However, given differences in the nature of the sectors and in the emphasis of the reforms which apply to them, there have also been important differences in key impacts:

- in the *electricity* sector, the primary benefit for Australia as a whole, has been a significant reduction in average usage charges, most of which to date has accrued in a direct sense to commercial rather than domestic users;
- while there have also been price reductions in the *gas* sector, the major benefit has been the acceleration in the extension of the pipeline network into rural Australia and across State borders;
- in the *road transport* sector, progress has been modest, with much of the emphasis on establishing the legislative and regulatory framework necessary to implement the reform agenda. Despite this, increased competition and the

introduction of new technology have seen road haulage prices fall and productivity increase; and

- in the *water* sector, the thrust of the reforms has been on establishing a market environment which will discourage over-exploitation and the misuse of scarce water resources, and lead to more efficient investment in water infrastructure. This has sometimes required significant increases in prices for some water users, in contrast to the price reductions which the NCP reforms have delivered to many energy users.

In terms of the impacts on country Australia, the story is mixed:

- reform in the *gas* sector has been an almost universally good story for rural and regional areas, with the greatly improved access to gas supply and significant price reductions for larger business users. Apart from the stimulus to employment in the construction and maintenance of the expanded network, improved access to competitively priced gas is encouraging the development of new regional activities;
- larger users of *electricity* in regional Australia have enjoyed significant reductions in usage charges. Because of the scheduled progressive lowering of thresholds for ‘contestable’ markets, such direct price benefits have not been so widely apparent as yet for households and smaller businesses. Indeed, commercial incentives to recoup a higher proportion of system costs from small users and increased connection charges in some country areas, are putting upward pressure on prices. Overall employment in the sector has fallen. Losses in the distribution sector have been concentrated in smaller regional centres;
- the modest progress in *road transport* reform has meant that the projected benefits have yet to be fully realised in both country and city areas. Nonetheless, country areas have derived some advantage to date from the reductions in regulatory overlaps and inconsistencies between jurisdictions, as well as from better road access for B-doubles, roadtrains and the like; and
- in the *water* sector, increased opportunities to trade water has contributed to a net increase in the value of agricultural output. However, the move to implement cost reflective and ecologically sustainable pricing regimes has already led to significant increases in charges for many users, particularly irrigators. At the same time, these increases are also providing benefits to the environment through, for instance, greater incentives to reduce wastage and, thereby, the need for investments in new dams. Notwithstanding improvements in the efficiency of service delivery, continued implementation of the NCP is likely to see further significant price increases in the future.

The prices paid by users in country Australia for many infrastructure services have been influenced by government decisions about the maintenance of CSOs. For instance, in many regions, electricity prices below the costs of supply, typically for domestic use, have been maintained as explicit ‘tariff equalisation’ CSOs by governments. The provision of water services outside metropolitan areas at less than full cost is also an important feature of water prices in country Australia, particularly in South Australia and Western Australia.

In terms of the future reform agenda, in the *water* and *road transport* sectors, the key requirement is to push ahead with changes to those areas where only limited progress against agreed targets has been made. In the water sector in particular, moving the reform process forward is likely to require greater efforts to publicise the requirements of the NCP and the benefits they will deliver for many rural areas, the environment and Australia as a whole.

In the *electricity* sector, the key reform task will be to consolidate the development of the NEM. Apart from ensuring the connection of Queensland and Tasmania to the national grid, there is also the effective implementation of retail competition under the NEM, where smaller users will progressively have the ability to choose suppliers. The latter is likely to be of particular benefit to country areas. There is also a need to push ahead with structural and institutional reforms, particularly in Western Australia, which will not be a participant in the NEM.

Finally, in the *gas* sector, the key task is to continue to encourage and facilitate the extension of the pipeline network into regional Australia. Looking for ways to increase competition between producers, streamlining the access regime and ongoing pricing reforms will also be important.