A Brief Analysis of the Benefits of Privatising Victoria's Electricity Industry

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1.0 Introduction

This paper considers the economic impact of the privatisation of the electricity industry in Victoria. The changes in the Victorian electricity sector have led to increased productivity of capital and labour, improved system reliability, freed up public capital, reduced public debt and reduced final prices. This paper commences with descriptions and evidence of these benefits and then provides a summary of retail electricity prices over the past decade.

2.0 Background

Electricity market reform commenced in 1993 when the Victorian government embarked on a program to dis-aggregate and corporatise the State Electricity Commission of Victoria (SECV, its state owned electricity utility). Once this was completed the corporatised components (power stations etc) were sold to private entities. The gross proceeds from the sales were $23 billion of which, the State government netted $13 billion after paying back government debt associated with the SECV. This conversion of government assets into cash boosted the state's economy at a time when it was hampered by high public debt and still smarting from the 1990 –1992 recession.

2.1 Productivity

Reform was the catalyst for large productivity increases across the Victorian energy sector. During 1993 there was a 17 per cent decline in employment within the "Electricity, Gas and Water " sector. Overall, the 1990's saw employment within the industry halved, resulting in a productivity increase for the decade of over 70 per cent. Meanwhile, during the same period Gross Product for the sector did not change (GSP increased by approximately 30 per cent over the same period)[1].

In 1995/96 brown coal plant utilisation rates were 66.6 per cent and by 1998 this had increased to 83.7 per cent (see Table 1). Increases in utilisation rates illustrate how private management used a commercial focus to extract the maximum value from the generation assets that produced the cheapest power in Victoria[2]. Table 1 also shows how brown coal generation displaced gas-fired

[1] BIS Shrapnel, State Industry Prospects 1999-2014.
[2] It should be noted however, that increases in Victoria's generation capacity during the 1980's were initiated to meet demand levels well beyond those extant when the new plants were commissioned.

generation over the period. Brown coal is the cheapest form of non-renewable fuel based generation (Short Run Marginal Cost (SRMC) around $5-8); gas fired plants are much higher on the cost scale (SRMC $30-50). These changes in the generation mix further illustrate how privatisation increased the productivity of capital resulting in greater efficiency across the electricity industry in Victoria.

TABLE 1

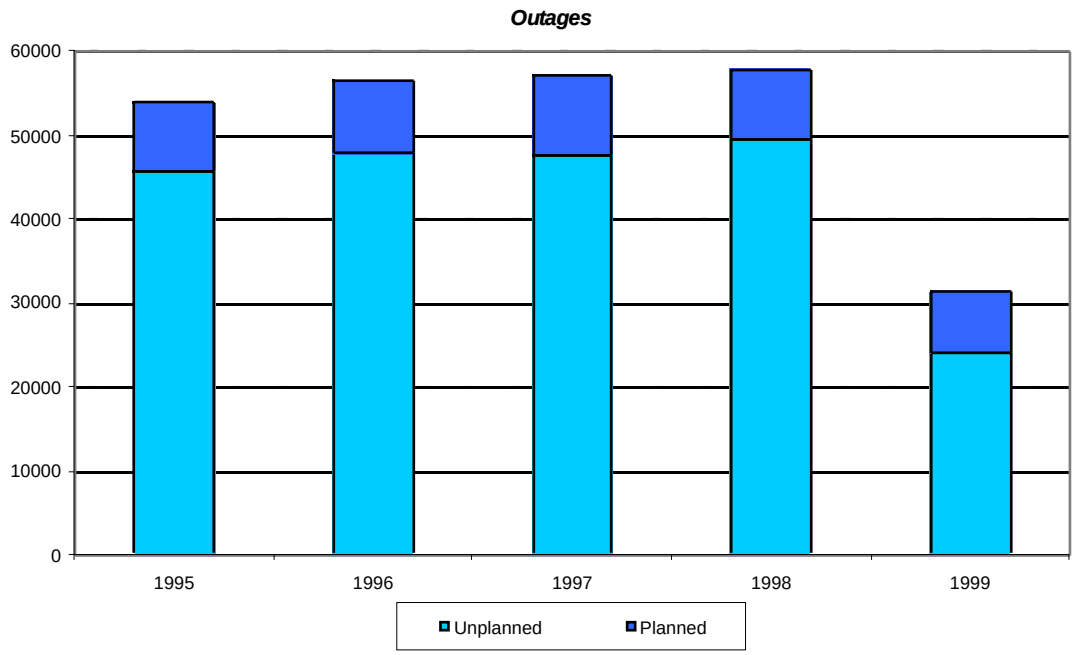
Capacity Utilisation Rates in the South East Integrated Electricity Market

	1995/'96 %	1996/'97 %	1997/'98 %
Brown Coal	66.6	74.4	83.7
Gas	28.4	16.4	15.9

Source: Australian Energy, Market Developments and Projections, ABARE Research report 99.4, April 1999, p 35.

2.2 Reliability

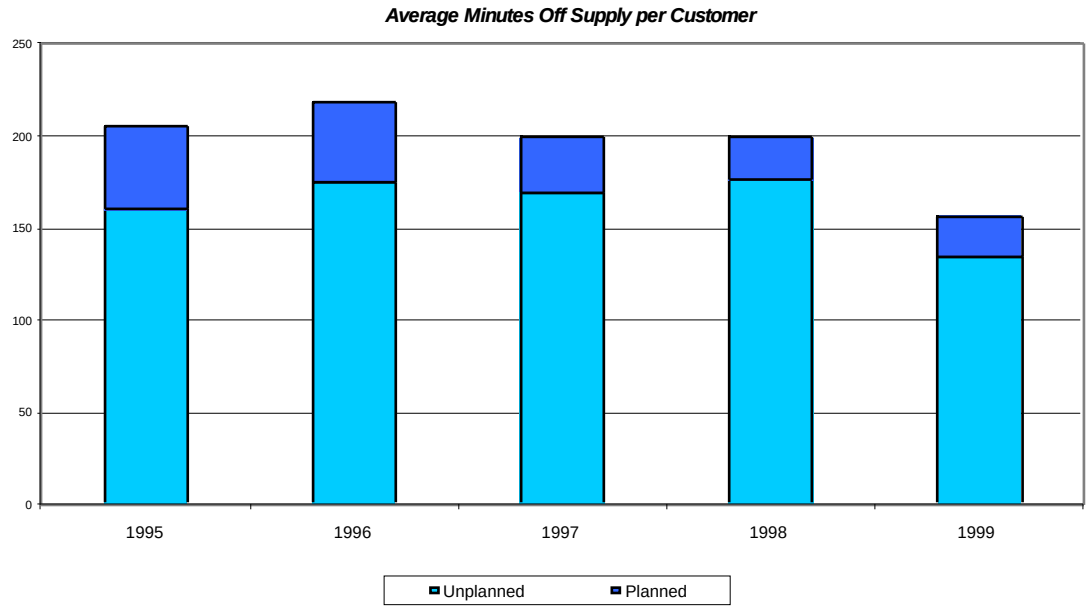
FIGURE 1



Source: Office of the Regulator General, Victoria. Electricity Businesses, Comparative Report 1999. August 2000.

Based on the reliability measures represented in Figures 1 and 2 system reliability has improved markedly. Figures 1 shows outage rates increasing until 1999 where they fall dramatically. Figure 2 reveals a similar pattern for the number of hours that customers were without power.

FIGURE 2



Source: Office of the Regulator General, Victoria. Electricity Businesses Comparative Performance 1999. August 2000

2.3 First Mover Advantage and the Risk Profile

One of the major benefits of privatisation that has accrued to Victoria was the benefit of the first mover. There was a great deal of uncertainty when the Victorian assets were sold, as the NEM had not even commenced. Accurate forecasts of future spot electricity prices were a crucial part of the valuation of the generators and these were unavailable given the lack of a national market. Stated simply, to value the assets, buyers estimated expected revenue streams going forward and combined these with their desired rate of return to produce a value. As it turned out, the price forecasts were wrong and this in conjunction with other factors led to significant over valuations. The beneficiary of these errors was the vendor, the Victorian government and Victorian taxpayers.[3]

[3] The Victorian Auditor General stated that "… the proceeds of the $6.2 billion received by the State from the sale of the (electricity distribution) businesses net assets compared favourably with the valuations of $3.9 billion,. Resulting in $2.3 billion being received in excess of the float valuations." Victorian Auditor General, Report on Ministerial Portfolios, May 1996, p.10.

One may argue that another part of the economy (the purchasers of the generators) incurred a loss that would off set the gains on the sales that accrued to the Victorian government. Maybe so, but not in this case, the privatisations in Victoria were dominated by foreign purchasers. Their funds were injections into the Victorian economy and the losses they incurred affected economies overseas.

It is unlikely that this situation will be repeated if NSW or Queensland sell their generation assets. The recent sales in SA are evidence that buyers are more cautious and have a better understanding of the electricity market.

The Victorian Government has also eliminated the risks of continued governmental ownership in the new national electricity market. Increased risks have manifested themselves as public and private losses across the National Electricity Market (NEM). For example the:

- Queensland Treasury Corporation on hedge contacts for the electricity industry.
- NSW Government losses through Pacific Power's contracts with Powercor.

The risks of the national electricity markets are such to question the policy of continued governmental ownership of energy utilities. The ACCC has already referred to the distortions that occur in the national electricity market through continued governmental ownership and the protection offered by governments for the utilities they continue to own.

3.0 Retail Prices

As has been shown in the preceding sections, major changes have occurred within the Victorian electricity industry and the process is still continuing with one of the most significant parts yet to be completed. Full Retail Contestability represents that final chapter in the process, the chapter where consumers will be able to choose their electricity supplier. This is due to happen early next year. Table 2 sets out the current Victorian Contestability Schedule although these dates could change given the investment in computer systems necessary for FRC to proceed.

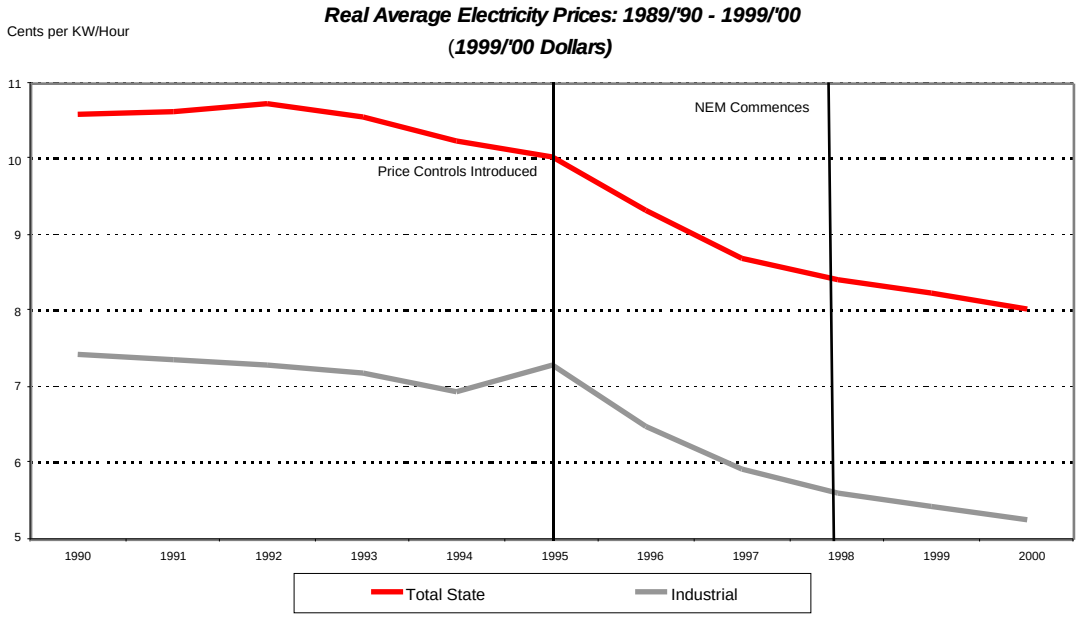
TABLE 2

Victorian Retail Contestability Schedule

Market Segment	Date Contestable
> 5 MW	December-94
1 MW - 5 MW	July-95
750 MWh - 1 MW	July-96
160 MWh - 750 MWh	July-98
40 MWh 160 MWh (Remote meters)	January-01
40 MWh 160 MWh (Non-Remote meters)	August-01
0 -160 MWh (Public lighting unmetered supplies)	August-01
All Customers	January-02

3.1 Industrial Prices

FIGURE 3



Source: NIEIR

Of the three categories (industrial, commercial and residential) industrial customers have always received the cheapest electricity. This is because they offer retailers load shedding potential and flat load profiles (generally). In addition to these factors there are a number of very large customers that have been able to extract low prices due to their volumes and the factors described above. The prices charged to these customers have reduced the average industrial prices. With a significant proportion of industrial demand contestable in mid 1996 prices in that year dropped to their 1994 levels. As various tranches of industrial customers became contestable intense

competition between retailers forced prices down. Competition was fierce for these newly contestable industrial customers because of the qualities outlined above, the fact that they were the only available retailing opportunities and the desire of certain retailers to retain or increase their market shares. From 1990 to 2000 the price of electricity for industrial users fell by 29 per cent (see Figure 3).

3.2 Commercial Prices

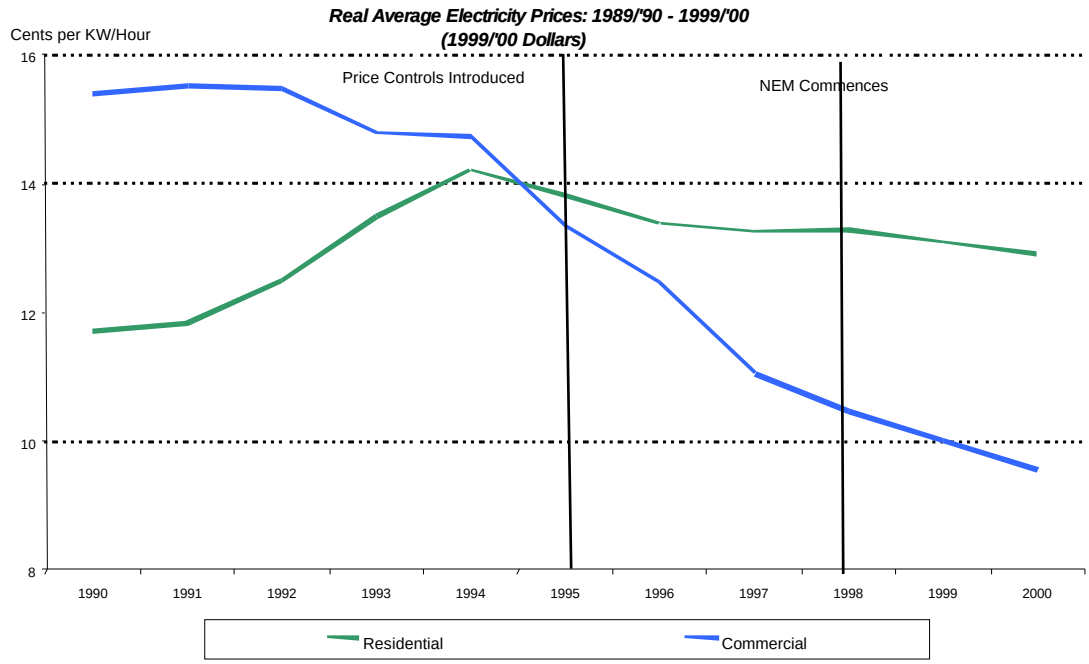
Of all the categories commercial electricity prices have benefited the most from deregulation and privatisation. From 1992 to 2000 the average commercial price has decreased by almost 40 per cent. To some extent the decreases were due to reductions in the cross subsidisation of residential users by commercial users. This is illustrated in Figure 4. Since 1994 charges to residential and commercial customers have moved closer to the 'actual' costs of supply for each category. This has resulted in residential costs charges increasing and commercial costs declining. Other reasons for the decreases include the deregulation of trading hours (resulting in improved the load profiles) and the "bundling" of contestable customers to increase volumes and improve load profiles.

3.3 Residential Prices

The most expensive electricity is that supplied to residential customers. Because of their relatively poor load profiles, higher infrastructure requirements and small individual volumes they incur charges that are significantly higher than industrial and commercial rates. Furthermore, - abstracting from socioeconomic factors – there is a view that industrial and commercial users ought to be charged less for electricity because their electricity usage is essentially an input in to production whereas, residential usage represents the consumption of a finished good. Nevertheless, residential electricity prices have been falling since they peaked in 1994. This has been achieved through efficiency improvements in generation, transmission and distribution – due largely to deregulation and privatisation – that have allowed continual reductions in electricity charges over the decade. Regulatory changes have also led to some minor reductions in real prices to residential customers.

Electricity distribution charges are a significant component of the price of electricity delivered to residential customers. They account for between 30 and 50 per cent of the bill, with the variations attributable to location and volume. The other components are transmission charges (passed on to the customer by the distributor), energy costs and retailing costs and margins.

FIGURE 4



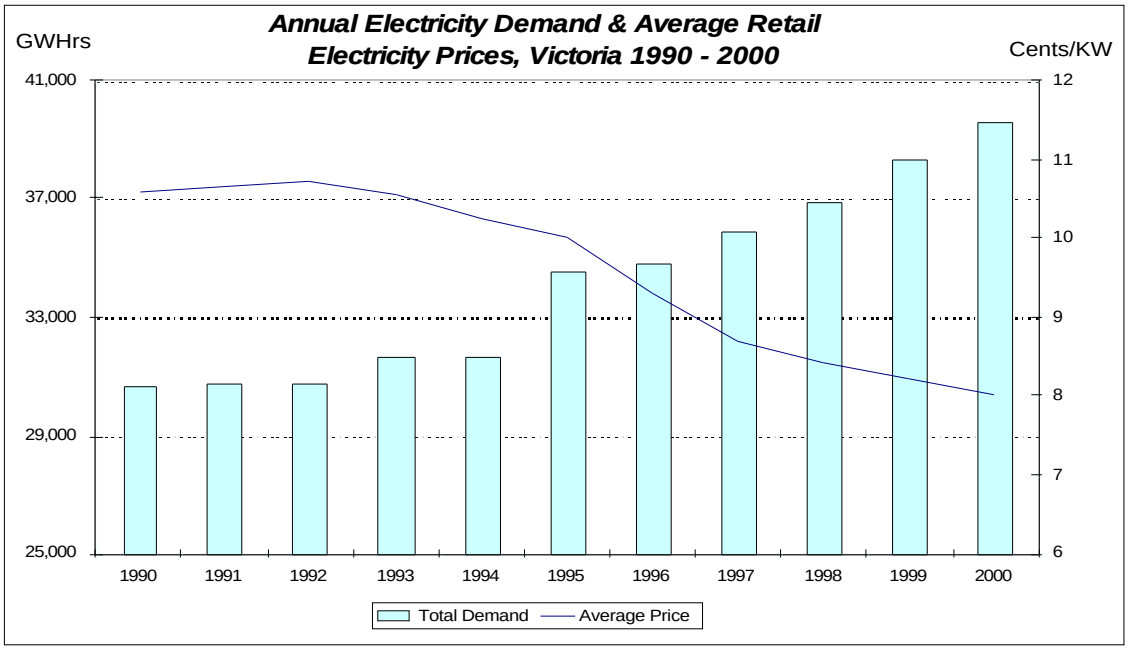
Source: NIEIR

The next section looks at electricity demand and pricing. Electricity demand increased significantly over the decade due to economic growth, and in Victoria a growth in peak demand due to the expanded use of air conditioners.

3.4 Electricity Demand and Prices

Figure 5 illustrates how demand increased over the 1990's (at an annual average growth rate over two per cent). From 1990 to 2000 total consumption increased by 7,000 GW hours. In contrast, prices have been falling since 1992 with the sharpest decline occurring between 1996 and 1998 (where average annual decreases were nearly six per cent). During this period de-regulation and privatisation were being implemented. As shown previously (see Section 2.1), both capital and labour productivity increased over this period. These improvements allowed additional demand to be met while prices continued to fall. In addition to this without the additional increases in capacity utilisation (see Section 2.1) new capacity would have been required to satisfy the demand increases[4].

FIGURE 5



Sources: NIEIR & ESAA

[4] The increase in demand of 7,000 GW hours implies a new base load generator of 800 –1000 MW would be required. This is calculated in the following manner:

Hours in Year = 8,760
1 GW Hour = 1000 MW Hours

7,000,000 / 8,760 = 799
_ 799 MW required every hour.

This analysis ignores the fact that the additional demand would have fluctuated from hour to hour possibly implying the need for base load AND peaking plant. Forced outage rates and line loss factors are also ignored.

4.0 Conclusion

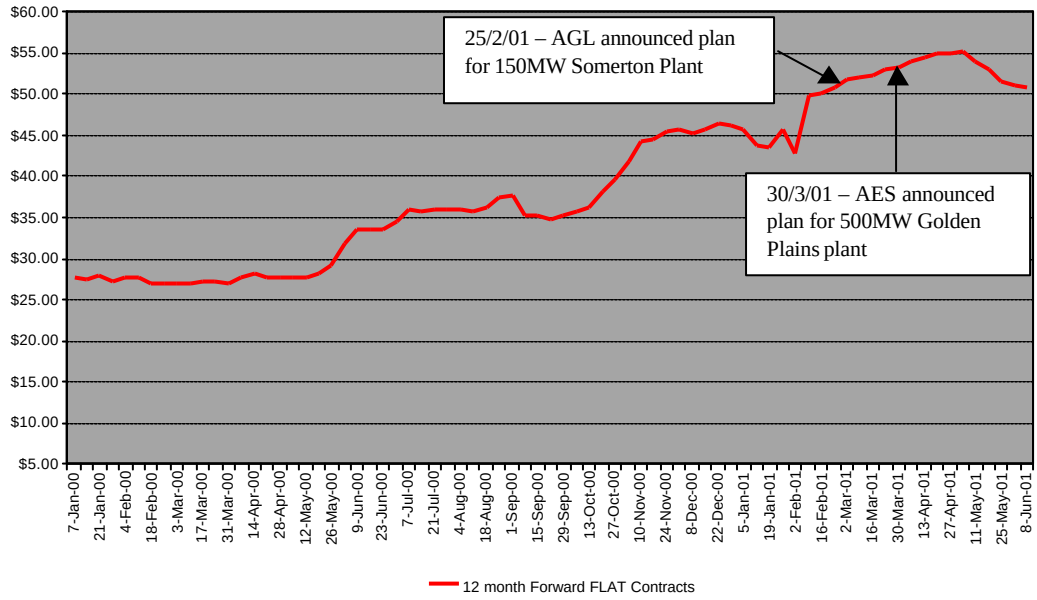
Since privatisation and deregulation commenced electricity prices have fallen across all categories. This is due to the cost and generator availability improvements stemming from private ownership and the development of a national electricity market. In addition to the absolute falls in prices the relative prices between categories have also changed. The most notable is the reversal of the relativities between commercial and residential prices. Commercial prices in 1990 were 32 per cent higher than 1990 residential prices, in 2000 they were 26 per cent lower than residential prices. This is indicative of the "user pays" principle" that has been encouraged and in any case residences get the benefit of lower industrial and commercial prices in the goods and services they consume.

The downward trend in prices is unlikely to continue. Most of the potential efficiency gains have been realised and those that remain will be harder to achieve and smaller than previous improvements. Generation costs have been increasing inn 2001 due to the:

- rise in electricity demand especially high cost peak demand;
- progressive reduction in the excess supply in the NEM, especially in Victoria and South Australia, over the decade;
- expanding use of relatively expensive gas fired generation particularly for peak demand; and
- lack of significant new generation capacity in Victoria or increase in interconnect capacity with NSW.

Spot prices have increased resulting in upward pressure on contract rates. These price changes be passed on by normal market processes for the half of the market that is presently contestable. For others, full retail contestability, scheduled to come into effect in January 2002, will allow retailers to pass cost increases on to consumers thereby forcing up prices substantially. The Government is seeking some means of regulating this. Any such measures that held down the price in the face of rising costs would cause considerable harm to the electricity retailing industry and to the long term interests of the consumer. Figure 6 indicates the increase in wholesale contract prices over the past year.

FIGURE 6



Source: Pulse energy Submission to th Office of the Regulator-General's Special Reference on Prices, June 2001. See http://svc116.bne022u.server-web.com/PulseLettPricesJun01.pdf

These price increases have led to increased investment in both gas peakers and in base load generation (at Loy Yang A) in Victoria. They have also brought increased interest in the development of Basslink from Tasmania. These are signs that the NEM is working well. Capital intensive competitive infrastructure markets will encourage new investment with a time lag, given the caution of investors to ensure demand is likely to be permanent enough to get a return on their investments. In comparison, public ownership leads to smoother adjustments to demand increases but with the likely costs of over investment and operational inefficiencies.

It is clear that privatisation has been a success on a range of measures and has brought considerable benefits to the Victorian community.