



POWER LINE
ENVIRONMENT
COMMITTEE

POWER LINE UNDERGROUNDING REVIEW AND PLAN

A 20 year review of power line undergrounding in
South Australia 1990 – 2010 and
10 year strategic plan, 2011 – 2020

August 2010

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KEY FINDINGS FROM THE 20 YEAR UNDERGROUNDING REVIEW

1. Since 2000, 116 km of power lines were undergrounded in Metropolitan Adelaide and regional centres for a total cost since 2000 of \$84 million.
2. Expenditure has risen from \$3.5 m a year in 1990/91 to \$7.78 million in 2009/10.
3. Metropolitan Adelaide undergrounding accounted for \$85.9 million (66.6%) of total expenditure while regional centres accounted for \$43.1 million (34.4%).
4. The cost of undergrounding has increased significantly over the past decade, from \$445/m to \$1237/metre (i.e. \$608/m to \$1237/m in present values), resulting in a decreasing length of power lines undergrounded each year, from 14 km/year in 1999/2000 to 6.7 km/year now.
5. Since 2000, expenditure in the Metropolitan Adelaide undergrounding has nearly halved from an average of nearly 80% of total annual expenditure early in the decade to slightly over 40% now. Early in the decade, there were major State and Federal projects that included undergrounding of power lines (e.g. Portrush Road, Cross Road).
6. The Government's funding limitation since July, 2004 of \$500,000 per annum for lighting expenditure on arterial projects has not, until now, been CPI indexed and is a major limiting factor in being able to progress more Metropolitan projects.
7. Despite its high cost, many councils across Metropolitan and regional areas have invested heavily in undergrounding, obviously considering the benefits outweigh the costs. In Metropolitan Adelaide, the highest expenditure has been by the Pt Adelaide & Enfield, Adelaide, and Unley Councils, while in regional areas, Pt Pirie, Mt Gambier and Pt Lincoln have been leading councils.
8. Construction costs in the related road construction industry over the past three years have increased in South Australia by 4.7% pa compared with 2.4% pa for household goods (CPI). The basis for calculating PLEC's annual budget adjustment should therefore be on the basis of construction costs rather than household goods.
9. The power line undergrounding program has not been reflected in the Government's strategic planning instruments including *The 30 year Plan for Greater Adelaide* and the *South Australia's Strategic Plan*.

RECOMMENDATIONS FOR 10 YEAR STRATEGIC PLAN

1. Develop a strategic ten year Metropolitan Adelaide Undergrounding Plan for power lines with particular emphasis on gateway routes into Adelaide, radial arterial roads leading out of the CBD, the ring route around the parklands and the coastal esplanade, improvements which will achieve significant aesthetic improvement together with the added benefit of improving road safety for these road corridors.
2. Increase the Government's cap of \$0.5 million/annum for lighting to a reasonable level or preferably remove the cap; assign the DTEI lighting funds to the PLEC annual budget to be managed by PLEC.
3. Base the indexation figure for PLEC's annual budget adjustment in Part 3A of the Electricity (General) Regulations 1997 on the Producer Price Index (PPI) for the construction industry, specifically roads and bridges, rather than the CPI which covers only household goods (Note: this change has no impact on the State budget). Use the PPI for South Australia as the basis in the formula in place of the national figure.
4. Review the costs associated with undergrounding with a view to reducing the escalation in costs and achieving significant savings.
5. Include a representative of the Planning ministry on PLEC to ensure closer linkage with planning and urban design programs;
6. Recognise within *The 30 year Plan for Greater Adelaide* the urban enhancement role that power line undergrounding can play and incorporate the ten year Metropolitan Adelaide Undergrounding Plan;
7. Include a specific objective within *South Australia's Strategic Plan* relating to undergrounding power lines to enhance urban amenity.

1. INTRODUCTION

The Power Line Environment Committee (PLEC) was established in May, 1990 and 2010 is the 20th year of its operation. At its 15th year in 2005, PLEC published *Out of sight but not out of mind, the benefits of power line undergrounding in South Australia*. The current report carries the review of the PLEC program forward to the end of the 2009/10 year.

The *Electricity Act 1996* makes provision for the power line undergrounding program to be funded by the Network Licensee (ETSA Utilities) and without impact on the State Budget. The amount to be provided for funding the program is defined by Part 3A of the *Electricity (General) Regulations 1997*. The Charter of the Committee requires PLEC to advise the Minister for Energy regarding undergrounding proposals that will “improve the aesthetics of an area for the benefit of the general community.”

The proposals generally cover main roads, gateway routes, tourist areas, coastal esplanades and shopping areas. PLEC’s charter does not cover undergrounding in residential areas. Undergrounding of power lines associated with new subdivisions has been normal practice for many years.

Undergrounding of power lines together with associated streetscaping has significantly enhanced the appearance of many of Adelaide’s main roads and the central areas of many South Australian towns. Not only has this had benefits in terms of tourism, environmental quality and business returns but a somewhat surprising and standout result of undergrounding, as evidenced particularly in regional communities, has been that it has lifted the spirits of residents who appreciate that people care about their town or suburb.

The community appreciates the improvement to the street of no overhead wires and in particular the streetscaping that accompanies the undergrounding work. As well as looking good, it is user friendly, more accessible and safer. It has also been reported that undergrounding means it is easier for elderly and disabled people to use their “gophers” or motorised wheelchairs, which enables them to remain active in their local communities.

The community has often told PLEC members while making inspections of projects that the undergrounding indicates that the local area, suburb or country town is a going concern, up on its toes, and getting things done for the community. This is not only good for the people but it also benefits local industry and business. In short, undergrounding provides economic, social and environmental benefits.

2. OVERALL EXPENDITURE

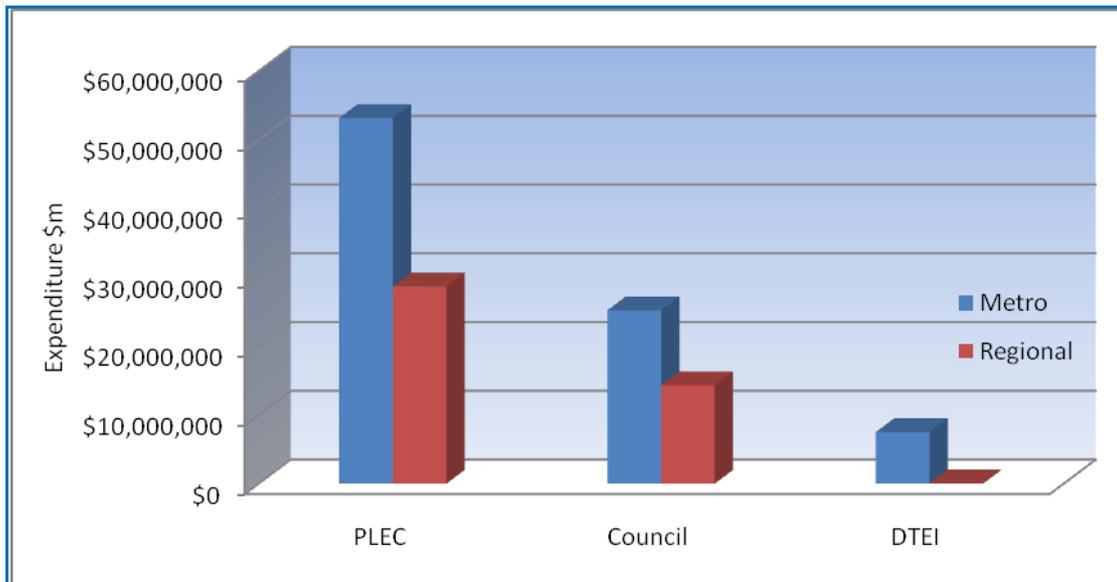
Over the 20 years, 1990/91 to 2009/10, \$129.3 million has been spent on undergrounding; \$81.8 million by PLEC (63.5% of total expenditure), \$39.5 million by councils (30.7%) and a further \$7.6 million by the Department for Transport, Energy and Infrastructure (DTEI) (5.9%); refer Table 1, Figure 1.

Table 1 Total power line undergrounding expenditure by source, 1990/91 - 2009/10

AREA	PLEC	COUNCIL	DTEI	TOTAL
Metropolitan	\$53,167,782	\$25,210,435	\$7,493,532	\$85,871,749
Regional	\$28,668,036	\$14,321,530	\$79,128	\$43,068,694
	\$81,835,818	\$39,531,965	\$7,572,660	\$129,320,443
% of total	63.47	30.66	5.87	100.00

Note: Metropolitan includes Adelaide Hills Council and Mt Barker Council.

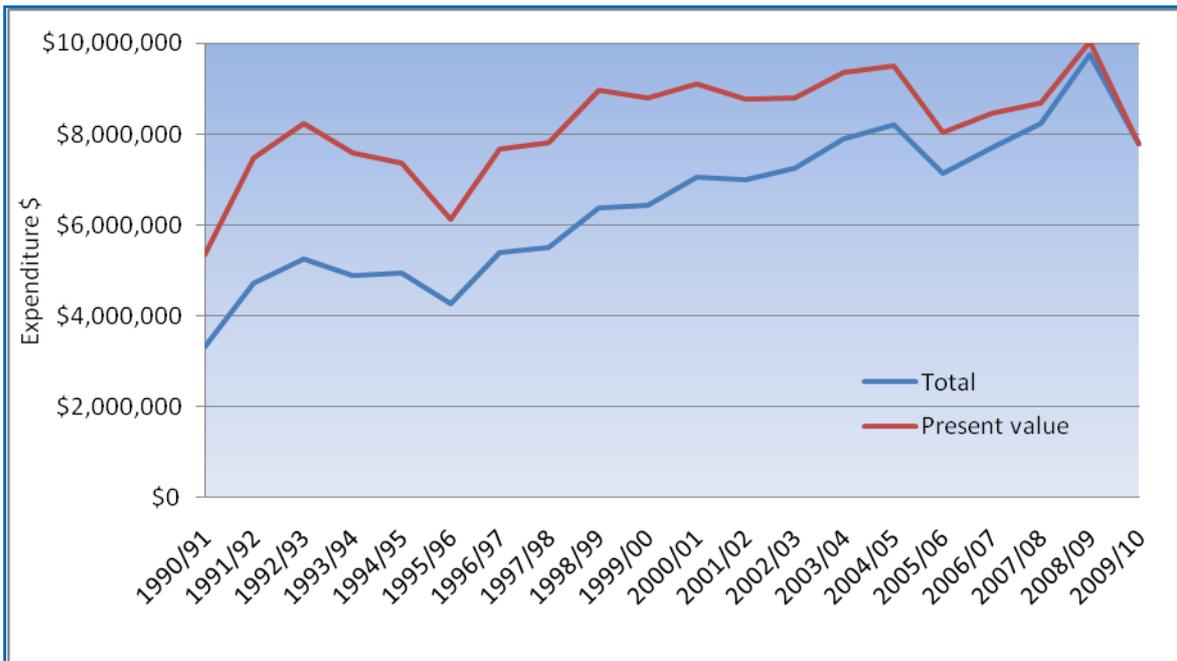
Figure 1 Total power line undergrounding expenditure by source, 1990/91 - 2009/10



Approximately \$85.8 million (66.6%) was spent in Metropolitan Adelaide and \$43.0 million (33.4%) in regional centres.

In 2010 dollars, the expenditure from 1990/91 has totalled \$164.2 million. For example, the expenditure in the program's first year of \$3.5 million is equivalent to \$5.3 million in 2010 dollars; refer Figure 2.

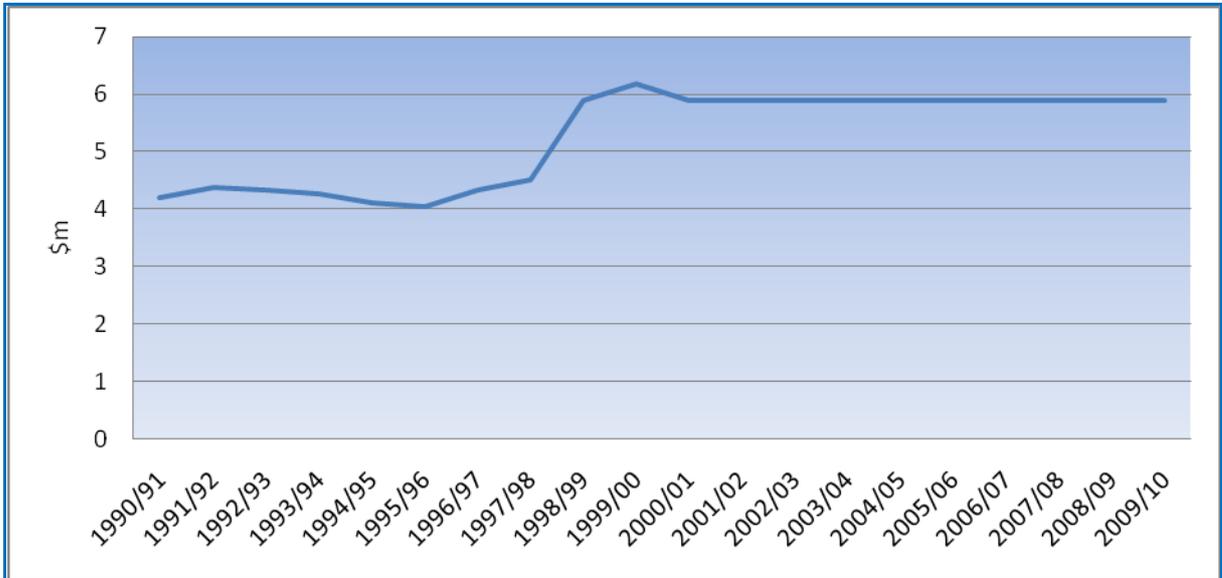
Figure 2 Comparison of annual actual expenditure and its present value, 1990/91 - 2009/10



3. ANNUAL ALLOCATION TO PLEC 1990/91 – 2009/10

The allocation to PLEC commenced in 1990/91 at \$2.6 million. In 1998, the Government increased the allocation by \$1 million specifically for Metropolitan Main Roads. The annual allocation has increased in line with the CPI to \$5.9 million¹; refer Figure 3.

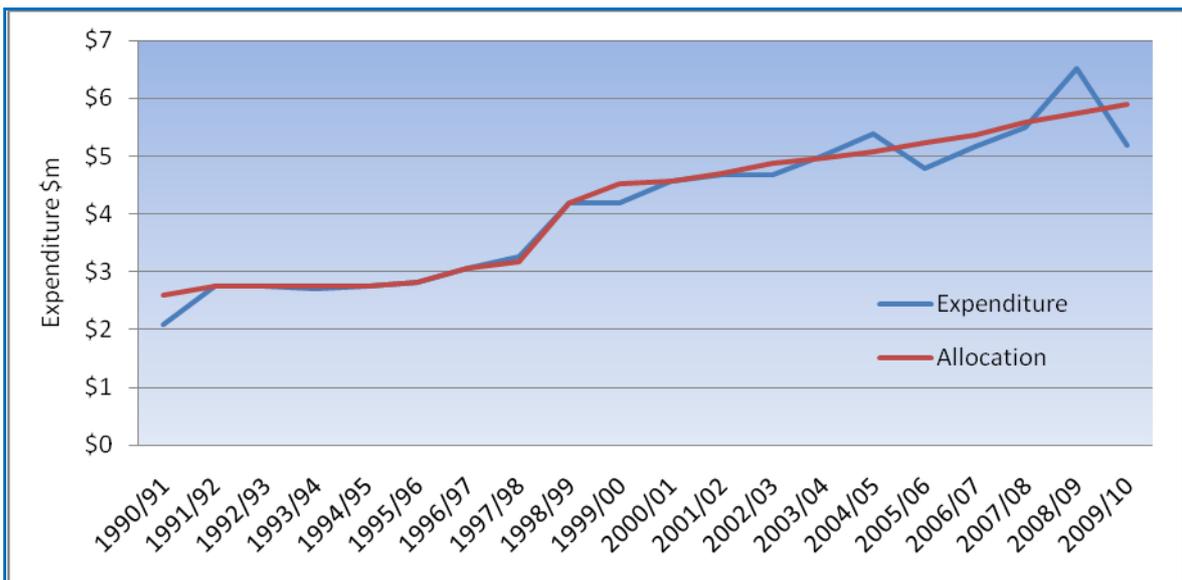
Figure 3 Annual allocations to PLEC in 2010 dollars.



Note: Increase in 1999/2000 reflected a GST adjustment.

PLEC aims to approve projects up to the allocation each year but because projects are of varying scales of expenditure, it is not always possible to exactly match the allocation. A system of adjustments from year to year therefore operates; Figure 4.

Figure 4 Comparison of annual allocation and expenditure, 1990/91 - 2009/10 (actual dollars)

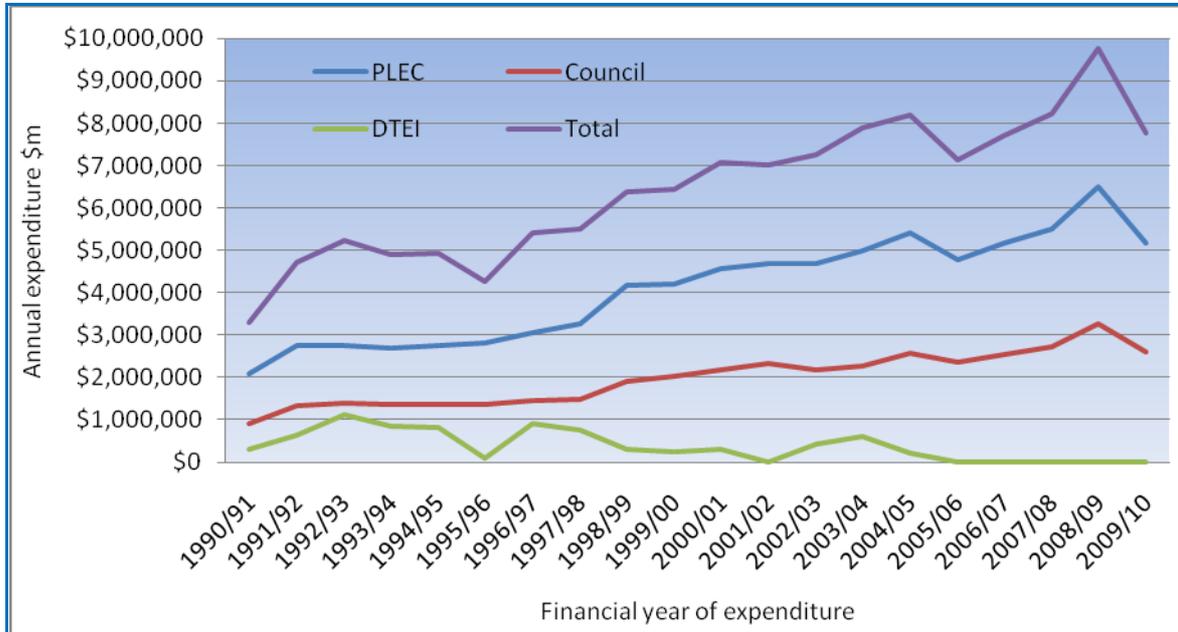


1. The Electricity (General) Regulations 1997, Part 3A define a formula by which PLEC funding is adjusted each year to reflect inflation.

4. ANNUAL EXPENDITURE 1990/91 – 2009/10

Total expenditure for undergrounding power lines (i.e. PLEC + Council + DTEI) has risen from \$3.3 million a year in 1990/91 to over \$7.78 million in 2009/10; refer Figure 5.

Figure 5 Annual undergrounding expenditure by source, 1990/91 – 2009/10



Note: 2009/10 expenditure reflects \$0.7 m over-expenditure in 2008/09

The lift in expenditure in the PLEC allocation in 1997/98 is evident following the extra \$1 million/annum allocated by the Government for metropolitan undergrounding. Expenditure by the Government for undergrounding associated with road reconstruction has ceased since 2004/05.

5. LENGTH OF POWER LINES UNDERGROUNDED

From 1999/2000 to 2009/2010, PLEC undergrounded 113 km of power lines in South Australia². This is a substantial achievement. The distance achieved each year, however, has declined from about 14 km/year in 1999/2000 to 6.7 km/year in 2009/10 (Figure 6). This decrease is due to the increasing cost per km of undergrounding from \$445/metre in 1999/2000 (\$608 in 2010 dollars) to \$1,237/metre in 2009/10, a doubling of cost in present value terms over the past decade (Figure 7).

Figure 6 Length (km) undergrounded per annum

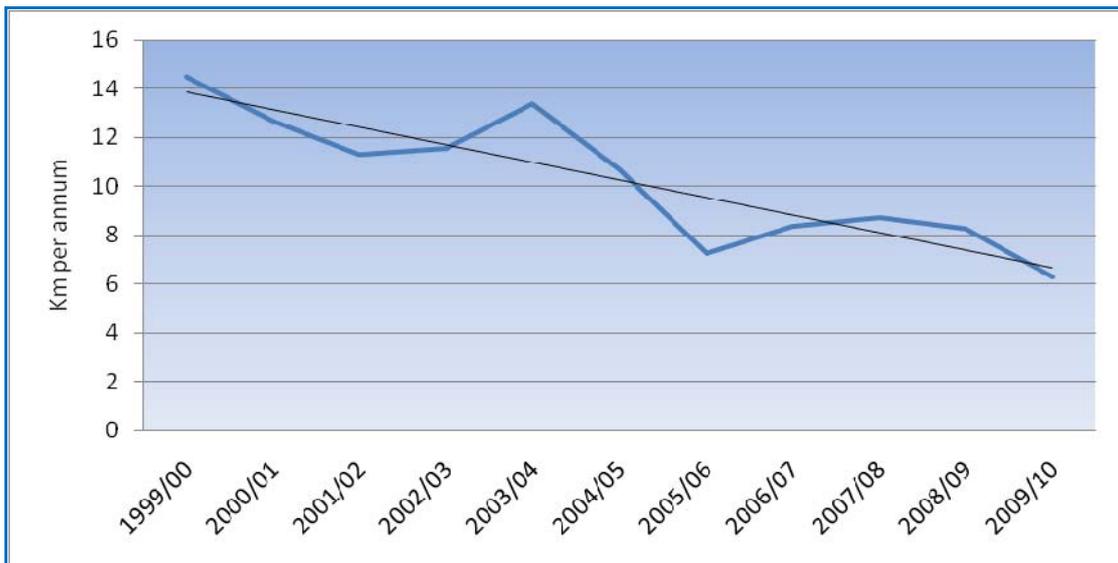
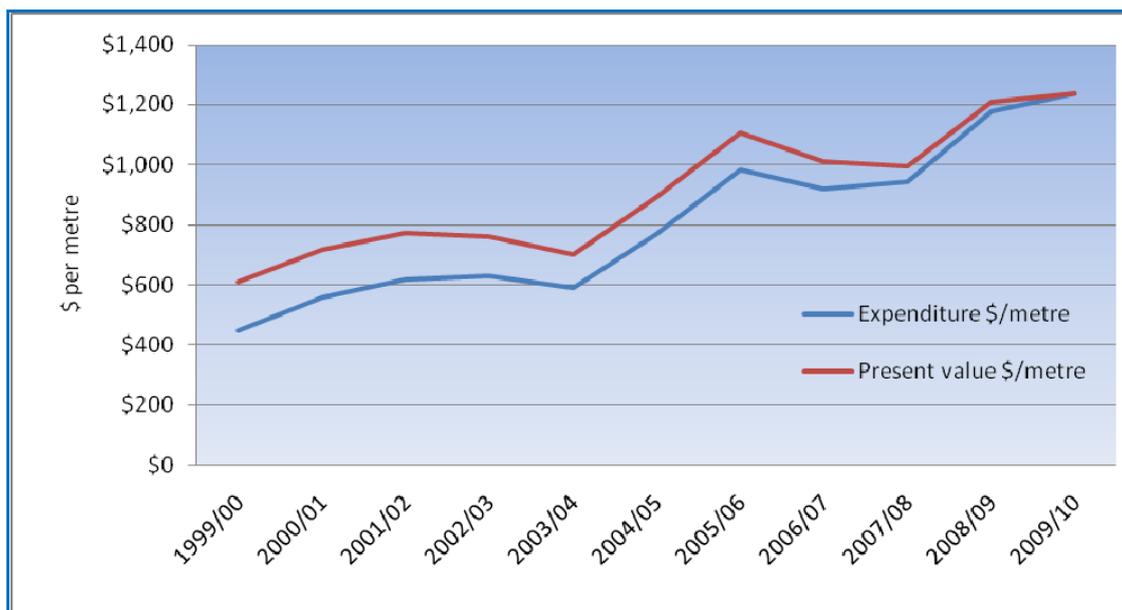


Figure 7 Undergrounding cost \$ per metre



2. The length of powerlines undergrounded includes road cross-overs and short sections along side roads as well as the main road being undergrounded.

Over the period, 1999/2000 to March 2010, the Cost Price Index (CPI) has increased by only 37% and it is not clear why undergrounding costs have increased by 277% over this period. Although the PLEC funds increase by CPI annually, this does not fully reflect the increasing costs associated with construction projects. Additionally, ETSA Utilities now incorporates its business costs into project costs including associated administrative, design, occupational health, safety and welfare costs. These issues are address further in Sections 8.6 and 8.8.

6. METROPOLITAN AND REGIONAL UNDERGROUNDING

Based on the PLEC-only component of the funding (i.e. excluding contributions by councils and DTEI), the balance between Metropolitan and regional undergrounding has averaged 67:33 since 1990/91 but has varied widely. In three years, 1995/96, 2004/05 and in the present year, 2009/10, expenditure in country areas exceeded that in Metropolitan Adelaide (Figures 8 and 9). The 33% spent in regional areas compares favourably with the 27% of the State's population who live in these areas.

Figure 8 PLEC expenditure (\$) in Metropolitan Adelaide and regional areas

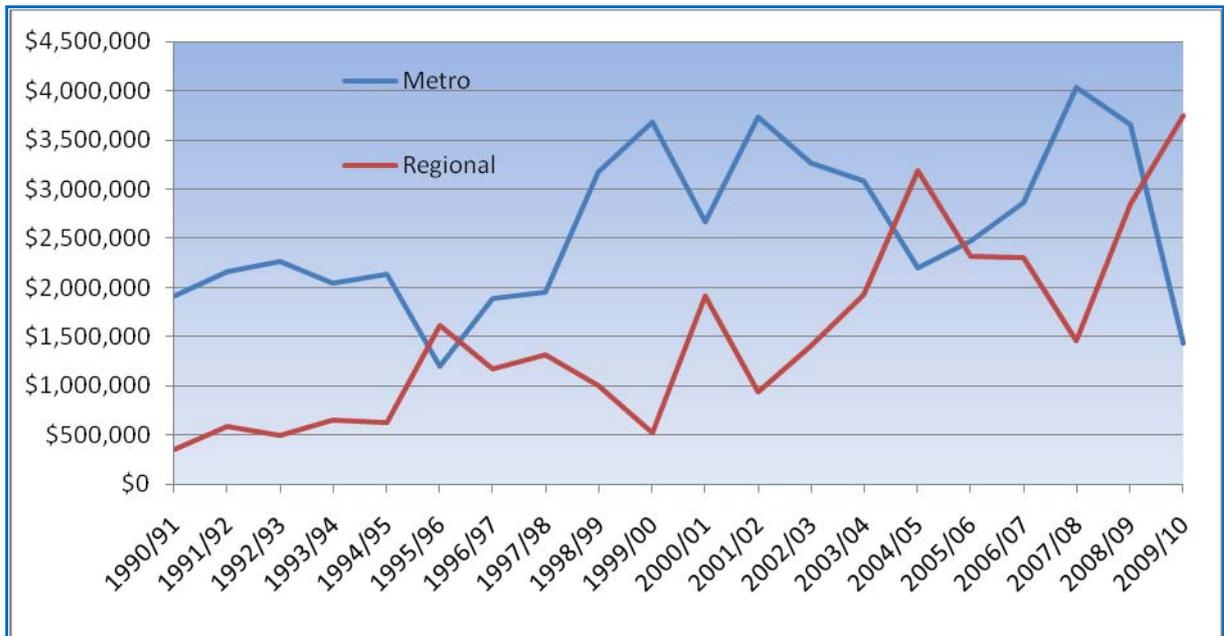
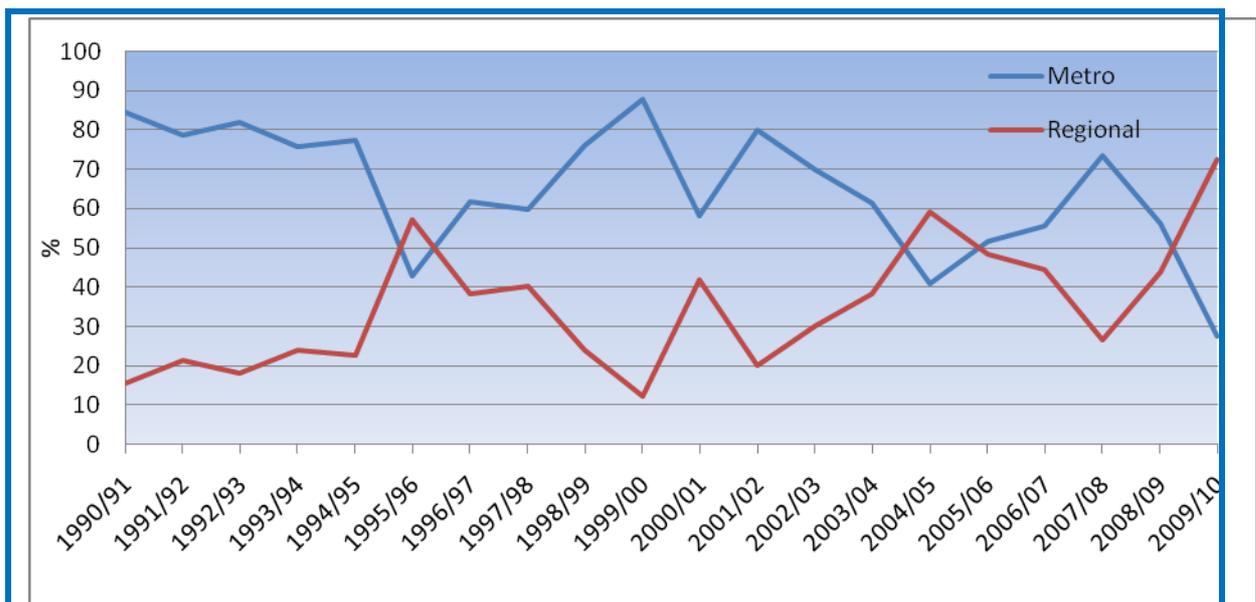
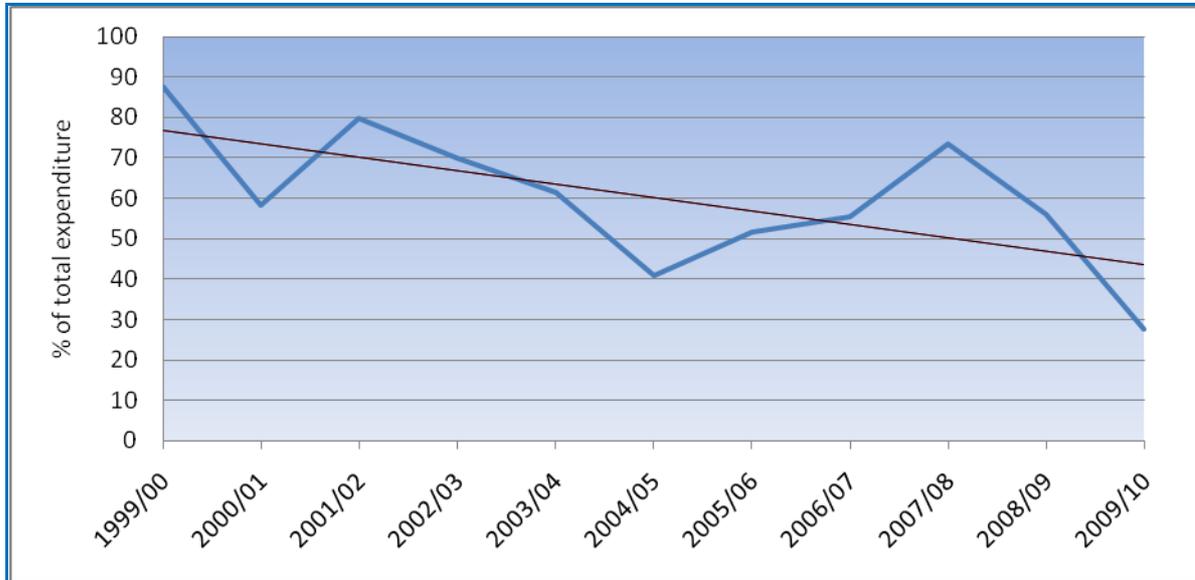


Figure 9 Percentage of PLEC expenditure in Metropolitan Adelaide and regional areas



Over the last decade, since 2000, there has been a steady decline in Metropolitan Adelaide expenditure as a proportion of total PLEC expenditure. Undergrounding expenditure in Metropolitan Adelaide has virtually halved from an average of nearly 80% early in the decade to slightly over 40% of total expenditure at the end of the decade (Figure 10).

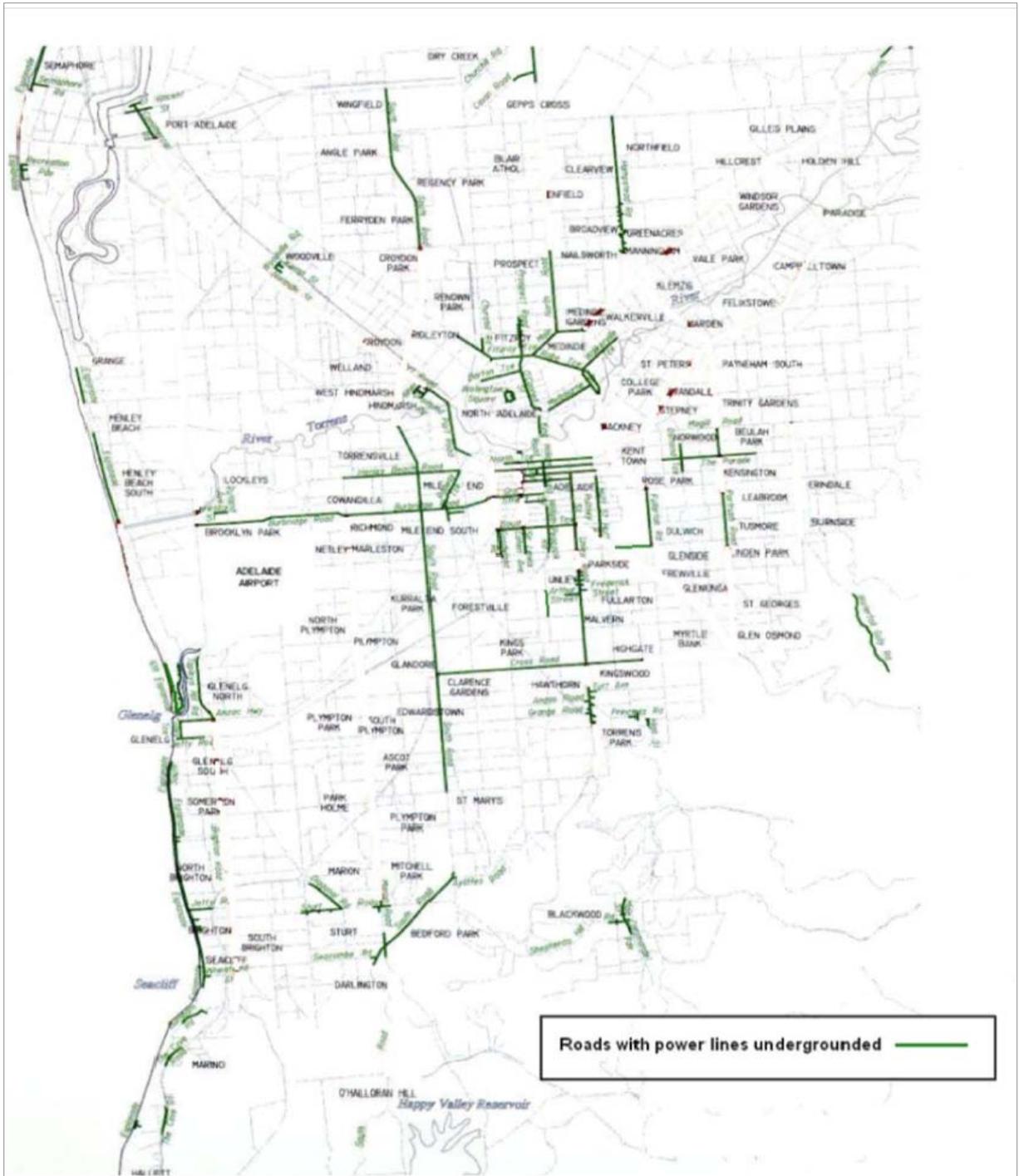
Figure 10 Trend in Metropolitan undergrounding expenditure, 1999/2000 – 2009/10



The reason for this is twofold: firstly, there were many major State and Federal funded road reconstruction projects such as Portrush Road early in the decade whereas there are few now, and secondly, the high and rising cost of undergrounding makes it increasingly difficult for councils to propose projects. A complicating factor is that most arterial roads, particularly in Metropolitan Adelaide, are under DTEI control and therefore subject to the Government's \$0.5 million cap (non-CPI indexed) on public lighting expenditure which has severely restricted metropolitan undergrounding.

Figure 11 is a map of the undergrounding that has been completed in Metropolitan Adelaide and includes a small number of non-PLEC projects in the City of Adelaide (e.g. Halifax and Giles Streets).

Figure 11 Undergrounding completed in Metropolitan Adelaide



7. EXPENDITURE BY COUNCILS

Despite the high cost of undergrounding, many councils across Metropolitan and regional areas have invested heavily in the program, obviously considering that the benefits outweigh the costs.

Figure 12 summarises expenditure by Metropolitan councils. The councils with the highest expenditure (in order) are summarised by Table 2.

Figure 12 Metropolitan Adelaide undergrounding costs by Council, 1999/2000 – 2009/10

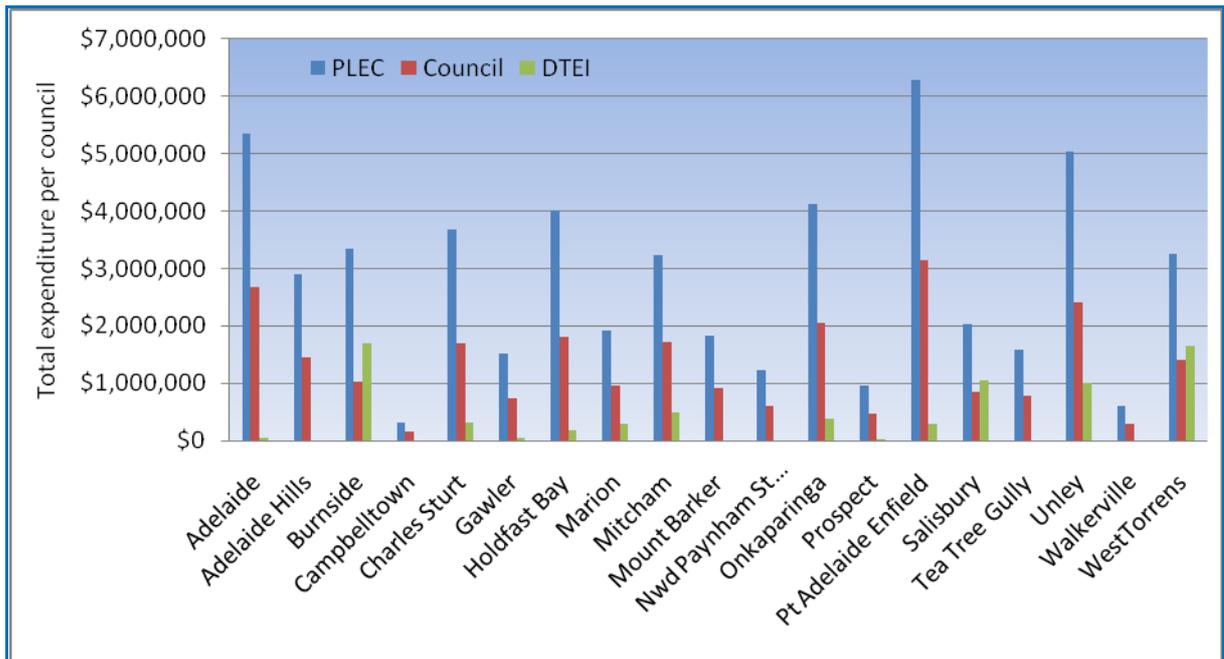


Table 2 Metropolitan Adelaide Councils with highest undergrounding expenditure, 1999/2000 – 2009/10 (i.e. Council contributions)

Council	Expenditure
Pt Adelaide & Enfield	\$3,146,529
Adelaide	\$2,678,545
Unley	\$2,405,258
Onkaparinga	\$2,041,019
Holdfast Bay	\$1,816,812
Mitcham	\$1,723,872
Charles Sturt	\$1,706,181
Adelaide Hills	\$1,451,709
West Torrens	\$1,401,582

Figure 13 summarises expenditure by regional councils. Many regional councils have spent considerable sums to underground the power lines in their town centres, some assisted by additional initiatives such as “Places for People” funding by Planning SA. The councils with the highest expenditure (in order) are summarised by Table 3.

Figure 13 Regional undergrounding costs by council, 1999/2000 – 2009/10

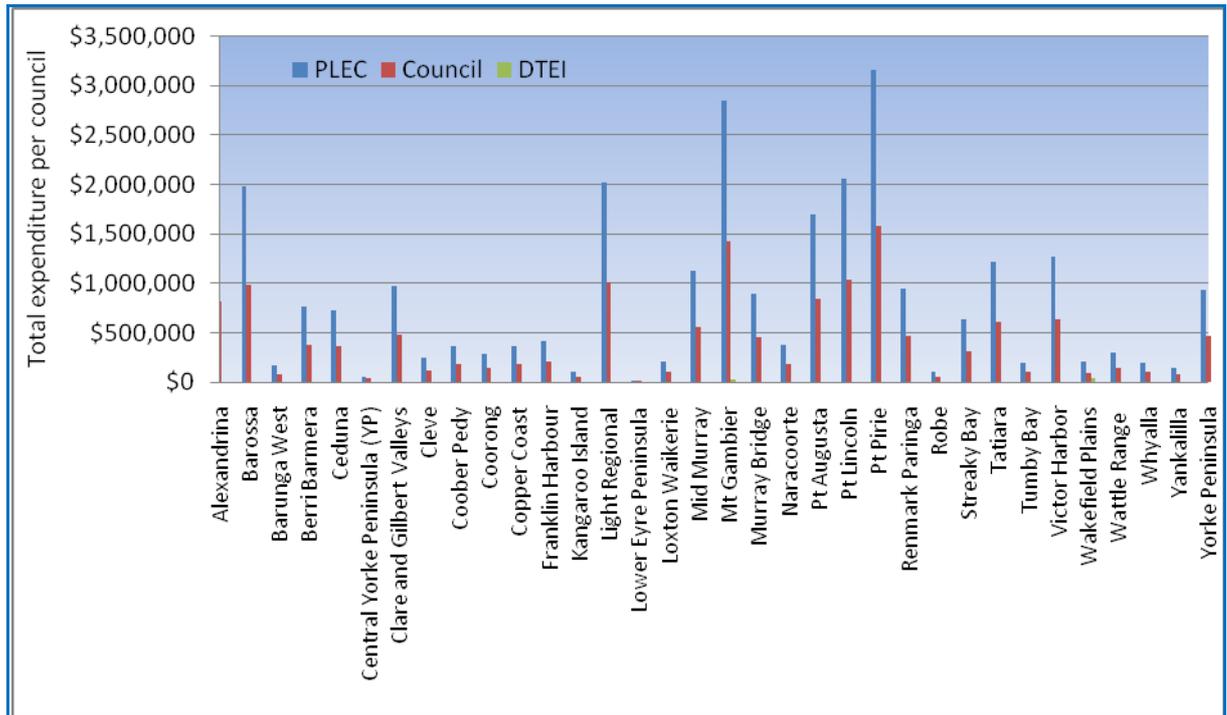


Table 3 Regional councils with highest undergrounding expenditure, 1999/2000 – 2009/10

Council	Expenditure
Pt Pirie	\$1,579,129
Mt Gambier	\$1,418,685
Pt Lincoln	\$1,031,214
Light Regional	\$1,011,848
Barossa	\$989,302
Pt Augusta	\$847,748
Alexandrina	\$811,708
Victor Harbor	\$639,330
Tatiara	\$608,358

Because of the escalation in undergrounding costs over the past decade, councils that embarked on undergrounding projects in the earlier years achieved substantially greater lengths of undergrounding than those undertaken in recent years.

8. FUTURE STRATEGIC DIRECTIONS

8.1 2007 Proposals

In 2007, PLEC submitted a paper to the Minister for Energy, *Towards a Strategic Approach to Undergrounding Powerlines in South Australia* in which it proposed a 5-point program to:

1. Strategically identify potentially significant projects, with particular emphasis on Metropolitan Adelaide, and to encourage councils to work with PLEC in undergrounding their power lines.
2. Ensure PLEC's forward program complements and reinforces Government priorities, for example in contributing to the redevelopment of the Port Adelaide area.
3. Ensure funds are being used efficiently – PLEC's identification of significant savings in lighting costs is an example of reducing this cost.
4. Examine alternative funding arrangements which could stretch its funds further, for example, varying the PLEC 2/3:Council 1/3 contribution depending on the priority of the proposal.
5. Include a target for power line undergrounding in the *South Australian Strategic Plan* and *Strategic Infrastructure Plan for South Australia*.

In respect of the final component, PLEC proposed the following targets for inclusion in the State Strategic Plan:

Metropolitan Adelaide: Achieve by 2025, the undergrounding of powerlines along all priority roads

Country areas: Achieve by 2018, the undergrounding of powerlines in the central areas and areas of tourist significance in all country towns.

In response, the Minister, the Hon Pat Conlon MP, stated (21 April, 2007) that he was “encouraged that PLEC was investigating more strategic ways to achieve the best return for the funding available”, that in regard to funding arrangements he was “willing to consider options to achieve greater efficiencies and savings”, and that he was “willing to consider varying the funding arrangements for particular projects on a case by case basis.”

8.2 Strategic approach to Metropolitan Adelaide undergrounding

There remain many significant roads in Metropolitan Adelaide and, to a lesser extent in regional centres that would benefit from undergrounding of power lines. Given the findings of increasing cost of undergrounding and the difficulty imposed by the Government's funding cap on public lighting, a strategic approach to future Metropolitan undergrounding is proposed. Instead of only reacting to proposals submitted by councils, it is proposed that the Government, through PLEC also initiate projects and work with and assist councils in their implementation.

8.3 Priorities for Metropolitan Adelaide undergrounding

Under a strategic approach, a Metropolitan Adelaide Undergrounding Plan should be prepared of roads that should be undergrounded over the next 10 years. The following considerations should guide the selection of roads.

Total length achievable

As a target, 8 km a year could be undergrounded, around 5 km in Metropolitan Adelaide and 3 km in regional centres. On this basis approximately 50 km would be achievable in Metropolitan Adelaide over 10 years.

Gateway routes

In the late 1990s, Sir Donald Bradman Drive was upgraded as part of a plan to improve the gateway entrances to Adelaide, in this instance, the entrance from Adelaide Airport. Part of the Main North Road was also undergrounded. There remain, however significant gateway routes into Adelaide requiring undergrounding, in particular the eastern entrance from the South Eastern Freeway including Glen Osmond Road and upper sections of Portrush and Cross Road should be addressed as a matter of urgency. Port Road is a significant entry route from Outer Harbour where many cruise ships berth. Main North Road north of Regency Road is also a major gateway route for Adelaide.

Radial arterial roads from the CBD

The City of Adelaide has achieved considerable undergrounding of city streets and the power lines along many of the main roads in the CBD have now been undergrounded. The routes leading into and out of the city should therefore be a key priority. These routes are:

- North: Prospect Road and Main North Roads (both partially undergrounded);
- North-East: North East Road, Payneham Road;
- East: Magill Road, Kensington Road and Greenhill Road. Norwood Parade was undergrounded in the early 1990s as one of PLEC's first projects;
- South: Fullarton Road, King William Road and Goodwood Road. Unley Road and Belair Road have been undergrounded in recent years, extending the undergrounding of Pulteney Street in the CBD;
- West: Richmond Road. Both Sir Donald Bradman Drive and Henley Beach Road have been undergrounded;
- North west: Port Road and Torrens Road.

In addition, the remainder of the ring route around the Parklands should be undergrounded. Port Road (west of Bonython Park), Fitzroy Tce, Robe Tce and Fullarton Road have all been undergrounded. Sections that remain are: Hackney Road, Dequetteville Tce, Greenhill Road, Railway Tce, and Park Tce.

Transit routes and transit-oriented developments

The establishment of priority urban development nodes should be complemented by undergrounding of power lines to assist in their attractiveness and marketability. The first TOD will be located at the former Clipsal site at Bowden. Undergrounding of

the adjacent Park Tce would serve this TOD. A Registration of Interest has been received by PLEC for a TOD development in Woodville.

Esplanades

PLEC has undergrounded the power lines along much of Adelaide's coast as this provides significant public benefit. The remaining short sections should also be undergrounded; the Esplanade at Semaphore and Marino, and Seaview Road at West Beach; proposals which coincide with Planning SA's Coast Park initiative.

Road Safety factors

Safety considerations are implicit in the undergrounding of power lines by PLEC. Not only does it result in fewer Stobie poles along roads that are a hazard to vehicles, but undergrounding also reduces the risk of outages of felled power lines during storms. DTEI advocates that road safety be an explicit consideration for all projects with councils considering such benefits in preparing their proposals. During 2009, the Director of Road Safety, Martin Small, then a member of PLEC, identified priorities for undergrounding in Metropolitan Adelaide from a road safety viewpoint. The top priorities were (in order):

- Fullarton Road between Magill Road and Kensington Road (including Britannia Corner)
- South Road between Regency Road and Torrens Road
- Grand Junction Road from Churchill Road to Main North Road
- Main North Road from Grand Junction Road to Edgeworth Road (Sefton Park)
- Shepherds Hill Road from Northcote Road (Karinya Park) to Main Road (Blackwood)
- Regency Road from Main North Road to Hampstead Road
- South Road from Adam Street (Hindmarsh) to Regency Road
- Park Terrace (Salisbury) from Gawler Street to Main North Road
- Belair Road from Grange Road to Springbank Road

These should be considered in the undergrounding plan.

8.4 Ten Year Plan

Table 4 contains a list of roads that are proposed to form the 10 year plan for PLEC for Metropolitan Adelaide. They total around 47 km.

Table 4 Proposed 10 year Power Line Undergrounding Plan for Adelaide

Road	Section	Km
Gateway Routes		
Glen Osmond Road	Toll Gate cnr to Greenhill Rd	3.6
Portrush Road	Toll Gate cnr to Greenhill Rd	2.6
Cross Road	Toll Gate cnr to Duthy St	2.6
Main North Road	Regency Rd to Grand Junction Rd	2.7
Inner City Routes		
Prospect Road	Alpha Rd to Regency Rd	1.2
North-East Road	Nottage Tce to Hampstead Rd	1.3
North Tce (Hackney) - Payneham Road	Hackney Road to Glynde Corner.	4.8
Magill Road	North Tce (Hackney) to Portrush Rd	1.7
Kensington Road	Fullarton Rd to Portrush Rd	1.7
Greenhill Road	Fullarton Rd to Portrush Rd	1.7
Fullarton Road	Greenhill Rd to Cross Rd	2.7
Goodwood Road	Greenhill Rd to Cross Rd	2.7
Richmond Road	Anzac Hwy to South Rd	1.1
Port Road	Park Tce to South Road	1.3
Torrens Road	Park Tce to South Road	2.0
Parklands Ring Road		
Park Terrace	Torrens Rd to Port Rd	1.5
Hackney Road	R. Torrens to North Tce	1.1
Dequetteville Terrace	North Tce to Kensington Rd	1.2
Greenhill Road (part)	Fullarton Rd to Anzac Hwy	3.7
Railway Terrace – East Terrace (part)	Richmond Rd to George St	1.4
Transit-oriented developments		
Bowden and other centres	To be defined	
Esplanade		
Esplanade, Semaphore	Semaphore Rd to Bower Rd	1.3
Seaview Road, West Beach	R. Torrens to West Beach Rd	1.2
Safety		
Fullarton Road, Kent Town	Magill Rd to Kensington Rd	1.3
Main North Road	Included above	

Implementation of this ten year plan would achieve undergrounding of the remaining gateway routes, the Parklands ring route, all inner city routes, and the coastal Esplanade.

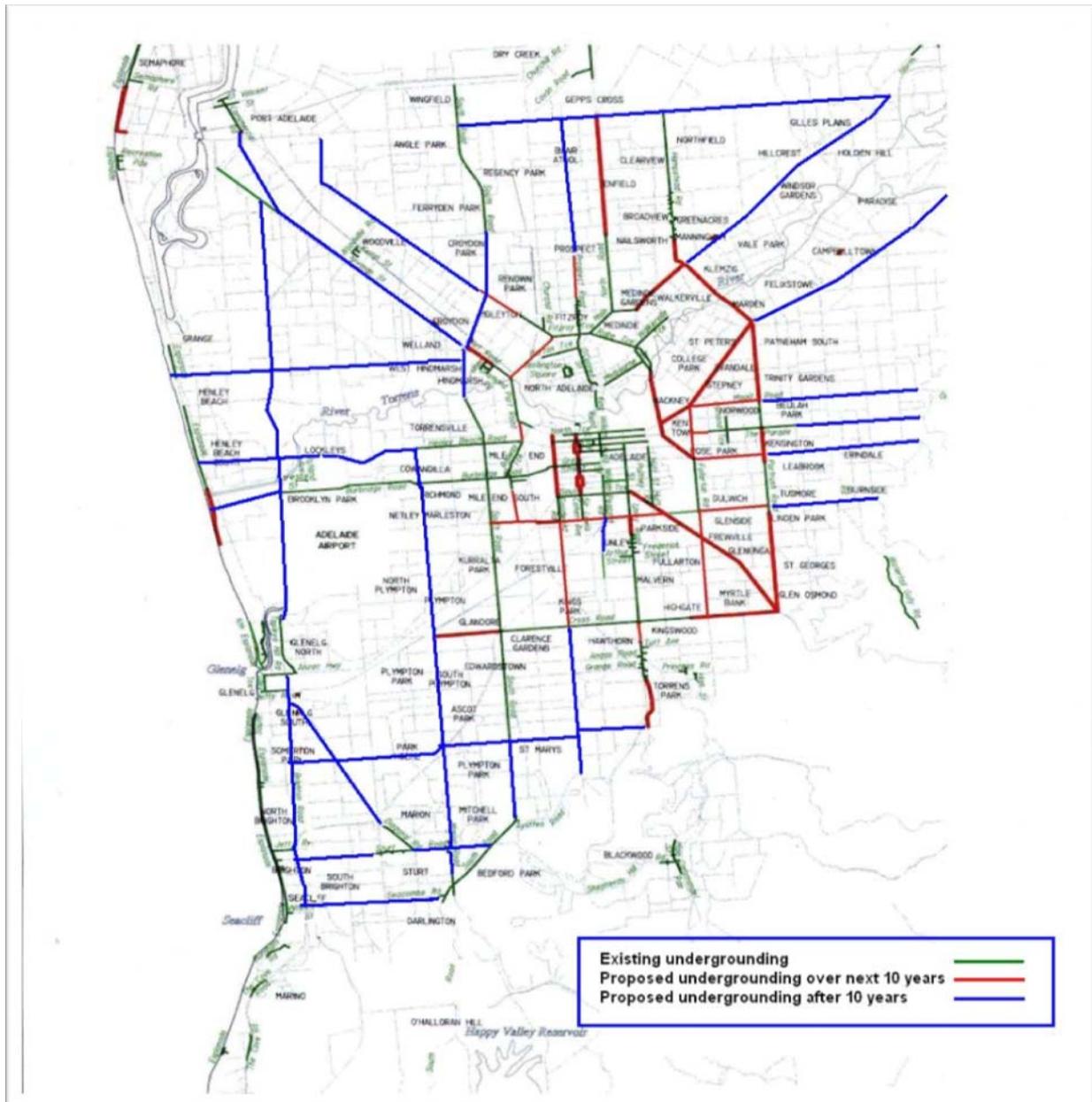
The ten year plan should not be regarded as the sole basis for undergrounding in Metropolitan Adelaide as Councils may put forward other significant projects for consideration by PLEC. In addition, PLEC will continue to consider and fund proposals for undergrounding by regional councils. The ten year plan is not intended to diminish the importance of undergrounding along significant roads in regional centres.

In subsequent periods following completion of the ten year plan, undergrounding would extend out along the radial city routes as well as significant north-south routes such as Marion Road and Brighton Road/Tapleys Hill Road.

The undergrounding proposed in the ten year plan is shown by Figure 11 together with roads which should be undergrounded in subsequent periods.

A project should be undertaken with discussion and input from relevant councils to develop the ten year plan of roads including an assessment of the roads to determine their priority for undergrounding and estimates of the likely undergrounding costs.

Figure 11 Future power line undergrounding in Metropolitan Adelaide



8.5 Council contributions

Councils are required to contribute one third of the undergrounding cost. If the proposed strategic approach is adopted and the Government plays a greater role in determining which roads will have power lines undergrounded, then a case may exist to vary the council contribution. It would remain as one third where the project is council initiated. The Minister indicated in 2007 a willingness “to consider varying the funding arrangements for particular projects on a case by case basis.” The PLEC Charter enables the standard \$1 Council: \$2 Government ratio to be varied. Such a change may also stimulate more proposals from Councils.

It is not suggested that there be no council contribution as the local communities benefit from every undergrounding project. If no council contribution occurred then less undergrounding would result overall as PLEC would need to make up the shortfall, resulting in less funds being available for other projects. It may be possible for Councils to gain assistance via the Places for People grants program or Commonwealth Government programs, including for streetscaping following undergrounding.

8.6 Undergrounding Costs

Over the past decade, undergrounding costs per unit length have increased by 277% compared with a 37% increase in CPI. A thorough review of the costs associated with undergrounding is required to identify and quantify the reasons for the increase and to identify any measures that may be taken to reduce their escalation. Trends in costs suggest that unless substantial savings can be achieved, the risk exists that in a few years time the PLEC annual program may comprise of only a few projects. The Essential Services Commission of South Australia (ESCOSA) has agreed to fund a review of undergrounding costs.

8.7 Government’s Cap on Lighting Expenditure

Since 2004/05, the Government, through DTEI, has imposed a \$500,000 cap on expenditure on public lighting on main roads under the jurisdiction of DTEI associated with PLEC projects. Until the present year, the cap was not CPI indexed which has resulted in the lowering of its effective contribution since 2004/05 to around \$440,000 in 2005 dollars instead of seeing it increased to around \$588,000 over this time. The cap has been a significant brake on the PLEC program resulting in the deferral of significant projects because of the inability to fund their lighting within the program.

DTEI has recommended to the Government that existing road safety funding be redirected from road infrastructure improvements to undergrounding projects and for 2010/11 the cap to be lifted to \$712,500. Subsequent contribution amounts above the usual \$500,000 are to be reviewed in relation to the road safety criterion and will be CPI indexed. PLEC is concerned, however, that the increase will not enable a catch up of projects and the cap will continue to restrict the PLEC program.

One approach could be to assign the DTEI lighting allocation to the PLEC funds to be managed by PLEC. This may result in the use of some PLEC funds for lighting but it would remove the current restriction on its programs.

The cap serves as a policy contradiction within Government; it is effectively contrary to the Government’s policy of promoting undergrounding through the significant investment made by councils and ETSA Utilities to the PLEC program. A review is

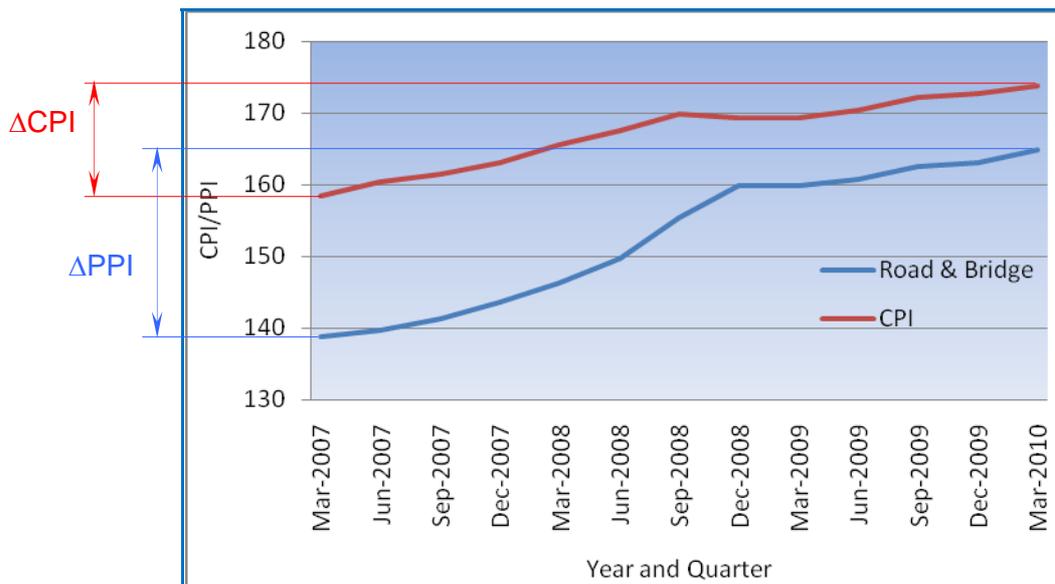
therefore required to either lift the cap to a reasonable level or preferably remove it altogether.

Following the Government's injection of an additional \$1 million a year into Metropolitan undergrounding in 1997, Transport SA (the predecessor to DTEI), provided the public lighting, street trees and project management as part of its contribution to undergrounding. For many years, Transport SA provided the lighting, trees and project management.

8.8 Consumer Price Index (CPI)

PLEC funding is increased annually by the CPI rise (Consumer Price Index, All Groups Index Number (All Cities)) over the previous 12 months in accordance with the formula in Part 3a of the Electricity (General) Regulations 1997. The formula is based on a basket of household goods in all capital cities in Australia, an odd basis for calculating the price increase associated with construction projects such as undergrounding. Over the four-year period, 2007 – 2010, the CPI for Australia increased by 2.5% pa compared with 3.4% pa for road and bridge construction costs³. For South Australia, the figures were: CPI 2.4%, and for road and bridge construction 4.7%, which is virtually double the CPI. Figure 12 illustrates the difference between the CPI and Producer Price Index (PPI) for the past three years.

Figure 12 Comparison of CPI and PPI (roads & bridges) 2007–10, South Australia



The indexation figure for PLEC's annual adjustment should therefore be based on the construction industry, specifically roads and bridges, rather than the CPI that covers only household goods. Furthermore, figures for South Australia should be used instead of national figures.

As the funds for PLEC are allocated by the electricity supplier as a regulatory obligation, ESCOSA advises that the change will have no impact on the State budget.

3. Source: ABS, 6427.0 - Producer Price Indexes, Australia, March 2010.

8.9 Closer integration with South Australian Government programs

The power line undergrounding program has traditionally operated largely in conjunction with local government but with little involvement with other programs of the South Australian Government with the exception of transport. However there are a range of other programs which are complementary and which could be supportive.

South Australia's Strategic Plan

The state strategic plan lays down six objectives covering prosperity, wellbeing, sustainability, creativity and innovation, communities, and opportunity. Detailed targets are defined under each objective. Although improved urban amenity is not specifically identified, it is implicit in several objectives. Inclusion of a specific target relating to undergrounding power lines would help drive closer integration of the program with complementary programs of the Government.

The 30-year Plan for Greater Adelaide

The 30-year plan was released during 2009 and sets out a vision for the growth and development of the Greater Adelaide region (extending to Murray Bridge and Victor Harbor) during the next 30 years. The Plan provides for population growth of an additional 560,000 people, the construction of 258,000 more dwellings, the creation of 282,000 jobs, and economic growth of \$128 billion over the next 30 years.

Most of the proposed new housing under the Plan will be in the established Metropolitan area, and in transit-oriented developments (TODs) along transit corridors. Transit-oriented developments co-locate medium- and high-density residential housing, major retail and service outlets, and major employers around railway and tram stations and bus interchanges. The use of power line under-grounding to help enhance the attractiveness of the transit corridors and TODs would be of strategic benefit. As beneficiaries of undergrounding, developers of the TODs should contribute to its cost.

The proposed ten year Metropolitan Adelaide Undergrounding Plan could be incorporated into a future revision of 30 year Plan so that it can be more fully integrated into the ongoing planning and development of Adelaide.

In past years, Planning SA, through its Places for People program, assisted many councils, particularly regional centres, to implement streetscaping in association with undergrounding power lines to capitalise on the investment. The Planning and Development Fund currently allocates \$8 – 12 million annually through programs to purchase open space and to carry out urban improvement projects. The Places for People program provides grants (up to \$2 – 3 million annually) to assist councils strategically plan, design and develop public places of community significance and to help create new public places or revitalise existing public spaces that contribute to the social, cultural and economic life of the community they serve. While the program has been largely reactive to council initiatives, a more strategic approach is being considered.

This brief survey of Government plans, strategies and programs indicates the need for the power line undergrounding program to be more closely linked and integrated with these to ensure the synergies and benefits are fully realised. Specifically the following measures are proposed:

- Inclusion of a representative on PLEC from the planning ministry to ensure closer linkage with planning and urban design programs;
- Recognition within the *30 year Plan for Greater Adelaide* of the role that power line undergrounding can play in assisting urban enhancement, and incorporation of the ten year Metropolitan Adelaide Undergrounding Plan;
- Inclusion of a specific objective within the *South Australian Strategic Plan* relating to undergrounding power lines.

9. RECOMMENDATIONS

Arising from this review of 20 years of the PLEC power line undergrounding program, together with the consideration of issues that have been discussed, the following recommendations are presented by PLEC as the basis for a strategic plan to guide power line undergrounding over the next decade.

1. Develop a strategic ten year Metropolitan Adelaide Undergrounding Plan for power lines with particular emphasis on gateway routes into Adelaide, radial arterial roads leading out of the CBD, the ring route around the parklands and the coastal esplanade, improvements which will achieve significant aesthetic improvement together with the added benefit of improving road safety for these road corridors.
2. Increase the Government's cap of \$0.5 million/annum for lighting to a reasonable level or preferably remove the cap; assign the DTEI lighting funds to the PLEC annual budget to be managed by PLEC.
3. Base the indexation figure for PLEC's annual budget adjustment in Part 3A of the Electricity (General) Regulations 1997 on the Producer Price Index (PPI) for the construction industry, specifically roads and bridges, rather than the CPI which covers only household goods. Use the PPI for South Australia as the basis in the formula in place of the national figure.
4. Review the costs associated with undergrounding with a view to reducing the escalation in costs and achieving significant savings.
5. Include a representative of the Planning ministry on PLEC to ensure closer linkage with planning and urban design programs.
6. Recognise within *The 30 year Plan for Greater Adelaide* the urban enhancement role that power line undergrounding can play and incorporate the ten year Metropolitan Adelaide Undergrounding Plan.
7. Include a specific objective within *South Australia's Strategic Plan* relating to undergrounding power lines to enhance urban amenity.

APPENDIX 1 PLEC ALLOCATION BY YEAR, 1990/91 – 2009/10

Year	ALLOCATION (\$M)	IN 2010 DOLLARS (\$M)
1990/91	2.60	4.20
1991/92	2.75	4.37
1992/93	2.76	4.33
1993/94	2.75	4.26
1994/95	2.75	4.10
1995/96	2.81	4.04
1996/97	3.06	4.34
1997/98	3.18	4.52
1998/99	4.20	5.90
1999/00	4.52	6.18
2000/01	4.58	5.90
2001/02	4.71	5.90
2002/03	4.87	5.90
2003/04	4.97	5.90
2004/05	5.09	5.90
2005/06	5.24	5.90
2006/07	5.37	5.90
2007/08	5.59	5.90
2008/09	5.73	5.90
2009/10	5.90	5.90
TOTAL	83.42	105.21

APPENDIX 2 TOTAL EXPENDITURE BY YEAR, 1990/91 – 2009/10

Year	PLEC	COUNCIL	DTEI	Total
1990/91	\$2,271,130	\$898,870	\$316,540	\$3,486,540
1991/92	\$2,746,813	\$1,318,475	\$647,622	\$4,712,910
1992/93	\$2,758,922	\$1,379,403	\$1,104,781	\$5,243,106
1993/94	\$2,700,752	\$1,350,775	\$845,775	\$4,897,302
1994/95	\$2,749,503	\$1,374,675	\$809,446	\$4,933,624
1995/96	\$2,811,006	\$1,362,000	\$90,594	\$4,263,600
1996/97	\$3,060,000	\$1,442,456	\$902,166	\$5,404,622
1997/98	\$3,265,721	\$1,490,575	\$746,219	\$5,502,515
1998/99	\$4,180,000	\$1,898,678	\$315,300	\$6,393,978
1999/00	\$4,200,000	\$2,015,646	\$230,777	\$6,446,423
2000/01	\$4,575,726	\$2,170,093	\$316,007	\$7,061,826
2001/02	\$4,679,861	\$2,324,929	\$0	\$7,004,790
2002/03	\$4,673,705	\$2,180,832	\$410,343	\$7,264,880
2003/04	\$5,003,034	\$2,275,730	\$619,151	\$7,897,915
2004/05	\$5,397,103	\$2,580,058	\$217,939	\$8,195,100
2005/06	\$4,780,744	\$2,352,872	\$0	\$7,133,616
2006/07	\$5,173,729	\$2,536,864	\$0	\$7,710,593
2007/08	\$5,497,818	\$2,733,909	\$0	\$8,231,727
2008/09	\$6,506,023	\$3,253,012	\$0	\$9,759,035
2009/10	\$5,184,228	\$2,592,114	\$0	\$7,776,342
TOTAL	\$82,215,818	\$39,531,965	\$7,572,660	\$129,320,443

APPENDIX 3 EXPENDITURE BY COUNCIL, 1990/91 – 2009/10

METROPOLITAN COUNCILS

COUNCIL AREA	PLEC	COUNCIL	DTEI	TOTAL
Adelaide	5355142	2678545	54955	8088642
Adelaide Hills	2903518	1451709		4355227
Burnside	3345475	1032986	1696607	6075068
Campbelltown	304017	152009		456026
Charles Sturt	3672072	1706180	315300	5693556
Gawler	1510490	747475	56810	2314775
Holdfast Bay	4019622	1816812	188440	6024874
Marion	1908193	961941	287100	3157234
Mitcham	3232110	1723872	485428	5441410
Mount Barker	1834358	915110		2749468
Norwood Payneham St Peters	1226568	610832		1837400
Onkaparinga	4122630	2041019	374417	6538066
Prospect	951156	475580	24000	1450736
Pt Ad. Enfield	6286199	3146529	297968	9730696
Salisbury	2020498	846450	1059520	3926468
Tea Tree Gully	1581191	790596		2371787
Unley	5028647	2405258	1007209	8441114
Walkerville	593898	296950		890848
West Torrens	3248110	1410582	1645778	6304470
West Torrens Urban Proj Auth	23884			23884
TOTAL	53167782	25210435	7493532	85871749

Note: Includes Adelaide Hills and Mount Barker Councils

REGIONAL COUNCILS

COUNCIL AREA	PLEC	COUNCIL	DTEI	TOTAL
Alexandrina	1624184	811708		2435892
Barossa	1978626	989302		2967928
Barunga West	170000	85000		255000
Berri Barmera	762197	381099		1143296
Ceduna	729620	364811		1094431
Clare & Gilbert	966133	483016		1449149
Cleve	250297	125148		375445
Coober Pedy	370248	185130		555378
Coorong	284433	143707		428140
Copper Coast	366865	183433		550298
Franklin Harbour	415120	207561		622681
Kangaroo Island	104583	52292		156875
Light Regional	2023622	1011848		3035470
Lower Eyre Pen.	12167	6084		18251
Loxton Waikerie	208789	105904		314693
Mid Murray	1121794	560897		1682691
Mount Gambier	2841988	1418685	32608	4293281
Murray Bridge	899821	449911		1349732
Naracoorte	379577	189789		569366
Pt Augusta	1695508	847748		2543256
Pt Lincoln	2062430	1031214		3093644
Pt Pirie	3158254	1579129		4737383
Renmark Paringa	943699	468140		1411839
Robe	100510	50256		150766
Streaky Bay	635782	317892		953674
Tatiara	1216712	608358		1825070
Tumby Bay	201133	100567		301700
Victor Harbor	1270657	639330		1909987
Wakefield Plains	206370	87665	46520	340555
Wattle Range	299500	144500		444000
Whyalla	199800	99900		299700
Yankalilla	149065	74532		223597
Yorke Peninsula	995052	505499		1500551
National Parks	23500	11475		34975
TOTAL	28668036	14321530	79128	43068694