SKM Report Assessing Prudence of EnergyAustralia's Capital Expenditure Program for the 1999 Regulatory Period

April 2004

This report was drafted by SKM for EnergyAustralia in the lead up to the IPART Network Price Review in April 2003. It assesses the prudence of capital expenditure in the EnergyAustralia network (both distribution and transmission) undertaken in the 1999-2004 regulatory period.

The report assesses individual projects. The projects assessed in Sections 4.1, 4.4, 4.8, 4.12, 4.17 and 4.18 of this report are classified as transmission projects.

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1. Executive Summary

Sinclair Knight Merz has undertaken a prudence assessment of a sample of selected major projects implemented by Energy Australia in the current regulatory period (1998/9 – 2003/4). The sample of twenty (20) major projects represents 40% of all the separately identified major projects planned during this period. They include the larger, higher cost projects (eg. City Central 132/11kV substation and Haymarket Supply Point), and therefore represents almost 80% of the capital expenditure on major projects during this regulatory period.

The prudence assessment was undertaken to determine whether expenditure was reasonable given the information available at the time, and where information allowed assessment of the final outcomes of the projects based on existing EnergyAustralia planning policies and criteria.

The information for undertaking this prudence assessment was drawn from the following sources:

- EnergyAustralia Board papers seeking approval for the projects.
- EnergyAustralia load forecasts and actual recorded loads for the relevant substations, and adjacent substations (AESDR report).
- Sydney and Hunter region capital works plans 2002-2012.
- SKM energy at risk assessment model (used on Rutherford and Macquarie Park only).

SKM's overall assessment of the 20 projects demonstrates that all the projects were prudent investments based on the information available at the time of initiating the projects, although in some cases some reconsideration of scope and timing may have been warranted, based on information that came to hand after the initiation of the project.

2. Prudence Criteria

A prudent business will seek to reduce the demand for capital by increasing the utilisation of existing assets, eliminating marginal projects, and forcing consideration of alternatives. The rationale used by SKM in assessing and commenting on the prudence of each project had a two dimensional approach as follows:

- Timing – Given the information available at the time about projected load growth, new customers, system limitations, degree of acceptable overloading, energy at risk, and reliability considerations, was the actual timing of implementation of the project appropriate?
- Magnitude of Investment – Given that it had been determined that some form of system augmentation was necessary to alleviate identified system constraints, relieve system overloads, reduce energy at risk to acceptable levels, and provide an appropriate level of system security, was the magnitude of capital expenditure generally consistent with the scope of works undertaken, and the benefits delivered (eg. improved system capacity, reliability, etc).

Note that the prudence review did not specifically re-evaluate the range of augmentation options considered, to determine that the lowest NPV scheme was adopted, nor to determine that all options had been considered. The prudence review was designed to verify that project timing was appropriate, and that the overall magnitude of expenditure was warranted.

Some specific issues that were considered with respect to each of the dimensions of the prudence assessment were as follows:

Timing

- Did forecast loads exceed substation firm capacities and/or feeder ratings?
- Were multiple system limitations evident? (eg. more than one substation overloaded, voltage constraints, feeder overloads, assets beyond effective serviceable life)
- What level and value of “energy at risk” was evident? (this was available for only some of the projects assessed)
- Was the timing impacted on by factors other than normal system planning criteria? (eg. external influences, environmental considerations, community expectations, etc.)

Magnitude of Investment

- Did the magnitude of capital expenditure appear appropriate for the value of “energy at risk” from a loss of supply perspective?
- Did the project solution appear to be a “logical”, and the probable “most economical” solution to the identified system constraints?
- Does the cost of the project align with general industry standards for a project of the defined scope, given the environment and circumstances which applied?

3. Overall Project Assessments

The attached Appendix A provides project cost details and information about project timing and system constraints which was used to assess the necessity and appropriateness of the selected projects.

The overall assessment of the 20 projects are that all the projects were prudent investments in terms of timing given the information available at the time of initiating the projects. In some cases it appears that the capital expenditure was high considering the scope of the work.

4. Individual Project Prudence Assessments

Based on the information made available to SKM, and our own knowledge of electricity industry costs for capital works, the following "prudence assessment" statements represent our best professional judgement on the appropriateness of the timing and magnitude of expenditure on the selected projects.

4.1 Conversion of Wyong & Charmhaven Zones to 132/11kV and the Construction of Tuggerah to Munmorah 132kV Feeder

The conversion of the Wyong and Charmhaven zone substations and construction of the transmission feeder was undertaken to improve the reliability of the existing network, reduce system losses, replace some aged assets and to cater for demand growth (4%) within the region over the next ten to fifteen years. The peak loading on the 33kV sub-transmission network prior to completion of the conversion works was in excess of the firm capacity of the network.

The project provided for:

- the deferment of $22 million expenditure by TransGrid ($11m for 330kV work and $11m for 330/132kV substation augmentation) and any subsequent increase in TUOS charges being passed through to EnergyAustralia.
- eliminate substation overloads and added capacity for future growth.
- the improvement of the security of the network (the probability of a load shedding contingency reached 1%)
- improved reliability of supply to the Central Coast area where the Reliability Index for unplanned outages were 172.1 customer minutes per year compared with the organisational average of 66.7 customer minutes per year.
- the replacement of aged equipment (44yrs) with high O&M costs, and
- reduced system losses at the time of peak load.

The project start was deferred from 1999 to 2000 through the application of risk management principles. The further deferral of this project would have increased the outage probability beyond acceptable levels. The project was subsequently completed a year later in 2002.

The original planning estimate was $20 million, as per Network Capital Works Plan. The Board approved budget was M$22. The total actual cost of conversion of Wyong & Charmhaven zones to 132/11kV, and the construction of Tuggerah to Munmorah 132kV feeder was $21.85 million. The 2002 asset valuation have valued the substations and associated 132kV feeder at $25m.

Based upon the previous five-year history of housing lots released and the predicted housing growth rates, the project displayed a NPV of negative $7 million, and would have a payback of 16 to 18 years (based on the IPART revenue formula applicable at the time of the project evaluation).

Financial projections based upon income from average network tariffs resulted in a NPV of negative $4 million, with a payback period of 15 years.

Based upon the average contract price of $27.10/MWhr the savings in system losses are estimated to be $6 million over 30 years.

Conversion of Wyong & Charmhaven zones to 132/11kV and the construction of Tuggerah to Munmorah 132kV feeder is assessed as being a prudent investment, which was initially driven by the level of loading exceeding firm capacity, and the outage probability being beyond acceptable levels. The project provided for the relief of loading at Munmorah Supply Point and Ourimbah Sub-transmission substation, both of which would have been above firm rating. The project provided support to the TransGrid 132kV system and allowed the deferral of $22m of expenditure by TransGrid. Based on energy at risk and reliability of supply the investment could not have been deferred any further. The magnitude of the investment appears appropriate, given the multiple system limitations that it overcame. The 2002 asset valuation has valued the project at $25m (including some 132kV feeder work) compared to the actual expenditure of $21.85m.

4.2 Replacement of the 33kV Switchgear At Warringah Subtransmission Substation

The reliability problems within the Warringah load area were attributed to the aging switchgear at the substation. The outages cause by the failing 33kV busbar at Warringah contributed to 47% of customer minutes lost within the area.

The busbar had several age-related problems, such as severe corrosion of the steel support structures, cracks in the busbar terminal palms, and deterioration of the circuit breaker insulation. The protection schemes were outdated and phase separation of the outgoing feeders was unacceptable by modern standards. The rating (1200A) of the 33kV outdoor busbar were also inadequate to cater for future load growth.

Due to the upgrading of the transformer capacity to cater for customer driven load increases, an upgrade to the ratings of the associated circuit breakers was also required

The decision to replace the existing outdoor busbar and circuit breakers with indoor switchgear was based on security of supply and physical practicalities. The location of the substation and busbar made it vulnerable to animals and other environmental factors (animal attacks, flying debris).

The Capital Works plan anticipated the upgrade would not be required until 2005. However the increase in load from Sydney Water's North Head sewerage treatment plant and the poor network performance was the subject of a political inquiry, resulting in the project being advanced to 2002.

The board-approved budget for the switchgear replacement was $10.98 million, and the previously approved upgrade of the sub-transmission transformers gave a total project budget of $14.03 million.

The actual total cost of the upgrade of the Warringah switchgear and transformers was $22.04 million, and the project was completed in 2002.

The value of lost revenue due to interruptions since 1994 was estimated at $9 million, and the rebates to customers under the trade practices liability provisions were estimated at $12000 per annum. Both of these issues were overcome by implementation of the project.

The 2002 asset valuation valued the upgraded Warringah Substation, excluding the 132kV equipment, at $19.1m compared to the actual expenditure of $22.04m. Additional costs were incurred with long cable distances and some scope creep.

The replacement of the 33kV switchgear at Warringah sub-transmission substation is assessed as being a necessary and prudent investment. The reliability of the network due to the aged switchgear was unacceptable. The magnitude of the expenditure valued against the 2002 asset valuation appears to be high but includes additional cabling work that was required.

4.3 Establishing Rutherford Zone Substation

The establishment of the Rutherford zone substation in the Hunter region was to relieve loading on Bradford and Telarah zone substations where the secure capacities were being exceeded with up to 40% for more than 30% of the time (Bradford) and with more than 20% for up to 5% of the time (Telarah). The project would also replace aged assets with the dismantling of Bradford substation.

Approval was obtained from the Energy Australia Board for a capital expenditure of $7.2million in April 1999 followed by an approval for an additional $0.9million in August 2002. The increased project costs are associated with design changes to incorporate new standards, additional civil works, equipment cost increases, and alterations due to difficulties in obtaining easements for the associated 33kV transmission line connection. The total approved cost of establishing Rutherford zone substation was $8.1million. The completion of Rutherford zone substation is due in February 2003 and the actual expenditure to date is $8.05million with a further $0.05million earmarked for the dismantling of Bradford zone substation.

The adjacent Bradford substation is 33 years old substation with a secure capacity of 5.5MVA, Telarah is 43 years old with a secure capacity of 13.7MVA. Actual loading on both substations has been exceeding the secure capacities of the substations since the early 1990's. An energy at risk analysis shows that by 2003 the cost of energy at risk would have been in the order of $4.2million, increasing to $6.5million and $9.9million in 2004 and 2005 respectively. The magnitude of energy at risk justifies a capital investment of $8.1million.

After the commissioning of Rutherford zone substation, Bradford substation is to be dismantled and the utilisation of Rutherford and Telarah will be 53% and 101% respectively. The utilisation of Rutherford is expected to grow to 85% by 2008 with the utilisation of Telarah remaining at 101% after the transfer of 1.8MVA off the Telarah network in 2005.

Establishment of Rutherford zone substation is assessed as being a prudent investment. The project enabled elimination of an ageing overloaded substation (Bradford) and an overloading condition at Telarah zone substation. The project also provides for significant reductions in system losses. The magnitude of the investment

(M$8.1) appears appropriate. In the 2002 asset valuation an equivalent substation, including the 33kV and 11kV feeder works that was required, is valued at $7.63m. In the design allowance was made for an additional 33kV bay, two 11kV outgoing circuits, capacitor banks, and split operation of the 11kV busbar, this overstated the requirements at the time but the $ impact is small.

4.4 Establishing Macquarie Park Zone Substation

The Macquarie Park zone substation was established in 2001 to relieve loading on Epping and North Ryde zone substations. The project was advanced from 2005 to cater for anticipated high demand growth as a result of specific customer proposals for an additional 10MVA loading by the end of 2001. There were further projected load requirements of up to 42MVA in the 6 years following, as well as other spot customer loads (eg CSIRO), and continued promotion of the area as a high tech environment. The total budgeted cost of establishing Macquarie Park zone substation was $14.25m, excluding the 132kV feeder connection.

The adjacent Epping substation has a secure capacity of 75MVA and North Ryde a secure capacity of 41.5MVA. Load growth projections shows that the secure capacities were reached by 2001 and 2000 respectively. An energy at risk analysis shows that the value of energy at risk by 2002/03 justifies the capital investment.

After the commissioning of Macquarie Park, the utilisation of North Ryde and Epping has dropped from 120% and 110% in 2001 to 65% and 78% respectively. These utilisations are expected to grow to 85% and 102% by 2009. The utilisation of Macquarie Park is currently 60% and expected to grow to 85% by 2009.

The project enabled elimination of excessive loads at North Ryde and Epping zone substation.

The Macquarie Park substation and the associated 132kV and 11kV feeder work are valued according to the 2002 asset valuation at approximately $16-17M compared to the actual expenditure of $20.49M.

Establishment of Macquarie Park zone substation is assessed as being a prudently timed investment initially driven by expected customer spot load increase that did not eventuate. The magnitude of the expenditure is higher than what would be expected but appears to be prudent given the urgency of the project at the time.

4.5 Infrastructure To Transfer Greenacre Park & Sefton Zones To Bankstown

This project involved upgrading parts of the 132kV overhead feeders (914 and 915) between Sydney South and Bankstown, and the installation of two new underground feeders between Bankstown and Greenacre Park. The work was conducted to assist with the deferral of the installation of the new 330kV cable to the new TransGrid supply point at Sydney Central. This project was initiated as a result of joint planning studies between Energy Australia and TransGrid.

The existing 132kV network in the area has been optimised over the last ten years and operates close to its rated capacity, especially following an outage of the TransGrid cable 41.

The cost of the upgrading is estimated at $130K/MW ($14.5 million total), which is significantly less than the installation of the 330kV cable, estimated at $270K/MW ($180 million estimated total).

The next lowest cost alternative is the installation of submarine cables between Kurnell & Bunnerong at an estimated cost of $30 million.

The project has a net present value of $3.49 million and results in a positive cash flow within the third year.

The board-approved budget was $14.5 million for the additional Energy Australia infrastructure, the actual expenditure was $19.05m. The cost overrun related to several factors:

- Initial report regarding suitability of tower lines indicated that reconductoring should be possible without tower strengthening. Subsequent detailed investigations found that towers and foundations required significant reinforcement.
- UG cable involved crossing of two major creeks and a railway line. Cable bridges did not prove practical for the creek crossings for a variety of reasons and hence tunnelling was required which significantly increased costs. The rail crossing cost also increased and was complicated by the sale of railway land for housing development, requiring tunnelling to avoid stormwater associated with the new development.

Upgrading of the 132kV overhead feeders (914 and 915) between Sydney South and Bankstown and the installation of two new underground feeders between Bankstown and Greenacre Park is assessed as being a prudent investment. This project was initially driven by the current level of loading approaching the current firm capacity and the reliability levels being unacceptable and not in line with international practice. This project provided the additional capacity to allow for future load growth within the CBD and improves the reliability to acceptable international standards under the N-2 reliability criteria adopted for the combined 330/132kv interconnected supply network.

The magnitude of the investment appears appropriate given the extenuating circumstances forcing a change in the scope of work. The initial budgeted amount of $14.5m compares favourably with the 2002 valuation of a 6km double circuit heavy cable installation and 3km of double circuit overhead steel tower line. The cost overrun of $4.55m relates to towers and foundations on the 132kV overhead line which required significant reinforcement which was not initially anticipated, as well as the crossing of two major creeks and a railway line where tunnelling was required which significantly increased the costs. Such cost factors do not usually reflect in asset valuations.

The project is assessed as being prudent given the information available at the time.

4.6 Uprating Of Pennant Hills Zone Substation

The Pennant Hills Zone Substation was upgraded over the period 1999-2002 to relieve overloading. At the commencement of the upgrade in 1999, the peak loading on the

Pennant Hills Zone exceeded the firm capacity by more than 20% in both Summer and Winter. Prior to the upgrade, risk management techniques were employed to defer the imminent capital expenditure as far as was prudent, but with unusually high load growth in the Pennant Hills, Epping and Hornsby areas in the years prior to 1999 the energy at risk reached an unacceptable level. In the twelve months leading up to commencement of the upgrade, loading at the Pennant Hills substation exceeded the firm rating of the substation on 68 occasions, each with an average duration of 168 minutes. Some load-shedding was also necessary during this period. It was recommended to the board that $7.1million be allocated to increase the substation firm capacity to maintain the network security within acceptable risk boundaries.

The works to upgrade the substation predominantly involved the installation of an additional 50MVA 132/11kV transformer, plus associated switchgear.

The actual project cost incurred was $10.66million, compared with the board approved estimate of $9.79million. The reason for the overspend is related to the fact that the originally envisaged switchroom that would have been used was not suitable. A cable tunnel then had to be constructed passing under the transformer roadway to connect the two switchrooms.

After final commissioning of the additional transformer in 2001, the utilisation of Pennant Hills Zone Substation was 72% and is expected to grow to 109% by 2008. Secure capacity is 111.0MVA.

The uprating of Pennant Hills Zone Substation relieved a serious overloading issue that was beginning to compromise the security of the network in the Pennant Hills, Epping and Hornsby areas. The timing of the project is considered to be prudent, if not overdue. The final project cost is somewhat higher than what would be expected, given the scope of the project. Additional expenditure was however incurred for the building of a cable tunnel under the transformer road to link two switch rooms after it was found that the originally envisaged switch room was not suitable.

4.7 Replacement Of City Central Zone Substation

The new 132/11kV City Central Zone Substation was established to replace the previous City Central 33/11kV Zone substation, which had reached the end of its serviceable life. The original board approved capital expenditure budget was $28.9m. However, due to the requirements of external parties (primarily Darling Harbour Authority and Lend Lease) it was necessary to submit the project for board approval in Oct 1997, two years earlier than was originally planned. At that time many factors surrounding the project were unknown, and it was necessary to make many assumptions as to the likely site conditions, future augmentation plans within the CBD, and likely design requirements to name a few.

Construction was launched in the 1998/99 financial year, with planned completion in mid 2003, and is on track for practical completion by end 2003. However, as a consequence of the many unknown factors at the time of board approval, many criteria needed to be resolved mid-stream to ensure successful completion. As a result, additional funds of $19.85m were allocated in 2000/01, bringing the total approved project cost to $48.75m. Additionally, a future fourth transformer which was planned to be commissioned in 2005/06 was brought forward three years and will be

commissioned in late 2003. The budget cost for the fourth transformer was an additional $5.0m, bringing the total budgeted project cost to $53.75m.

Although the final transformer is not yet commissioned, the substation is substantially complete with an expected final (actual) cost of $51.15m.

After final commissioning of the fourth transformer in late 2003, the utilisation of City Central Zone Substation is forecast to be 67% and is expected to grow to 98% by 2007. Secure capacity is 168.6MVA.

The establishment of City Central Zone Substation enables greater scope for load to be more efficiently shifted between existing city zone substations, enabling in many cases the reduction of load on substations that are approaching, or are currently in an overloaded condition. As a result, the City Central Zone Substation project is assessed as being a prudent investment, which was initially brought forward to accommodate the requirements of external parties to vacate the City Central site for redevelopment, and has allowed the reduction of excessive loads at other major city zones. The final project cost of $51.15m is considered to be in excess of what would normally be an appropriate $/MVA for a zone substation, however it is recognised that this substation was constructed in a location and under circumstances that are so unique as to make comparisons somewhat difficult. The site the substation was constructed on was not well suited for the purpose, but was the only option available to Energy Australia.

4.8 Upgrading Of The 132kV Supply To Canterbury And Chullora

Upgrading of the 132kV overhead feeders (910 and 911) between Sydney South, Chullora and Canterbury was conducted to assist with the deferral of the installation of the new 330kV cable to the new TransGrid supply point at Sydney Central. This project is part of a joint planning study between Energy Australia and TransGrid.

The existing 132kV network has been optimised over the last ten years and operates close to its rated capacity especially following an outage of the TransGrid cable 41.

The cost of the upgrading is estimated at $100K/MW ($9.2 million total), which is significantly less than the installation of the 330kV cable, estimated at $280K/MW ($180 million estimated total).

The project has a net present value of $3.49 million and results in a positive cash flow within the third year.

The original planned expenditure was $10m and the actual expenditure was $7.05m.

Upgrading of the 132kV overhead feeders (910 and 911) between Sydney South, Chullora and Canterbury is assessed as being a prudent investment. This project was initially driven by the current level of loading approaching the current firm capacity and the reliability levels being unacceptable and not in line with international practice. This project provided the additional capacity to allow for future load growth within the CBD and improves the reliability to acceptable international standards under (N-2) reliability criteria.

The 2002 asset valuation places the magnitude of the expenditure ($9.2m) in line with the value of the investment at approximately $8.5m.

4.9 Mt Thorley 66/11kV Zone Substation Development Work - Stage 2

Stage 1 of the Mt Thorley Zone Substation upgrade was completed in 2002, and comprised the separation of feeder arrangements for the major Hunter Valley mining operations and the addition of a new 66kV busbar, including new 66kV feeder bays.

Stage 2 of the upgrade can be divided into two main components. Commencing with the construction of a new substation building in 2002/03, the upgrade will move all 11kV feeder cable connections from outdoor switchbays to an indoor switchboard, as well as the connection of two new 11kV cable feeders affording additional load growth capacity. Additionally, the new substation building will allow protection and control equipment to be moved from it's existing housing inside a hut, thereby increasing the security of the substation and it's connected networks.

Project completion is scheduled for the financial year 2006/07 at an estimated cost of $6.0m.

The main driver of this project is to reduce existing significant operational risks as well as to improve network security of supply. The timing of the project is prudent as the substation is currently operating in an overloaded capacity and is expected to be 124% utilised by the year 2010. The works involved with the upgrade are predominantly brownfield in nature, bringing an increased complexity and cost to the scope of work required. The magnitude of the budget investment appears appropriate taking into account the significant amount of brownfield works required.

4.10 Nulkaba 33/11kV Substation Development

Cessnock Township, Nulkaba and Pokolbin Vineyard area are supplied from the Cessnock 33/11kV Zone substation located at South Ave, Cessnock.

The loading at Cessnock Zone substation has been exceeding the firm capacity of the substation from as early as 1996. The most recent loading data shows that the load peaked at 38MVA in January 2003 which is 166% of the existing firm capacity of 22.9 MVA, this represents 97% of the full Zone Substation capacity. The average historical load growth for the last five years has been 6% per year in summer and the forecast indicates that the substation is to experience loads over 53MVA by the 2004/05 summer, which is 14MVA above full substation capacity.

Cessnock Zone Substation is located some distance from adjacent zone substations and as such any load transfers during peak load periods is non-existent. A transformer outage at Cessnock Zone Substation could therefore require load shedding of up to 30 MVA, for up to 16 hours a day, by the 2004/05 summer unless measures are taken to provide load/capacity relief. The 11kV network is also very heavily loaded with a number of 11kV sections exceeding normal ratings under peak load conditions as well as suffering from depressed voltages.

A number of measures have been arranged over the last few years in an attempt to provide some immediate improvements to supply quality and risk in this area.

- Construction of a temporary single transformer zone substation at Rothbury
- Transformer cable augmentation, and switch-room cooling
- Installation of 11kV capacitors at zone substation
- 11kV feeder cable replacement and rearrangements at the existing zone substation

The Rothbury Temporary Zone Substation site lease expires in October 2004 and the substation is scheduled for decommissioning at that time. Rothbury Zone Substation average historical load growth for the last two years has been 16% per year in summer. The consequences of not having completed Nulkaba Zone substation by this date are shown below:

- Peak load exceeding 53MVA (231% of firm capacity, 136% of full capacity) at Cessnock Zone
- Possible load shedding over 30MVA at Cessnock Zone Substation for contingencies, for 16 hours a day
- High risk of extended outages for customers in the Rothbury & Pokolbin wine producing area
- Inability of the Cessnock 11kV network to support loads and voltages, particularly during the vineyard harvesting period.

The establishment of a zone substation at Nulkaba to provide load relief for Cessnock Zone and supply the Nulkaba and Pokolbin areas is the best strategy for the following main reasons:

- This strategy will provide the best use of the existing distribution system assets from both an operational and financial perspective.
- The reduction in load at the existing Cessnock Zone Substation will allow for its continued operation at acceptable network standards without the requirement for further augmentation until the middle of the next decade.
- Provides for a significant improvement to system reliability.

The funding made available for the establishment of Nulkaba 33/11kV zone is $11.1m. This includes $7.9m for the establishment of the substation and $3.2m for the associated subtransmission development work.

Based on the loading situation and the associated risks the timing of the establishment of Nulkaba 33/11kV zone is assessed as being prudent, if not overdue. The magnitude of the investment has been evaluated against the 2002 asset valuation for similar establishments and is assessed as being prudent. An equivalent substation has been valued at $7.4m compared to the budgeted amount of $7.9m and the budget for feeder work allows for the construction of two, 33kV, feeders into the substation and cable work. The final route for the feeders still needs to be confirmed.

4.11 Bankstown 132kV Busbar Replacement

Bankstown sub-transmission substation (STS) is 46 years old and is in poor condition. Issues with the condition of Bankstown include:

- It is a key network component supplying 3 zone substations (110 MW) and a critical element in the 132 kV supply between TransGrid's Sydney South supply point and Greenacre Park and Sefton zone substations (130 MW).
- The 132kV busbar at Bankstown is made from galvanised steel that has corroded. Deterioration is most evident around welds and connection flags.
- Three of the nine 132kV circuit breakers at Bankstown have already been replaced due to wear. The remaining 132kV circuit breakers will require replacement in the near future.
- Protection and secondary wiring has also deteriorated and needs to be replaced.
- The 132kV system supplying Bankstown is presently operated with the busbar open to prevent equipment fault ratings being exceeded. Despite this action the fault level will exceed 132kV equipment rating following the commissioning of Haymarket in late 2003 or early 2004.
- Transformers and 33kV switchgear have aged and will require replacement in the medium term.

The summarised benefits of this project are:

1) Reduced safety risk by the partial removal of the live yard, existing 33kV yard remains
2) Asset Integrity is maintained by removal of a potentially explosive failure of equipment due to the commissioning of the TransGrid bulk supply point – Haymarket
3) The de-commissioning of assets assessed as both at the end of life due to condition and past their regulatory life
4) The customer value of energy at risk mitigated by replacing this equipment is estimated at $1m/year once TransGrid's Haymarket supply point is commissioned.

The funding approved for the replacement of the complete 132kV busbar and design work for the next stage of development is $13m. The project will facilitate the retirement of surrounding 33/11kV zone substations (Padstow 1960, Bass Hill 1966 and possibly Punchbowl 1967 as these substations reach the end of their service lives. Provision was made in the budget for a $1m for contingency.

The general condition, insufficient rating and the high risk involved with the substation being a critical element in the 132kV supply between TransGrid's Sydney South supply point and Greenacre Park/Sefton zone substations makes the timing of this project prudent. The magnitude of the expenditure has been evaluated against similar installations in the 2002 asset valuation, which has been valued at $12.4m. The budgeted expenditure of $13m, which includes additional design work and a contingency amount of $1m appears appropriate.

The project is assessed as being a prudent investment.

4.12 Beresfield 132/33kv Subtransmission Substation

The area of East Maitland/Tarro and parts of the adjoining rural areas are supplied at 33kV level from the Kurri 132/33kV STS and Tomago 132/33kV STS. This 33kV network then supplies two larger zone substations along with three rural zone substations in this area.

The area located between the Kurri and Tomago STS is a growing residential area west of the city of Newcastle that has seen strong growth that will continue with large areas of land available for development around Thornton along with some industrial growth at Beresfield. This growth has contributed to several supply issues for the area.

The two larger zone substations, East Maitland and Tarro, have experienced high summer growth rates of up to 9% since 1993 with both substations loaded well above firm capacity.

Kurri STS load peaked at 193MVA in January 2003, which is 142% of the existing firm capacity of 136MVA this represents 94% of the full capacity. The load forecast is expected to increase to over 209MVA by the 2004/05 summer, which is above total installed capacity.

The STS is located some distance from adjacent STS and all available transfers have been completed in December 2002. A transformer outage at Kurri STS will require load shedding of up to 73MVA, for up to 15 hours a day, by the 2004/05 summer unless measures are taken to provide load/capacity relief.

Tomago STS load peaked at 150MVA in January 2003, which is 110% of the existing firm capacity of 136MVA this represents 74% of the total STS capacity. The STS is forecast to experience loads over 124MVA by the 2004/05 summer, actual peak loads have been above this forecast due to delays in other minor projects.

The 33kV network is also very heavily loaded with a number of 33kV sections exceeding normal ratings under peak load conditions.

A significant value of energy at risk and contribution to system unreliability (SAIDI) by 2004/05 has been identified.

A number of measures have been arranged over the last two years in an attempt to provide some immediate improvements to supply quality and risk in this area.

- Application of cyclic ratings on 132/33kV transformers at Kurri and Tomago STS
- Installation of 33kV capacitors at Tomago STS
- Implement all possible load transfers to reduce load on Kurri and Tomago STS
- Load shedding scheme at Tarro Zone (Tomago STS)
- Scada installed at East Maitland Zone (Kurri STS)

The following alternative reinforcement options have been considered but are all more expensive than the recommended option.

- Construct a new 132/33kV STS at Beresfield (between Kurri and Tomago STS)
- Construct a 132/11kV zone at Thornton along with re-building existing East Maitland and Tarro Zones as 132/11kV zones.
- Construct a 66/11kV zone at Thornton along with re-building existing East Maitland and Tarro Zones as 66/11kV zones with major capacity improvements at 66kV level at Kurri STS.

The planning studies and a Value Management study concluded that the establishment of a new 132/33kV STS located at Beresfield was the best strategy and would provide the following benefits:

- Provide load relief for Kurri and Tomago STS
- Address capacity and voltage limitations on the Kurri 33kV network
- Provide interconnection capability on the Kurri 33kV network and improved interconnection for Tomago

A further funding release will be required for the associated 33kV feeder networks. Initial cost range estimates for the further works are in the order $4.5m to $8.2m and are dependent on community consultation to finalise feeder route distances and the required percentage as underground mains.

The project is assessed as being a prudent investment. The project is required to overcome significant and multiple system constraints under single contingency conditions. The approved funding for the project is $20.6m (revised to $24.32m) and excludes the cost estimates for associated 33kV feeder work. The magnitude of the investment appears appropriate. The 2002 asset valuation for equivalent work values the substation work at $16.8m allowing $7.52m for the 132kV feeders and connection. The final feeder routes must still be established.

4.13 Maryland 132/11kV Substation Development

Maryland and surrounding newly developing suburbs of Fletcher and North Lakes are supplied from the 33/11kV Zone Substations of Wallsend and Edgeworth. Wallsend and Edgeworth Zone Substations is loaded above firm capacity at 122% and 137% respectively.

Newcastle Council's highest residential growth area over the last 10 years has been the western corridor of the city from Wallsend through Maryland to Minmi. Load forecasts have been undertaken and from these forecasts there is a need for an additional 77 MVA of zone substation capacity for year 2010 loads. All the substations in the area are trending to summer peaking loads with an average growth rate of 6%, and with the area having a forecast additional 12,000 homes by the year 2020 it is clear that the growth will continue.

A number of measures have been arranged over the last few years in an attempt to provide some immediate improvements to supply quality and risk in this area.

- Construction of two new 11kV feeders from Edgeworth Zone

- Load transfer from Wallsend Zone to Edgeworth Zone
- 11kV feeder cable rating assessments and rearrangements at Wallsend Zone

Continued high growth rates have signalled the need to implement significant further network augmentation to provide load reductions at the existing Zone substations. The supply issues are shown below:

- Peak load exceeding firm capacity at Wallsend and Edgeworth zone substations.
- Sub-transmission feeder loading above 145% of nominal ratings on the Wallsend 33kV network for single contingencies.
- Possible load-shedding over 8MVA at Wallsend Zone for contingencies
- Possible load-shedding over 6MVA at Edgeworth Zone for contingencies
- Excessive loading on the 11kV network from Wallsend to Maryland with 11kV feeder cables loaded at 130% under normal conditions.

The benefits of the establishment of Maryland zone substation is:

- The project relieves overloads on Wallsend and Edgeworth zone substations.
- 33kV feeder overloads and 11kV feeder constraints are also relieved.

The project timing and scope ($) is assessed as being prudent and appropriate to overcome the multiple system constraints. The 2002 asset valuation values the proposed substation at $6.8m. The funding requested for the project is $12.6m, which then allows $5.8m for associated 132kV and 11kV feeder work.

4.14 Nelson Bay 33kV Network Augmentation Funding Approval

The project involves the establishment of a new 132kV overhead feeder from Tomago to Nelson Bay. Approximately 20,000 customers in the areas surrounding Williamtown and Nelson Bay, in the Port Stephens Shire, are supplied via a two feeder wood-pole 33kV sub-transmission network which extends over 35km from Tomago to Nelson Bay. Much of this network was established in the early 1960's and is reaching the end of it serviceable life in terms of age and capacity. The capacity of the 33kV network to Nelson Bay is limited to 25MVA firm and 40MVA full capacity. The peak load at Nelson Bay is currently 34MVA and has been increasing steadily at 5% per annum over recent years with forecast predictions between 37 and 39MVA by the winter of 2005.

Major development at the Williamtown RAAF Base has also been confirmed indicating strong load growth for Williamtown.

The proposed strategy involves the replacement and uprating of the feeders. Initially a new 33kV feeder from Tomago to Nelson Bay constructed for future 132kV operation will be established. Subsequently a second 132kV feeder and new 132/11kV substation at Nelson Bay will be constructed by around 2009/10.

Detailed planning studies, feeder routing investigations, environmental investigations as well as demand management studies, and an extended community consultation process have been conducted and are ongoing.

The project estimate is $15.6m for the construction and commissioning of the first feeder. The 2002 asset valuation values the work at approximately $11m for a double circuit, steel lattice tower, twin conductor overhead 132kV line construction. The valuation does not include route option investigations (easements through National Parks are involved) and community consultation estimated at around $1.9m and also does not include a contingency which would be in the order of $1.5m.

The significant constraints on the network feeding Nelson Bay and the deterioration of supply reliability to the customers in the Williamtown, Stockton and Tomaree Peninsula areas makes this project a prudent investment. The magnitude of the estimated expenditure appears appropriate.

4.15 Waratah, Kooragang & Merewether 33kV Sub-Transmission Tie Uprating

Waratah, Tomago and Merewether Sub-transmission Substations supply the majority of the customers in the Newcastle and Port Stephens Local Government Areas and approximately half of the customers in Lake Macquarie.

The capacity of existing 33kV interconnecting ties between Waratah, Tomago and Merewether restricts the ability to transfer load particularly during the summer months and puts a limitation on the accommodation of general growth or intermediate (5 to 20MVA) spot load increases on Kooragang Island. Kooragang Island is supplied from Tomago 132/33kV Substation with normally open interconnections to Waratah. The Tomago 33kV reticulation network is extensive and spreads out over an area that is particularly prone to storm activity. This results in regular faults on the network causing voltage fluctuations and interruptions for many customers including sensitive industrial facilities on Kooragang Island. 86% of the incidents recorded at Tomago STS in 1990 to 2000 was due to 33kV network incidents. 66% of the incidents were on the remote 33kV network.

Planning investigations concluded that the only economic and practically achievable option is to provide increased interconnection capacity between Tomago, Waratah and Merewether, by up-rating existing 33kV feeders between Waratah and Kooragang and between Merewether and Broadmeadow. This work will allow:

- Kooragang to be supplied from Waratah as a normal condition.
- Broadmeadow and Lambton to be supplied from Merewether as a normal condition.
- Approximately 35MVA load reduction at Tomago for all seasonal conditions.
- Ability to readily transfer up to 40MVA of load away from Waratah if required under all seasonal conditions.

The project has the following anticipated benefits:

- Significant reduction in risk of extended outages for customers fed from Tomago STS.
- Improved sub-transmission load transfer flexibility for managing contingencies and transformer outages at Waratah.
- Reduced impacts of remote transients and faults on Kooragang Island customers.
- Increased capacity for handling intermediate load increases on Kooragang Island.

The funding approved for this investment was $4.42m. The magnitude of the expenditure has been valued at approximately $3.5m (excluding any brown field factors) from the 2002 asset valuation and appears to be appropriate. The expenditure on this project up to the end of 2002 was $3.17m. The project is due for completion in 2002/03.

The timing and scope ($) appear prudent and appropriate.

4.16 Singleton North Zone Substation Development Project

Singleton 66/11kV Zone substation supplies the Singleton urban area and parts of the adjoining rural areas. The Singleton urban area are divided in two parts by the Hunter River with the majority of new residential growth being in the northern flood free areas. This has created a growing load center that is presently supplied by limited 11kV feeder capacity from the Singleton 66/11kV Zone substation in the south. The distribution network is very heavily loaded with a number of 11kV sections exceeding normal ratings under peak load conditions. It is not cost effective or practical to provide additional 11kV feeders for such a distance.

Singleton Zone Substation load peaked at 28.5MVA in January 2001, which is 124% of the existing firm capacity of 22.9MVA. Load increases of 8% have been experienced over summer 2000/01 with significant load growth expected to continue. The substation is forecast to be loaded over 33MVA (147%) by the 2003/04 summer.

Over 8MVA of reductions would be required by 2003 to bring zone supply risks within acceptable levels without addressing the 11k V network problems and without catering for future growth.

The proposed Singleton North 66/11kV Substation project will:

- Provide necessary load relief for Singleton Zone Substation
- Establish zone capacity in the northern areas of Singleton to service future growth
- Address limitations on 11kV networks supplying the area north of Singleton
- Provide for long-term supply capacity, increased security and improved future reliability for customers in the Singleton and surrounding areas.

The funds approved for the establishment of Singleton North is $7.59m. This compares with a 2002 asset valuation of $7.87m for an equivalent substation installation.

The timing and scope ($) of the project is considered prudent to reduce the overload condition at Singleton substation, which has been exceeding firm capacity since 1998, and on the 11kV feeders which needs to cater for substantial load growth at remote distances from the zone substation.

4.17 Gosford/Ourimbah 132kV Line, and Upgrade of West Gosford Zone Substation

Gosford and Ourimbah Sub-Transmission Substations supply electricity to the southern parts of the Central Coast. The Central Coast is the fastest growing region in Energy Australia's franchise area with a long term annual growth forecast of 3%. Based upon historical load demand and future population growth, load forecasts indicate that the electricity demand at Gosford STS will continue at 3% over the next 5 years and will fall to 2% beyond this date.

After 2003 rationing of electricity will be required during outages of the Tuggerah line at times of peak load because of the line thermal limit and the voltage limit of the back up supply arrangement from Sydney East being exceeded. West Gosford Zone substation supplies the residential and commercial areas of Gosford. Since 2001 the capacity of the 33kV lines supplying West Gosford has been exceeded and there is no scope to further reduce loading on West Gosford via load transfers.

Thus the two basic and separate supply system deficiencies are the:

- Capacity of the Gosford-Sydney East 132kV feeder
- Capacity of the smaller substations and the 33kV and 66kV lines supplying substations in the southern area of the Central Coast.

Alternative options were investigated and included Demand Side Management, Transmission Development, different options of Subtransmission Line Development and Zone Substation Development. The construction of an overhead 132kV line from Ourimbah to Gosford required the least amount of construction (9km), over the shortest route with the least cost, environmental impact and network losses.

In order to overcome the substation and line thermal limit issues at West Gosford and the adjacent zone substations a number of alternatives were analysed. It was concluded that the uprating of West Gosford zone to 132kV would be the least cost option of relieve substation and line thermal limit issues in the southern parts of the Central Coast area by allowing load transfers off the surrounding 66kV and 33kV networks. It would also postpone the establishment of a new zone substation in the area until after 2015.

The total funding approved for the project was $27.3m, which includes $850k previously approved for community consultation in 1999 and $2.5m for contingency. The 132kV line cost was originally estimated to be $4.5m (9km), but after a lengthy community consultation process the final route for the line was established and the cost estimate was $10m to construct a 15km overhead line with sections being dual construction with 33kV. The uprating of West Gosford zone substation involved staged work to maintain supply to the area, the extension of the existing buildings, and some additional civil work for oil containment. The estimate for the uprating of West Gosford substation was $14m including feeder connection work.

In comparison with the 2002 asset valuation, equivalent installations have been valued at around $22 - 23m (including $2.5m contingency). The expenditure to date on the project is $18m and the planned project completion is the end of 2003.

The timing of the project is assessed as being prudent. The magnitude of the estimated cost appears to be higher than what would be expected. Circumstances surrounding an extended community consultation process, traffic control, additional work to include oil containment and to stage the work so as not to disrupt supply to the area, plays a large role in project expenditures and are not normally reflected in asset valuations.

The project is assessed as being prudent and appropriate given the circumstances surrounding the project.

4.18 Establishment Of Haymarket 330/132kV Supply Point & Sydney Central 330/132kV Substation: 132kV Cable System

The supply of electricity to the Sydney CBD and inner suburbs is currently provided by EnergyAustralia's interconnected 132kV system which links Transgrid's 330/132kV substations at Beaconsfield, Sydney South and Sydney North. Joint planning studies undertaken by Transgrid and EA have shown that by summer 2003/04 the present supply system will not meet appropriate reliability standards. In 1998 an economic analysis of possible augmentation options was carried out by the National Economic Research Associates (NERA). It was found that the least cost solution to augment the main supply system to the CBD and Inner suburbs is for

- Transgrid to install a 330kV cable from Sydney South to a new 330/132kV supply point at Haymarket and
- Energy Australia to establish a 132kV busbar at Surry Hills as part of the 132kV connections.

EnergyAustralia's part in this project involves the establishment of a 132/11kV zone in the Surry Hills area (Campbell Street) ($33.75m) and the connection of its 132kV system to the Haymarket supply point ($53.05m). The establishment of Campbell Street substation necessitated the acquisition of land at an estimated $8m. EnergyAustralia's total estimated cost of establishing the Haymarket 330/132kV supply point and the associated 132kV cable system is $94.8m.

In addition to Transgrid and EnergyAustralia's planning studies and the economic analysis done by NERA, independent consultants were engaged by IPART to review the project proposal.

The project timing and scope ($) are considered to be prudent and appropriate.

4.19 Various 11kV Project

a) Westfield Hornsby Shopping Complex

The shopping complex at Hornsby was undergoing a complete redevelopment by Westfield. An increase in the order of 10MVA was expected. The existing distribution network was unable to meet the additional supply requirements. It was found that in order to provide supply to this development and provide urgently needed relief to existing neighbouring feeders a bank of three 11kV feeders from Hornsby zone substation to the new Westfield – Hornsby shopping complex was required.

Options appear to have been considered but no documentation was provided. The timing of the project was driven by customer requirements and heavily loaded surrounding 11kV feeders. The magnitude of the expenditure ($609k) approximates about 2km of cable route length and 15MVA of cable capacity to supply the shopping centre and relieve the surrounding distribution system (depending on reinstatement costs).

The project timing and expenditure appears prudent.

b) Orica Port Botany Hydrocarbon Storage Facility

Orica Plastics expanded their operations at Friendship Rd, Port Botany which included the installation of some large motors. The existing distribution network was unable to meet the additional supply requirements and needed reinforcement. It was found that the least cost solution was to lay two 11kV cables from Matraville zone substation to the Orica Port Botany site. Documentation regarding other viable options were not provided.

The expenditure to install the 11kV feeder cables was estimated to be $997k which approximates 3km of cable route length (depending on reinstatement cost).

The project timing and expenditure appears prudent.

Appendix A Capital Projects Prudence Assessment Matrix

No	Project Name	Budget	Actual Cost	Project timing	Magnitude of $ Spend	Prudence Assessment	EA Comments
1&2	Wyong/Charmhaven	$22m	$21.85m (Completed in 2002)	1. Peak loading exceeded network firm capacity. 2. Probability of a load shedding contingency reached 1%. 3. Unexpected high load growth increased probability of load shedding in adjacent zones. 4. Reliability index poor (172.1cust. min./yr) in relation to rest of organisation (66.7 cust.min./yr). 5. Aged substation equipment (44yrs)	2002 Asset valuation: Wyong: $10.656m Charmhaven: $10.365m 132kV line: $4m Total 2002 replacement value: $25m	1. Support provided to TransGrid 132kV system and system reliability improved. 2. Substation overloads eliminated and capacity added for future growth. 3. Replaced aged equipment with high O&M costs. 4. $22m Expenditure by TransGrid deferred. 5. Magnitude of $ spend appropriate. The project is assessed as being a prudent investment.	Agreed
3	Warringah STS S/Gear	$14.03m	$22.04m (Completed in 2002)	1. Ageing equipment: Age related technical problems with busbar. 2. Reliability: 47% of customer minutes loss due to 33kV busbar failures 3. Equipment rating: Inadequacy of busbar rating to cater for load growth. 4. Outdoor 33kV busbar in this location vulnerable to animals and other environmental factors (animal attack, flying debris) 5. Specific customer load (Sydney Water)	2002 Asset valuation: Warringah STS (excluding 132kV equipment): $19.1m. Additional costs were incurred for cable work and scope creep.	1. Reliability improved. 2. Replaced aged equipment with high O&M costs. 3. Busbar rating was increased from 1200A to 2400A to allow for better utilisation of transformer capacities. Utilisation currently at 98% 4. 15% ($2.94m) overspend based on the regulatory replacement value. Mainly due to additional work for cabling. The project is assessed as being prudent given the information available at the time.	Agreed

No	Project Name	Budget	Actual Cost	Project timing	Magnitude of $ Spend	Prudence Assessment	EA Comments
4	Rutherford Zone	$8.1m	$8.05m (To be completed in 2002)	1. To relieve loading on adjacent substation zones were firm capacities were being exceeded by up to 40% for more than 30% of the time (Bradford substation) – high risk. 2. To replace an aged substation and equipment (Bradford substation 33yrs old). 3. Several alternatives were identified and evaluated. 4. Energy at Risk in the order of $4.2m in 2003 increasing to $6.5m in 2004 and $9.9m in 2005.	2002 Asset valuation: An equivalent substation has been valued at $5.63m. 33kV and 11kV feeder works: $2m Total valuation $7.63m. Allowance was made for future expansion with an additional 33kV bay, two 11kV outgoing circuits, capacitors banks, split operation of the 11kV busbar.	1. Load was relieved on the adjacent substations. Utilisation at Bradford was 125% and 110% at Telerah. After commissioning of the substatio and the dismantling of Bradford the utilisation of Telerah is expected to be 101% and Rutherford 72% 2. The magnitude of the expenditure seems appropriate. Design overstates the immediate requirements (additional bays) but $ impact is small. 3. Replaced aged equipment with high O&M costs. 4. Reduced energy at risk to insignificant amount. The project is assessed as being a prudent investment, although the adoption of Sydney style substation design standards increased the costs somewhat.	Agreed
5	Macquarie Park Zone	$14.25m	$20.49m	1. Specific customer proposals for additional loading. 2. Exceptionally high load growth (18%) 1996 to 2000 and expected to continue. 3. Peak loading at Epping and North Ryde substations exceeding firm ratings by 4% and 8% respectively in 1999/2000. 4. An energy at risk analysis shows that by 2003 the load at risk at Epping and North Ryde justifies the timing of the project.	2002 Asset valuation: Macquarie Park $10.225m 11kV feeder work: $1 - $1.5m Contingency: $1.5m Total valuation: $13.225m The 132kV feeder connection costs were not included in the original budget of $14.25m. The actual expenditure includes the 132kV feeder connection expenses which could be valued at approximately $3-4m. The magnitude of expenditure appears to be higher than what would be expected.	1. The specific customer loads did not eventuate. 2. The utilisation of Epping and North Ryde dropped from exceeding the firm capacities at 110% and 120% respectively in 2001 to 78% and 65% respectively. Macquarie Park is currently utilised at 60%. The timing of the project is assessed as being prudent. The magnitude of the expenditure appears to be high.	Agree cost increases are attributed to the specific location of Macquarie Park in relation to the 132kV-connection point, and the associated route constraints. Further costs were added due to higher than expected land costs.

No	Project Name	Budget	Actual Cost	Project timing	Magnitude of $ Spend	Prudence Assessment	EA Comments
6	Greenacre Park & Sefton Zones	$14.5m	$19.05m	1. To provide additional capacity on the 132kV system prior to the commissioning of Haymarket to maintain reliability of supply to CBD. 2. It involved joint planning between TransGrid and EA. 3. The project will allow for an additional 110MW of loading capacity. 4. Alternatives were considered and this project was the least cost option. 5. Will allow deferral of TransGrid expenditure.	The project involved the reconductoring, tower and foundation strengthening of 3km, double circuit overhead tower line and the installation of approximately 6km of double circuit 800mm XLPE cable and associated pilot cables. Based on the 2002 Asset valuation unit rates the budgeted investment amount of $14.5m appears appropriate. Cost overruns relate to: 1. towers and foundations requiring significant reinforcement, not initially anticipated., 2. The crossing of two major creeks and a railway line where tunnelling was required which significantly increased the costs.	1. The project allowed additional capacity for load growth within the CBD. 2. The reliability was increased to acceptable international standards. 3. The next stage of the TransGrid work was deferred by 12 months. 4. Project allows the transfer of 110MW off Sydney South if required. 5. The magnitude of the expenditure appears appropriate, taking into account the extenuating circumstances that forced a change in the scope of work. The project is assessed as being prudent given the information available at the time.	Agreed
7	Pennant Hills Zone	$9.79m	$10.66m	1. The peak loading at Pennant Hills zone exceeded the firm capacity by more than 20%. 2. Risk management techniques were employed to defer imminent capital expenditure as far as was prudent. 3. Energy at risk reached unacceptable levels due to unusually high load growth. 4. Load shedding was necessary at times.	2002 Asset valuation: Additional 50MVA, 132/11kV transformer and associated switchgear – $2.21m. (excluding feeder works). The initial approved amount was $7.1m, additional funding was approved in following years bringing the total project budget to $9.79m. Additional expenditure was incurred for the building of a cable tunnel after it was found that the originally envisaged switch room was not suitable.	1. The project relieved a serious overloading issue that was beginning to compromise the security of the network. The timing of the project is assessed as being prudent. The magnitude of the $ spend appears to be high given the scope of the work.	Agreed
8	City Central Zone	$53.75m	$51.15m	1. To replace the previous City Central 33/11kV zone substation which was reaching the end of its serviceable life (67yrs). 2. External parties (Darling Harbour Authority and Lend Lease) drove the project to be advanced by 2 years. 3. The initial utilisation of the substation after its commissioning in 2002/03 is expected to be 67%.	The substation was constructed in a location so unique as to make comparisons meaningless. The site was not well suited for the purpose but was the only option available to EA.	1. The replacement of aged equipment with high associated O&M costs. 2. Increased reliability due to the replacement of aged equipment. 3. The magnitude of the expenditure is considered to be in excess of what would normally be an appropriate $/MVA for a zone substation but it is realised that extraordinary circumstances dictated much of the expenditure. The project is assessed as being prudent given the information available at the time, subject to the above qualifications.	Agree as the higher than expected costs were as a direct consequence of Development Application requirements and a highly contaminated site with existing major utility services that had to be incorporated into the design. . Further, flexibility in site selection was beyond the control of EnergyAustralia.

No	Project Name	Budget	Actual Cost	Project timing	Magnitude of $ Spend	Prudence Assessment	EA Comments
9	Feeders 910 & 911	$10m	$9.2m	1. Deferral of the installation of a new 330kV cable to the new TransGrid supply point at Sydney Central. 2. The project involved a joint planning study between EA and TransGrid. 3. The existing 132kV network has been optimised and operates close to its rated capacity especially following an outage of the TransGrid cable 41.	The scope of work included the reconductoring of 19km of double circuit tower line, 2 x 15% series reactors at Chullora, 2 x feeder disconnectors at Canterbury, 1 x new 132kV bay and 260m of new heavy (Uranus) feeder at Bunnerong. Based on the 2002 asset valuation this project would be valued at around $8.5m (excluding brownfiled factors) compared with the $9.2m expenditure.	1. The project provided additional capacity to allow for future load growth within the CBD. 2. The project improved the reliability of the system to acceptable international standards. 3. The magnitude of the expenditure is in relation with the 2002 asset valuation. The project is assessed as being a prudent investment.	Agreed
10	Mt Thorley	$6m	Ongoing	1. To reduce existing significant operational risks. 2. To improve network security of supply. 3. Current loading exceeds the firm rating at 124%.	The upgrade is predominantly brownfield in nature bringing increased complexity and cost to the scope of work.	1. The current level of loading and the associated risks makes the timing of this project prudent. 2. The magnitude of the budgeted investment appears to be appropriate given the significant brownfield work required. The project is assessed as being a prudent investment.	Agreed
11	Nulkaba 33/11kV Substation	$11.1m	Project not Commenced	1. Utilisation at Cessnock during peak loading exceed firm capacity (166% , Jan 2003). 2. Load shedding of up to 30MVA for up to 16 hrs a day is forecasted for 2004/05 unless load is relieved. 3. Temporary Substation Rothbury to be decommissioned in October 2004 (lease on site expires) load to be picked up by Nulkaba 4. Demand management options investigated but no viable option available.	Budget: Substation $7.9m Budget: Subtransmission feeder work $3.2m 2002 Asset valuation: Equivalent substation: $7.4m 33kV feeder work: $3.2m allows for two overhead lines to be constructed into the substation and associated cable work. (Final routes still to be established)	1. The current level of utilisation and the risk of load shedding make the timing of the project prudent. 2. The magnitude of the investment appears to be appropriate in relation to the 2002 asset valuation. The project is to commence in 2003 and is assessed as being a prudent investment.	Agreed

No	Project Name	Budget	Actual Cost	Project timing	Magnitude of $ Spend	Prudence Assessment	EA Comments
12	Bankstown 132kV Busbar Replacement	$13m	Project not Commenced	1. This is an aged substation (46) and in poor condition. 2. The 132kV Busbar is made of galvanised steel and has corroded. 3. Fault level exceeding the 132kV busbar rating. 4. Protection and secondary wiring needs replacement. 5. Transformers and 33kV switchgear have aged and will require replacement in the medium term.	The budget for this project is $13m including a $1m contingency. 2002 Asset valuation values the substation work at $12.4m which is in line with the budget of $13m, which includes additional design work and a $1m contingency.	The general condition and insufficient rating of the busbar requires rectifying. The high risk involved with the substation being a critical element in the 132kV supply between TransGrid's Sydney South supply point and Greenacre Park/Sefton zone substations makes the timing of this project prudent. The magnitude of the budget compares with the 2002 asset valuation in is therefor assessed as being prudent. The project is assessed as being a prudent and appropriate investment.	Agreed
13	Beresfield 132/33kV Sub-transmission Substation	$20.6m (Revised to $24.32m)	Project not Commenced	1. Kurri STS loaded to 142% of firm capacity. High risk of load shedding under N-1 conditions. 2. Tomago STS loaded to 10% of firm capacity. Modest risk of load shedding under N-1 conditions. 3. East Maitland and Tarro zone substations loaded 24% and 49% respectively above firm capacities. 4. Thermal overloads on 33kV subtransmission network under N-1 conditions, and excessive voltage drop on 33kV system at East Maitland, Gresford, Martins Creek and Wallalong zone substations. 5. Significant value of energy at risk and contribution to system unreliability (SAIDI) by 2004/05.	Equivalent Asset Valuation (2002) would be: Beresfield Substation $16.8m allowing $7.52m for 132kV feeder works. The final routes have not been established yet.	1. The project relieves overloads on Kurri and Tomago STS. 2. 33kV feeder overloads and voltage constraints relieved. 3. Significant value of energy at risk eliminated under proposed timing (2004/05) 4. Alternative reinforcement options have been considered but are all more expensive than the recommended option. 5. This project is required to overcome significant and multiple system constraints under single contingency conditions. The project timing and scope ($) are prudent and appropriate.	Agreed

No	Project Name	Budget	Actual Cost	Project timing	Magnitude of $ Spend	Prudence Assessment	EA Comments
14	Maryland 132/11kV Substation development	$12.6m	Project not commenced.	1. Wallsend zone substation loaded to 144% of firm capacity. 2. Edgeworth zone substation loaded to 140% of firm capacity. 3. 33kV substransmission system loaded to 145% of nominal ratings (summer). 4. Significant value of energy at risk and contribution to system unreliability (SAIDI) by 2004/05.	Equivalent Asset Valuation (2002) would be: Maryland substation $6.8m, allowing $5.8m for 132kV and 11kV feeder works. The final routes have not been established yet.	1. Project relieves overloads on Wallsend and Edgeworth zone substations. 2. 33kV feeder overloads and 11kV feeder constraints also relieved. 3. The timing of the substation is appropriate to overcome multiple system constraints. The project cost is relatively high in relation to the magnitude of load picked up but the feeder cost has a large impact on this The project timing and scope ($) are prudent and appropriate.	Agreed
15	Tomago to Nelson Bay 132kV overhead feeder.	$15.6m	Project not commenced.	1. Network firm capacity exceeded. 2. High load growth predicted. 3. Aged network (40 years). 4. Deteriorating reliability.	Equivalent Asset Valuation (2002): $11m plus $3.5m for route option investigation community consultation, and contingency. The route will require easements through National Parks which could add to the cost. The magnitude of the expenditure appears appropriate.	1. The project relieves significant network constraints. 2. The project relieves potential overload conditions and associated load shedding under single contingency conditions. 3. The project improves system reliability. 4. The project replaces aged network assets. 5. The project allows increase capacity to cater for future load. The project timing and expenditure are prudent and appropriate.	Agreed
16	Waratah, Kooragang & Merewether 33kV STS tie uprating	$4.42m	To date $3.17m (Planned completion 2003)	1. Voltage fluctuation. 2. Low reliability of supply to sensitive industrial customers. 3. High risk of extended outages	Equivalent Asset Valuation (2002) would be approximately $3.5m (excluding brown field factors)	1. The project improves system reliability. 2. Significant reduction in risk of extended outages. 6. Reduced impacts of remote transients and faults on sensitive industrial loads. 7. Increased capacity for load increases. The project timing and scope ($) are prudent and appropriate.	Agreed

No	Project Name	Budget	Actual Cost	Project timing	Magnitude of $ Spend	Prudence Assessment	EA Comments
17 & 18	Gosford/Ourimbah 132kV Line and the Upgrade of West Gosford Zone Substation	$27.3m	To date $18m Planned completion end 2003	1. Thermal limits of Gosford-Sydney East 132kV feeder exceeded. 2. Capacity limit of 66kV and 33kV feeders and substations exceeded. 3. Continued growth in demand at 3% per annum.	Equivalent Asset Valuation (2002) would be approximately $20-22m (including $2.5m contingency) compared to the estimate of $27.3m. The project is nearing completion and the expenditure to date (Feb '03) is $18m.	1. The project improves system reliability. 2. Relieves the risk of rationing of electricity supply during contingencies involving the Gosford-Sydney East 132kV feeder. 3. Overcome substation and line thermal limit issues in the southern Central Coast area. The project timing and expenditure to date appear prudent.	Agreed
19	Haymarket 330/132kV Supply Point (Goulburn Lane) – EA 132kV Connection Costs	$42M (subtrans) plus $23M (dist)	Actual expenditure up to June 2002: $21.19M. Projected expenditure to completion: $53.05M (subtrans) plus $33.75M (dist) plus $8M for land Total projected expenditure to completion: $94.8M	1. CBD supply reliability standards not met by summer 2003/04. 2. Timing also driven by need to supply load relief to Darlinghurst and Zetland zone subs. Darlinghurst loaded to 106% of secure capacity in 2003 and Zetland approaching secure capacity.	1. Independent consultants (NERA) conducted economic analysis of options. 2. Recommended works represented overall least cost solution. 3. IPART engaged separate independent consultants to review project proposal. 4. 132kV cable route and tunnel options investigated and reported on by GH&D. 5. Total project cost for EA was estimated to be $90M. 6. Estimated cost for Campbell St (previously Goulburn Lane) substation has since increased from $23M to $33.7M upon completion of detailed design. The estimated cost for the 132kV connections is now $53.05M. In June 2002 the projected expenditure to completion was $94.81M, including $8M for land acquisition.	1. A wide range of options and scenarios were investigated, leading to the least cost solution being selected. 2. In addition to Transgrid/EA joint planning studies were reviewed by independent consultants. The projected timing and scope ($) are considered prudent and appropriate.	Agreed

No	Project Name	Budget	Actual Cost	Project timing	Magnitude of $ Spend	Prudence Assessment	EA Comments
20	Various 11kV projects						
	(a) Westfield Hornsby Shopping Complex	$609k	N/A	1. Project timing driven by customer requirements. 2. Other surrounding 11kV feeders also heavily loaded. 3. Project timing was not confirmed at time of establishing the 99/00 budget.	1. Bank of 3 x 11kV cable installed. 2. Approx. 15MVA of cable capacity to supply shopping centre load, and relieve surrounding distribution system. 3. Options appear to have been considered, but documentation not provided.	1. Installed cable capacity appears appropriate. 2. Cable route length of about 2km would approximate the budget expenditure of $609k (depending on reinstatement cost). 3. Project timing and expenditure appears prudent.	Agreed
	(b) Orica Port Botany Hydrocarbon Storage Facility	$997.5k	N/A	1. Project timing driven by customer requirements. 2. Project timing was not confirmed at time of establishing the 99/00 budget.	1. Magnitude of load increase unclear. 2. Large motors to be installed, requiring reinforced, dedicated supply to Orica Plastics. 3. Options appear to have been considered, but documentation not provided.	1. Installed cable capacity appears appropriate given large motors. 2. Cable route length of approximately 3km would approximate the budget expenditure of $997.5k (depending on reinstatement cost). 3. Project timing and expenditure appears prudent.	Agreed

Reconciliation of Network Capital Expenditure

Regulatory Period 1 February 2000 – 30 June 2004

April 2004

This report is provided to the ACCC for information purposes only. It was written by SKM for EnergyAustralia as part of our submission to IPART for the 2004 Distribution Network Price Review.

IPART has used a roll-forward approach to determine the relevant asset base from 2004. This approach requires assessment of the prudence of capital spent during the period prior to it being added to the asset base. For its transmission assets, EnergyAustralia proposes an ODRC methodology be adopted by ACCC. This approach does not require a reconciliation of this kind.

Contents

Document History and Status

Rev.	Date	Reviewed By	Approved By	Revision Details
1	13/12/2002	R Garland	C Jones	Draft to client
2	17/01/2003	R Garland	C Jones	Draft – mainly amendments to Section 7
3	9/03/2003	R Garland	C Jones	Draft – minor editorial corrections
4	28/03/2003	R Garland	C Jones	Final Draft – includes new 2003/04 forecasts & EA to IPART Reconciliation (new Section 8)
5	08/04/2003	R Garland	C Jones	Final Draft Rev 1 – Headline figures converted to $2002/03 values.
6	09/04/2003	R Garland	C Jones	Final Draft Rev 2 – IPART nominals added, CPI altered, Night Watch & Contestable meters removed

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1. Executive Summary

EnergyAustralia (EA) engaged Sinclair Knight Merz to undertake a reconciliation between the IPART approved capital expenditure programme for the period 1 February 2000 to 30 June 2004 compared with the actual and forecast EA capital expenditure over the same period.

The reconciliation was to cover all categories of network capital expenditure that were included in the IPART determination of December 1999 and was to identify and explain the reasons for all material differences between the IPART approved capital expenditure programme and the "EA actual" capital expenditure programme.

The reconciliation was also to identify and quantify any differences between the Worley final report of October 1998, and the IPART determination.

Due to the determination period not being over a full set of financial years, it was resolved to undertake the reconciliation over the period 1999/2000 – 2003/2004 (ie. five financial years). Thus, 3 of the years in the period to be reconciled are actuals, with the remaining 2 years being budget figures.

After adjusting for various factors (eg. conversion to $2002/03, cost reclassifications, etc) to allow for an "apple for apples" comparison, we found that the aggregate difference in capital expenditure over the five year period (1999/00-2003/04) was:

Headline Overspend ($2002/03)

- **$480.5M before capital contributions,**
- **being 39% of the EnergyAustralia actuals/projections over the period, or**
- **$543.4M after capital contributions**

The overrun, expressed in the same format as the EnergyAustralia high level budget is provided in Table 1.1. The EnergyAustralia High Level Budget for this period is provided in Appendix B.

■ **Table 1-1 EnergyAustralia Overspend in High Level Budget format**

	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	Totals
Capital Expenditure by Energy Australia						
Infrastructure and Refurbishment						
Environment/Regulatory Compliance	16.5	-0.3	4.0	22.1	21.4	63.7
Replacement	11.3	5.8	-25.0	-42.4	-24.1	-74.4
Reliability	6.7	-2.7	-2.9	-1.7	-2.0	-2.6
Upstream Infrastructure Investment	10.8	48.4	66.7	74.1	75.6	275.5
Franchise Metering	-0.3	0.7	10.2	6.6	7.4	24.6
New Load	39.1	49.9	55.3	24.0	25.5	193.7
Total Capital Expenditure by EA	84.2	101.7	108.3	82.6	103.8	480.5
Capital Additions Funded by Customers						
Capital Contributions	3.0	19.5	15.0	12.0	13.4	62.9
Total Customer Funded Capex	3.0	19.5	15.0	12.0	13.4	62.9
Total Capital Expenditure	87.2	121.2	123.3	94.6	117.1	**543.4**

Notes to Table 1.1:

1 All figures are in $2002/03 values

2 Part of the underspend in the Replacement category is due to a reallocation of priorities particularly to the Environment/Regulatory Compliance category.

Sinclair Knight Merz has been able to identify and quantify the following major contributing factors to this differential in actual/projected capital expenditure as follows. A more detailed breakdown is provided in Table 1.2.

■ **Table 1-2 Expenditure Breakdown**

Additional expenditure on Major Projects (being due to projects advanced into the regulatory period and differences between project costs and project estimates)	**$141.7M**
Omission of projects not identified at the time of the Worley Report (due in part to difference between IPART projected load growth of 3% pa [see footnote 1 section 4.3], and actual average of 4.2% pa over the period)	**$152.1M**
Underestimation of New Load (No category in Worley datapack) (due in part to difference between IPART projected actual average of 4.2% pa over the period)	**$191.5M**

2. Scope

This report analyses and reports on only the regulated components of Network related capital expenditure. It does not include expenditure on "non-network" assets, nor capital expenditure in the contestable area.

The period of the reconciliation is financial years 1999/2000 to 2003/2004. The reconciliation of the first three years are to EnergyAustralia actuals with the remaining two being to budget projections in the EnergyAustralia High Level Budget.

Note: The reconciliation was originally undertaken by comparing nominal values with nominal values. This revision 1 of the Final Draft Report undertakes the reconciliation at the highest level (Spreadsheet S1 – Summary, Tables 1 to 6) in $2002/03 values at the request of EnergyAustralia.

The breakdown of the reconciliation in the detailed spreadsheets which accompany this report was developed in nominal values and the decision was made not to attempt to convert these spreadsheets to $2002/03 values. Thus, in Table 7.1 of this report, while the headline figure of $543.4M is derived from a comparison of $2002/03 values, the subsequent breakdown in Table 7.1 of this figure compares nominals. While this approach is not strictly appropriate, the error it introduces is minor and likely to be swamped by other estimates and approximations made. This simplification avoids having to make late and comprehensive changes to the supporting spreadsheets.

The CPI figures used in this report were provided by EnergyAustralia and are as follows:

Worley reconciliation:

Year	1 99/00	2 00/01	2 01/02	2 02/03	2 03/04
CPI (%)	1.85	2.92	4.40	3.00	3.00

IPART Reconciliation: (advised 09/04/2003 and to be applied to IPART Section 8 figures only)

Year	1 99/00	2 00/01	2 01/02	2 02/03	2 03/04
CPI (%)	0.0	1.85	2.92	4.40	3.00

3. Methodology

In undertaking this assignment, Sinclair Knight Merz developed and followed a methodology designed to identify and, where possible, quantify the variations in capital expenditure. This methodology is outlined below:

- Review of all relevant documentation

  Appendix A lists all relevant documentation obtained and researched in undertaking this study. Key documents used in undertaking the financial reconciliation were:

Document	SKM Document Number
EnergyAustralia High Level Budget	2
Worley Final Report, October 1998 (especially Table 5.2)	12
Worley Data Collection Questionnaire (Datapack)	13
IPART Determination (especially Table 6.3)	14
Networks Major Projects Reports (June 2000, 2001 and 2002)	4,5 and 6

- Discussion/Interview with key EA staff/management.

  During the course of the assignment, interviews and meetings were held with the following EnergyAustralia management and staff:

  Mr Trevor Armstrong

  Mr Matt Cooper

  Mr Doug Ackland

  Mr Terry Fagan

  Mr Harry Colebourne

  Ms Pauline Sammut

- Adjustment of IPART projections and EA actuals to a common financial and categorisation basis (eg. CPI, real/nominal etc.).
- Identification and quantification of variations into one of the following categories where applicable:
  - Increased expenditure for omissions/exclusions.
  - Increased expenditure for increased demand growth above forecast
  - Increased expenditure for higher than anticipated project costs.
  - Increased expenditure in respect of projects undertaken but not identified in the EnergyAustralia submission or Worley report.
  - Decreased expenditure for non major project work (Total capex less all major projects and programs)

- Decreased expenditure for known projects deferred beyond 2003/04.

- The assessment included an analysis and breakdown of expenditure on major projects.

4. Worley Report to IPART (October 1998), including the EnergyAustralia Submission

4.1 Worley Projections

The Worley report of October 1998 was the basis for IPART's determination, although there were some differences between the two that will be discussed and reconciled in a later section.

The Worley programme at the time was quite compressed, as indicated by the following timetable:

- Commencement – 19 May 1998.
- Prepare and distribute questionnaire – 26 May 1998.
- DNSP site visits – 22 June to 10 July 1998.
- Questionnaires completed and returned by DNSP's – end June 1998.
- Interim Worley report – 10 July 1998.
- Draft final report (preliminary) – 10 August 1998.
- Draft final report – 31 August 1998.
- Final report – 2 October 1998.

The capital expenditure projections for EA recommended in the Worley report are reconstructed in Worley report Table 5.2). Note these are in 1998 dollars, with no CPI adjustment for inflation in future years.

Worley Report Table 5.2

Table 5.2 - Capital Expenditure Projections and Adjustments for EnergyAustralia'a Network

$m (1998 dollars)	Total 1999-2010	1995-96	1996-97	1997-98	1998-99	**1999-00**	**2000-01**	**2001-02**	**2002-03**	**2003-04**	2004-05	2005-06
1. Distributors' Projected Capital Expenditure (See Note 1)												
Renewals (see Note 2)	788.2	44.3	28.5	18.2	23.2	**38.5**	**49.9**	**56**	**72.2**	**72.2**	72.2	82.2
Growth Related Projects	598.4	41.6	52.8	50.5	58.3	**51.6**	**50.9**	**52.5**	**56.5**	**66.3**	68.1	57.6
Reliability Enhancement Projects	114.3	19	7.5	8.3	9	**10.4**	**10.3**	**10.4**	**10.4**	**10.4**	10.4	10.4
Total for Network Capital Expenditure	1500.9	104.9	88.8	77	90.5	**100.5**	**111.1**	**118.9**	**139.1**	**148.9**	150.7	150.2
2. Adjustments												
Total Adjustments	0	0	0	0	0	**0**	**0**	**0**	**0**	**0**	0	0
3. Adjusted Total Network Capital Expenditure												
Adjusted Total Network Capital Expenditure	1500.9	104.9	88.8	77	90.5	**100.5**	**111.1**	**118.9**	**139.1**	**148.9**	150.7	150.2
4. Other Capital Expenditure Items												
IT Related Network Capex (see Note 3)	3.6	0	0	10	14.4	**2**	**0.9**	**0.1**	**0.1**	**0.1**	0.1	0.1
Cost Allocations to Network for Customer Information and Financial Systems	126.5	12	17	23.7	13.2	**10**	**8.5**	**8.5**	**8.5**	**8.5**	8.5	12
Cost Allocation to Network for Corporate Land & Buildings	16.5	4.2	4.3	4.9	2.8	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	1.5	1.5
Cost Allocations to Network for Office Machines	27.5	6.3	4.6	2.5	2.5	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	2.5	2.5
Metering	15	14.4	13	12.5	10	**10**	**5**	**0**	**0**	**0**	0	0
Vehicles	39	14.7	5.4	8.6	8.6	**5**	**5**	**5**	**3**	**3**	3	3
Cost Allocations to Network for Service Provider Plant & Tools	38.5	6.2	2.8	4.4	3.5	**3.5**	**3.5**	**3.5**	**3.5**	**3.5**	3.5	3.5
Streetlighting	61.4	4.2	4.3	3	0.9	**7.1**	**7.1**	**7.1**	**7.1**	**7.1**	4.2	4.2
Capital Contribution Works	174.1	25.4	27.9	30.2	24.3	**20.8**	**16.3**	**15**	**15**	**15**	17	15
Recoverable Works	0	0.3	0.2	0	0.1	**0**	**0**	**0**	**0**	**0**	0	0
Retail Related Capex	106.4	41.6	23	30.9	17.4	**10.3**	**8.1**	**5.9**	**5.7**	**5.7**	10.2	11.7
Total Other Capital Expenditure Items	608.5	129.3	102.5	130.7	97.7	**72.7**	**58.4**	**49.1**	**46.9**	**46.9**	50.5	53.5

Notes:

1. Excludes Streetlighting, Capital Contirbution Works, Recoverable Works, Metering, IT and Vehicles.
2. These are EnergyAustralia's revised projections for asset renewals (refer to Section 5.5).
3. Includes the following categories used by energyAustralia; GIS and IT systems.

4.2 Worley Datapack (EnergyAustralia submission)

A review has been conducted of the EA submission to the Worley datapack (questionnaire). It is notable that in their final report, Worley states that "the two principal determining factors of capital expenditure are asset renewals and augmentation of network capacity to meet growth in demand". This implies an overly simplistic approach and the design of the datapack reinforces this opinion.

The design of the Worley's datapack asked for information in three (3) categories of capital expenditure, namely:

a) Asset renewals,

b) Growth related projects (augmentation), and

c) Reliability enhancement projects.

Separate sections also asked for data on:

- Capital contributions
- Streetlighting
- Other network capex
- Capex associated with retail business and contestable metering
- Recoverable works

It is unclear within the datapack where capital expenditure for customer driven works (new load) is requested. Discussion with EA staff involved in the data submission has revealed that some provision for "new load" has been made under the heading "growth related projects", although no specific customer type projects are identified in the project lists. The EnergyAustralia provision for New Load amounts to $90.1M (CPI adjusted) over the period, which is substantially less than the $276.1M spent and projected to be spent in this area over the period.

Had not EnergyAustralia included some New Load expenditure under the Upstream Infrastructure Investment category ("Growth" in Worley Datapack), the EnergyAustralia submission would have had no New Load allowance, resulting in a shortfall against actual of $276.1M.

Generally speaking, the definitions, spreadsheet design and instructions in the Worley datapacks do not align well with actual expenditure categories in EA's capital budgets, and this may have resulted in not all EA categories of expenditure having been included. The Worley's datapack also confuses regulatory spend with asset renewals (eg. oil containments and PCB's).

When considered in the context of the size of the EA network, the growth of customers and demand, together with previous levels of capital expenditure, it is apparent that the Worley's datapack failed to capture all relevant network capital expenditure required by EnergyAustralia, falling dramatically short in the categories of New Load and Upstream Infrastructure Investment.

4.3 Worley Assessment of EA Submission

The overall view expressed by Worley's in respect of the EA capital expenditure request was that:

- Initial levels of asset renewal expenditure requirement was understated. This was initially requested at $34M, reassessed by Worley at $100M pa, and finally determined to be $67M pa.
- 132kV system security to the CBD should be improved (it is unclear if specific provision for this was made).
- Possible co-generation projects in Botany and Kurnell, together with a general increase in landfill gas embedded generation, may require increased capital expenditure (none of these projects ultimately eventuated).
- EA peak demand was, at the time, a winter peak increasing at 1.5% pa, but growth in summer demand was 3% pa[1], and this was expected to drive most future augmentation investment.
- The Worley Report stated "The capital expenditure projections associated with augmentation are appropriate". This subsequently proved not to be the case.

[1] See Worley Report Oct 98 page 5.7. EA advise that Worley subsequently revised this forecast to an average summer demand increase of 2.4% pa.

5. IPART Determination

The IPART determination document summarises and aggregates the EA capital expenditure to a very high level. In fact it provides a single aggregated network capex stream, as shown below.

Table 6.3 (from IPART Determination)

Capital Expenditure projections (for EnergyAustralia)

$1999	99/00	00/01	01/02	02/03	03/04
Capex	143.4	147.5	149.5	168.0	178.0

The following section provides a reconciliation of the IPART Determination figures with both the Worley report and the EnergyAustralia submission (datapack).

Section 8 provides a reconciliation between this IPART Determination and the EnergyAustralia High Level Budget actuals and forecast.

The high level reconciliation between IPART and EnergyAustralia in both real and nominal values is as follows:

	EnergyAustralia IPART Differential Real $2002/03 Values					
	1999/2000	**2000/2001**	**2001/2002**	**2002/2003**	**2003/2004**	**Totals**
IPART Determination Table 6.3 $1999 values	143.4	147.5	149.5	168.0	178.0	831.3
Additional FRC Allowance	27.4	8.7	8.8	0.0	0.0	44.9
	170.8	156.2	158.3	168.0	178.0	831.3
Adjusted IPART Determination $2002/03 values	186.9	170.9	173.2	183.9	194.8	909.8
EnergyAustralia $2002/03 values	280.3	292.4	305.7	295.0	329.0	1502.5
Differentail: EnergyAustralia minus IPART	**93.4**	**121.4**	**132.5**	**111.2**	**134.2**	**592.8**

	EnergyAustralia IPART Differential Nominal Values					
	1999/2000	**2000/2001**	**2001/2002**	**2002/2003**	**2003/2004**	**Totals**
IPART Determination Table 6.3 $1999 values	143.4	147.5	149.5	168.0	178.0	831.3
Additional FRC Allowance	27.4	8.7	8.8	0.0	0.0	44.9
	170.8	156.2	158.3	168.0	178.0	831.3
Adjusted IPART Determination $nominal values	170.8	159.1	165.9	183.9	200.6	880.3
EnergyAustralia $nominal values	256.2	272.1	292.9	295.0	338.9	1455.1
Differentail: EnergyAustralia minus IPART	**85.4**	**113.0**	**126.9**	**111.2**	**138.2**	**574.7**

6. Reconciliation: EnergyAustralia Submission to Worley Report to IPART Determination

The reconciliation is provided in Table 6.1. The reconciliation is effected as follows;

EA submission (datapack) to Worley Table 5.2

- The point of commencement is the EnergyAustralia submission figures contained within the Worley datapack page entitled Total capital expenditure.
- Those line items included in the EnergyAustralia submission but not included in the Worley Table 5.2 summary, namely;

    IT (GIS)

    Meters

are to be removed.

- This adjustment results in reconciling the EnergyAustralia submission to the Worley Table 5.2 figures.

Worley Table 5.2 to IPART Determination

- To the Worley Table 5.2 figures must be added those line items which are included in the IPART Determination but not in Worley table 5.2, namely;

    IT (GIS)

    Meters

    Streetlighting

    Various indirect network charges:

        IT_CIS & Financial system

        Land

        Office machines

        Vehicles

        Plant

- This adjustment must then be CPI adjusted to convert Worley $1998 to IPART $1999
- This adjustment results in reconciling the Worley Table 5.2 figures to the IPART determination figures, with a minor error of 1% or less.

■ Table 6-1 Reconciliation: EnergyAustralia Submission to Worley Report Table 5.2 to IPART Determination

			Financial Year				
			1999/00	2000/01	2001/02	2002/03	2003/04
EA Submission (Data Pack)	Ref Total Capital Expenditure Summary page						
Distributors Projected Capex							
Renewals - Aged	$1998		37.5	46.5	51.5	66.5	66.5
Renewals - Regulatory			3.1	4.5	4.6	5.8	5.8
Renewals Total	$1998		40.6	51	56.1	72.3	72.3
Growth Related Projects	$1998		59.6	54.9	52.5	56.5	66.3
Reliability Enhancement Projects	$1998		12.3	11.1	10.4	10.4	10.4
Total Networks (excl SL)	$1998		**112.5**	**117**	**119**	**139.2**	**149**
Less items included in EnergyAustralia submission but excluded from Worley							
IT (GIS)(taken from EA submission)							
Renewals - Aged	$1998		0.1	0.1	0.1	0.1	0.1
Renewals - Regulatory							
Renewals Total	$1998		0.1	0.1	0.1	0.1	0.1
Growth Related Projects	$1998						
Reliability Enhancement Projects	$1998		1.9	0.8	0.0	0.0	0.0
IT (GIS) Total	$1998		**2.0**	**0.9**	**0.1**	**0.1**	**0.1**
Meters(moved from Renewals)	$1998		**2.0**	**1.0**	**0.0**	**0.0**	**0.0**
Meters(moved from Growth)	$1998		**8.0**	**4.0**	**0.0**	**0.0**	**0.0**
Subtotal	$1998		**12.0**	**5.9**	**0.1**	**0.1**	**0.1**
Reconciliation EnergyAustralia submission to Worley Table 5.2							
EnergyAustralia submission adjusted to reflect Worley Table 5.2	$1998		**100.5**	**111.1**	**118.9**	**139.1**	**148.9**
Worley Table 5.2	$1998		**100.5**	**111.1**	**118.9**	**139.1**	**148.9**
Inclusions to Worley to reflect IPART accounting							
Streetlighting							
Renewals - Aged	$1998		6.6	6.6	6.6	6.6	6.6
Renewals - Regulatory	$1998						
Renewals Total	$1998		6.6	6.6	6.6	6.6	6.6
Growth Related Projects	$1998		0.5	0.5	0.5	0.5	0.5
Reliability Enhancement Projects							
Streetlighting Total	$1998		**7.1**	**7.1**	**7.1**	**7.1**	**7.1**
IT (GIS)	$1998		2.0	0.9	0.1	0.1	0.1
Meters(moved from Renewals)	$1998		2.0	1.0	0.0	0.0	0.0
Meters(moved from Growth)	$1998		8.0	4.0	0.0	0.0	0.0
IT_CIS & Financial systems	$1998		10.0	8.5	8.5	8.5	8.5
Land	$1998		1.5	1.5	1.5	1.5	1.5
Office machines	$1998		2.5	2.5	2.5	2.5	2.5
Vehicles	$1998		5.0	5.0	5.0	3.0	3.0
Plant	$1998		3.5	3.5	3.5	3.5	3.5
Total inclusions to match Worley Table 5.2 to IPART			**41.6**	**34.0**	**28.2**	**26.2**	**26.2**
Reconciliation EnergyAustralia submission to Worley Table 5.2							
Worley Table 5.2 adjusted to reflect IPART	$1998		**142.1**	**145.1**	**147.1**	**165.3**	**175.1**
CPI adjustment to convert to IPART $1999		1.9%					
Worley Table 5.2 adjusted to reflect IPART and CPI adjusted	$1999		**144.8**	**147.9**	**149.9**	**168.4**	**178.4**
IPART Determination Table 6.3	$1999		**143.4**	**147.5**	**149.5**	**168.0**	**178.0**
IPART - Worley			-1.4	-0.4	-0.4	-0.4	-0.4
	%		-1.0%	-0.2%	-0.3%	-0.3%	-0.2%

7. Reconciliation: EnergyAustralia High Level Budget to Worley Report Table 5.2

The reconciliation is provided in Table 7.1.

Refer to Section 2 "Scope" Note for the basis of this reconciliation.

Table 7.1 – Reconciliation of EnergyAustralia High Level Budget to Worley Report Table 5.2

Expenditure Item	$M	$M
Total Overspend measured against Worley Table 5.2	**543.4**	
Major Projects Over-Expenditure in Regulatory Period	141.7	
Additional costs as a result of projects advanced into the regulatory period and discrepancies between project costs an Worley estimates caused an over expenditure.		
Discrepancy between actual/projected project costs and Worley estimates (in regulatory period)		59.0
Worley value of projects brought forward		82.7
Major Projects not Identified in Worley Report	152.1	
Additional expenditure on major projects which were not identified at the time of the Worley report in categories;		
Environment/Regulatory Compliance		21.5
Replacement		22.6
Reliability		38.7
Upstream Infrastructure		67.1
New Load		2.2
Major Projects Deferred	-26.8	
An offsetting reduction in expenditure due to the deferral of 2 projects into the next regulatory period		
Non Major Projects	1.3	
An offsetting reduction in expenditure on NON Major Projects below that allowed for in the Worley Report and EnergyAustralia submission		
New Load	191.5	
An under-estimation of new customer connection asset costs to be funded by EA for growth in new customer numbers.		
Customer Funded Costs Underestimated	62.9	
An under-estimation of "customer funded" connection asset costs for growth in new customer numbers.		
Franchise Metering Costs Underestimated	24.6	
Continuation of franchise metering costs beyond the then expected "contestability" date.		
TOTAL	**547.3**	
Balancing Amount	**-3.9**	

Major Projects – costs exceeding Worley estimates within Reg. period $140.9M

The major projects identified within the Worley Report datapack were compared with major projects listed in the quarterly/annual "Networks Project Report" (Documents 4 to 6). A comparison of the costs (actual for 1999/00 to 2001/2002 and projected for 2003/03 and 2003/04) was produced.

The outcome indicated a substantial difference between costs incurred in the Regulatory period and costs estimated to occur as detailed in the Worley Report. The difference amounted to $141.7M. The reason for the difference is twofold.

Firstly, many of the projects identified in the Worley Report involved planned expenditure beyond the Regulatory period which was advanced into the Regulatory period. This amounted to $82.7M.[2]

Secondly, a differential was evident between actual plus outstanding project costs for projects being undertaken during the period, and the original Worley estimates. This amounted to $59.0M in the Regulatory period.

Note that $26.8M worth of projects were deferred until the next Regulatory period, and these have been removed from the above analysis.

Comparing individual projects is somewhat difficult due to the amalgamation of projects and name changes. Our analysis of the major projects costs revealed the 5 largest overspends to be those reproduced below. Note that for the purpose of comparing Worley estimates and actuals plus projected costs, total project costs are compared in this table rather than just those costs falling in the Regulatory period. Thus these figures are not strictly comparable with the $59.0M discrepancy discussed above which fell solely within the Regulatory period.

[2] Worley 1998$ figures converted to nominals and summed.

Major Project	Worl y Cost (M$ 1998)	EnergyAus ralia actual/pro ected (M$actual/n minal)	C verrun M$[34]	C verrun %
Establish Broadway Z ne/ Campbell Street/Taylo 's Sq Zone/Haymarket cable s	67.0	94.8	27.8	42%
Establish City Central Zone	33.0	51.2	18.2	55%
Uprate Warringah STS	8.5	22.0	13.5	159%
Establish Macquarie P ark Zone	10.0	20.5	10.5	105%
Establish Tuggerah to Gosford 132kV line/ C nvert Lisarow zone to 132kV (West Gosford)	16.5	24.6	8.1	49%

- Sinclair Knight Merz has not investigated the reasons for these differences.. The very size of the differences suggests there may have been a change in the nature and scope of projects over the period between the time of the original estimate and project completion.

It is possible that a need also exists for greater co-ordination between the planning estimation, initial design, procurement and project management processes.

Major Projects and Programs – unidentified **$152.1M**

EnergyAustralia incurred additional expenditure of $152.1M on approximately 30 projects not identified in the Worley Report. The projects are listed in full in Appendix C.

Table 7.1 provides the breakdown of this figure into categories of expenditure. Note that the Replacement category, which was underspent in total by $74.4M shows a Major Projects overspend of $22.6M suggesting an even more severe underspend in other unidentified areas within that category.

The projects with the greatest impact are listed below by driver category with EnergyAustralia justifications in italics;

Environment/Regulatory Compliance ***$21.5M***
Primarily due to the Oil Containment Program $21.5
(Board decision)

[3] Note: The comparison is between Worley $1998 and EnergyAustralia actuals/nominals which tends to increase the apparent size of the overspend by perhaps 5%.
[4] Note: Some 'overruns' are negative (not listed here but can be found in Appendix 3)

Replacement		***$22.6M***
50% allocation of Green Square substation costs	$ 9.8	
Leichhardt upgrade for Camperdown	$ 3.5	
	$13.3	
Reliability		***$38.7M***
Significant projects included:		
SCADA system	$12.2	
Substation Risk mitigation	$10.0	
(only arose during the regulatory period)		
GIS	$ 6.1	
Northern Beaches Reliability Improvement	$ 7.3	
(driven by external factors)		
	$35.6	
Upstream Infrastructure		***$67.1M***
Sefton/Greenacre Park transfer to Bankstown	$19.1	
Rutherford Zone substation	$ 8.1	
Pennant Hills uprate	$10.7	
Cross City tunnel diversions	$ 4.5	
(not a proposed RTA project at time of Worley estimate)		
City Central Zone developments	$10.0	
(severe site/building contract and externally imposed timing problems + CBD growth)		
	$52.4	

The need for the additional Upstream Infrastructure projects can in part be explained through;

- A possible underprovision of expenditure required to meet the projected load growth of 3% pa [see footnote 1 Section 4.3].
- additional expenditure to meet the difference between actual load growth and projected load growth, being an additional 1.2% over the period.

It is recognised that there is not a direct link between the high level system maximum demand and the timing and magnitude of expenditure on projects. However increased system maximum demand is indicative of increased demand on a local and regional basis, with increased loads likely to be recorded at zone substation levels and the distribution system level. This in turn does affect the timing and magnitude of system augmentation and associated costs.

We attempted to determine the extent of additional capex justified under each of the above areas but found our confidence in the outcome was low due to the wide range of values that the various input variables could take.

For instance;

- the load growths do not immediately translate into capex expenditure so some time lag needs to be ascribed,
- the load growths and load growth differential is totally dependent on the start and end snapshots of the system and the timing of those snapshots,

- the $/kVA can vary dramatically depending upon the source used
- the system itself already contains reserve capacity (which should be offset against the demand growth when calculating demand justified capex) but to what extent should this reserve capacity be utilised?

As a result, we could effectively make the output figures deliver any desired outcome and so did not continue with this analysis.

Therefore it was not possible to explicitly confirm that an underprovision of expenditure required to meet the projected load growth of 3% pa did occur. We do consider that it is likely however since otherwise the full $149.0M is attributed to the additional 1.2% growth above the projected load growth.

The unforeseen 1.2%pa growth over the period will have manifested itself in 4 areas:

- The reserve capacity on the EnergyAustralia system will have been reduced resulting in increased asset utilisation,
- Some projects may have been advanced from the next regulatory period,
- New projects will have been developed and,
- New spot loads will have resulted in costs in the New Load category.

Hence, despite the fact that we are unable to quantify the impact, there is no doubt that the increased load growth of 1.2% pa will have had a significant impact on capex in the upstream infrastructure and new load categories.

Major Projects Deferred **-$26.8M**

EnergyAustralia deferred a number of projects from this regulatory period. Total cost in the Regulatory period (CPI adjusted) of projects identified in the Worley Report and deferred amounted to $26.8M.

Non Major Projects **$1.3M**

To arrive at this figure, we took the EnergyAustralia high level budget and subtracted all known major projects and programs by category, leaving non major projects. We then did the same for Worley, netting off all major projects from the Worley figures leaving only non major projects and applied CPI to these figures. The Worley and EnergyAustralia non major projects capex were then subtracted.

Apart from thousands of individual line items there appears to be little information supporting non major projects and so further analysis is difficult. What is noticeable is that although the headline figure ($1.3M) is small, there is significant variation throughout the categories.
Notably;

Environment/Regulatory Compliance	$41.1	overspend
Replacement	$98.5	underspend
Reliability	$41.7	underspend
Upstream Infrastructure	$77.6	overspend
Franchise Metering	$22.8	overspend

The information to hand was insufficient to analyse these figures further.

New Load **$191.5M**

The Worley datapack contained no mention of New Load although Customer Funded contributions were addressed. EnergyAustralia made an allowance within the Upstream Infrastructure category of $94.7M ($2002/03 value) to account for the Worley omission. Apart from undertaking a detailed analysis of the many thousands of line items, we have been unable to unearth sufficient information to carry out an analysis of the reasons behind the New Load overspend (apart from the fact of its omission from the Worley datapack.) EnergyAustralia staff advise that customer HV connection applications were more than double the 1998 figure.

Customer Funded Costs **$62.9M**

Customer funded contributions were underestimated by $62.7M.

Franchise Metering Costs **$24.6M**

These costs were, and continue to be, due to the delay in franchise metering becoming contestable.

Notes to the reconciliation

2000 Olympics preparations

We understand that Customer Funded Costs are included under Capital Contributions in the High Level Budget. Subsequent augmentation would be included in capex in the same way as any other capex. The Olympics capex was covered by a single line item in the EnergyAustralia submission (line item 4 in Growth) amounting to $5.9M in the years 1996/07 to 1998/99.

No expenditure was allowed for in 1999/00 or 2000/01 which seems strange given the likelihood of Olympics related capital projects extending into this period.

We did not investigate individual line items to identify whether there existed any overspend specific to Olympics works.

Overheads

The EnergyAustralia High Level Budget:

- does not include any corporate overhead
- includes Enerserve overhead which is built into line items
- includes some Network overhead as a series of line items covering capital works planning and Networks contract labour (which was not treated in the same way at the time of the Worley Report.)

The Worley datapack does not make it clear whether, or to what extent, overheads are included. Discussions with EnergyAustralia personnel were unable to clear this up although the opinion was voiced that some allowance was probably made. Since we could not be confident in being able to strip out all overheads from the many

thousands of line items, we have proceeded on the basis that both the High Level Budget and the Worley Report include overheads.

8. Reconciliation: EA High Level Budget to IPART Determination Table 6.3

This section provides a reconciliation between the EnergyAustralia High Level Budget and the IPART Determination Table 6.3. The reconciliation s effected as follows:

REAL $2002/03 Values

Table 8.1R: IPART Table 6.3 Cost Category Breakdown ($1998)

This is based upon data displayed in Worley Report Table 5.2. The included categories reflect those which make up the IPART Table 6.3 totals. [refer Section 5] The Worley $1998 CAPEX subtotal is finally escalated to enable direct comparison to the IPART $1999 totals. The error between the bottom up total and the IPART headline figures of Table 6.3 is less than 1.6%.

	1999/2000 Forecast	2000/2001 Forecast	2001/2002 Forecast	2002/2003 Forecast	2003/2004 Forecast	Totals	
Worley Table5.2 ($1998)							
Environment/Regulatory Compliance	3.1	4.5	4.6	5.8	5.8	**23.8**	from Worley data pack page 6
Replacement	35.4	45.4	51.4	66.4	66.4	**265.0**	Worley Table 5.2 Renewals less Regulatory abv
Reliability	10.4	10.3	10.4	10.4	10.4	**51.9**	Worley Table 5.2
Upstream Infrastructure Investment	51.6	50.9	52.5	56.5	66.3	**277.8**	
New Load							no New Load allocated in Worley
Total EA Network Capex ($1998)	**100.5**	**111.1**	**118.9**	**139.1**	**148.9**	**618.5**	
Inclusions to reflect IPART ($1998)							
Streetlighting							
Environment/Regulatory Compliance							
Replacement	6.6	6.6	6.6	6.6	6.6		
Reliability							
Upstream Infrastructure Investment	0.5	0.5	0.5	0.5	0.5		
New Load							
Total Streetlighting	**7.1**	**7.1**	**7.1**	**7.1**	**7.1**	**35.5**	
IT systems (incl additional FRC allowance)	**39.4**	**18.1**	**17.4**	**8.6**	**8.6**	**92.1**	
Plant, Furniture, Telecommunications (Exclude Scada)							
Plant, Furniture, Telecommunications (Exclude Scada)							
Furniture							
Plant & Tools							
Telecommunications							
Telecommunications							
Plant, Furniture, Telecommunications	**6.0**	**6.0**	**6.0**	**6.0**	**6.0**	**30.0**	
Fleet	**5.0**	**5.0**	**5.0**	**3.0**	**3.0**	**21.0**	
Buildings (IBC Property)							
Land							
Land & Build (non sys)	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**7.5**	
Franchise Metering	**10.0**	**5.0**				**15.0**	
Subtotal Inclusions ($1998)	***69.0***	**42.7**	***37.0***	**26.2**	**26.2**	**201.1**	
Total Capital Expenditure ($1998)	**169.5**	**153.8**	**155.9**	**165.3**	**175.1**	**819.6**	
Total Capital Expenditure ($1999)	**169.5**	**153.8**	**155.9**	**165.3**	**175.1**	**819.6**	
IPART Table 6.3 ($1999)	143.4	147.5	149.5	168.0	178.0	831.3	
Additional FRC allowance	27.4	8.7	8.8			**44.9**	
Revised IPART Table 6.3 ($1999)	**170.8**	**156.2**	**158.3**	**168.0**	**178.0**	**831.3**	
error	1.3	2.4	2.4	2.7	2.9	**11.7**	
error %	0.9%	1.6%	1.6%	1.6%	1.6%		

Table 8.2R: IPART Table 6.3 Cost Category Breakdown ($2002/03 values)

This table converts Table 1 figures to $2002/03 values. This will enable subsequent comparison to EnergyAustralia $2002/03 values derived from the High Level Budget.

CPI		0.019	0.029	0.044	0.030	
CPI factor	1.000	1.019	1.029	1.044	1.030	
Factor to convert to $2002/03	1.094	1.094	1.094	1.094	1.094	
	1999/2000 Forecast	**2000/2001 Forecast**	**2001/2002 Forecast**	**2002/2003 Forecast**	**2003/2004 Forecast**	**Totals**
Worley Table5.2						
Environment/Regulatory Compliance	3.4	4.9	5.0	6.3	6.3	**26.0**
Replacement	38.7	49.7	56.3	72.7	72.7	**290.0**
Reliability	11.4	11.3	11.4	11.4	11.4	**56.8**
Upstream Infrastructure Investment	56.5	55.7	57.5	61.8	72.6	**304.0**
New Load						
Total EA Network Capex	**110.0**	**121.6**	**130.1**	**152.2**	**163.0**	**676.9**
Inclusions to reflect IPART						
Streetlighting						
Environment/Regulatory Compliance						
Replacement	7.2	7.2	7.2	7.2	7.2	
Reliability						
Upstream Infrastructure Investment	0.5	0.5	0.5	0.5	0.5	
New Load						
Total Streetlighting	**7.8**	**7.8**	**7.8**	**7.8**	**7.8**	**38.8**
IT systems	**43.1**	**19.8**	**19.0**	**9.4**	**9.4**	**100.8**
Plant, Furniture, Telecomunications (Exclude Scada)						
Plant, Furniture, Telecomunications (Exclude Scada)						
Furniture						
Plant & Tools						
Telecommunications						
Telecommunications						
Plant, Furniture, Telecomunications	**6.6**	**6.6**	**6.6**	**6.6**	**6.6**	**32.8**
Fleet	**5.5**	**5.5**	**5.5**	**3.3**	**3.3**	**23.0**
Buildings (IBC Property)						
Land						
Land & Build (non sys)	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**8.2**
Franchise Metering	**10.9**	**5.5**				**16.4**
Subtotal Inclusions	**75.5**	**46.7**	**40.5**	**28.7**	**28.7**	**220.1**
Total Capital Expenditure (nominals)	**186.9**	**170.9**	**173.2**	**183.9**	**194.8**	**909.8**

Table 8.3R: EnergyAustralia High Level Budget (actuals and forecast) $nominal

This table displays EnergyAustralia High Level Budget figures with the same inclusions (cost categories) as provided in the IPART Determination. Note that the HLB figures already include streetlighting. This was therefore backed out and added "below the line" as an inclusion to enable a direct comparison with IPART figures to be undertaken. Some EnergyAustralia figures were altered for Final Draft Revision 1 of the report and are shown highlighted.

	1999/2000 Actual	2000/2001 Actual	2001/2002 Actual	2002/2003 Forecast	2003/2004 Forecast	Totals
EA High Level Budget (including streetlighting)						
Environment/Regulatory Compliance	18.1	4.4	8.9	28.6	28.8	**88.8**
Replacement	53.1	60.0	39.3	40.0	60.0	**252.4**
Reliability	18.6	9.1	8.6	10.0	10.0	**56.3**
Upstream Infrastructure Investment	46.8	83.1	106.3	117.8	132.2	**486.2**
New Load	51.3	62.2	70.1	44.5	49.5	**277.6**
Total EA Network Capex (including streetlighting)	**187.9**	**218.8**	**233.2**	**240.9**	**280.5**	**1161.3**
EA High Level Budget (less streetlighting see below)						
Environment/Regulatory Compliance	18.1	4.4	8.9	28.6	28.8	**88.8**
Replacement	52.2	59.3	38.0	38.7	58.7	**246.9**
Reliability	18.1	8.7	8.5	9.9	9.9	**55.1**
Upstream Infrastructure Investment	46.7	83.1	106.3	117.8	132.2	**486.0**
New Load	45.3	57.7	66.8	41.2	46.2	**257.1**
Total EA Network Capex less streetlighting	**180.4**	**213.1**	**228.5**	**236.2**	**275.8**	**1133.9**
Inclusions to reflect IPART						
Streetlighting						
Environment/Regulatory Compliance	0.0	0.0	0.0	0.0	0.0	
Replacement	0.9	0.7	1.3	1.3	1.3	
Reliability	0.5	0.4	0.1	0.1	0.1	
Upstream Infrastructure Investment	0.1	0.0	0.0	0.0	0.0	
New Load	6.0	4.5	3.3	3.3	3.3	
Total Streetlighting	**7.5**	**5.7**	**4.7**	**4.7**	**4.7**	**27.4**
IT systems	**42.3**	**30.1**	**29.9**	**24.5**	**24.5**	**151.3**
Plant, Furniture, Telecomunications (Exclude Scada)		1.6			2.3	
Plant, Furniture, Telecomunications (Exclude Scada)		0.2				
Furniture			0.4	1.1	1.1	
Plant & Tools			2.6	2.3		
Telecommunications			0.0		1.7	
Telecommunications			1.7	1.6		
Plant, Furniture, Telecomunications	**2.5**	**1.8**	**4.6**	**4.9**	**5.1**	**19.0**
Fleet	**10.3**	**10.1**	**10.4**	**10.5**	**14.3**	**55.5**
Buildings (IBC Property)			4.8	6.9	5.9	
Land			0.0	0.8	1.0	
Land & Build (non sys)	**4.3**	**6.0**	**4.8**	**7.6**	**6.9**	**29.7**
Franchise Metering	**8.8**	**5.3**	**9.9**	**6.6**	**7.6**	**38.2**
Subtotal Inclusions	**75.8**	**59.0**	**64.4**	**58.9**	**63.1**	**321.1**
Total Capital Expenditure	**256.2**	**272.1**	**292.9**	**295.0**	**338.9**	**1455.1**

Table 8.4R: EnergyAustralia High Level Budget (actuals and forecast) $2002/03 values

This table converts Table 3 to $2002/03 values.

CPI		0.0185	0.0292	0.0440	0.0300	
CPI factor	1.0000	1.0185	1.0292	1.0440	1.0300	
Factor to convert to $2002/03	1.0944	1.0745	1.0440	1.0000	0.9709	
	1999/2000 Actual	**2000/2001 Actual**	**2001/2002 Actual**	**2002/2003 Forecast**	**2003/2004 Forecast**	**Totals**
EA High Level Budget (including streetlighting)						
Environment/Regulatory Compliance	19.8	4.7	9.3	28.6	28.0	**90.4**
Replacement	58.1	64.5	41.0	40.0	58.3	**261.9**
Reliability	20.4	9.8	9.0	10.0	9.7	**58.8**
Upstream Infrastructure Investment	51.2	89.3	111.0	117.8	128.3	**497.6**
New Load	56.1	66.8	73.2	44.5	48.1	**288.7**
Total EA Network Capex (including streetlighting)	**205.6**	**235.1**	**243.5**	**240.9**	**272.3**	**1197.4**
EA High Level Budget (less streetlighting see below)						
Environment/Regulatory Compliance	19.8	4.7	9.3	28.6	28.0	**90.3**
Replacement	57.2	63.7	39.7	38.7	57.0	**256.2**
Reliability	19.8	9.4	8.9	9.9	9.6	**57.6**
Upstream Infrastructure Investment	51.1	89.2	111.0	117.8	128.3	**497.5**
New Load	49.6	62.0	69.7	41.2	44.8	**267.3**
Total EA Network Capex less streetlighting	**197.4**	**229.0**	**238.5**	**236.2**	**267.7**	**1168.9**
Inclusions to reflect IPART						
Streetlighting						
Environment/Regulatory Compliance	0.0	0.0	0.0	0.0	0.0	
Replacement	0.9	0.7	1.4	1.3	1.3	
Reliability	0.5	0.4	0.1	0.1	0.1	
Upstream Infrastructure Investment	0.1	0.0	0.0	0.0	0.0	
New Load	6.6	4.9	3.5	3.3	3.2	
Total Streetlighting	**8.2**	**6.1**	**5.0**	**4.7**	**4.6**	**28.6**
IT systems	**46.3**	**32.3**	**31.2**	**24.5**	**23.8**	**158.1**
Plant, Furniture, Telecomunications (Exclude Scada)		1.7			2.3	
Plant, Furniture, Telecomunications (Exclude Scada)		0.2				
Furniture			0.4	1.1	1.0	
Plant & Tools			2.7	2.3		
Telecommunications			0.0		1.6	
Telecommunications			1.7	1.6		
Plant, Furniture, Telecomunications	**2.8**	**2.0**	**4.8**	**4.9**	**4.9**	**19.5**
Fleet	**11.3**	**10.8**	**10.8**	**10.5**	**13.8**	**57.3**
Buildings (IBC Property)			**5.0**	**6.9**	**5.7**	
Land			**0.0**	**0.8**	**1.0**	
Land & Build (non sys)	**4.7**	**6.4**	**5.1**	**7.6**	**6.7**	**30.6**
Franchise Metering	**9.6**	**5.7**	**10.3**	**6.6**	**7.4**	**39.6**
Subtotal Inclusions	**82.9**	**63.3**	**67.2**	**58.9**	**61.3**	**333.7**
Total Capital Expenditure	**280.3**	**292.4**	**305.7**	**295.0**	**329.0**	**1502.5**

Table 8.5R: EnergyAustralia HLB minus IPART Table 6.3 ($2002/03 values)

This table displays the difference between the EnergyAustralia HLB and the IPART Determination. (Table 4 minus Table 2). Positive numbers indicate overspend whilst negative numbers indicate underspend.

	Expenditure Differences						
EA actuals and Forecast minus IPART Table 6.3	1999/2000 EA-IPART	2000/2001 EA-IPART	2001/2002 EA-IPART	2002/2003 EA-IPART	2003/2004 EA-IPART	Totals	
EA High Level Budget							
Environment/Regulatory Compliance	16.4	-0.2	4.3	22.2	21.6	**64.3**	
Replacement	18.4	14.0	-16.6	-34.0	-15.7	**-33.8**	
Reliability	8.4	-1.9	-2.5	-1.5	-1.8	**0.8**	
Upstream Infrastructure Investment	-5.4	33.5	53.5	56.0	55.8	**193.4**	
New Load	49.6	62.0	69.7	41.2	44.8	**267.3**	
Total EA Network Capex	**87.5**	**107.4**	**108.4**	**83.9**	**104.8**	**492.0**	
Inclusions to reflect IPART							
Streetlighting							
Environment/Regulatory Compliance	0.0	0.0	0.0	0.0	0.0		
Replacement	-6.3	-6.5	-5.9	-5.9	-5.9		
Reliability	0.5	0.4	0.1	0.1	0.1		
Upstream Infrastructure Investment	-0.4	-0.5	-0.5	-0.5	-0.5		
New Load	6.6	4.9	3.5	3.3	3.2		
Total Streetlighting	**0.4**	**-1.7**	**-2.8**	**-3.0**	**-3.2**	**-10.3**	
IT systems	**3.1**	**12.5**	**12.2**	**15.1**	**14.4**	**57.3**	
Plant, Furniture, Telecomunications (Exclude Scada)		1.7			2.3		
Plant, Furniture, Telecomunications (Exclude Scada)		0.2					
Furniture			0.4	1.1	1.0		
Plant & Tools			2.7	2.3			
Telecommunications			0.0		1.6		
Telecommunications			1.7	1.6			
Plant, Furniture, Telecomunications	**-3.8**	**-4.6**	**-1.7**	**-1.6**	**-1.6**	**-13.4**	
Fleet	**5.8**	**5.4**	**5.4**	**7.2**	**10.6**	**34.3**	
Buildings (IBC Property)			5.0	6.9	5.7		
Land			0.0	0.8	1.0		
Land & Build (non sys)	**3.1**	**4.8**	**3.4**	**6.0**	**5.1**	**22.4**	
Franchise Metering	**-1.3**	**0.2**	**10.3**	**6.6**	**7.4**	**23.2**	
Subtotal Inclusions	**7.4**	**16.6**	**26.7**	**30.2**	**32.6**	**113.6**	
							check sum
Total Capital Expenditure	**93.4**	**121.4**	**132.5**	**111.2**	**134.2**	**592.8**	605.6
							error due to cell G59 above

NOMINAL Values

Table 8.1N: IPART Table 6.3 Cost Category Breakdown ($1998)

This is based upon data displayed in Worley Report Table 5.2. The included categories reflect those which make up the IPART Table 6.3 totals. [refer Section 5] The Worley $1998 CAPEX subtotal is finally escalated to enable direct comparison to the IPART $1999 totals. The error between the bottom up total and the IPART headline figures of Table 6.3 is less than 1.6%. *This Table is identical to Table 8.1R*

	1999/2000 Forecast	2000/2001 Forecast	2001/2002 Forecast	2002/2003 Forecast	2003/2004 Forecast	Totals	
Worley Table5.2 ($1998)							
Environment/Regulatory Compliance	3.1	4.5	4.6	5.8	5.8	**23.8**	from Worley data pack page 6
Replacement	35.4	45.4	51.4	66.4	66.4	**265.0**	Worley Table 5.2 Renewals less Regulatory abv
Reliability	10.4	10.3	10.4	10.4	10.4	**51.9**	Worley Table 5.2
Upstream Infrastructure Investment	51.6	50.9	52.5	56.5	66.3	**277.8**	
New Load							no New Load allocated in Worley
Total EA Network Capex ($1998)	**100.5**	**111.1**	**118.9**	**139.1**	**148.9**	**618.5**	
Inclusions to reflect IPART ($1998)							
Streetlighting							
Environment/Regulatory Compliance							
Replacement	6.6	6.6	6.6	6.6	6.6		
Reliability							
Upstream Infrastructure Investment	0.5	0.5	0.5	0.5	0.5		
New Load							
Total Streetlighting	**7.1**	**7.1**	**7.1**	**7.1**	**7.1**	**35.5**	
IT systems (incl additional FRC allowance)	**39.4**	**18.1**	**17.4**	**8.6**	**8.6**	**92.1**	
Plant, Furniture, Telecommunications (Exclude Scada)							
Plant, Furniture, Telecommunications (Exclude Scada)							
Furniture							
Plant & Tools							
Telecommunications							
Telecommunications							
Plant, Furniture, Telecommunications	**6.0**	**6.0**	**6.0**	**6.0**	**6.0**	**30.0**	
Fleet	**5.0**	**5.0**	**5.0**	**3.0**	**3.0**	**21.0**	
Buildings (IBC Property)							
Land							
Land & Build (non sys)	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**7.5**	
Franchise Metering	**10.0**	**5.0**				**15.0**	
Subtotal Inclusions ($1998)	**69.0**	**42.7**	**37.0**	**26.2**	**26.2**	**201.1**	
Total Capital Expenditure ($1998)	**169.5**	**153.8**	**155.9**	**165.3**	**175.1**	**819.6**	
Total Capital Expenditure ($1999)	169.5	153.8	155.9	165.3	175.1	819.6	
IPART Table 6.3 ($1999)	143.4	147.5	149.5	168.0	178.0	831.3	
Additional FRC allowance	27.4	8.7	8.8			**44.9**	
Revised IPART Table 6.3 ($1999)	**170.8**	**156.2**	**158.3**	**168.0**	**178.0**	**831.3**	
error	1.3	2.4	2.4	2.7	2.9	**11.7**	
error %	0.9%	1.6%	1.6%	1.6%	1.6%		

Table 8.2N: IPART Table 6.3 Cost Category Breakdown ($nominal values)

This table converts Table 1 figures to $nominal values. This will enable subsequent comparison to EnergyAustralia nominal values derived from the High Level Budget.

CPI		0.0185	0.0292	0.0440	0.0300	
CPI factor	1.0000	1.0185	1.0292	1.0440	1.0300	
Cumulative factor	1.0000	1.0185	1.0482	1.0944	1.1272	
	1999/2000 Forecast	**2000/2001 Forecast**	**2001/2002 Forecast**	**2002/2003 Forecast**	**2003/2004 Forecast**	**Totals**
Worley Table5.2						
Environment/Regulatory Compliance	3.1	4.6	4.8	6.3	6.5	**25.4**
Replacement	35.4	46.2	53.9	72.7	74.8	**283.0**
Reliability	10.4	10.5	10.9	11.4	11.7	**54.9**
Upstream Infrastructure Investment	51.6	51.8	55.0	61.8	74.7	**295.0**
New Load						
Total EA Network Capex	**100.5**	**113.2**	**124.6**	**152.2**	**167.8**	**658.4**
Inclusions to reflect IPART						
Streetlighting						
Environment/Regulatory Compliance						
Replacement	6.6	6.7	6.9	7.2	7.4	
Reliability						
Upstream Infrastructure Investment	0.5	0.5	0.5	0.5	0.6	
New Load						
Total Streetlighting	**7.1**	**7.2**	**7.4**	**7.8**	**8.0**	**37.5**
IT systems	**39.4**	**18.4**	**18.2**	**9.4**	**9.7**	**95.2**
Plant, Furniture, Telecomunications (Exclude Scada)						
Plant, Furniture, Telecomunications (Exclude Scada)						
Furniture						
Plant & Tools						
Telecommunications						
Telecommunications						
Plant, Furniture, Telecomunications	**6.0**	**6.1**	**6.3**	**6.6**	**6.8**	**31.7**
Fleet	**5.0**	**5.1**	**5.2**	**3.3**	**3.4**	**22.0**
Buildings (IBC Property)						
Land						
Land & Build (non sys)	**1.5**	**1.5**	**1.6**	**1.6**	**1.7**	**7.9**
Franchise Metering	**10.0**	**5.1**				**15.1**
Subtotal Inclusions	**69.0**	**43.5**	**38.8**	**28.7**	**29.5**	**209.5**
Total Capital Expenditure (nominals)	**170.8**	**159.1**	**165.9**	**183.9**	**200.6**	**880.3**

Table 8.3N: EnergyAustralia High Level Budget (actuals and forecast) $nominal

This table displays EnergyAustralia High Level Budget figures with the same inclusions (cost categories) as provided in the IPART Determination. Note that the HLB figures already include streetlighting. This was therefore backed out and added "below the line" as an inclusion to enable a direct comparison with IPART figures to be undertaken. Some EnergyAustralia figures were altered for the Draft Final Revision 1 version of the report and are shown highlighted. *This Table is identical to Table 8.3R*

	1999/2000 Actual	2000/2001 Actual	2001/2002 Actual	2002/2003 Forecast	2003/2004 Forecast	Totals
EA High Level Budget (including streetlighting)						
Environment/Regulatory Compliance	18.1	4.4	8.9	28.6	28.8	**88.8**
Replacement	53.1	60.0	39.3	40.0	60.0	**252.4**
Reliability	18.6	9.1	8.6	10.0	10.0	**56.3**
Upstream Infrastructure Investment	46.8	83.1	106.3	117.8	132.2	**486.2**
New Load	51.3	62.2	70.1	44.5	49.5	**277.6**
Total EA Network Capex (including streetlighting)	**187.9**	**218.8**	**233.2**	**240.9**	**280.5**	**1161.3**
EA High Level Budget (less streetlighting see below)						
Environment/Regulatory Compliance	18.1	4.4	8.9	28.6	28.8	**88.8**
Replacement	52.2	59.3	38.0	38.7	58.7	**246.9**
Reliability	18.1	8.7	8.5	9.9	9.9	**55.1**
Upstream Infrastructure Investment	46.7	83.1	106.3	117.8	132.2	**486.0**
New Load	45.3	57.7	66.8	41.2	46.2	**257.1**
Total EA Network Capex less streetlighting	**180.4**	**213.1**	**228.5**	**236.2**	**275.8**	**1133.9**
Inclusions to reflect IPART						
Streetlighting						
Environment/Regulatory Compliance	0.0	0.0	0.0	0.0	0.0	
Replacement	0.9	0.7	1.3	1.3	1.3	
Reliability	0.5	0.4	0.1	0.1	0.1	
Upstream Infrastructure Investment	0.1	0.0	0.0	0.0	0.0	
New Load	6.0	4.5	3.3	3.3	3.3	
Total Streetlighting	**7.5**	**5.7**	**4.7**	**4.7**	**4.7**	**27.4**
IT systems	**42.3**	**30.1**	**29.9**	**24.5**	**24.5**	**151.3**
Plant, Furniture, Telecomunications (Exclude Scada)		1.6			2.3	
Plant, Furniture, Telecomunications (Exclude Scada)		0.2				
Furniture			0.4	1.1	1.1	
Plant & Tools			2.6	2.3		
Telecommunications			0.0		1.7	
Telecommunications			1.7	1.6		
Plant, Furniture, Telecomunications	**2.5**	**1.8**	**4.6**	**4.9**	**5.1**	**19.0**
Fleet	**10.3**	**10.1**	**10.4**	**10.5**	**14.3**	**55.5**
Buildings (IBC Property)			4.8	6.9	5.9	
Land			0.0	0.8	1.0	
Land & Build (non sys)	**4.3**	**6.0**	**4.8**	**7.6**	**6.9**	**29.7**
Franchise Metering	**8.8**	**5.3**	**9.9**	**6.6**	**7.6**	**38.2**
Subtotal Inclusions	**75.8**	**59.0**	**64.4**	**58.9**	**63.1**	**321.1**
Total Capital Expenditure	**256.2**	**272.1**	**292.9**	**295.0**	**338.9**	**1455.1**

Table 8.4N: EnergyAustralia HLB minus IPART Table 6.3 ($nominal values)

This table displays the difference between the EnergyAustralia HLB and the IPART Determination. (Table 3 minus Table 2). Positive numbers indicate overspend whilst negative numbers indicate underspend.

	Expenditure Differences						
EA actuals and Forecast minus IPART Table 6.3	1999/2000 EA-IPART	2000/2001 EA-IPART	2001/2002 EA-IPART	2002/2003 EA-IPART	2003/2004 EA-IPART	Totals	
EA High Level Budget							
Environment/Regulatory Compliance	15.0	-0.2	4.1	22.2	22.3	**63.4**	
Replacement	16.8	13.1	-15.9	-34.0	-16.2	**-36.1**	
Reliability	7.7	-1.8	-2.4	-1.5	-1.8	**0.2**	
Upstream Infrastructure Investment	-4.9	31.2	51.3	56.0	57.5	**191.0**	
New Load	45.3	57.7	66.8	41.2	46.2	**257.1**	
Total EA Network Capex	**79.9**	**100.0**	**103.8**	**83.9**	**107.9**	**475.6**	
Inclusions to reflect IPART							
Streetlighting							
Environment/Regulatory Compliance	0.0	0.0	0.0	0.0	0.0		
Replacement	-5.7	-6.0	-5.6	-5.9	-6.1		
Reliability	0.5	0.4	0.1	0.1	0.1		
Upstream Infrastructure Investment	-0.4	-0.5	-0.5	-0.5	-0.6		
New Load	6.0	4.5	3.3	3.3	3.3		
Total Streetlighting	**0.4**	**-1.6**	**-2.7**	**-3.0**	**-3.3**	**-10.2**	
IT systems	**2.9**	**11.7**	**11.7**	**15.1**	**14.8**	**56.1**	
Plant, Furniture, Telecomunications (Exclude Scada)							
Plant, Furniture, Telecomunications (Exclude Scada)							
Furniture							
Plant & Tools							
Telecommunications							
Telecommunications							
Plant, Furniture, Telecomunications	**-3.5**	**-4.3**	**-1.7**	**-1.6**	**-1.7**	**-12.7**	
Fleet	**5.3**	**5.0**	**5.1**	**7.2**	**10.9**	**33.5**	
Buildings (IBC Property)							
Land							
Land & Build (non sys)	**2.8**	**4.5**	**3.3**	**6.0**	**5.3**	**21.8**	
Franchise Metering	**-1.2**	**0.2**	**9.9**	**6.6**	**7.6**	**23.1**	
Subtotal Inclusions	**6.7**	**15.5**	**25.6**	**30.2**	**33.6**	**111.6**	
							check sum
Total Capital Expenditure	**85.4**	**113.0**	**126.9**	**111.2**	**138.2**	**574.7**	587.2
							error due to cell G59 above

9. Conclusions

Sinclair Knight Merz have reached the following conclusions as a result of our reconciliation of EnergyAustralia's capex spend in the period 1999/2000 to 2003/2004:

Headline Overspend ($2002/03 values)

1) **$480.5M before capital contributions,**
2) **being 39% of the EnergyAustralia actuals/projections over the period, or**
3) **$543.4M after capital contributions**

Major reasons for overspend

4) **Additional expenditure on major projects** **$141.7M**
(being due to projects advanced into the regulatory period and differences between project costs and project estimates)

5) **Omission of projects not identified at the time of the Worley Report** **$152.1M**
(due in part to difference between IPART projected load growth of 3% pa [see footnote 1 section 4.3], and actual average of 4.2% pa over the period)

6) **Underestimation of New Load (No category in Worley datapack)** **$191.5M**
(due in part to difference between IPART projected load growth of 3% pa [see footnote 1 section 4.3], and actual average of 4.2% pa over the period)

Appendix A Source Documents

Document Register

Doc No	Document Description
1	Network Capital Expenditure Reconciliation of IPART figures to network presentation and Worleys
2	Network Capex 2002/03-2006/07. Five year high level budget
3	Network major projects report – June 1999
4	Network projects report for the quarter ended 30/6/00
5	Network capital project expenditure 2000/01 – June 2001
6	Network major projects report for year ending 30 June 2002
7	EnergyAustralia – network development plan – May 98
8	1999 electricity pricing review – EA submission to IPART. Appendix A, C, D, E, F
9	Independent pricing and regulatory tribunal of NSW review of projected capital expenditure Worley questionnaire
10	Terry Fagan – comparison
11	Worley – Cover letter: review of projected network capital expenditure
12	Final report to IPART from Worley October 98
13	Worley – review of capex – projects spreadsheet
14	Regulation of NSW electricity distribution networks determination and rules under the National Electricity Code – Dec 99
15	Electricity distribution network cost structure – draft
16	Extract from Worley report Table 5.2 Capital expenditure projections and adjustments for EA
17	Check point meeting 13/11/02 – Sydney C Jones, R Garland, G Joubert
18	Correspondence from Paul Broad (EEA to Prof T Parry (IPART) – 9 April 1999
19	Correspondence from Mervyn Davies (EA) to Prof T Parry (IPART) – 18 Nov 1999
20	Executive report for meeting – 3 Aug 1998 – EA Board
21	Chronology of discussions with Worley's re replacement expenditure
22	Errata – Regulation of NSW Electricity Distribution Network Dec 99
23	EA – submission to the Independent Pricing and Regulatory Tribunal of NSW Ver 4.6 30/9/99

Appendix B EnergyAustralia High Level Budget for the Period 1999/2000 to 2003/2004

Note: Changes to this revision 1 are shown highlighted.

Table 1
EnergyAustralia (actuals & nominals)
Network Capex
Five Year High Level Budget - extract

	1999/2000 Actual	2000/2001 Actual	2001/2002 Actual	2002/2003 Proposed Budget	2003/2004 Proposed Budget	Totals
Capital Expenditure by Energy Australia						
Infrastructure and Refurbishment						
Environment/Regulatory Compliance	18.1	4.4	8.9	28.6	28.8	**88.8**
Replacement	53.1	60.0	39.3	40.0	60	**252.4**
Reliability	18.6	9.1	8.6	10.0	10	**56.3**
Upstream Infrastructure Investment	46.8	83.1	106.3	117.8	132.2	**486.2**
Franchise Metering	8.8	5.3	9.9	6.6	7.6	**38.2**
New Load	51.3	62.2	70.1	44.5	49.5	**277.6**
Total Capital Expenditure by EA	**196.7**	**224.1**	**243.1**	**247.5**	**288.1**	**1199.5**
Capital Additions Funded by Customers						
Capital Contributions	23.9	35.2	31.0	28.9	31.2	**150.2**
Total Customer Funded Capex	**23.9**	**35.2**	**31.0**	**28.9**	**31.2**	**150.2**
Total Capital Expenditure	**220.6**	**259.3**	**274.1**	**276.4**	**319.3**	**1349.7**

Appendix C Complete Spreadsheet Analysis

Capital Governance Framework

Process Overview

2 December 2002

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1. Process Overview

1.1 Preamble

The capital governance process was reviewed and is being refined to fulfil a need within Energy Australia. Prior to the review, there was no recognisable way or structured process available for managing the development of opportunities through the full lifecycle of a project; from the identification of the opportunity through to its benefit realisation. The report prepared in September 2002 identified a number of opportunities to address.

This overview enables maximum value to be extracted from a business opportunity or project by defining the:

- Phases that a major project passes through
- Required major deliverables from each phase
- Key milestone events and decision gates
- Tool s that will assist in maximising value
- EnergyAustralia common terminology in opportunity/project realisation

This paper is an outline of the improved process that was developed in September and October 2002. Many of the key principles are now being pragmatically applied in formulating the capital program for '04-'09.

Following endorsement by the Capital Investment and Utilisation sub-committee of the Board of the intent, further detail will be developed to address areas of process, organisation, technology and resources.

1.2 Key Principles

Managing the capital program as a portfolio of projects requires the endorsement of 10 key principles:

1. The investment strategy will be clearly defined in terms of measurable targets that reflect the corporate objectives.
2. All current and new projects will be prioritised according to clear criteria that optimise the achievement of targets based on their relative importance and within recognised resource constraints.
3. Project options (i.e. approach, delivery, scope and timing) should be identified, analysed, assessed and reviewed to enable the development of portfolios that best meet our objectives.
4. 'Owners' of each phase of the project are accountable for delivering the required outcome.
5. Each phase of a project is to be transparent and verifiable and subject to an assurance check before moving to the next phase of the process
6. The framework is to provide a mechanism to regularly change the portfolio of projects in order to ensure that it continues to deliver the targeted objectives.

7. Funding of projects is conditional upon the achievement of targeted outcomes. Any significant change that impacts on the achievement of these objectives requires the project to be resubmitted for approval.

8. The risks and returns associated with a project are to be quantified to ensure that the portfolio can be optimised.

9. The portfolio comprises projects over multiple years of which the current year's forecast, next years budget and the 5-year determination period form slices.

10. The framework is to be simple in order to aid in the understanding of the priorities established and the implications of decisions made.

1.3 The Integrated Process

Strong capital governance requires a transparent link between decisions taken at a portfolio level for the capital program as a whole, and a phased approach to assessing, developing, planning and executing individual projects.

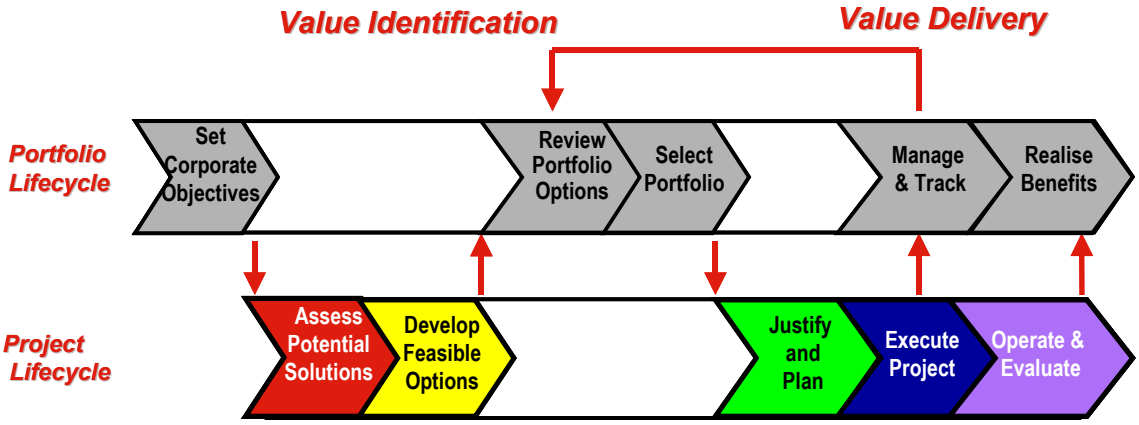

Figure 1 - The relationship between portfolio and project lifecycles

The Managing Director is accountable to the Capital Investment sub-committee for proposing and delivering annual budgets, 5 year plans and long range capital forecasts. These must aim to optimise the desired customer and network outcomes within available capital and resources.

The project lifecycle from assessing the initial solution through to operating and evaluating the asset will be split into 5 phases. Each of these phases has a specific milestone and assurance check that must be passed before progressing to the next phase of the project.

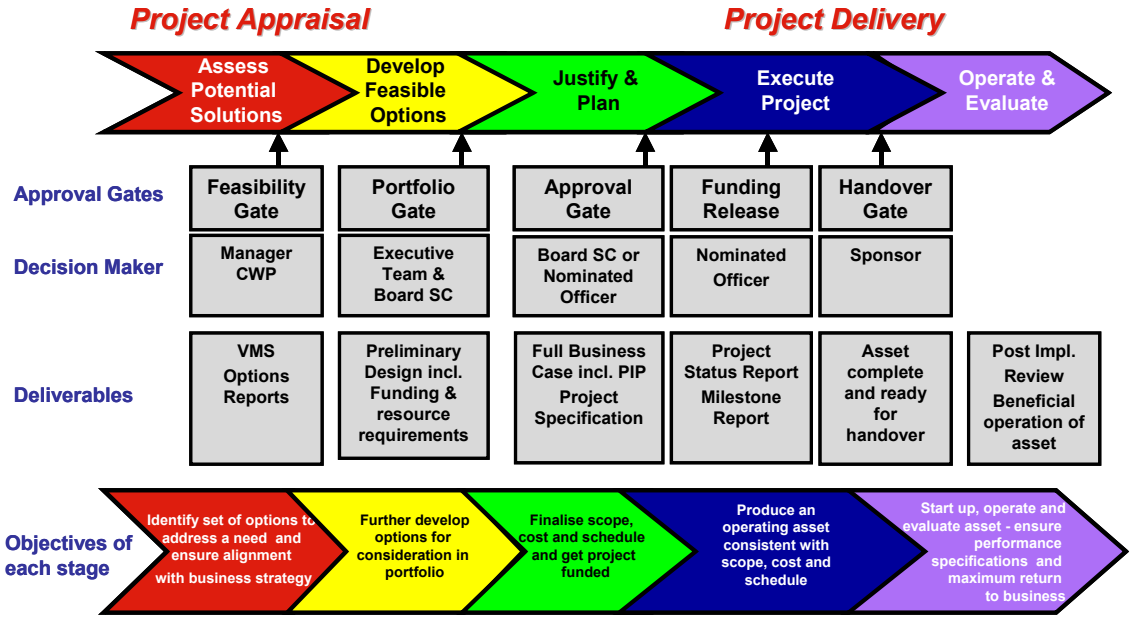

Figure 2 - The project lifecycle

Assessment of customer needs and selection of the best ways to meet those needs exert the greatest leverage over customer value and cost. Typically 65% of the influence on final outcomes

is determined by assessment and selection, even though only 5% of actual expenditure occurs in these stages. This concept is illustrated in Figure 3.

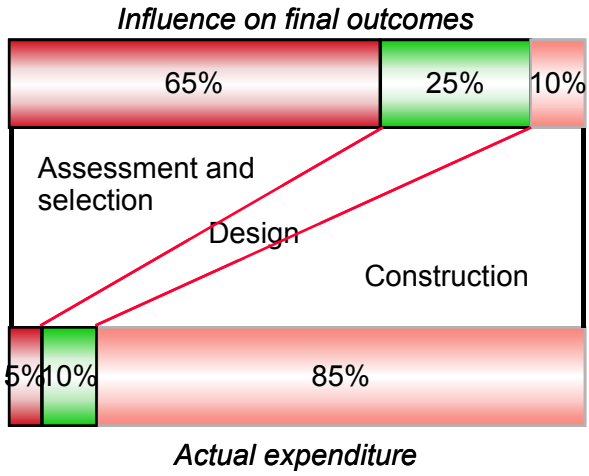

Figure 3 - The earlier stages of project selection and design exert a disproportionate influence on outcomes from capital expenditure

1.4 Process Attributes

The process has been designed to facilitate and reinforce the following approaches and behaviours.

- Promote a full lifecycle approach to initiatives
- Focus teams on maximising value by taking a business approach
- Ensure appropriate levels of front end loading i.e time spent assessing and selecting projects
- Ensure that work being done is commensurate with the decision being made – only do work required to support the next decision
- Help clearly define transition and handover points
- Involve the right people at the right time
- Provide a catalyst for documentation and sign off
- Bridge existing micro processes, guidelines and procedures
- Provide a structure that demonstrates prudency and value assurance in a consistent way across the company
- Provide insights for team and decision makers on value drivers, strategic choices, risks and constraints

2. Phases of the Project Lifecycle

2.1 Phase 1 - Assess Potential Solutions

Objectives

- Identify potential solutions that address a business or customer need while ensuring alignment with the business strategy

Activities

- Prepare Value Management Study, Option Reports and other feasibility documentation to support the progression of appropriate solutions.

Accountabilities

- Capital Works Planning (CWP)
- Investment Team for the cascading and communication of business objectives and targets

Documents and Deliverables

- Current planning documentation including Value Management Studies (VMS), AEDSR, Option Reports

Approval Gate

- Assess potential solutions to business needs (demand, refurbishment, etc.) and approve solutions that are worthy of being developed further with allocated resources.

Decision Maker

- Manager CWP

2.2 Phase 2 - Develop Feasible Options

Objectives

- Further develop options for consideration in portfolio

Activities

- Develop solutions into a small number (2 – 3) of project options. Options can include:
- Different approaches to a solution eg. Network, embedded generation, interconnection solutions and
- Scope and timing (start and start up)
- Produce a corporate project 'masterlist' of all projects and initiatives (both approved and candidate) for consideration
- Produce a set of portfolio 'scenarios' each with a focus on delivering against a different mix of corporate targets
- Develop portfolio dashboards for each portfolio scenario indicating the impact on key business targets and resources

Accountability

- CWP for the preparation of Outline Business Cases (OBC)
- Investment Team for preparing project, masterlists, portfolio scenarios and dashboards

Documents and Deliverables

- Outline Business Case
- Project Masterlist
- Portfolio Scenarios
- Portfolio Dashboard

Approval Gate:

- ***Approve capital portfolio (thus ensuring that the candidate project is included)***

Decision Maker:

- ***Endorsed by Network Executive and approved by Sub Committee of Board***

2.3 Phase 3 - Justify and Plan

Objectives

- Finalise scope, cost and schedule and get project funded

Activities

- Consolidate and communicate the approved or reoptimised capital portfolio
- Further develop Outline Business Case into Full Business Case
- Supporting Project Brief (or Project Agreement) is prepared including:
- Project specification – completed engineering design, class 3 estimate, management plan and schedule
- Updated plan for next and subsequent phases including funding and resource requirements

Accountability

- TBC but likely to be CWP

Documents and Deliverables

- Project Masterlist
- Full business case
- Supporting Project Brief

Approval Gate

- ***Approve Business Case***

Decision Maker

- ***Sub Committee of Board or delegated authority***

2.4 Phase 4 - Execute Project

Objectives

- Produce an operating asset consistent with scope, cost and schedule

Activities:

- Projects are managed using EA's designated project management framework (Schedule 19)
- Appropriate reporting at a project level is aggregated into a portfolio view
- The portfolio view is used as a key input into building the new dashboards
- A project completion report (PCR) is performed to assess how the project performed against requirements of scope delivery, cost and schedule
- Community consultation is undertaken

Accountability

- SPM for managing the contractual relationship with the service provider and preparing and for aggregating all project status information into a portfolio status
- EnerServe as the service provider

Documents and Deliverables

- Funding release memo
- Post completion review (PCR)

Approval Gates

- ***Release funding based on successful achievement of project milestones***
- ***Project Handover***

Decision Maker

- ***Investment Team accountable for release of funds***
- ***Asset owner accepting handover from asset builder/project manager***

2.5 Phase 5 - Operate and Evaluate

Objectives

- Start up, operate and evaluate asset to ensure performance specifications and maximum return to business

Activities:

- Assets are operated delivering benefits
- Post Implementation Review is performed to assess how the project outcomes and how these contributed to the original strategic targets

Accountabilities

- Network asset owner

Documents and Deliverables

- Post Implementation Review (PIR)

Approval Gate:

- Not applicable

Decision Maker:

- Not applicable

APPENDIX A: Selection of Documents

A.1 OUTLINE BUSINESS CASE

A.2 PORTFOLIO SCENARIOS

A.3 PORTFOLIO DASHBOARD

A.4 CAPITAL PROGRAM HIERARCHY

A.5 PROJECT MASTERLIST

A.6 POST IMPLEMENTATION REVIEW

SKM ODRC Report on EnergyAustralia's Transmission Assets as at 1 July 2004

ODRC Valuation of Transmission Assets

REFERENCE DATE - 30 JUNE 2004

ODRC Valuation of Transmission Assets

REFERENCE DATE - 30 JUNE 2004

- Final Report
- 05/08/2003

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1. Executive Summary

Sinclair Knight Merz was engaged by EnergyAustralia to carry out an Optimised Depreciated Replacement Cost (ODRC) valuation of the transmission assets, at an effective date of 30 June 2004.

The assets included in this valuation are subject to the definition of a transmission asset from the National Electricity Code, and are operating in parallel to, or in support of, the TransGrid network, or approved for inclusion by the Australian Competition and Consumer Commission (ACCC) on application by EnergyAustralia.

The ODRC valuation for the transmission assets, effective as of 30 June 2004 is **$702.1M**. The major asset categories are summarised in the following table:

- **Table 1-1 ODRC valuation summary**

Asset Category	ODRC ($M) as of 30 June 2004
Substations	234.0
Transmission Lines & Cables, including cable tunnels	209.6
Land & Easements	184.1
SCADA & Communications, emergency spares, non network assets	61.4
Work In Progress	31.2
SUBTOTAL	**720.3**
Less capital contribution	(18.2)
TOTAL	**702.1**

A capital contribution was received towards the undergrounding of overhead lines prior to the 2000 Olympic Games. The depreciated value of this contribution as of 30 June 2004 is $18.2M.

The major contributing factors to the increased ODRC valuation since the previous 1998 valuation are:

- Addition of cable tunnels to transmission asset register (approx $14.7M);
- Additional transmission assets, including assets previously excluded from 1998 valuation and new assets since 30 June 1998 (approx $142.9M);
- Interest During Construction contribution of $29.9M; and
- Indexation of unit rates to 30 June 2004 contribution $25M.

2. Scope of Assignment

The scope of the assignment is set out in EnergyAustralia's Expression of Interest dated 2 July 2003, and further outlined in the Sinclair Knight Merz proposal of 7 July 2003.

It required a full Optimised Depreciated Replacement Cost (ODRC) valuation for all of the transmission assets subject to regulatory control by the Australian Competition and Consumer Commission (ACCC). The reference date for the valuation is 30 June 2004.

The assignment included:

- Establishing a list of transmission assets to be included in the valuation;
- Developing replacement costs and standard lives;
- Optimisation to eliminate redundant assets, over-design and over-capacity;
- Determination of the ODRC effective 30 June 2004;
- Reconciliation with previous valuation(s);
- Preparation of a valuation report; and
- Presentation of results to EnergyAustralia management.

Sinclair Knight Merz has liaised closely with staff of EnergyAustralia in undertaking this assignment, and the report focuses specifically on the methodology, processes and outcomes of the valuation.

3. Valuation Methodology

3.1 Valuation Policy Guidelines

In May 1999 ACCC issued a document "Draft Statement of Principles for the Valuation of Transmission Business". In this document it states that it has adopted the ODRC (also known as the DORC) methodology. This document has not yet been issued in final form.

The New South Wales Treasury document "Policy Guidelines for Valuation of Network Assets of Electricity Network Businesses" issued initially in December 1995, is generally recognised as the most complete and comprehensive standard for the valuation of electricity distribution and some transmission network assets in Australia. A draft revision of the document was issued in December 2001 as "Valuation of Electricity Network Assets – A Policy Guideline for NSW DNSP's, July 2001".

The specific unit rates and valuation methodology adopted by Sinclair Knight Merz in this valuation is consistent with similar valuations for other transmission Network Service Providers in Australia and New Zealand.

There are four (4) key elements of the valuation process as outlined in the policy guidelines:

- Defining and recognising assets;
- Assessing the gross replacement cost of the assets based on the cost of modern equivalent assets;
- Optimising, that is, adjusting the value of the assets of the network for over-design, over-capacity and redundant assets; and
- Determining the optimised depreciated replacement cost of the asset based on an assigned asset life.

3.2 Deprival Valuation Methodology

The National Electricity Code (NEC) provides guidance and sets out requirements for the valuation of assets. The NEC requires the regulator to have regard to the Council of Australian Governments (CoAG) agreement, that the deprival value should be the preferred approach for valuing network assets (refer to Clause 6.10.3(a) 5 (iii)).

Clause 1.5 of the Policy Guidelines sets out the three underlying bases that need to be considered in determining the deprival value:

- Current replacement cost of the network, taking account of its age and any assets that are no longer required in order to maintain service standards;
- Economic value; and

- Net realisable value

The Optimised Depreciated Replacement Cost (ODRC) is the approach normally used to establish the current replacement cost. It appears to SKM that the ACCC's view is that ODRC and deprival value are equivalent where the depreciation profile has been appropriately set.

The ODRC approach is based on the gross replacement cost of modern equivalent assets, that are adjusted for over-design, over-capacity and/or redundant assets, less an allowance for depreciation.

3.3 Transmission Asset Registers and Data Sources

3.3.1 Transmission Network Assets

Within the Glossary to the National Electricity Code, a transmission network is defined as:

"A network within any *participating jurisdiction operating at nominal voltages of 220 kV and above plus:*

(a) any part of a network operating at nominal voltages between 66 kV and 220 kV that operates in parallel to and provides support to the higher voltage transmission network;

(b) any part of a network operating at nominal voltages between 66 kV and 220 kV that does not operate in parallel to and provide support to the higher voltage transmission network but is deemed by the Regulator to be part of the transmission network."[1]

The transmission valuation is based on a compilation of data drawn from a number of sources, with the eligibility of assets for inclusion in this valuation verified by EnergyAustralia staff.

SKM reviewed the lists of nominated feeders using single line diagrams for the 132 kV system network and with EnergyAustralia staff, and is satisfied that the circuits and substation nominated satisfy the requirements of the Code. In addition, advice was received from the ACCC that EnergyAustralia had made application to the Commission and received approval for the list of nominated assets.

3.3.2 Data Sources

The primary data sources used by EnergyAustralia to provide transmission asset valuation data are the High Voltage Feeder file and TIS (Technical Information System). The current TIS system is an amalgamation of two primary databases, following the merger between Sydney Electricity and

[1] National Electricity Code version 1.0 Amendment 8.1

Orion Energy, which formed EnergyAustralia in 1996. The TIS database was previously the asset management tool used by Sydney Electricity, and contains substation and transformer information for all transmission, zone and distribution substations.

3.3.2.1 Substations

Substation configuration information is obtained from single line diagrams, whilst equipment details for transformers and circuit breakers and commissioning dates for all substations was sourced from TIS.

Circuit breaker ages are generally the same as the substation age. Therefore, where not otherwise specified, the substation commissioning date is used as the default value for circuit breakers in those substations.

3.3.2.2 Transmission Lines and Cables

The primary data source for transmission lines is the High Voltage Feeder file and TIS. EnergyAustralia was able to extract overhead line and underground cable lengths for all voltages on a suburb by suburb basis. A spreadsheet has been developed that can readily total the quantity of transmission lines and cables for all categories within a given suburb.

3.4 Modern Equivalent Asset Replacement Costs

Sinclair Knight Merz has constructed an extensive and detailed estimating and asset valuation database that is used to produce consistent, accurate, and reproducible valuations for distribution and transmission assets in all Australian States, and New Zealand. This database has been used for the current valuation of EnergyAustralia's transmission assets, and includes a number of unit rates, asset standard lives and adjustment factors contained in the NSW Treasury draft Guidelines July 2001.

The Sinclair Knight Merz valuation has been undertaken as follows:

- the transmission line valuation spreadsheets have been based on information supplied by EnergyAustralia;
- transmission line adjustment factors have been developed by SKM to reflect geographic, terrain and environmental factors;
- the substation configurations used in this valuation have been based on the information used in the NSW Treasury valuation of all of EnergyAustralia's distribution and transmission assets;
- the age of specific substation assets (full substations or particular bays in substations) have been linked to the commissioning dates for transmission lines to reflect the dates at which those substation assets came into effective service; and

- the substation single line diagrams have been compared with the SKM reference substation bay lists to ensure a high degree of correlation and to facilitate re-calculation of asset values when future asset changes take place.

4. Modern Equivalent Asset (MEA) Unit Rates

4.1 General

The replacement cost (RC) is the current cost of replacing the existing assets with modern equivalent assets. The modern equivalent asset (MEA) is the asset, with the same service capability as an existing asset, which would be selected to replace the existing asset if it was to be replaced at 30 June 2004. The MEAs should be of commercially available technology and be proven to the extent that a prudent network owner would use them on its network.

Replacement costs are the average costs and not the minimum cost at which an asset can be built assuming optimum conditions. They are the long run sustainable competitive prices for assets constructed by a competitive industry service provider using the most efficient means.

The replacement costs used in this valuation have been drawn from a range of sources that SKM has built up over recent years of experience in the valuation of electrical systems. Where necessary these costs have been modified to reflect the specific circumstances that exist in EnergyAustralia's supply area. The replacement cost unit rates drawn from the SKM database reflect costs as of 30 June 2002. These rates have been used to generate the valuation by asset category. Escalation factors based on Consumer Price Index (CPI) figures, obtained from the Australian Bureau of Statistics, have then been applied to the valuation results for those asset categories where costs could be expected to show similar rises.

The replacement cost is generally built up from:

- standard costs of reference assets; and
- adjustment factors.

A full list of the asset categories and sub-categories used in this valuation is shown in Appendix A along with the relevant standard unit rates.

4.2 Transmission Lines

4.2.1 Reference Line Basic Design Parameters

The standard unit rates for the asset categories and sub-categories have been developed using the basic line design parameters shown in Table 4-1.

Table 4-1 Transmission line reference asset

Component	Reference Parameter
Length	100 km
Location	Rural area with access to normal line services within about 100 km.
Terrain	Flat to undulating. No steep slopes or river crossings.
Average Span	132kV – 400 metres
Structures	Galvanised lattice steel self supporting. No height restrictions or special environmental treatment
Ratio of Angle Towers to Total Towers	1 in 10
Wind Loading	Ultimate wind pressure on conductors 1000 Pa. Ultimate wind pressure on tower (acting on both windward and leeward faces) 3200 Pa.
Conductor Design Temperature	80 degrees C
Minimum Ground Clearance	8 metres
Everyday Conductor Tension	22% of CBL
Clearances	Conductor to Tower Under still air conditions or small swing angles (15 degrees) the gap to withstand the anticipated lightning or switching impulses. Under extreme wind conditions to withstand the maximum power frequency voltage. Climbing and live line working clearances should also be provided.

Items not included in the reference asset replacement costs;

- Route selection, easement survey, acquisition, planning and regulatory approvals
- Tower design, prototyping, and testing

Items included in the reference asset replacement costs are shown in Table 4-2.

Table 4-2 Reference asset inclusions

Item	Reference
Survey	Engineering Survey, profile, tower spotting and pegging
Clearing and Access	Light timber on flat to undulating ground. No special requirements for land clearing. Access track suitable for light 4WD vehicles and normal construction vehicles. No bridges or cuttings required.
Foundations	Bored Type - 80% Mass Concrete Type - 20%
Structures	Galvanised lattice steel self supporting towers
Conductor	ACSR/GZ
Earthwire	7/3.25 SC/GZ
Insulators	Cap and Pin porcelain or glass
Fittings	Normal line hardware including joints and vibration dampers

4.2.2 Adjustment Factors

For the EnergyAustralia transmission valuation, adjustment factors have been applied as appropriate to the reference costs for specific lines. Adjustment factors covered the following:

- Line location - categories used include rural, urban and CBD.
- Earthwire - the reference costs provide for continuous overhead earthwires. Where no earthwire exists, a reduction in the applicable rate will result.
- The ratio of the number of angle towers to total number of towers - if this is different to the reference line (1/10 ratio), a cost adjustment will result.
- Establishment costs – this cost is a function of the size of the construction project.

4.2.3 Cable Tunnels

The cost of EnergyAustralia's tunnel is the estimated actual cost of construction resulting from a competitive tendering process. The cost of establishing the tunnel is $18M (prior to cable installation). As the tunnel is used for distribution and transmission purposes, 50% of the cost has been allocated to transmission and 50% to distribution.

The cost of the joint tunnel is the payment from EnergyAustralia to TransGrid for a 50% share of TransGrid's tunnel between Haymarket and Wattle Street, Broadway. This cost is again derived from construction costs arising from a competitive tendering process. As the "shared tunnel" is used entirely for transmission purposes, 100% of its costs have been allocated to transmission.

4.3 Substations

In undertaking this valuation Sinclair Knight Merz has used a wide range of standard substation reference assets suitably adapted to the voltage levels and substation configurations used in the Energy Australia system. Appendix A details the various reference assets that have been used in the construction of the valuation of substation assets.

The substation valuations are built up using:

- Standard bay costs for all switchbays and equipment bays;
- Transformer costs; and
- Substation building and establishment costs

Items not included in the standard rates:

- Site selection, planning and regulatory approval;
- Land; and
- Interest during construction.

4.3.1 Substation Building and Establishment Costs

Table 4-3 summarises the various categories and costs for substation buildings and establishment costs included by SKM in this valuation. The Indoor type of substation cost applies in instances where the LV circuit breakers are of an indoor type.

- **Table 4-3 Substation Building and Establishment Costs**

Cat gory	Description	ost in
CBI	Area and facilities associated with substations located in the CBD including up to - four 132/110/22/11 kV transformers, six 132/110 kV circuit breakers, forty 22/11 V circuit breakers, ten 22/11 kV capacitor banks, two sets of AF injection units, four SST's rotection and control gear including SCADA, up to four banks of batteries, all auxiliary ci cuits and wiring, fire protection / indication systems, earthing systems, cable basement and s curity	10,000
Maj 2 ID	Area and facilities associated with indoor substations including up to - four 132/6 33/22/11 kV transformers, ten 132 kV or 66 kV circuit breakers, nineteen 33 kV circuit b akers or twenty three 22/11 kV circuit breakers, fifteen indoor 33 kV or 11 kV circuit brea ers, four 22/11 kV capacitor banks, two sets of AF injection units, two SST's protection a d control gear including SCADA, up to two banks of batteries, all auxiliary circuits and wirin , AC and DC boards, fire protection / indication systems, earthing, earthing systems, ence, oil containment and security	4,100

Cat gory	Description	ost in
Sma OD	Area and facilities associated with outdoor substations including up to – five 132k outdoor switchbays, or two 33/11 kV transformers, three outdoor 33 kV circuit breakers, ele en 11 kV circuit breakers; two capacitor banks, one set of AF injection units, two SST's prot tion and control gear including SCADA, up to two banks of batteries, all auxiliary circuits a d wiring, AC and DC boards, fire protection / indication systems, earthing, earthing systems fence, oil containment and security	350
Larg STS	Area and facilities associated with large sub-transmission substations including u to – six 132 kV transformers, eleven 132 kV circuit breakers, twenty nine 33 kV circuit bre kers, six 33 kV capacitor banks, three SST's protection and control gear including SCA A, three banks of batteries, all auxiliary circuits and wiring, AC and DC boards, earthing earthing systems, fence, fire protection / indication systems, oil containment and security	5,000
Sma STS	Area and facilities associated with small sub-transmission substations including up o – three 132 kV transformers, five 132 kV circuit breakers, fourteen 33 kV circuit breakers three 33 kV capacitor banks, two SST's protection and control gear including SCADA, tw banks of batteries, all auxiliary circuits and wiring, AC and DC boards, earthing, earthing systems, fence, fire protection / indication systems, oil containment and security	3,000

The following assumptions were made -

(a) No amenities are provided for in the building layout ie. no lunch room, toilets or other work spaces.

(b) Cable basements are included for CBD and Major ID substations only.

4.4 Other Assets

"Other" assets include SCADA, Communications, metering, emergency spares and non-system assets.

Book values as supplied by EnergyAustralia have been used, as there are no "standard" unit rates available. For transmission metering, the book value of the metering at each substation was used, whilst the values for SCADA and Communications, emergency spares and non-system assets was calculated on a pro-rata basis using a ratio between the transmission and total valuations.

The apportioning factor for SCADA and Communications, emergency spares and non network assets for this transmission valuation was 12.4% of the total for these asset categories in the 2002 DNSP valuation.

5. Asset Lives

5.1 Asset Class Lives

Each asset class is assigned a class life base on Australian and overseas experience, and on a range of acceptable lives usually nominated by the jurisdictional regulator. For the purposes of this valuation, the following standard SKM asset class lives have been used:

- **Table 5-1 Asset Class Lives**

Asset Class	Class Life (years)	Average age for EnergyAustralia assets as of 30 June 2004 (years)
Substation switchbays	45	22.22
Substation buildings and establishment	60	21.30
Power transformers	50	27.05
Transmission lines – steel tower	60	36.86
Transmission lines – steel / concrete pole	55	11.12
Transmission lines – wood pole	45	35.33
Transmission cables	45	30.06
Cable tunnels	70	0.41

5.2 Residual Life

The asset class life is designed to reflect the average service life that may be expected from each set of assets. As with all averages, some equipment will fall short of the average, while some equipment will remain in service well beyond the asset class life. For assets that exceed the average class life, a reasonable residual life must be assigned to the asset to reflect its continued serviceability.

The NSW Treasury Guidelines suggest that *"… ENB's (Electricity Network Business) should allow a minimum remaining life of three years for all assets still in use*".[2]

Adequate and effective maintenance over the life of an asset does however contribute to the overall extension of power system asset lives and the normal period required to implement planning and project works to effect the replacement of ageing assets may be longer than three years, on average.

[2] Clause 2.5.4

Given the general history of power system asset lives in Australia and overseas, Sinclair Knight Merz is of the view that a residual life of 5 years is appropriate for this valuation.

6. Optimisation

6.1 Scope of Optimisation Process

6.1.1 Optimisation Process

The objective of optimisation is to:

- Eliminate redundant assets
- Eliminate overdesign of assets
- Eliminate overcapacity in the network

The Optimisation Principles can be summarised as follows:

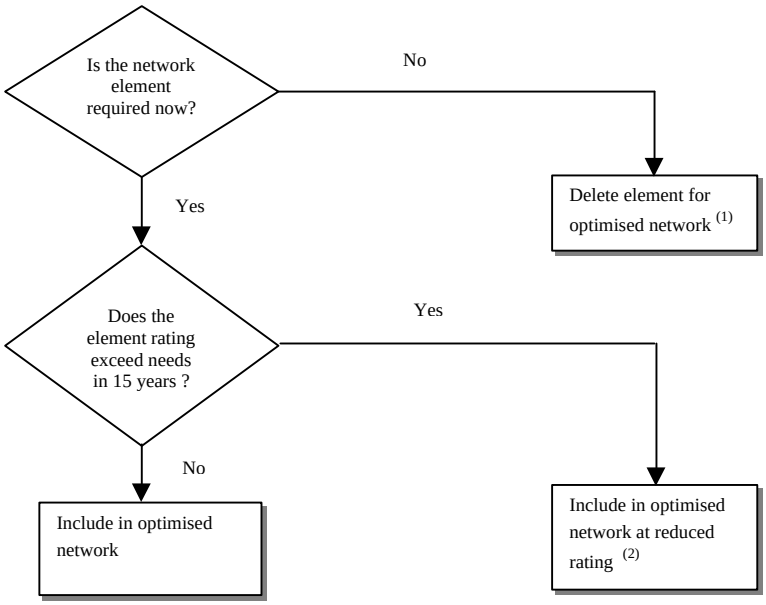
- An “Incremental Optimisation” approach is to be followed ie. it is not intended that a full system redesign of the network be undertaken.
- Optimisation cannot improve the system or increase asset values.
- Individual network elements cannot be considered in isolation from each other.
- Optimisation should be based on the reasonably expected level of use of the asset.
- Optimisation should take account of future demand forecast in the planning period - for transmission systems, the planning period is normally 15 years.
- Optimisation should take account of whole of life costs.
- Optimisation should take account of required quality, reliability, planning criteria and security of supply.

The optimisation process assumes:

- Location of generation and bulk supply substations are fixed
- Location of customers is fixed
- Network boundaries are fixed
- Existing lines and cable routes remain unchanged
- Optimised network to have similar import/export capacity to the real network.
- Optimised system shall be stable within acceptable voltage limits and fault levels.

Figure 6.1 shows the decision paths for the optimisation process.

Figure 6.1 Decision Paths for Optimisation Process



Note (1) : Deletion of an element may involve reinforcing or amending other parts of the network. The reduction in value of the optimised network should be net of any additional works required for other parts of the network.

(2) : Where the rating of the asset is inadequate the optimisation methodology does not provide for uprating in the optimised network.

6.1.2 Application

Optimisation of EnergyAustralia's transmission system has been investigated in consultation with EnergyAustralia planning staff to remove over capacity, over design and redundant assets.

The optimisation proposed below has generally been in accordance with the process above, the draft NSW Treasury Guidelines and SKM's interpretation of that document.

Load forecasts have been based on ten year forecasts provided as part of the recent distribution system valuation. The relevant forecasts have been extrapolated by SKM staff to meet the normally accepted transmission planning horizon.

6.2 Transmission Line Optimisation

The only feeder assets included in EnergyAustralia's transmission network are feeders that operate in parallel with, and are supporting, the TransGrid transmission system. This set of assets is somewhat fluid, subject to operational decisions of both TransGrid and EnergyAustralia.

A small number of transmission circuits have been identified for optimisation. The table below summarises the proposed optimisation. All feeders are operated at 132 kV.

Table 6-1 Transmission line optimisation

FDR NO	DESCRIPTION	LENGTH (km)	EXISTING	OPTIMISATION
95L	Kurri to Kurri Smelter	4.26	Heavy	Medium
926(1A/1B)	Sydney North to Carlingford	14.9	DCST single Heavy conductor	SCST twin Heavy conductor
927(3A/3B)	Sydney North to Carlingford	7.0	DCST twin Heavy conductor	SCST twin Heavy conductor
90XA/XB	Meadowbank to Homebush Bay	2.748	2 x Heavy/Medium cables	1 x Extra Heavy cable
92FA/FB	East Ryde to Homebush Bay	8.464	2 x Heavy/Medium cables	1 x Extra Heavy cable
92JA/JB	Meadowbank to East Ryde	6.215	2 x Heavy/Medium cables	1 x Extra Heavy cable
202	Drummoyne to Rozelle	2.552	Sections of Extra Heavy cable	Medium cable
908/909	Canterbury to Bunnerong Nth	15.38	2 x Medium cables	1 x Heavy cable

6.3 Substation Optimisation

The transformer capacity at transmission substations has been optimised to cater for a 15 year planning cycle. The table below summarises this optimisation.

Table 6-2 Transformer optimisation

SUBSTATION	VOLTAGE (kV)	EXISTING ARRANGEMENT	OPTIMISED ARRANGEMENT
Pyrmont STS	132/33	2 x 60/120 MVA	2 x 40/60MVA
Somersby ZS	132/11	2 x 35/40/45 MVA	2 x 15/20/25 MVA

6.4 Results of Optimisation

The following table summarises the reduction in RC and DRC resulting from the optimisation of the transmission lines and cables, and substations.

Table 6-3 Reductions in RC and DRC

Asset Category	Reduction in RC ($M)	Reduction in DRC ($M)
Transmission lines and cables	49.0	13.8
Substation transformers	2.9	2.5
TOTAL	**51.9**	**16.3**

7. Depreciation

For the purposes of this valuation, a conventional straight line depreciation has been applied to the expired portion of the asset class lives shown in Section 5. Where the age of an asset is greater than its class life minus 5 years, a residual life of 5 years has been assigned.

While there may be a case for adopting accelerated depreciation for some assets where there is a risk of the asset not reaching the end of its assigned regulatory life, this has not been considered in this valuation.

8. Easements

The easement valuation in 1998 was $72.5M, and apart from the one exception noted below, there has been no expenditure on transmission easement acquisition over the past 4 years. SKM has accepted the principle of applying the increase in the Consumer Price Index (CPI) to the 1998 easement valuation as part of this valuation.

Table 8-1 illustrates the Australian Bureau of Statistics weighted average CPI index numbers and the calculated increase in CPI since 30 June 1998.[3]

Table 8-1 Weighted average CPI index numbers

Period	Index Number	CPI increase since 30 June 1998
30 June 1998	121.0	0.00%
30 June 1999	122.3	1.07%
30 June 2000	126.2	4.30%
30 June 2001	133.8	10.58%
30 June 2002	137.6	13.72%
30 June 2003	141.3	16.78%
30 June 2004 [4]	145.5	20.25%

Applying the CPI increase between June 1998 and June 2004, the value of the existing easements was calculated to be $87.2M.

An easement compensation cost associated with the construction of a transmission line in the Central Coast was estimated at $101.5K. Therefore, for the purposes of this valuation, the total value of easements was considered to be $87.3M.

[3] Source: Australian Bureau of Statistics "CPI All Groups : Weighted Average of Eight Capital Cities, Index Numbers". Base of each index 1989/90 = 100.0

[4] Value for 30 June 2004 is a projected Index Number

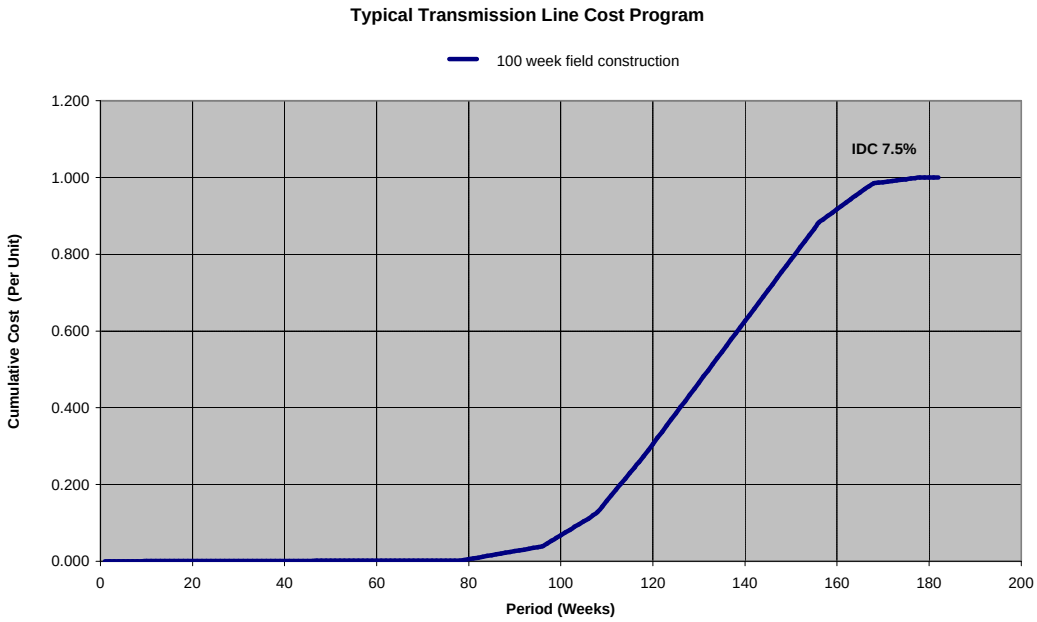
9. Interest During Construction (IDC)

Interest During Construction (IDC) is the cost of financing during the construction of an asset.

Sinclair Knight Merz has previously undertaken an analysis of the costs and interest associated with a 2-year construction phase for a typical transmission project. The analysis also provided for the 2-year phase prior to construction and provided for studies, obtaining of statutory and environmental approvals, and the preparation of specifications and tenders. SKM considers that a 2-year construction period is appropriate for the various contract types that would be associated with construction of the substations and transmission lines / cables in the EnergyAustralia network.

SKM considers that an IDC provision of 7.5% is appropriate, as this is typical of IDC rates used in the valuation of transmission network assets. Figure 9-1 illustrates expenditure for a typical transmission line over the life of the project.

- **Figure 9-1 Cumulative Cost for Sample transmission project**



10. Asset Valuation Summary

Table 10-1 summarises the detailed valuation spreadsheets included in Appendix A. These values have been based on the following assumptions:

- Unit rates and standard asset lives for substations, transformers, transmission lines and cables based on standard unit rates as of 30 June 2002, which have been indexed to 30 June 2004;
- Linear depreciation based on asset ages as of 30 June 2004, with a residual asset life of 5 years;
- Substation land valuations conducted by Preston Rowe Paterson Pty Ltd in 2002;
- Project construction costs for TransGrid and EnergyAustralia cable tunnels indexed to 30 June 2004;
- Indexed easement values based on the CPI increase between 1998 and 2004;
- Book values (indexed to 30 June 2004) for SCADA equipment and non-network assets determined as a percentage of the totals for these categories from the current distribution valuation;
- Book value for emergency spares and Work In Progress projection of future project costs; and
- 7.5% Interest During Construction on substations and transmission feeders (excluding land and easements).

The CPI adjustments are based on the index numbers shown in Table 8-1[5]. The adjustments for substations and transmission lines and cables are based on the increase in CPI between 30 June 2002 and 30 June 2004 (5.7%). The valuation for the cable tunnels is originally based on construction costs considered valid to 30 June 2003, and the adjustment is based on the CPI increase between 30 June 2003 and 30 June 2004 (2.9%)

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[5] pp 19

Table 10-1 Asset Valuation summary as of 30 June 2004

Asset Category	RC ($M)	DRC ($M)	ORC ($M)	ODRC ($M)
Substations	429.7	236.5	426.8	234.0
Transmission Lines & Cables	595.5	208.7	546.5	194.9
Cable Tunnels	14.8	14.7	14.8	14.7
Land & Easements	184.1	184.1	184.1	184.1
SCADA & Communications	23.1	23.1	23.1	23.1
Emergency Spares	3.0	3.0	3.0	3.0
Non network assets	35.3	35.3	35.3	35.3
Work In Progress	31.2	31.2	31.2	31.2
TOTAL	**1,316.7**	**736.6**	**1,264.8**	**720.3**

11. Reconciliation

The spreadsheets detailing the reconciliation between this valuation and the previous 1998 transmission valuation are included in Appendix C.

The reconciliation has been presented in three forms:

(a) 2004 valuation compared with the 1998 valuation, highlighting new asset category quantities added since the previous valuation;

(b) 2004 valuation compared with 1998 valuation, highlighting new asset quantities added since the previous valuation with the Interest During Construction (IDC) component identified separately; and

(c) 2004 valuation compared with 1998 valuation, highlighting new asset quantities added since the previous valuation with the Interest During Construction (IDC) and CPI Indexation on unit rate components identified separately.

From these comparisons, a number of observations have been made regarding the accuracy of data used in the previous valuation, the impact of CPI Indexation and IDC in the 2004 valuation, and inferences about the unit rates used in 1998.

11.1 Additions for 2004 Valuation

Table 11-1 summarises the contributions of the additional assets and categories, and changes in unit rates to the 2004 valuation.

Table 11-1 Additions for 2004 Valuation

Category	Contribution ($M)	% 2004 Valuation
1998 Valuation – ACCC determination	**457.4**	64%
Assets reclassified as transmission	18.8	3%
Additional transmission assets	116.3	16%
Cable tunnels	14.7	2%
Additional network IT and control systems	23.1	3%
Additional non system assets	17.1	2%
Change in Work In Progress allocation	17.5	2%
Contribution due to changes in asset unit rates	55.4	8%
2004 Valuation	**720.3**	100%
Less Capital contribution [6]	(18.2)	
TOTAL	**702.1**	

[6] Depreciated capital contribution for undergrounding overhead lines in Homebush prior to 2000 Olympics

11.2 Transmission Lines and Cables

Comparing the feeders between the 2004 and 1998 valuations identified a number of discrepancies in lengths, which are summarised in Table 11-2.

Table 11-2 Discrepancies in feeder lengths

Feeder	Description	Line Type	Feeder lengths (km)		Comment
			1998	2004	
860	Kurri – Stroud	Wood	50.1	90.7	Feeder comprises 3 sections 1.3 km, 82 km, and 7.3 km; all comm date July 1930
91M/1	Beaconsfield – Parkhurst	Cable	39.7	19.8	2004 valuation includes 91M/3 (10 km)
926	Sydney North – Mason Park	Tower	40.7	40.7	4.1 km section replaced with cable July 1999
927	Sydney North – Homebush Bay	Tower	32.8	29.8	1.1 km section replaced with cable July 1999
92A	Sydney North – Lane Cove	Tower	23.5	24.9	1.4 km cable section added June 2001
92B	Sydney North – Lane Cove	Tower	23.5	24.8	1.3 km cable section added June 2001
95L	Capral Kurri – Kurri	Wood	19.9	17.7	
962	Waratah West – Tomago	Wood	9.1	10.1	Feeder comprises 3 sections 9.1 km Wood, 0.32 km Tower, 0.68 km Tower; all comm date July 1963
963	Taree – Tomago	Wood	28.2	57.7	Feeder comprises 2 sections 57 km Wood 0.7 km Tower; both comm date July 1990
96A	Newcastle – Kurri	Wood	15.8	13.7	
96B	Newcastle – Capral Kurri	Wood	19.9	17.7	
96F	Kurri - Stroud	Wood	45.9	77.4	
96U	Newcastle – Kurri	Wood	16.6	12.4	
96W	Newcastle – Capral Kurri	Wood	20.0	16.4	

From Table 11-2, it is apparent that some of the variations are due to identified modifications to the feeders ie. additional sections or overhead lines that have converted to underground cables. In the other instances where there is a discrepancy in the feeder lengths, the feeders are located in the Newcastle region. This analysis suggests that there may have been inaccuracies in the data relating transmission lines and cables in the Newcastle region, and which was used in the 1998 valuation.

11.3 Impact of CPI Indexation and IDC

The unit rates for substations and transmission lines and cables have been based on rates effective as of 30 June 2002, and indexed by CPI and IDC.

The CPI increase is based on values for index number included in Table 8-1[7]. Indexation was not applied to land values as changes in value are based on market driven influences rather than CPI.

The contribution of CPI indexation to the 2004 ODRC is $25M.

Interest During Construction (IDC) relates to the cost of financing during the construction of an asset, and was applied to unit rates for substations (excluding land), and transmission lines and cables. It was not applied to the capital costs for the cable tunnels.

The contribution of IDC to the 2004 ODRC is $29.9M.

11.4 Unit Rates

The reconciliation based on the CPI Indexation and IDC components being separately identified allowed for an indirect comparison of the base unit rates (effective June 2002) used in the 2004 valuation and the unit rates used in the 1998 valuation.

The unit rates used in the 1998 valuation were not available for review during this assignment. The reconciliation highlights the values for asset quantities that were included in the 1998 valuation, and the asset quantities that were subsequently added in the 2004 valuation. A comparison was made between the ORC and ODRC values for the asset categories. From these comparisons, the following inferences are made:

- There has been an increase of between 25% and 29% in unit rates relating to substation bays, transformers and establishment (buildings, switchyard, ancillaries) since the 1998 valuation;
- The decrease of 40.82% in ORC for 132 kV Steel Tower lines included in both the 1998 and 2004 valuations (with approximately equivalent total circuit lengths) suggests that the unit rates used in 1998 were considerably higher than those used in the 2004 valuation;
- The discrepancy in lengths for feeders in both the 1998 and 2004 valuation for 132 kV Concrete Pole lines masks a slight decrease in the unit rates, whilst the 66 kV Wood Pole line rate was increased slightly; and
- Similarly, the base unit rates for underground cables were slightly lower for the 2004 valuation in comparison with the unit rates used in the 1998 valuation.

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The base unit rates used in the 2004 valuation (before indexation) are comparable to rates contained in the NSW Treasury Guidelines, which are considered effective as of 30 June 2002. Generally, the rates contained in the 1995 version of these Guidelines were lower than those listed in the 2001 version, and therefore it is not feasible that the base unit rates used in the 1998 transmission valuation were higher than those contained in the 2001 Guidelines.

It is concluded that the CPI Indexation applied to the base unit rates used in this 2004 valuation, and the escalation through the application of Interest During Construction is appropriate, as the asset unit rates used in the 1998 valuation appear to have included adjustment factors.

11.5 General Comments

It is noted that land values have escalated by 74% since the 1998 valuation, and the allocation of non-network assets has nearly doubled. Similarly, the provision for Work In Progress is considerably higher than the value allowed in 1998.

12. Capital Contributions

There is a single capital contribution that has been made towards the transmission network. Assets valued at $20M were contributed to the undergrounding of transmission lines at Homebush prior to the 2000 Olympic Games. This capital contribution has been treated as equivalent to an underground cable, and depreciated over 45 years. The depreciated value of the capital contribution as at 30 June 2004 is $18.22M.

Appendix A Unit Rates

Appendix B Detailed Valuation Spreadsheets

Appendix C Reconciliation Spreadsheets

Asset Class Description	Replacement Cost ($k)	Depreciated Replacement Cost ($k)	Optimised Replacement Cost ($k)	Optimised Depreciated Replacement Cost ($k)
Substation bays and establishment	$ 355,437.83	$ 201,729.09	$ 354,236.21	$ 200,527.47
Substation transformers	$ 74,290.23	$ 34,776.03	$ 72,558.54	$ 33,464.58
Substation land	$ 96,780.00	$ 96,780.00	$ 96,780.00	$ 96,780.00
132 kV Steel Tower overhead lines	$ 33,724.97	$ 13,056.79	$ 30,076.71	$ 11,597.48
132 kV Steel Pole overhead lines	$ 2,933.20	$ 1,541.85	$ 2,933.20	$ 1,541.85
132 kV Concrete Pole overhead lines	$ 5,626.71	$ 5,287.50	$ 5,626.71	$ 5,287.50
132 kV Wood Pole overhead lines	$ 41,165.98	$ 15,097.20	$ 41,069.17	$ 15,041.26
66 kV Wood Pole overhead lines	$ 6,048.77	$ 672.09	$ 6,048.77	$ 672.09
132 kV underground cables	$ 506,030.23	$ 173,033.47	$ 460,783.92	$ 160,807.23
Cable tunnel	$ 14,817.60	$ 14,730.67	$ 14,817.60	$ 14,730.67
Easements	$ 87,281.25	$ 87,281.25	$ 87,281.25	$ 87,281.25
SCADA and Communications	$ 23,106.02	$ 23,106.02	$ 23,106.02	$ 23,106.02
Emergency spares	$ 3,010.00	$ 3,010.00	$ 3,010.00	$ 3,010.00
Network and Other Non System Assets	$ 35,264.69	$ 35,264.69	$ 35,264.69	$ 35,264.69
Work In Progress	$ 31,197.00	$ 31,197.00	$ 31,197.00	$ 31,197.00
Totals	**$ 1,316,714.48**	**$ 736,563.65**	**$ 1,264,789.80**	**$ 720,309.10**
Totals in $M	***$ 1,316.71 M***	***$ 736.56 M***	***$ 1,264.79 M***	***$ 720.31 M***

	2004 val'n $M	%
Original estimate	457.4	65%
Distribution to transmission	18.8	3%
New assets	116.3	17%
Tunnelling	14.7	2%
Network IT and control systems	23.1	3%
Non system assets	17.1	2%
Work in Progress	17.5	2%
Revaluation	54.6	8%
Total	702.1	100%

Start aligns with ACCC determination

Reconciliation - all values in $,000
Quantities in DNSP Valuation analysis for assets identified as T1 only

Category	2004 TNSP Valuation					1998 TNSP Valuation			% increase from 1998 to 2004		
	Quantity	RC	DRC	ORC	ODRC	Quantity	ORC	ODRC	Quantity	ORC	ODRC
Substation bays and establishment (1998)	15.00	$ 239,106.04	$ 110,098.55	$ 239,106.04	$ 110,098.55	15.0	$ 167,654.00	$ 90,422.00	0.00%	42.62%	21.76%
Substation bays and establishment (post 1998)	**12.00**	**$ 116,331.79**	**$ 91,630.55**	**$ 115,130.17**	**$ 90,428.93**	-	$ -	$ -			
Substation transformers (1998)	57.00	$ 61,662.80	$ 22,428.13	$ 59,931.12	$ 21,116.68		$ 41,074.00	$ 19,521.00		45.91%	8.17%
Substation transformers (post 1998)	**10.00**	**$ 12,627.42**	**$ 12,347.90**	**$ 12,627.42**	**$ 12,347.90**	-	$ -	$ -			
Substation land (1998)	12.00	$ 70,650.00	$ 70,650.00	$ 70,650.00	$ 70,650.00	12.0	$ 40,540.00	$ 40,540.00	0.00%	74.27%	74.27%
Substation land (post 1998)	**8.00**	**$ 26,130.00**	**$ 26,130.00**	**$ 26,130.00**	**$ 26,130.00**		$ -	$ -			
132 kV Steel Tower overhead lines (1998)	181.20	$ 33,410.30	$ 12,957.14	$ 29,762.03	$ 11,497.83	188.8	$ 44,273.00	$ 16,029.00	(4.03%)	(32.78%)	(28.27%)
132 kV Steel Tower overhead lines (post 1998)	**1.01**	**$ 314.68**	**$ 99.65**	**$ 314.68**	**$ 99.65**	-	$ -	$ -			
132 kV Steel Pole overhead lines (1998)	-	$ -	$ -	$ -	$ -	-	$ -	$ -			
132 kV Steel Pole overhead lines (post 1998)	**18.35**	**$ 2,933.20**	**$ 1,541.85**	**$ 2,933.20**	**$ 1,541.85**	-	$ -	$ -			
132 kV Concrete Pole overhead lines (1998)	-	$ -	$ -	$ -	$ -	-	$ -	$ -			
132 kV Concrete Pole overhead lines (post 1998)	**33.12**	**$ 5,626.71**	**$ 5,287.50**	**$ 5,626.71**	**$ 5,287.50**	-	$ -	$ -			
132 kV Wood Pole overhead lines (1998)	239.51	$ 27,173.14	$ 9,282.11	$ 27,076.33	$ 9,226.17	191.4	$ 22,267.00	$ 8,628.00	25.13%	21.60%	6.93%
132 kV Wood Pole overhead lines (post 1998)	**99.33**	**$ 13,992.84**	**$ 5,815.09**	**$ 13,992.84**	**$ 5,815.09**	-	$ -	$ -			
66 kV Wood Pole overhead lines (1998)	82.04	$ 5,440.54	$ 604.50	$ 5,440.54	$ 604.50	50.1	$ 2,749.00	$ 1,066.00	63.75%	97.91%	(43.29%)
66 kV Wood Pole overhead lines (post 1998)	**8.65**	**$ 608.23**	**$ 67.58**	**$ 608.23**	**$ 67.58**	-	$ -	$ -			
132 kV Underground Cable (1998)	240.39	$ 488,562.63	$ 156,601.20	$ 443,316.32	$ 144,374.96	214.4	$ 409,326.00	$ 176,556.00	12.12%	8.30%	(18.23%)
132 kV Underground Cable (post 1998)	**11.86**	**$ 17,467.61**	**$ 16,432.27**	**$ 17,467.61**	**$ 16,432.27**	-	$ -	$ -			
Cable tunnel (post 1998)		**$ 14,817.60**	**$ 14,730.67**	**$ 14,817.60**	**$ 14,730.67**		$ -	$ -			
Easements (1998)		$ 87,179.75	$ 87,179.75	$ 87,179.75	$ 87,179.75		$ 72,500.00	$ 72,500.00		20.25%	20.25%
Easements (post 1998)		**$ 101.50**	**$ 101.50**	**$ 101.50**	**$ 101.50**		$ -	$ -			
SCADA and Communications		$ 23,106.02	$ 23,106.02	$ 23,106.02	$ 23,106.02		$ -	$ -			
Emergency spares		$ 3,010.00	$ 3,010.00	$ 3,010.00	$ 3,010.00		$ -	$ -			
Network and Other Non System Assets		$ 35,264.69	$ 35,264.69	$ 35,264.69	$ 35,264.69		$ 30,537.00	$ 18,167.00		15.48%	94.11%
Work in progress		$ 31,197.00	$ 31,197.00	$ 31,197.00	$ 31,197.00		$ 13,663.00	$ 13,663.00		128.33%	128.33%
TOTAL		**$ 1,316,714.48**	**$ 736,563.65**	**$ 1,264,789.80**	**$ 720,309.10**		**$ 844,583.00**	**$ 457,092.00**		**49.75%**	**57.59%**

Totals for Overhead lines

Category	2004 TNSP Valuation					1998 TNSP Valuation			% increase from 1998 to 2004		
	Quantity	RC	DRC	ORC	ODRC	Quantity	ORC	ODRC	Quantity	ORC	ODRC
132 & 66 kV Overhead lines (total)(1998)	502.75	66,023.98	22,843.75	62,278.90	21,328.50	430.30	$ 69,289.00	$ 25,723.00	16.84%	(10.12%)	(17.08%)
132 & 66 kV Overhead lines (total)(post 1998)	**160.46**	**23,475.66**	**12,811.68**	**23,475.66**	**12,811.68**	-	$ -	$ -			
132 & 66 Kv Overhead lines (total)	**663.20**	**89,499.63**	**35,655.43**	**85,754.56**	**34,140.18**	**430.30**	**$ 69,289.00**	**$ 25,723.00**	**54.13%**	**23.76%**	**32.72%**

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Asset ages as of **30 June 2004**
Residual Asset Life **5 years**

ID	Sub No	Substation	Region	Voltage (kV)	Status			Replacement Cost ($k)			Depreciated Replacement Cost ($k)			Optimised Replacement Cost ($k)			Optimised Depreciated Replacement Cost ($k)		
					1998 ODRC	2004 ODRC	New	Substation	Transformer	Total	Substation	Transformer	Total	Substation	Transformer	Total	Substation	Transformer	Total
		Beresfield	Hunter	132/33			X	$ 11,872.89	$ 3,309.97	$ 15,182.85	$ 11,872.89	$ 3,309.97	$ 15,182.85	$ 11,872.89	$ 3,309.97	$ 15,182.85	$ 11,872.89	$ 3,309.97	$ 15,182.85
26	TS07140	Bunnerong North	Sydney East	132/33	X			$ 38,160.04	$ 8,082.32	$ 46,242.37	$ 25,544.24	$ 1,988.27	$ 27,532.51	$ 38,160.04	$ 8,082.32	$ 46,242.37	$ 25,544.24	$ 1,988.27	$ 27,532.51
27.1	ZN00074	Campbell Street	Sydney East	132/11			X	$ 20,262.44	$ 2,329.36	$ 22,591.80	$ 20,262.44	$ 2,329.36	$ 22,591.80	$ 19,060.82	$ 2,329.36	$ 21,390.18	$ 19,060.82	$ 2,329.36	$ 21,390.18
30	TS07270	Canterbury	Sydney South	132/33	X			$ 19,891.70	$ 4,156.49	$ 24,048.20	$ 9,228.45	$ 581.91	$ 9,810.36	$ 19,891.70	$ 4,156.49	$ 24,048.20	$ 9,228.45	$ 581.91	$ 9,810.36
-	-	Capral		132			X	$ 17.00	$ -	$ 17.00	$ 12.92	$ -	$ 12.92	$ 17.00	$ -	$ 17.00	$ 12.92	$ -	$ 12.92
-	-	Carlingford (IE)	Integral Energy				X	$ 17.00	$ -	$ 17.00	$ 12.92	$ -	$ 12.92	$ 17.00	$ -	$ 17.00	$ 12.92	$ -	$ 12.92
39	ZN14892	Charmhaven	Central Coast	132/11		X		$ 10,662.82	$ 2,329.36	$ 12,992.18	$ 10,027.75	$ 2,189.60	$ 12,217.35	$ 10,662.82	$ 2,329.36	$ 12,992.18	$ 10,027.75	$ 2,189.60	$ 12,217.35
41	TW07280	Chullora	Sydney South	132	X			$ 12,414.38	$ -	$ 12,414.38	$ 1,844.41	$ -	$ 1,844.41	$ 12,414.38	$ -	$ 12,414.38	$ 1,844.41	$ -	$ 1,844.41
60	ZN03922	Drummoyne	Sydney South	132/11	X			$ 11,576.64	$ 1,949.85	$ 13,526.49	$ 5,799.48	$ 974.92	$ 6,774.40	$ 11,576.64	$ 1,949.85	$ 13,526.49	$ 5,799.48	$ 974.92	$ 6,774.40
75	TS14440	Gosford	Central Coast	132/33		X		$ 16,941.55	$ 6,618.23	$ 23,559.78	$ 8,449.02	$ 3,176.75	$ 11,625.77	$ 16,941.55	$ 6,618.23	$ 23,559.78	$ 8,449.02	$ 3,176.75	$ 11,625.77
83	ZN01610	Homebush Bay	Sydney South	132/11	X			$ 10,519.38	$ 2,329.36	$ 12,848.75	$ 9,894.29	$ 2,049.84	$ 11,944.13	$ 10,519.38	$ 2,329.36	$ 12,848.75	$ 9,894.29	$ 2,049.84	$ 11,944.13
97	HT80003	Kurri 132/33/66 kV	Maitland	132/33	X			$ 18,016.54	$ 4,708.16	$ 22,724.70	$ 4,976.55	$ 799.74	$ 5,776.29	$ 18,016.54	$ 4,708.16	$ 22,724.70	$ 4,976.55	$ 799.74	$ 5,776.29
100	TW07200	Lane Cove	Sydney North	132	X			$ 11,038.49	$ -	$ 11,038.49	$ 2,911.86	$ -	$ 2,911.86	$ 11,038.49	$ -	$ 11,038.49	$ 2,911.86	$ -	$ 2,911.86
110	ZN08000	Macquarie Park	Sydney North	132/11		X		$ 10,534.56	$ 2,329.36	$ 12,863.93	$ 9,908.62	$ 2,189.60	$ 12,098.23	$ 10,534.56	$ 2,329.36	$ 12,863.93	$ 9,908.62	$ 2,189.60	$ 12,098.23
114	ZN00262	Marrickville	Sydney East	132/11	X			$ 11,955.46	$ 2,924.77	$ 14,880.23	$ 4,294.27	$ 1,091.91	$ 5,386.18	$ 11,955.46	$ 2,924.77	$ 14,880.23	$ 4,294.27	$ 1,091.91	$ 5,386.18
116	TW07310	Mason Park	Sydney South	132	X			$ 18,114.87	$ 170.44	$ 18,285.31	$ 2,977.64	$ 20.45	$ 2,998.10	$ 18,114.87	$ 170.44	$ 18,285.31	$ 2,977.64	$ 20.45	$ 2,998.10
119	ZN04545	Meadowbank	Sydney North	132/11	X			$ 12,539.76	$ 3,114.53	$ 15,654.29	$ 6,220.27	$ 1,557.26	$ 7,777.54	$ 12,539.76	$ 3,114.53	$ 15,654.29	$ 6,220.27	$ 1,557.26	$ 7,777.54
134	TW07230	Mt. Colah	Sydney North	132		X		$ 1,071.81	$ -	$ 1,071.81	$ 380.34	$ -	$ 380.34	$ 1,071.81	$ -	$ 1,071.81	$ 380.34	$ -	$ 380.34
147	TS14450	Ourimbah	Central Coast	132/33		X		$ 13,629.54	$ 4,708.16	$ 18,337.69	$ 1,987.84	$ 470.82	$ 2,458.66	$ 13,629.54	$ 4,708.16	$ 18,337.69	$ 1,987.84	$ 470.82	$ 2,458.66
151	TS10900	Peakhurst	Sydney South	132/33	X			$ 19,968.57	$ 4,964.95	$ 24,933.52	$ 3,517.79	$ 992.99	$ 4,510.78	$ 19,968.57	$ 4,964.95	$ 24,933.52	$ 3,517.79	$ 992.99	$ 4,510.78
158	TS07150	Pyrmont	Sydney East	132/33	X			$ 24,463.51	$ 5,388.22	$ 29,851.72	$ 20,615.90	$ 2,781.90	$ 23,397.80	$ 24,463.51	$ 4,156.49	$ 28,620.00	$ 20,615.90	$ 1,870.42	$ 22,486.32
167	TS07240	Rozelle	Sydney South	132/33	X			$ 7,837.64	$ 1,630.55	$ 9,468.19	$ 3,585.73	$ 163.06	$ 3,748.78	$ 7,837.64	$ 1,630.55	$ 9,468.19	$ 3,585.73	$ 163.06	$ 3,748.78
176	ZN14143	Somersby	Central Coast	132/11		X		$ 9,746.99	$ 1,949.85	$ 11,696.83	$ 7,839.81	$ 1,559.88	$ 9,399.68	$ 9,746.99	$ 1,449.89	$ 11,196.87	$ 7,839.81	$ 1,159.91	$ 8,999.72
178	ZN02568	St. Peters	Sydney East	132/11	X			$ 11,076.63	$ 3,899.70	$ 14,976.32	$ 3,821.68	$ 1,871.85	$ 5,693.53	$ 11,076.63	$ 3,899.70	$ 14,976.32	$ 3,821.68	$ 1,871.85	$ 5,693.53
190	HT80007	Tomago	Newcastle	132/33	X			$ 11,532.42	$ 3,117.37	$ 14,649.79	$ 4,865.97	$ 1,371.64	$ 6,237.61	$ 11,532.42	$ 3,117.37	$ 14,649.79	$ 4,865.97	$ 1,371.64	$ 6,237.61
		West Gosford	Central Coast	132/11			X	$ 9,941.97	$ 2,329.36	$ 12,271.33	$ 9,941.97	$ 2,329.36	$ 12,271.33	$ 9,941.97	$ 2,329.36	$ 12,271.33	$ 9,941.97	$ 2,329.36	$ 12,271.33
205	ZN14891	Wyong	Central Coast	132/11		X		$ 11,633.23	$ 1,949.85	$ 13,583.08	$ 10,934.05	$ 974.92	$ 11,908.97	$ 11,633.23	$ 1,949.85	$ 13,583.08	$ 10,934.05	$ 974.92	$ 11,908.97
	TOTAL	**27**			**15**	**7**	**5**	**$ 355,437.83**	**$ 74,290.23**	**$ 429,728.06**	**$ 201,729.09**	**$ 34,776.03**	**$ 236,505.12**	**$ 354,236.21**	**$ 72,558.54**	**$ 426,794.75**	**$ 200,527.47**	**$ 33,464.58**	**$ 233,992.06**

Missed Assets	T2>T1	New
		$ 15,182.85
		$ 21,390.18
$ 12,217.35		
	$ 11,625.77	
$ 12,098.23		
	$ 2,458.66	
		$ 12,271.33
$ 11,908.97		
$ 36.22	$ 14.08	$ 48.84

EnergyAustralia SKM

Asset ages as of **30 June 2004**
Residual Asset Life **5 years**

ID	Sub No	Substation	Asset	Commission Date	Age (years)	As Installed: Quantity	As Installed: Unit Rate ($k)	As Installed: Brownfield Factor	As Installed: Asset Life (years)	As Installed: Replacement Cost ($k)	As Installed: Depreciated Replacement Cost ($k)	Optimised: Quantity	Optimised: Unit Rate ($k)	Optimised: Brownfield Factor	Optimised: Asset Life (years)	Optimised: Optimised Replacement Cost ($k)	Optimised: Optimised Depreciated Replacement Cost ($k)	Comments
		Beresfield	132 CB outdoor – feeder	2004	0	5	$ 674.12	1.00	45	$ 3,370.59	$ 3,370.59	5	$ 674.12	1.00	45	$ 3,370.59	$ 3,370.59	
		Beresfield	132 CB outdoor – transformer	2004	0	2	$ 527.50	1.00	45	$ 1,055.00	$ 1,055.00	2	$ 527.50	1.00	45	$ 1,055.00	$ 1,055.00	
		Beresfield	132 CB outdoor – feeder or bus section (no CB)	2004	0	2	$ 220.21	1.00	45	$ 440.42	$ 440.42	2	$ 220.21	1.00	45	$ 440.42	$ 440.42	
		Beresfield	33 CB outdoor – feeder	2004	0	9	$ 284.07	1.00	45	$ 2,556.62	$ 2,556.62	9	$ 284.07	1.00	45	$ 2,556.62	$ 2,556.62	
		Beresfield	33 CB outdoor – bus section	2004	0	2	$ 227.26	1.00	45	$ 454.51	$ 454.51	2	$ 227.26	1.00	45	$ 454.51	$ 454.51	
		Beresfield	33 CB outdoor – transformer	2004	0	2	$ 293.46	1.00	45	$ 586.92	$ 586.92	2	$ 293.46	1.00	45	$ 586.92	$ 586.92	
		Beresfield	Establishment - Small STS	2004	0	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 3,408.83	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 3,408.83	
26	TS07140	Bunnerong North	132 CB outdoor – feeder	1994	10	4	$ 674.12	1.00	45	$ 2,696.47	$ 2,097.26	4	$ 674.12	1.00	45	$ 2,696.47	$ 2,097.26	
26	TS07140	Bunnerong North	132 CB outdoor – transformer	1994	10	6	$ 527.50	1.00	45	$ 3,165.01	$ 2,461.68	6	$ 527.50	1.00	45	$ 3,165.01	$ 2,461.68	
26	TS07140	Bunnerong North	132 CB outdoor – feeder or bus section (no CB)	1994	10	4	$ 220.21	1.00	45	$ 880.84	$ 685.09	4	$ 220.21	1.00	45	$ 880.84	$ 685.09	
26	TS07140	Bunnerong North	33 CB outdoor – feeder	1994	10	50	$ 284.07	1.00	45	$ 14,203.44	$ 11,047.12	50	$ 284.07	1.00	45	$ 14,203.44	$ 11,047.12	
26	TS07140	Bunnerong North	33 CB outdoor – bus section	1994	10	4	$ 227.26	1.00	45	$ 909.02	$ 707.02	4	$ 227.26	1.00	45	$ 909.02	$ 707.02	
26	TS07140	Bunnerong North	33 CB outdoor – transformer	1994	10	6	$ 293.46	1.00	45	$ 1,760.76	$ 1,369.48	6	$ 293.46	1.00	45	$ 1,760.76	$ 1,369.48	
26	TS07140	Bunnerong North	33 Capacitor bank	1994	10	5	$ 397.70	1.00	45	$ 1,988.48	$ 1,546.60	5	$ 397.70	1.00	45	$ 1,988.48	$ 1,546.60	
26	TS07140	Bunnerong North	Reactor	1965	39	20	$ 340.88	1.00	40	$ 6,817.65	$ 852.21	20	$ 340.88	1.00	40	$ 6,817.65	$ 852.21	
26	TS07140	Bunnerong North	Establishment - Large STS	1994	10	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 4,734.48	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 4,734.48	
		Bunnerong North	Transmission metering	1998	6	1	$ 57.00	1.00	25	$ 57.00	$ 43.32	1	$ 57.00	1.00	25	$ 57.00	$ 43.32	Metering for NEM purposes
	ZN07900	Campbell Street	132 CB outdoor – feeder	2004	0	6	$ 674.12	1.00	45	$ 4,044.71	$ 4,044.71	5	$ 674.12	1.00	45	$ 3,370.59	$ 3,370.59	
	ZN07900	Campbell Street	132 CB outdoor – transformer	2004	0	3	$ 527.50	1.00	45	$ 1,582.51	$ 1,582.51	2	$ 527.50	1.00	45	$ 1,055.00	$ 1,055.00	
	ZN07900	Campbell Street	132 CB outdoor – bus section	2004	0	2	$ 380.65	1.00	45	$ 761.30	$ 761.30	2	$ 380.65	1.00	45	$ 761.30	$ 761.30	
	ZN07900	Campbell Street	11/22 CB indoor – single feeder	2004	0	10	$ 82.95	1.00	45	$ 829.48	$ 829.48	10	$ 82.95	1.00	45	$ 829.48	$ 829.48	
	ZN07900	Campbell Street	11/22 CB indoor – double feeder single protection	2004	0	10	$ 102.26	1.00	45	$ 1,022.65	$ 1,022.65	10	$ 102.26	1.00	45	$ 1,022.65	$ 1,022.65	
	ZN07900	Campbell Street	11/22 CB indoor – bus section	2004	0	2	$ 90.90	1.00	45	$ 181.80	$ 181.80	2	$ 90.90	1.00	45	$ 181.80	$ 181.80	
	ZN07900	Campbell Street	11/22 CB indoor – transformer	2004	0	4	$ 119.31	1.00	45	$ 477.24	$ 477.24	4	$ 119.31	1.00	45	$ 477.24	$ 477.24	
	ZN07900	Campbell Street	Establishment - CBD	2004	0	1	$ 11,362.75	1.00	60	$ 11,362.75	$ 11,362.75	1	$ 11,362.75	1.00	60	$ 11,362.75	$ 11,362.75	
30	TS07270	Canterbury	132 CB outdoor – feeder	1995	9	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,617.88	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,617.88	
30	TS07270	Canterbury	132 CB outdoor – bus section	1995	9	4	$ 380.65	1.00	45	$ 1,522.61	$ 1,218.09	4	$ 380.65	1.00	45	$ 1,522.61	$ 1,218.09	
30	TS07270	Canterbury	132 CB outdoor – transformer	1995	9	4	$ 527.50	1.00	45	$ 2,110.01	$ 1,688.01	4	$ 527.50	1.00	45	$ 2,110.01	$ 1,688.01	
30	TS07270	Canterbury	33 CB outdoor – feeder	1961	27	16	$ 284.07	1.00	45	$ 4,545.10	$ 1,818.04	16	$ 284.07	1.00	45	$ 4,545.10	$ 1,818.04	
30	TS07270	Canterbury	33 CB outdoor – bus section	1961	27	4	$ 227.26	1.00	45	$ 909.02	$ 363.61	4	$ 227.26	1.00	45	$ 909.02	$ 363.61	
30	TS07270	Canterbury	33 CB outdoor – transformer	1961	27	4	$ 293.46	1.00	45	$ 1,173.84	$ 469.54	4	$ 293.46	1.00	45	$ 1,173.84	$ 469.54	
30	TS07270	Canterbury	33 CB outdoor – bus section (no CB)	1961	27	4	$ 171.58	1.00	45	$ 686.31	$ 274.52	4	$ 171.58	1.00	45	$ 686.31	$ 274.52	
30	TS07270	Canterbury	33 Capacitor bank	1961	43	3	$ 397.70	1.00	45	$ 1,193.09	$ 132.57	3	$ 397.70	1.00	45	$ 1,193.09	$ 132.57	
30	TS07270	Canterbury	Establishment - Large STS	1961	43	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 1,609.72	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 1,609.72	
		Canterbury	Transmission metering	1998	6	1	$ 48.00	1.00	25	$ 48.00	$ 36.48	1	$ 48.00	1.00	25	$ 48.00	$ 36.48	Metering for NEM purposes
		Capral	Transmission metering	1998	6	1	$ 17.00	1.00	25	$ 17.00	$ 12.92	1	$ 17.00	1.00	25	$ 17.00	$ 12.92	Metering for NEM purposes
		Carlingford (IE)	Transmission metering	1998	6	1	$ 17.00	1.00	25	$ 17.00	$ 12.92	1	$ 17.00	1.00	25	$ 17.00	$ 12.92	Metering for NEM purposes
39	ZN14892	Charmhaven	132 CB outdoor – feeder	2001	3	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,258.35	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,258.35	
39	ZN14892	Charmhaven	132 CB outdoor – bus section	2001	3	1	$ 380.65	1.00	45	$ 380.65	$ 355.28	1	$ 380.65	1.00	45	$ 380.65	$ 355.28	
39	ZN14892	Charmhaven	132 CB outdoor – transformer	2001	3	2	$ 527.50	1.00	45	$ 1,055.00	$ 984.67	2	$ 527.50	1.00	45	$ 1,055.00	$ 984.67	
39	ZN14892	Charmhaven	132 CB outdoor – feeder or bus section (no CB)	2001	3	4	$ 220.21	1.00	45	$ 880.84	$ 822.11	4	$ 220.21	1.00	45	$ 880.84	$ 822.11	
39	ZN14892	Charmhaven	11/22 CB indoor – single feeder	2001	3	16	$ 82.95	1.00	45	$ 1,327.17	$ 1,238.69	16	$ 82.95	1.00	45	$ 1,327.17	$ 1,238.69	
39	ZN14892	Charmhaven	11/22 CB indoor – bus section	2001	3	2	$ 90.90	1.00	45	$ 181.80	$ 169.68	2	$ 90.90	1.00	45	$ 181.80	$ 169.68	
39	ZN14892	Charmhaven	11/22 CB indoor – transformer	2001	3	4	$ 119.31	1.00	45	$ 477.24	$ 445.42	4	$ 119.31	1.00	45	$ 477.24	$ 445.42	
39	ZN14892	Charmhaven	11/22 load control injection	2001	3	2	$ 159.08	1.00	45	$ 318.16	$ 296.95	2	$ 159.08	1.00	45	$ 318.16	$ 296.95	
39	ZN14892	Charmhaven	Establishment - Major 2 ID	2001	3	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,425.79	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,425.79	
		Charmhaven	Transmission metering	2001	3	1	$ 35.00	1.00	25	$ 35.00	$ 30.80	1	$ 35.00	1.00	25	$ 35.00	$ 30.80	Metering for NEM purposes
41	TW07280	Chullora	132 CB outdoor – feeder	1958	46	10	$ 674.12	1.00	45	$ 6,741.18	$ 749.02	10	$ 674.12	1.00	45	$ 6,741.18	$ 749.02	
41	TW07280	Chullora	132 CB outdoor – bus section	1958	46	4	$ 380.65	1.00	45	$ 1,522.61	$ 169.18	4	$ 380.65	1.00	45	$ 1,522.61	$ 169.18	
41	TW07280	Chullora	Reactor	1958	46	2	$ 340.88	1.00	40	$ 681.77	$ 85.22	2	$ 340.88	1.00	40	$ 681.77	$ 85.22	
41	TW07280	Chullora	Establishment - Small STS	1958	46	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 795.39	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 795.39	
		Chullora	Transmission metering	1998	6	1	$ 60.00	1.00	25	$ 60.00	$ 45.60	1	$ 60.00	1.00	25	$ 60.00	$ 45.60	Metering for NEM purposes
60	ZN03922	Drummoyne	132 GIS – feeder	1979	25	4	$ 426.10	1.00	45	$ 1,704.41	$ 757.52	4	$ 426.10	1.00	45	$ 1,704.41	$ 757.52	
60	ZN03922	Drummoyne	132 GIS – bus section	1979	25	6	$ 181.80	1.00	45	$ 1,090.82	$ 484.81	6	$ 181.80	1.00	45	$ 1,090.82	$ 484.81	
60	ZN03922	Drummoyne	132 GIS – transformer	1979	25	2	$ 482.92	1.00	45	$ 965.83	$ 429.26	2	$ 482.92	1.00	45	$ 965.83	$ 429.26	
60	ZN03922	Drummoyne	11/22 CB indoor – single feeder	1979	25	26	$ 82.95	1.00	45	$ 2,156.65	$ 958.51	26	$ 82.95	1.00	45	$ 2,156.65	$ 958.51	
60	ZN03922	Drummoyne	11/22 CB indoor – bus section	1979	25	2	$ 90.90	1.00	45	$ 181.80	$ 80.80	2	$ 90.90	1.00	45	$ 181.80	$ 80.80	
60	ZN03922	Drummoyne	11/22 CB indoor – transformer	1979	25	4	$ 119.31	1.00	45	$ 477.24	$ 212.10	4	$ 119.31	1.00	45	$ 477.24	$ 212.10	
60	ZN03922	Drummoyne	11/22 load control injection	1979	25	2	$ 159.08	1.00	45	$ 318.16	$ 141.40	2	$ 159.08	1.00	45	$ 318.16	$ 141.40	
60	ZN03922	Drummoyne	Establishment - Major 2 ID	1979	25	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 2,717.59	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 2,717.59	
		Drummoyne	Transmission metering	1998	6	1	$ 23.00	1.00	25	$ 23.00	$ 17.48	1	$ 23.00	1.00	25	$ 23.00	$ 17.48	Metering for NEM purposes
75	TS14440	Gosford	132 CB outdoor – feeder	1978	26	2	$ 674.12	1.00	45	$ 1,348.24	$ 569.26	2	$ 674.12	1.00	45	$ 1,348.24	$ 569.26	
75	TS14440	Gosford	132 CB outdoor – bus section	1978	26	1	$ 380.65	1.00	45	$ 380.65	$ 160.72	1	$ 380.65	1.00	45	$ 380.65	$ 160.72	
75	TS14440	Gosford	132 CB outdoor – transformer	1978	26	3	$ 527.50	1.00	45	$ 1,582.51	$ 668.17	3	$ 527.50	1.00	45	$ 1,582.51	$ 668.17	
		Gosford	132 CB outdoor – transformer	2002	2	1	$ 527.50	1.00	45	$ 527.50	$ 504.06	1	$ 527.50	1.00	45	$ 527.50	$ 504.06	Additional 120 MVA transformer 2002
75	TS14440	Gosford	132 CB outdoor – feeder or bus section (no CB)	1978	26	2	$ 220.21	1.00	45	$ 440.42	$ 185.95	2	$ 220.21	1.00	45	$ 440.42	$ 185.95	
75	TS14440	Gosford	66 CB outdoor – feeder	1978	26	5	$ 401.69	1.00	45	$ 2,008.43	$ 848.01	5	$ 401.69	1.00	45	$ 2,008.43	$ 848.01	
75	TS14440	Gosford	66 CB outdoor – bus section	1978	26	2	$ 284.07	1.00	45	$ 568.14	$ 239.88	2	$ 284.07	1.00	45	$ 568.14	$ 239.88	
75	TS14440	Gosford	66 CB outdoor – transformer	1978	26	2	$ 363.64	1.00	45	$ 727.28	$ 307.07	2	$ 363.64	1.00	45	$ 727.28	$ 307.07	
		Gosford	66 CB outdoor – transformer	2002	2	1	$ 363.64	1.00	45	$ 363.64	$ 347.48	1	$ 363.64	1.00	45	$ 363.64	$ 347.48	Additional 120 MVA transformer 2002
75	TS14440	Gosford	66 CB outdoor – bus section (no CB)	1978	26	3	$ 176.78	1.00	45	$ 530.33	$ 223.92	3	$ 176.78	1.00	45	$ 530.33	$ 223.92	
75	TS14440	Gosford	66 Capacitor bank	1978	26	3	$ 488.60	1.00	45	$ 1,465.79	$ 618.89	3	$ 488.60	1.00	45	$ 1,465.79	$ 618.89	
75	TS14440	Gosford	33 CB outdoor – feeder	1978	26	3	$ 284.07	1.00	45	$ 852.21	$ 359.82	3	$ 284.07	1.00	45	$ 852.21	$ 359.82	
75	TS14440	Gosford	33 CB outdoor – transformer	1978	26	1	$ 293.46	1.00	45	$ 293.46	$ 123.91	1	$ 293.46	1.00	45	$ 293.46	$ 123.91	
75	TS14440	Gosford	33 CB outdoor – bus section (no CB)	1978	26	1	$ 171.58	1.00	45	$ 171.58	$ 72.44	1	$ 171.58	1.00	45	$ 171.58	$ 72.44	
75	TS14440	Gosford	Establishment - Large STS	1978	26	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 3,219.45	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 3,219.45	
83	ZN01610	Homebush Bay	132 CB outdoor – feeder	2001	3	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,258.35	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,258.35	
83	ZN01610	Homebush Bay	132 CB outdoor – bus section	2001	3	2	$ 380.65	1.00	45	$ 761.30	$ 710.55	2	$ 380.65	1.00	45	$ 761.30	$ 710.55	
83	ZN01610	Homebush Bay	132 CB outdoor – transformer	2001	3	2	$ 527.50	1.00	45	$ 1,055.00	$ 984.67	2	$ 527.50	1.00	45	$ 1,055.00	$ 984.67	
83	ZN01610	Homebush Bay	11/22 CB indoor – single feeder	2001	3	23	$ 82.95	1.00	45	$ 1,907.81	$ 1,780.62	23	$ 82.95	1.00	45	$ 1,907.81	$ 1,780.62	
83	ZN01610	Homebush Bay	11/22 CB indoor – double feeder single protection	2001	3	1	$ 102.26	1.00	45	$ 102.26	$ 95.45	1	$ 102.26	1.00	45	$ 102.26	$ 95.45	
83	ZN01610	Homebush Bay	11/22 CB indoor – bus section	2001	3	2	$ 90.90	1.00	45	$ 181.80	$ 169.68	2	$ 90.90	1.00	45	$ 181.80	$ 169.68	
83	ZN01610	Homebush Bay	11/22 CB indoor – transformer	2001	3	4	$ 119.31	1.00	45	$ 477.24	$ 445.42	4	$ 119.31	1.00	45	$ 477.24	$ 445.42	
83	ZN01610	Homebush Bay	Establishment - Major 2 ID	2001	3	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,425.79	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,425.79	
		Homebush Bay	Transmission metering	2001	3	1	$ 27.00	1.00	25	$ 27.00	$ 23.76	1	$ 27.00	1.00	25	$ 27.00	$ 23.76	Metering for NEM purposes
97	HT80003	Kurri 132/33/66 kV	132 CB outdoor – feeder	1963	41	5	$ 674.12	1.00	45	$ 3,370.59	$ 374.51	5	$ 674.12	1.00	45	$ 3,370.59	$ 374.51	

	ORC X AGE	TRANS SUBS EQUIP: ODRC	ORC	AGE	ORC X AGE	TRANS SUBS BLDGS: ODRC	ORC	AGE	ORC X AGE	ZONE SUBS EQUIP: ODRC	ORC	AGE	ORC X AGE	ZONE SUBS BLDGS: ODRC	ORC	AGE	ORC X AGE
132/33	0	3371	3371	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	0	1055	1055	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	0	440	440	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	0	2557	2557	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	0	455	455	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	0	587	587	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	0	0	0	0.00	0	3409	3409	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	26964.71477	2097	2696	10.00	26965	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	31650.12201	2462	3165	10.00	31650	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	8808.358349	685	881	10.00	8808	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	142034.375	11047	14203	10.00	142034	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	9090.2	707	909	10.00	9090	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	17607.60377	1369	1761	10.00	17608	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	19884.8125	1547	1988	10.00	19885	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	265888.35	852	6818	39.00	265888	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	56813.75	0	0	0.00	0	4734	5681	10.00	56814	0	0	0.00	0	0	0	0.00	0
132/33	342	43	57	6.00	342	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	3371	3371	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	1055	1055	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	761	761	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	829	829	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	1023	1023	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	182	182	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	477	477	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	11363	11363	0.00	0
132/33	18201.18247	1618	2022	9.00	18201	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	13703.4765	1218	1523	9.00	13703	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	18990.0732	1688	2110	9.00	18990	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	122717.7	1818	4545	27.00	122718	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	24543.54	364	909	27.00	24544	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	31693.68679	470	1174	27.00	31694	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	18530.3727	275	686	27.00	18530	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	51302.81625	133	1193	43.00	51303	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	244299.125	0	0	0.00	0	1610	5681	43.00	244299	0	0	0.00	0	0	0	0.00	0
132/33	288	36	48	6.00	288	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	102	13	17	6.00	102	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
0	102	13	17	6.00	102	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/11	4044.707216	0	0	0.00	0	0	0	0.00	0	1258	1348	3.00	4045	0	0	0.00	0
132/11	1141.956375	0	0	0.00	0	0	0	0.00	0	355	381	3.00	1142	0	0	0.00	0
132/11	3165.012201	0	0	0.00	0	0	0	0.00	0	985	1055	3.00	3165	0	0	0.00	0
132/11	2642.507505	0	0	0.00	0	0	0	0.00	0	822	881	3.00	2643	0	0	0.00	0
132/11	3981.5076	0	0	0.00	0	0	0	0.00	0	1239	1327	3.00	3982	0	0	0.00	0
132/11	545.412	0	0	0.00	0	0	0	0.00	0	170	182	3.00	545	0	0	0.00	0
132/11	1431.7065	0	0	0.00	0	0	0	0.00	0	445	477	3.00	1432	0	0	0.00	0
132/11	954.471	0	0	0.00	0	0	0	0.00	0	297	318	3.00	954	0	0	0.00	0
132/11	13976.1825	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	4426	4659	3.00	13976
132/11	105	0	0	0.00	0	0	0	0.00	0	31	35	3.00	105	0	0	0.00	0
132	310094.2199	749	6741	46.00	310094	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	70039.991	169	1523	46.00	70040	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	31361.19	85	682	46.00	31361	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	156805.95	0	0	0.00	0	795	3409	46.00	156806	0	0	0.00	0	0	0	0.00	0
132	360	46	60	6.00	360	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/11	42610.3125	0	0	0.00	0	0	0	0.00	0	758	1704	25.00	42610	0	0	0.00	0
132/11	27270.6	0	0	0.00	0	0	0	0.00	0	485	1091	25.00	27271	0	0	0.00	0
132/11	24145.84375	0	0	0.00	0	0	0	0.00	0	429	966	25.00	24146	0	0	0.00	0
132/11	53916.24875	0	0	0.00	0	0	0	0.00	0	959	2157	25.00	53916	0	0	0.00	0
132/11	4545.1	0	0	0.00	0	0	0	0.00	0	81	182	25.00	4545	0	0	0.00	0
132/11	11930.8875	0	0	0.00	0	0	0	0.00	0	212	477	25.00	11931	0	0	0.00	0
132/11	7953.925	0	0	0.00	0	0	0	0.00	0	141	318	25.00	7954	0	0	0.00	0
132/11	116468.1875	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2718	4659	25.00	116468
132/11	138	0	0	0.00	0	0	0	0.00	0	17	23	6.00	138	0	0	0.00	0
132/33	35054.1292	569	1348	26.00	35054	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	9896.95525	161	381	26.00	9897	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	41145.15861	668	1583	26.00	41145	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	1055.004067	504	528	2.00	1055	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	11450.86585	186	440	26.00	11451	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	52219.29021	848	2008	26.00	52219	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	14771.575	240	568	26.00	14772	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	18909.3295	307	727	26.00	18909	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	727.281904	347	364	2.00	727	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	13788.52668	224	530	26.00	13789	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	38110.6635	619	1466	26.00	38111	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	22157.3625	360	852	26.00	22157	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	7629.961635	124	293	26.00	7630	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	4461.01565	72	172	26.00	4461	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	147715.75	0	0	0.00	0	3219	5681	26.00	147716	0	0	0.00	0	0	0	0.00	0
132/11	4044.707216	0	0	0.00	0	0	0	0.00	0	1258	1348	3.00	4045	0	0	0.00	0
132/11	2283.91275	0	0	0.00	0	0	0	0.00	0	711	761	3.00	2284	0	0	0.00	0
132/11	3165.012201	0	0	0.00	0	0	0	0.00	0	985	1055	3.00	3165	0	0	0.00	0
132/11	5723.417175	0	0	0.00	0	0	0	0.00	0	1781	1908	3.00	5723	0	0	0.00	0
132/11	306.79425	0	0	0.00	0	0	0	0.00	0	95	102	3.00	307	0	0	0.00	0
132/11	545.412	0	0	0.00	0	0	0	0.00	0	170	182	3.00	545	0	0	0.00	0
132/11	1431.7065	0	0	0.00	0	0	0	0.00	0	445	477	3.00	1432	0	0	0.00	0
132/11	13976.1825	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	4426	4659	3.00	13976
132/11	81	0	0	0.00	0	0	0	0.00	0	24	27	3.00	81	0	0	0.00	0
132/33	138194.1632	375	3371	41.00	138194	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0

ID	Sub No	Substation	Asset	Commission Date	Age (years)	As Installed						Optimised						Comments
						Quantity	Unit Rate ($k)	Brownfield Factor	Asset Life (years)	Replacement Cost ($k)	Depreciated Replacement Cost ($k)	Quantity	Unit Rate ($k)	Brownfield Factor	Asset Life (years)	Optimised Replacement Cost ($k)	Optimised Depreciated Replacement Cost ($k)	
97	HT80003	Kurri 132/33/66 kV	132 CB outdoor – bus section	1963	41	2	$ 380.65	1.00	45	$ 761.30	$ 84.59	2	$ 380.65	1.00	45	$ 761.30	$ 84.59	
97	HT80003	Kurri 132/33/66 kV	132 CB outdoor – transformer	1963	41	3	$ 527.50	1.00	45	$ 1,582.51	$ 175.83	3	$ 527.50	1.00	45	$ 1,582.51	$ 175.83	
97	HT80003	Kurri 132/33/66 kV	66 CB outdoor – feeder	2000	4	3	$ 401.69	1.00	45	$ 1,205.06	$ 1,097.94	3	$ 401.69	1.00	45	$ 1,205.06	$ 1,097.94	
97	HT80003	Kurri 132/33/66 kV	66 CB outdoor – bus section	2000	4	1	$ 284.07	1.00	45	$ 284.07	$ 258.82	1	$ 284.07	1.00	45	$ 284.07	$ 258.82	
97	HT80003	Kurri 132/33/66 kV	66 CB outdoor – transformer	2000	4	2	$ 363.64	1.00	45	$ 727.28	$ 662.63	2	$ 363.64	1.00	45	$ 727.28	$ 662.63	
97	HT80003	Kurri 132/33/66 kV	66 CB outdoor – bus section (no CB)	1963	41	1	$ 176.78	1.00	45	$ 176.78	$ 19.64	1	$ 176.78	1.00	45	$ 176.78	$ 19.64	
97	HT80003	Kurri 132/33/66 kV	33 CB outdoor – feeder	1963	41	10	$ 284.07	1.00	45	$ 2,840.69	$ 315.63	10	$ 284.07	1.00	45	$ 2,840.69	$ 315.63	
97	HT80003	Kurri 132/33/66 kV	33 CB outdoor – bus section	1963	41	2	$ 227.26	1.00	45	$ 454.51	$ 50.50	2	$ 227.26	1.00	45	$ 454.51	$ 50.50	
97	HT80003	Kurri 132/33/66 kV	33 CB outdoor – transformer	1963	41	3	$ 293.46	1.00	45	$ 880.38	$ 97.82	3	$ 293.46	1.00	45	$ 880.38	$ 97.82	
97	HT80003	Kurri 132/33/66 kV	Establishment - Large STS	1963	41	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 1,799.10	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 1,799.10	
		Kurri 132/33/66 kV	Transmission metering	1998	6	1	$ 52.00	1.00	25	$ 52.00	$ 39.52	1	$ 52.00	1.00	25	$ 52.00	$ 39.52	Metering for NEM purposes
100	TW07200	Lane Cove	132 CB outdoor – feeder	1968	36	9	$ 674.12	1.00	45	$ 6,067.06	$ 1,213.41	9	$ 674.12	1.00	45	$ 6,067.06	$ 1,213.41	
100	TW07200	Lane Cove	132 CB outdoor – bus section	1968	36	4	$ 380.65	1.00	45	$ 1,522.61	$ 304.52	4	$ 380.65	1.00	45	$ 1,522.61	$ 304.52	
100	TW07200	Lane Cove	Establishment - Small STS	1968	36	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 1,363.53	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 1,363.53	
		Lane Cove	Transmission metering	1998	6	1	$ 40.00	1.00	25	$ 40.00	$ 30.40	1	$ 40.00	1.00	25	$ 40.00	$ 30.40	Metering for NEM purposes
110	ZN08000	Macquarie Park	132 CB outdoor – feeder	2001	3	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,258.35	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,258.35	
110	ZN08000	Macquarie Park	132 CB outdoor – bus section	2001	3	2	$ 380.65	1.00	45	$ 761.30	$ 710.55	2	$ 380.65	1.00	45	$ 761.30	$ 710.55	
110	ZN08000	Macquarie Park	132 CB outdoor – transformer	2001	3	2	$ 527.50	1.00	45	$ 1,055.00	$ 984.67	2	$ 527.50	1.00	45	$ 1,055.00	$ 984.67	
110	ZN08000	Macquarie Park	132 CB outdoor – transformer feeder (no CB)	2001	3	1	$ 369.29	1.00	45	$ 369.29	$ 344.67	1	$ 369.29	1.00	45	$ 369.29	$ 344.67	
110	ZN08000	Macquarie Park	11/22 CB indoor – single feeder	2001	3	20	$ 82.95	1.00	45	$ 1,658.96	$ 1,548.36	20	$ 82.95	1.00	45	$ 1,658.96	$ 1,548.36	
110	ZN08000	Macquarie Park	11/22 CB indoor – bus section	2001	3	2	$ 90.90	1.00	45	$ 181.80	$ 169.68	2	$ 90.90	1.00	45	$ 181.80	$ 169.68	
110	ZN08000	Macquarie Park	11/22 CB indoor – transformer	2001	3	4	$ 119.31	1.00	45	$ 477.24	$ 445.42	4	$ 119.31	1.00	45	$ 477.24	$ 445.42	
110	ZN08000	Macquarie Park	Establishment - Major 2 ID	2001	3	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,425.79	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,425.79	
		Macquarie Park	Transmission metering	2001	3	1	$ 24.00	1.00	25	$ 24.00	$ 21.12	1	$ 24.00	1.00	25	$ 24.00	$ 21.12	Metering for NEM purposes
114	ZN00262	Marrickville	132 CB outdoor – bus section	1972	32	1	$ 380.65	1.00	45	$ 380.65	$ 109.97	1	$ 380.65	1.00	45	$ 380.65	$ 109.97	
114	ZN00262	Marrickville	132 CB outdoor – transformer	1972	32	4	$ 527.50	1.00	45	$ 2,110.01	$ 609.56	4	$ 527.50	1.00	45	$ 2,110.01	$ 609.56	
114	ZN00262	Marrickville	132 CB outdoor – feeder or bus section (no CB)	1972	32	6	$ 220.21	1.00	45	$ 1,321.25	$ 381.70	6	$ 220.21	1.00	45	$ 1,321.25	$ 381.70	
114	ZN00262	Marrickville	11/22 CB indoor – single feeder	1972	32	28	$ 82.95	1.00	45	$ 2,322.55	$ 670.96	28	$ 82.95	1.00	45	$ 2,322.55	$ 670.96	
114	ZN00262	Marrickville	11/22 CB indoor – bus section	1972	32	2	$ 90.90	1.00	45	$ 181.80	$ 52.52	2	$ 90.90	1.00	45	$ 181.80	$ 52.52	
114	ZN00262	Marrickville	11/22 CB indoor – transformer	1972	32	8	$ 119.31	1.00	45	$ 954.47	$ 275.74	8	$ 119.31	1.00	45	$ 954.47	$ 275.74	
114	ZN00262	Marrickville	Establishment - Major 2 ID	1972	32	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 2,174.07	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 2,174.07	
		Marrickville	Transmission metering	1998	6	1	$ 26.00	1.00	25	$ 26.00	$ 19.76	1	$ 26.00	1.00	25	$ 26.00	$ 19.76	Metering for NEM purposes
116	TW07310	Mason Park	132 CB outdoor – feeder	1960	44	16	$ 674.12	1.00	45	$ 10,785.89	$ 1,198.43	16	$ 674.12	1.00	45	$ 10,785.89	$ 1,198.43	
116	TW07310	Mason Park	132 CB outdoor – bus section	1960	44	4	$ 380.65	1.00	45	$ 1,522.61	$ 169.18	4	$ 380.65	1.00	45	$ 1,522.61	$ 169.18	
116	TW07310	Mason Park	Establishment - Large STS	1960	44	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 1,515.03	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 1,515.03	
		Mason Park	Transmission metering	1998	6	1	$ 125.00	1.00	25	$ 125.00	$ 95.00	1	$ 125.00	1.00	25	$ 125.00	$ 95.00	Metering for NEM purposes
119	ZN04545	Meadowbank	132 CB outdoor – feeder	1979	25	2	$ 674.12	1.00	45	$ 1,348.24	$ 599.22	2	$ 674.12	1.00	45	$ 1,348.24	$ 599.22	
119	ZN04545	Meadowbank	132 CB outdoor – transformer	1979	25	3	$ 527.50	1.00	45	$ 1,582.51	$ 703.34	3	$ 527.50	1.00	45	$ 1,582.51	$ 703.34	
119	ZN04545	Meadowbank	132 CB outdoor – feeder or bus section (no CB)	1979	25	2	$ 220.21	1.00	45	$ 440.42	$ 195.74	2	$ 220.21	1.00	45	$ 440.42	$ 195.74	
119	ZN04545	Meadowbank	11/22 CB indoor – single feeder	1979	25	33	$ 82.95	1.00	45	$ 2,737.29	$ 1,216.57	33	$ 82.95	1.00	45	$ 2,737.29	$ 1,216.57	
119	ZN04545	Meadowbank	11/22 CB indoor – double feeder single protection	1979	25	3	$ 102.26	1.00	45	$ 306.79	$ 136.35	3	$ 102.26	1.00	45	$ 306.79	$ 136.35	
119	ZN04545	Meadowbank	11/22 CB indoor – bus section	1979	25	3	$ 90.90	1.00	45	$ 272.71	$ 121.20	3	$ 90.90	1.00	45	$ 272.71	$ 121.20	
119	ZN04545	Meadowbank	11/22 CB indoor – transformer	1979	25	6	$ 119.31	1.00	45	$ 715.85	$ 318.16	6	$ 119.31	1.00	45	$ 715.85	$ 318.16	
119	ZN04545	Meadowbank	11/22 load control injection	1979	25	3	$ 159.08	1.00	45	$ 477.24	$ 212.10	3	$ 159.08	1.00	45	$ 477.24	$ 212.10	
119	ZN04545	Meadowbank	Establishment - Major 2 ID	1979	25	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 2,717.59	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 2,717.59	
134	TW07230	Mt. Colah	132 CB outdoor – feeder	1972	32	1	$ 674.12	1.00	45	$ 674.12	$ 194.75	1	$ 674.12	1.00	45	$ 674.12	$ 194.75	
134	TW07230	Mt. Colah	Establishment - Small OD	1972	32	1	$ 397.70	1.00	60	$ 397.70	$ 185.59	1	$ 397.70	1.00	60	$ 397.70	$ 185.59	
147	TS14450	Ourimbah	132 CB outdoor – feeder	1959	45	2	$ 674.12	1.00	45	$ 1,348.24	$ 149.80	2	$ 674.12	1.00	45	$ 1,348.24	$ 149.80	
147	TS14450	Ourimbah	132 CB outdoor – transformer	1959	45	3	$ 527.50	1.00	45	$ 1,582.51	$ 175.83	3	$ 527.50	1.00	45	$ 1,582.51	$ 175.83	
147	TS14450	Ourimbah	132 CB outdoor – feeder or bus section (no CB)	1959	45	1	$ 220.21	1.00	45	$ 220.21	$ 24.47	1	$ 220.21	1.00	45	$ 220.21	$ 24.47	
147	TS14450	Ourimbah	66 CB outdoor – feeder	1959	45	2	$ 401.69	1.00	45	$ 803.37	$ 89.26	2	$ 401.69	1.00	45	$ 803.37	$ 89.26	
147	TS14450	Ourimbah	66 CB outdoor – bus section	1959	45	2	$ 284.07	1.00	45	$ 568.14	$ 63.13	2	$ 284.07	1.00	45	$ 568.14	$ 63.13	
147	TS14450	Ourimbah	66 CB outdoor – transformer	1959	45	2	$ 363.64	1.00	45	$ 727.28	$ 80.81	2	$ 363.64	1.00	45	$ 727.28	$ 80.81	
147	TS14450	Ourimbah	33 CB outdoor – feeder	1959	45	10	$ 284.07	1.00	45	$ 2,840.69	$ 315.63	10	$ 284.07	1.00	45	$ 2,840.69	$ 315.63	
147	TS14450	Ourimbah	33 CB outdoor – bus section	1959	45	2	$ 227.26	1.00	45	$ 454.51	$ 50.50	2	$ 227.26	1.00	45	$ 454.51	$ 50.50	
147	TS14450	Ourimbah	33 CB outdoor – transformer	1959	45	3	$ 293.46	1.00	45	$ 880.38	$ 97.82	3	$ 293.46	1.00	45	$ 880.38	$ 97.82	
147	TS14450	Ourimbah	33 Capacitor bank	1959	45	2	$ 397.70	1.00	45	$ 795.39	$ 88.38	2	$ 397.70	1.00	45	$ 795.39	$ 88.38	
147	TS14450	Ourimbah	Establishment - Small STS	1959	45	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 852.21	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 852.21	
151	TS10900	Peakhurst	132 CB outdoor – feeder	1964	40	4	$ 674.12	1.00	45	$ 2,696.47	$ 299.61	4	$ 674.12	1.00	45	$ 2,696.47	$ 299.61	
151	TS10900	Peakhurst	132 CB outdoor – bus section	1964	40	4	$ 380.65	1.00	45	$ 1,522.61	$ 169.18	4	$ 380.65	1.00	45	$ 1,522.61	$ 169.18	
151	TS10900	Peakhurst	132 CB outdoor – transformer	1964	40	3	$ 527.50	1.00	45	$ 1,582.51	$ 175.83	3	$ 527.50	1.00	45	$ 1,582.51	$ 175.83	
151	TS10900	Peakhurst	33 CB outdoor – feeder	1964	40	18	$ 284.07	1.00	45	$ 5,113.24	$ 568.14	18	$ 284.07	1.00	45	$ 5,113.24	$ 568.14	
151	TS10900	Peakhurst	33 CB outdoor – bus section	1964	40	4	$ 227.26	1.00	45	$ 909.02	$ 101.00	4	$ 227.26	1.00	45	$ 909.02	$ 101.00	
151	TS10900	Peakhurst	33 CB outdoor – transformer	1964	40	3	$ 293.46	1.00	45	$ 880.38	$ 97.82	3	$ 293.46	1.00	45	$ 880.38	$ 97.82	
151	TS10900	Peakhurst	33 Capacitor bank	1964	40	3	$ 397.70	1.00	45	$ 1,193.09	$ 132.57	3	$ 397.70	1.00	45	$ 1,193.09	$ 132.57	
151	TS10900	Peakhurst	Reactor	1964	40	1	$ 340.88	1.00	40	$ 340.88	$ 42.61	1	$ 340.88	1.00	40	$ 340.88	$ 42.61	
151	TS10900	Peakhurst	Establishment - Large STS	1964	40	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 1,893.79	1	$ 5,681.38	1.00	60	$ 5,681.38	$ 1,893.79	
		Peakhurst	Transmission metering	1998	6	1	$ 49.00	1.00	25	$ 49.00	$ 37.24	1	$ 49.00	1.00	25	$ 49.00	$ 37.24	Metering for NEM purposes
158	TS07150	Pyrmont	132 CB outdoor – feeder	1996	8	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,662.82	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,662.82	
158	TS07150	Pyrmont	33 CB outdoor – feeder	1996	8	25	$ 284.07	1.00	45	$ 7,101.72	$ 5,839.19	25	$ 284.07	1.00	45	$ 7,101.72	$ 5,839.19	
158	TS07150	Pyrmont	33 CB outdoor – bus section	1996	8	6	$ 227.26	1.00	45	$ 1,363.53	$ 1,121.12	6	$ 227.26	1.00	45	$ 1,363.53	$ 1,121.12	
158	TS07150	Pyrmont	33 CB outdoor – transformer	1996	8	6	$ 293.46	1.00	45	$ 1,760.76	$ 1,447.74	6	$ 293.46	1.00	45	$ 1,760.76	$ 1,447.74	
158	TS07150	Pyrmont	33 Capacitor bank	1996	8	2	$ 397.70	1.00	45	$ 795.39	$ 653.99	2	$ 397.70	1.00	45	$ 795.39	$ 653.99	
158	TS07150	Pyrmont	Establishment - CBD	1996	8	1	$ 11,362.75	1.00	60	$ 11,362.75	$ 9,847.72	1	$ 11,362.75	1.00	60	$ 11,362.75	$ 9,847.72	
		Pyrmont	Transmission metering	1998	6	1	$ 57.00	1.00	25	$ 57.00	$ 43.32	1	$ 57.00	1.00	25	$ 57.00	$ 43.32	Metering for NEM purposes
167	TS07240	Rozelle	132 CB outdoor – feeder	1996	8	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,662.82	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,662.82	
167	TS07240	Rozelle	132 CB outdoor – bus section	2000	4	1	$ 380.65	1.00	45	$ 380.65	$ 346.82	1	$ 380.65	1.00	45	$ 380.65	$ 346.82	
167	TS07240	Rozelle	132 CB outdoor – transformer	1996	8	2	$ 527.50	1.00	45	$ 1,055.00	$ 867.45	2	$ 527.50	1.00	45	$ 1,055.00	$ 867.45	
167	TS07240	Rozelle	33 CB outdoor – transformer	1954	50	2	$ 293.46	1.00	45	$ 586.92	$ 65.21	2	$ 293.46	1.00	45	$ 586.92	$ 65.21	
167	TS07240	Rozelle	Reactor	1954	50	1	$ 340.88	1.00	40	$ 340.88	$ 42.61	1	$ 340.88	1.00	40	$ 340.88	$ 42.61	
167	TS07240	Rozelle	Establishment - Small STS	1954	50	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 568.14	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 568.14	
		Rozelle	Transmission metering	1998	6	1	$ 43.00	1.00	25	$ 43.00	$ 32.68	1	$ 43.00	1.00	25	$ 43.00	$ 32.68	Metering for NEM purposes
176	ZN14143	Somersby	132 CB outdoor – feeder	1994	10	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,048.63	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,048.63	
176	ZN14143	Somersby	132 CB outdoor – bus section	1994	10	1	$ 380.65	1.00	45	$ 380.65	$ 296.06	1	$ 380.65	1.00	45	$ 380.65	$ 296.06	
176	ZN14143	Somersby	132 CB outdoor – transformer	1994	10	2	$ 527.50	1.00	45	$ 1,055.00	$ 820.56	2	$ 527.50	1.00	45	$ 1,055.00	$ 820.56	
176	ZN14143	Somersby	11/22 CB indoor – single feeder	1994	10	16	$ 82.95	1.00	45	$ 1,327.17	$ 1,032.24	16	$ 82.95	1.00	45	$ 1,327.17	$ 1,032.24	
176	ZN14143	Somersby	11/22 CB indoor – bus section	1994	10	2	$ 90.90	1.00	45	$ 181.80	$ 141.40	2	$ 90.90	1.00	45	$ 181.80	$ 141.40	
176	ZN14143	Somersby	11/22 CB indoor – transformer	1994	10	4	$ 119.31	1.00	45	$ 477.24	$ 371.18	4	$ 119.31	1.00	45	$ 477.24	$ 371.18	
176	ZN14143	Somersby	11/22 load control injection	1994	10	2	$ 159.08	1.00	45	$ 318.16	$ 247.46	2	$ 159.08	1.00	45	$ 318.16	$ 247.46	
176	ZN14143	Somersby	Establishment - Major 2 ID	1994	10	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 3,882.27	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 3,882.27	
178	ZN02568	St. Peters	132 CB outdoor – bus section	1971	33	1	$ 380.65	1.00	45	$ 380.65	$ 101.51	1	$ 380.65	1.00	45	$ 380.65	$ 101.51	
178	ZN02568	St. Peters	132 CB outdoor – transformer	1971	33	4	$ 527.50	1.00	45	$ 2,110.01	$ 562.67	4	$ 527.50	1.00	45	$ 2,110.01	$ 562.67	
178	ZN02568	St. Peters	132 CB outdoor – feeder or bus section (no CB)	1971	33	2	$ 220.21	1.00	45	$ 440.42	$ 117.44	2	$ 220.21	1.00	45	$ 440.42	$ 117.44	
178	ZN02568	St. Peters	11/22 CB indoor – single feeder	1971	33	28	$ 82.95	1.00	45	$ 2,322.55	$ 619.35	28	$ 82.95	1.00	45	$ 2,322.55	$ 619.35	
178	ZN02568	St. Peters	11/22 CB indoor – bus section	1971	33	2	$ 90.90	1.00	45	$ 181.80	$ 48.48	2	$ 90.90	1.00	45	$ 181.80	$ 48.48	

	ORC X AGE	TRANS SUBS EQUIP				TRANS SUBS BLDGS				ZONE SUBS EQUIP				ZONE SUBS BLDGS			
		ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE
132/33	31213.47425	85	761	41.00	31213	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	64882.75011	176	1583	41.00	64883	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	4820.242174	1098	1205	4.00	4820	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	1136.275	259	284	4.00	1136	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	2909.127616	663	727	4.00	2909	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	7247.815308	20	177	41.00	7248	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	116468.1875	316	2841	41.00	116468	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	18634.91	51	455	41.00	18635	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	36095.58773	98	880	41.00	36096	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	232936.375	0	0	0.00	0	1799	5681	41.00	232936	0	0	0.00	0	0	0	0.00	0
132/33	312	40	52	6.00	312	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	218414.1896	1213	6067	36.00	218414	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	54813.906	305	1523	36.00	54814	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	122717.7	0	0	0.00	0	1364	3409	36.00	122718	0	0	0.00	0	0	0	0.00	0
132	240	30	40	6.00	240	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/11	4044.707216	0	0	0.00	0	0	0	0.00	0	1258	1348	3.00	4045	0	0	0.00	0
132/11	2283.91275	0	0	0.00	0	0	0	0.00	0	711	761	3.00	2284	0	0	0.00	0
132/11	3165.012201	0	0	0.00	0	0	0	0.00	0	985	1055	3.00	3165	0	0	0.00	0
132/11	1107.868125	0	0	0.00	0	0	0	0.00	0	345	369	3.00	1108	0	0	0.00	0
132/11	4976.8845	0	0	0.00	0	0	0	0.00	0	1548	1659	3.00	4977	0	0	0.00	0
132/11	545.412	0	0	0.00	0	0	0	0.00	0	170	182	3.00	545	0	0	0.00	0
132/11	1431.7065	0	0	0.00	0	0	0	0.00	0	445	477	3.00	1432	0	0	0.00	0
132/11	13976.1825	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	4426	4659	3.00	13976
132/11	72	0	0	0.00	0	0	0	0.00	0	21	24	3.00	72	0	0	0.00	0
132/11	12180.868	0	0	0.00	0	0	0	0.00	0	110	381	32.00	12181	0	0	0.00	0
132/11	67520.26028	0	0	0.00	0	0	0	0.00	0	610	2110	32.00	67520	0	0	0.00	0
132/11	42280.12008	0	0	0.00	0	0	0	0.00	0	382	1321	32.00	42280	0	0	0.00	0
132/11	74321.4752	0	0	0.00	0	0	0	0.00	0	671	2323	32.00	74321	0	0	0.00	0
132/11	5817.728	0	0	0.00	0	0	0	0.00	0	53	182	32.00	5818	0	0	0.00	0
132/11	30543.072	0	0	0.00	0	0	0	0.00	0	276	954	32.00	30543	0	0	0.00	0
132/11	149079.28	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2174	4659	32.00	149079
132/11	156	0	0	0.00	0	0	0	0.00	0	20	26	6.00	156	0	0	0.00	0
132	474578.98	1198	10786	44.00	474579	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	66994.774	169	1523	44.00	66995	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	249980.5	0	0	0.00	0	1515	5681	44.00	249981	0	0	0.00	0	0	0	0.00	0
132	750	95	125	6.00	750	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/11	33705.89346	0	0	0.00	0	0	0	0.00	0	599	1348	25.00	33706	0	0	0.00	0
132/11	39562.65251	0	0	0.00	0	0	0	0.00	0	703	1583	25.00	39563	0	0	0.00	0
132/11	11010.44794	0	0	0.00	0	0	0	0.00	0	196	440	25.00	11010	0	0	0.00	0
132/11	68432.16188	0	0	0.00	0	0	0	0.00	0	1217	2737	25.00	68432	0	0	0.00	0
132/11	7669.85625	0	0	0.00	0	0	0	0.00	0	136	307	25.00	7670	0	0	0.00	0
132/11	6817.65	0	0	0.00	0	0	0	0.00	0	121	273	25.00	6818	0	0	0.00	0
132/11	17896.33125	0	0	0.00	0	0	0	0.00	0	318	716	25.00	17896	0	0	0.00	0
132/11	11930.8875	0	0	0.00	0	0	0	0.00	0	212	477	25.00	11931	0	0	0.00	0
132/11	116468.1875	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2718	4659	25.00	116468
132	21571.77182	195	674	32.00	21572	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132	12726.28	0	0	0.00	0	186	398	32.00	12726	0	0	0.00	0	0	0	0.00	0
132/33	60670.60823	150	1348	45.00	60671	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	71212.77452	176	1583	45.00	71213	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	9909.403143	24	220	45.00	9909	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	36151.8163	89	803	45.00	36152	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	25566.1875	63	568	45.00	25566	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	32727.68568	81	727	45.00	32728	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	127830.9375	316	2841	45.00	127831	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	20452.95	51	455	45.00	20453	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	39617.10849	98	880	45.00	39617	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	35792.6625	88	795	45.00	35793	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	153397.125	0	0	0.00	0	852	3409	45.00	153397	0	0	0.00	0	0	0	0.00	0
132/33	107858.8591	300	2696	40.00	107859	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	60904.34	169	1523	40.00	60904	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	63300.24401	176	1583	40.00	63300	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	204529.5	568	5113	40.00	204530	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	36360.8	101	909	40.00	36361	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	35215.20755	98	880	40.00	35215	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	47723.55	133	1193	40.00	47724	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	13635.3	43	341	40.00	13635	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	227255	0	0	0.00	0	1894	5681	40.00	227255	0	0	0.00	0	0	0	0.00	0
132/33	294	37	49	6.00	294	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	16178.82886	1663	2022	8.00	16179	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	56813.75	5839	7102	8.00	56814	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	10908.24	1121	1364	8.00	10908	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	14086.08302	1448	1761	8.00	14086	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	6363.14	654	795	8.00	6363	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	90902	0	0	0.00	0	9848	11363	8.00	90902	0	0	0.00	0	0	0	0.00	0
132/33	342	43	57	6.00	342	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	16178.82886	1663	2022	8.00	16179	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	1522.6085	347	381	4.00	1523	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	8440.032535	867	1055	8.00	8440	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	29346.00629	65	587	50.00	29346	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	17044.125	43	341	50.00	17044	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	170441.25	0	0	0.00	0	568	3409	50.00	170441	0	0	0.00	0	0	0	0.00	0
132/33	258	33	43	6.00	258	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/11	13482.35739	0	0	0.00	0	0	0	0.00	0	1049	1348	10.00	13482	0	0	0.00	0
132/11	3806.52125	0	0	0.00	0	0	0	0.00	0	296	381	10.00	3807	0	0	0.00	0
132/11	10550.04067	0	0	0.00	0	0	0	0.00	0	821	1055	10.00	10550	0	0	0.00	0
132/11	13271.692	0	0	0.00	0	0	0	0.00	0	1032	1327	10.00	13272	0	0	0.00	0
132/11	1818.04	0	0	0.00	0	0	0	0.00	0	141	182	10.00	1818	0	0	0.00	0
132/11	4772.355	0	0	0.00	0	0	0	0.00	0	371	477	10.00	4772	0	0	0.00	0
132/11	3181.57	0	0	0.00	0	0	0	0.00	0	247	318	10.00	3182	0	0	0.00	0
132/11	46587.275	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	3882	4659	10.00	46587
132/11	12561.52013	0	0	0.00	0	0	0	0.00	0	102	381	33.00	12562	0	0	0.00	0
132/11	69630.26842	0	0	0.00	0	0	0	0.00	0	563	2110	33.00	69630	0	0	0.00	0
132/11	14533.79128	0	0	0.00	0	0	0	0.00	0	117	440	33.00	14534	0	0	0.00	0
132/11	76644.0213	0	0	0.00	0	0	0	0.00	0	619	2323	33.00	76644	0	0	0.00	0
132/11	5999.532	0	0	0.00	0	0	0	0.00	0	48	182	33.00	6000	0	0	0.00	0

ID	Sub No	Substation	Asset	Commission Date	Age (years)	As Installed						Optimised						Comments
						Quantity	Unit Rate ($k)	Brownfield Factor	Asset Life (years)	Replacement Cost ($k)	Depreciated Replacement Cost ($k)	Quantity	Unit Rate ($k)	Brownfield Factor	Asset Life (years)	Optimised Replacement Cost ($k)	Optimised Depreciated Replacement Cost ($k)	
178	ZN02568	St. Peters	11/22 CB indoor – transformer	1971	33	8	$ 119.31	1.00	45	$ 954.47	$ 254.53	8	$ 119.31	1.00	45	$ 954.47	$ 254.53	
178	ZN02568	St. Peters	Establishment - Major 2 ID	1971	33	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 2,096.43	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 2,096.43	
		St. Peters	Transmission metering	1998	6	1	$ 28.00	1.00	25	$ 28.00	$ 21.28	1	$ 28.00	1.00	25	$ 28.00	$ 21.28	Metering for NEM purposes
190	HT80007	Tomago	132 CB outdoor – feeder	2000	4	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,842.59	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,842.59	
190	HT80007	Tomago	132 CB outdoor – transformer	2000	4	3	$ 527.50	1.00	45	$ 1,582.51	$ 1,441.84	3	$ 527.50	1.00	45	$ 1,582.51	$ 1,441.84	
190	HT80007	Tomago	33 CB outdoor – feeder	1963	41	10	$ 284.07	1.00	45	$ 2,840.69	$ 315.63	10	$ 284.07	1.00	45	$ 2,840.69	$ 315.63	
190	HT80007	Tomago	33 CB outdoor – bus section	1963	41	2	$ 227.26	1.00	45	$ 454.51	$ 50.50	2	$ 227.26	1.00	45	$ 454.51	$ 50.50	
190	HT80007	Tomago	33 CB outdoor – transformer	1963	41	3	$ 293.46	1.00	45	$ 880.38	$ 97.82	3	$ 293.46	1.00	45	$ 880.38	$ 97.82	
190	HT80007	Tomago	33 CB outdoor – bus section (no CB)	1963	41	2	$ 171.58	1.00	45	$ 343.16	$ 38.13	2	$ 171.58	1.00	45	$ 343.16	$ 38.13	
190	HT80007	Tomago	Establishment - Small STS	1963	41	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 1,079.46	1	$ 3,408.83	1.00	60	$ 3,408.83	$ 1,079.46	
	ZN12650	West Gosford	132 CB outdoor – feeder	2004	0	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,348.24	2	$ 674.12	1.00	45	$ 1,348.24	$ 1,348.24	
	ZN12650	West Gosford	132 CB outdoor – transformer	2004	0	2	$ 527.50	1.00	45	$ 1,055.00	$ 1,055.00	2	$ 527.50	1.00	45	$ 1,055.00	$ 1,055.00	
	ZN12650	West Gosford	132 CB outdoor – feeder or bus section (no CB)	2004	0	2	$ 220.21	1.00	45	$ 440.42	$ 440.42	2	$ 220.21	1.00	45	$ 440.42	$ 440.42	
	ZN12650	West Gosford	11/22 CB indoor – single feeder	2004	0	9	$ 82.95	1.00	45	$ 746.53	$ 746.53	9	$ 82.95	1.00	45	$ 746.53	$ 746.53	
	ZN12650	West Gosford	11/22 CB indoor – double feeder single protection	2004	0	7	$ 102.26	1.00	45	$ 715.85	$ 715.85	7	$ 102.26	1.00	45	$ 715.85	$ 715.85	
	ZN12650	West Gosford	11/22 CB indoor – bus section	2004	0	2	$ 90.90	1.00	45	$ 181.80	$ 181.80	2	$ 90.90	1.00	45	$ 181.80	$ 181.80	
	ZN12650	West Gosford	11/22 CB indoor – transformer	2004	0	4	$ 119.31	1.00	45	$ 477.24	$ 477.24	4	$ 119.31	1.00	45	$ 477.24	$ 477.24	
	ZN12650	West Gosford	11/22 load control injection	2004	0	2	$ 159.08	1.00	45	$ 318.16	$ 318.16	2	$ 159.08	1.00	45	$ 318.16	$ 318.16	
	ZN12650	West Gosford	Establishment - Major 2 ID	2004	0	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,658.73	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,658.73	
205	ZN14891	Wyong	132 CB outdoor – feeder	2001	3	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,887.53	3	$ 674.12	1.00	45	$ 2,022.35	$ 1,887.53	
205	ZN14891	Wyong	132 CB outdoor – bus section	2001	3	1	$ 380.65	1.00	45	$ 380.65	$ 355.28	1	$ 380.65	1.00	45	$ 380.65	$ 355.28	
205	ZN14891	Wyong	132 CB outdoor – transformer	2001	3	3	$ 527.50	1.00	45	$ 1,582.51	$ 1,477.01	3	$ 527.50	1.00	45	$ 1,582.51	$ 1,477.01	
205	ZN14891	Wyong	132 CB outdoor – feeder or bus section (no CB)	2001	3	3	$ 220.21	1.00	45	$ 660.63	$ 616.59	3	$ 220.21	1.00	45	$ 660.63	$ 616.59	
205	ZN14891	Wyong	11/22 CB indoor – single feeder	2001	3	16	$ 82.95	1.00	45	$ 1,327.17	$ 1,238.69	16	$ 82.95	1.00	45	$ 1,327.17	$ 1,238.69	
205	ZN14891	Wyong	11/22 CB indoor – bus section	2001	3	2	$ 90.90	1.00	45	$ 181.80	$ 169.68	2	$ 90.90	1.00	45	$ 181.80	$ 169.68	
205	ZN14891	Wyong	11/22 CB indoor – transformer	2001	3	4	$ 119.31	1.00	45	$ 477.24	$ 445.42	4	$ 119.31	1.00	45	$ 477.24	$ 445.42	
205	ZN14891	Wyong	11/22 load control injection	2001	3	2	$ 159.08	1.00	45	$ 318.16	$ 296.95	2	$ 159.08	1.00	45	$ 318.16	$ 296.95	
205	ZN14891	Wyong	Establishment - Major 2 ID	2001	3	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,425.79	1	$ 4,658.73	1.00	60	$ 4,658.73	$ 4,425.79	
		Wyong	Transmission metering	2001	3	1	$ 24.00	1.00	25	$ 24.00	$ 21.12	1	$ 24.00	1.00	25	$ 24.00	$ 21.12	Metering for NEM purposes
		TOTAL				888				$ 355,437.83	$ 201,729.09	886				$ 354,236.21	$ 200,527.47	

	ORC X AGE	TRANS SUBS EQUIP				TRANS SUBS BLDGS				ZONE SUBS EQUIP				ZONE SUBS BLDGS			
		ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE
132/11	31497.543	0	0	0.00	0	0	0	0.00	0	255	954	33.00	31498	0	0	0.00	0
132/11	153738.0075	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2096	4659	33.00	153738
132/11	168	0	0	0.00	0	0	0	0.00	0	21	28	6.00	168	0	0	0.00	0
132/33	8089.414431	1843	2022	4.00	8089	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	6330.024401	1442	1583	4.00	6330	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	116468.1875	316	2841	41.00	116468	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	18634.91	51	455	41.00	18635	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	36095.58773	98	880	41.00	36098	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	14069.35705	38	343	41.00	14069	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
132/33	139761.825	0	0	0.00	0	1079	3409	41.00	139762	0	0	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	1348	1348	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	1055	1055	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	440	440	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	747	747	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	716	716	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	182	182	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	477	477	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	318	318	0.00	0	0	0	0.00	0
132/11	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	4659	4659	0.00	0
132/11	6067.060823	0	0	0.00	0	0	0	0.00	0	1888	2022	3.00	6067	0	0	0.00	0
132/11	1141.956375	0	0	0.00	0	0	0	0.00	0	355	381	3.00	1142	0	0	0.00	0
132/11	4747.518301	0	0	0.00	0	0	0	0.00	0	1477	1583	3.00	4748	0	0	0.00	0
132/11	1981.880629	0	0	0.00	0	0	0	0.00	0	617	661	3.00	1982	0	0	0.00	0
132/11	3981.5076	0	0	0.00	0	0	0	0.00	0	1239	1327	3.00	3982	0	0	0.00	0
132/11	545.412	0	0	0.00	0	0	0	0.00	0	170	182	3.00	545	0	0	0.00	0
132/11	1431.7065	0	0	0.00	0	0	0	0.00	0	445	477	3.00	1432	0	0	0.00	0
132/11	954.471	0	0	0.00	0	0	0	0.00	0	297	318	3.00	954	0	0	0.00	0
132/11	13976.1825	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	4426	4659	3.00	13976
132/11	72	0	0	0.00	0	0	0	0.00	0	21	24	3.00	72	0	0	0.00	0
	21.89	69912	158686	26.29	4171879	32872	66302	30.25	2005753	50430	71298	13.16	938419	47313	57950	11.01	638246

Land valuations ~ 2002
Prepared for EnergyAustralia by Preston Rowe Paterson Pty Ltd

Valuation Index	Location ID	Sub No	Location Name	Address	1998 ODRC	2004 ODRC	New	Market Value	Network Land	Corporate Land	Corporate Buildings	Network Land Value	Comments
Vol 1.1a	7140	TS07140	Bunnerong North	Military Road, Matraville (includes Bunnerong sub)	X			$ 14,500,000				$ 11,600,000	80% of valuation for combined site
N/A	N/A	ZN00074	Campbell Street	N/A			X	$ 8,000,000				$ 8,000,000	
Vol 1.5	7270	TS07270	Canterbury	16a Hansen Avenue, Earlwood	X			$ 1,750,000				$ 1,750,000	
Vol 2.53	14892	ZN14892	Charmhaven	19 Mataram Road & 760 Pacific Highway, Woongarrah		X		$ 3,650,000				$ 3,650,000	
Vol 1.50	3922	ZN03922	Drummoyne	Hampden Road (near Wareemba Road), Drummoyne	X			$ 3,100,000				$ 3,100,000	
Vol 2.17	14440	TS14440	Gosford	10-16 Dell Road, West Gosford		X		$ 2,360,000				$ 2,360,000	
Vol 3.1	80003	HT80003	Kurri 132/66/33	Off Main Road, Heddon Greta	X			$ 100,000				$ 100,000	
Vol 1.11	7200	TW07200	Lane Cove	Sirius Street, Lane Cove	X			$ 9,500,000				$ 9,500,000	
Vol 2.36	8000	ZN08000	Macquarie Park	17-21 Waterloo Road, Macquarie Park		X		$ 6,800,000				$ 6,800,000	
Vol 2.22	262	ZN00262	Marrickville	Meeks Road (near Vincent Street), Marrickville	X			$ 1,200,000				$ 1,200,000	
Vol 1.12	7310	TW07310	Mason Park	Underwood Road, Homebush	X			$ 18,000,000				$ 18,000,000	
Vol 2.34	4545	ZN04545	Meadowbank	See Street & McPherson Street, Meadowbank	X			$ 1,700,000				$ 1,700,000	
Vol 4.17	14450	TS14450	Ourimbah	Yates Road & Ourimbah Creek Road, Ourimbah		X		$ 2,400,000				$ 2,400,000	
Vol 1.9	10900	TS10900	Peakhurst	Norman Street, Peakhurst	X			$ 5,500,000				$ 5,500,000	
Vol 2.14	7150	TS07150	Pyrmont	77-89 Pyrmont Street, Pyrmont	X			$ 7,300,000	$ 5,600,000	$ 1,700,000	$ 1,400,000	$ 5,600,000	
Vol 1.3	7240	TS07240	Rozelle	Manning Street, Rozelle	X			$ 6,300,000				$ 6,300,000	
Vol 3.33	14143	ZN14143	Somersby	22 Gindurra Road, Somersby		X		$ 540,000				$ 540,000	
Vol 1.44	2568	ZN02568	St. Peters	Mitchell Road (near Princes Highway), St. Peters	X			$ 6,300,000				$ 6,300,000	
Vol 4.13	12650	ZN12650	West Gosford	22-48 Faunce Street, West Gosford			X	$ 2,700,000	$ 560,000	$ 2,140,000	$ 3,830,000	$ 560,000	
Vol 4.11	14891	ZN14891	Wyong	320 Pacific Highway, Wyong		X		$ 1,820,000				$ 1,820,000	
		20		**TOTAL**	**12**	**6**	**2**	**$ 103,520,000**	**$ 6,160,000**	**$ 3,840,000**	**$ 5,230,000**	**$ 96,780,000**	

Missed Assets	T2>T1	New
		$ 8,000,000
$ 3,650,000		
	$ 2,360,000	
$ 6,800,000		
	$ 2,400,000	
$ 1,820,000		
		$ 560,000
$ 12.27	$ 4.76	$ 8.56
		$ -
$ -		
$ 12,270,012.27	$ 4,760,004.76	$ 8,560,008.56

EnergyAustralia

SKM

Asset ages as of **30 June 2004**
Residual Asset Life **5 years**

ID	Sub No	Substation	Unit No	Commission Date	Age (years)	As Installed										Optimised										Comments	ORC X AGE	TRANSMISSION				ZONE			
						Voltage (kV)	Rated MVA	Type	TRF Type No	Quantity	Unit Rate ($k)	Brownfield Factor	Asset Life (years)	Replacement Cost ($k)	Depreciated Replacement Cost ($k)	Voltage (kV)	Rated MVA	Type	TRF Type No	Quantity	Unit Rate ($k)	Brownfield Factor	Asset Life (years)	Optimised Replacement Cost ($k)	Optimised Depreciated Replacement Cost ($k)			ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE
		Beresfield	1	2004	0	132/33	60/120	ONAN/ONAF	TR24	2	$ 1,654.98	1.00	50	$ 3,309.97	$ 3,309.97	132/33	60/120	ONAN/ONAF	TR24	2	$ 1,654.98	1.00	50	$ 3,309.97	$ 3,309.97		0	3310	3310	0	0	0	0	0	0
26	TS07140	Bunnerong North	1	1962	42	132/33	40/60	ONAN/ONAF	TR23	3	$ 1,039.12	1.00	50	$ 3,117.37	$ 498.78	132/33	40/60	ONAN/ONAF	TR23	3	$ 1,039.12	1.00	50	$ 3,117.37	$ 498.78		130929.5594	499	3117	42	130930	0	0	0	0
26	TS07140	Bunnerong North	2	1969	35	132/33	60/120	ONAN/ONAF	TR24	3	$ 1,654.98	1.00	50	$ 4,964.95	$ 1,489.49	132/33	60/120	ONAN/ONAF	TR24	3	$ 1,654.98	1.00	50	$ 4,964.95	$ 1,489.49		173773.3764	1489	4965	35	173773	0	0	0	0
		Campbell Street	1	2004	0	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,329.36	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,329.36		0	0	0	0	0	2329	2329	0	0
30	TS07270	Canterbury	1	1961	43	132/33	40/60	ONAN/ONAF	TR23	4	$ 1,039.12	1.00	50	$ 4,156.49	$ 581.91	132/33	40/60	ONAN/ONAF	TR23	4	$ 1,039.12	1.00	50	$ 4,156.49	$ 581.91		178729.2399	582	4156	43	178729	0	0	0	0
39	ZN14892	Charmhaven	1	2001	3	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,189.60	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,189.60		6988.09125	0	0	0	0	2190	2329	3	6988
60	ZN03922	Drummoyne	1	1979	25	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 974.92	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 974.92		48746.1975	0	0	0	0	975	1950	25	48746
75	TS14440	Gosford	1	1978	26	132/33	60/120	ONAN/ONAF	TR24	1	$ 1,654.98	1.00	50	$ 1,654.98	$ 794.39	132/33	60/120	ONAN/ONAF	TR24	1	$ 1,654.98	1.00	50	$ 1,654.98	$ 794.39		43029.59798	794	1655	26	43030	0	0	0	0
75	TS14440	Gosford	2	1978	26	132/66	60/120	ONAN/ONAF	TR27	3	$ 1,654.42	1.00	50	$ 4,963.25	$ 2,382.36	132/66	60/120	ONAN/ONAF	TR27	3	$ 1,654.42	1.00	50	$ 4,963.25	$ 2,382.36		129044.4792	2382	4963	26	129044	0	0	0	0
83	ZN01610	Homebush Bay	1	1998	6	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,049.84	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,049.84		13976.1825	0	0	0	0	2050	2329	6	13976
97	HT80003	Kurri 132/33/66 kV	1	1963	41	132/33	40/60	ONAN/ONAF	TR23	3	$ 1,039.12	1.00	50	$ 3,117.37	$ 561.13	132/33	40/60	ONAN/ONAF	TR23	3	$ 1,039.12	1.00	50	$ 3,117.37	$ 561.13		127812.189	561	3117	41	127812	0	0	0	0
97	HT80003	Kurri 132/33/66 kV	2	1963	41	33/66	15	ONAN	TR18	1	$ 795.39	1.00	50	$ 795.39	$ 143.17	33/66	15	ONAN	TR18	1	$ 795.39	1.00	50	$ 795.39	$ 143.17		32611.0925	143	795	41	32611	0	0	0	0
97	HT80003	Kurri 132/33/66 kV	3	1960	44	33/66	15	ONAN	TR18	1	$ 795.39	1.00	50	$ 795.39	$ 95.45	33/66	15	ONAN	TR18	1	$ 795.39	1.00	50	$ 795.39	$ 95.45		34997.27	95	795	44	34997	0	0	0	0
110	ZN08000	Macquarie Park	1	2001	3	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,189.60	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,189.60		6988.09125	0	0	0	0	2190	2329	3	6988
114	ZN00262	Marrickville	1	1972	32	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 701.95	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 701.95		62395.1328	0	0	0	0	702	1950	32	62395
114	ZN00262	Marrickville	2	1974	30	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	1	$ 974.92	1.00	50	$ 974.92	$ 389.97	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	1	$ 974.92	1.00	50	$ 974.92	$ 389.97		29247.7185	0	0	0	0	390	975	30	29248
116	TW07310	Mason Park	1	1960	44	11/415	Auxiliary	-	AUX	3	$ 56.81	1.00	50	$ 170.44	$ 20.45	11/415	Auxiliary	-	AUX	3	$ 56.81	1.00	50	$ 170.44	$ 20.45		7499.415	0	0	0	0	20	170	44	7498
119	ZN04545	Meadowbank	1	1979	25	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 974.92	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 974.92		48746.1975	0	0	0	0	975	1950	25	48746
119	ZN04545	Meadowbank	2	1979	25	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	1	$ 1,164.68	1.00	50	$ 1,164.68	$ 582.34	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	1	$ 1,164.68	1.00	50	$ 1,164.68	$ 582.34		29117.04688	0	0	0	0	582	1165	25	29117
147	TS14450	Ourimbah	1	1959	45	132/33	40/60	ONAN/ONAF	TR23	3	$ 1,039.12	1.00	50	$ 3,117.37	$ 311.74	132/33	40/60	ONAN/ONAF	TR23	3	$ 1,039.12	1.00	50	$ 3,117.37	$ 311.74		140281.6708	312	3117	45	140282	0	0	0	0
147	TS14450	Ourimbah	2	1959	45	33/66	15	ONAN	TR18	2	$ 795.39	1.00	50	$ 1,590.79	$ 159.08	33/66	15	ONAN	TR18	2	$ 795.39	1.00	50	$ 1,590.79	$ 159.08		71585.325	159	1591	45	71585	0	0	0	0
151	TS10900	Peakhurst	1	1964	40	132/33	60/120	ONAN/ONAF	TR24	3	$ 1,654.98	1.00	50	$ 4,964.95	$ 992.99	132/33	60/120	ONAN/ONAF	TR24	3	$ 1,654.98	1.00	50	$ 4,964.95	$ 992.99		198598.1445	993	4965	40	198598	0	0	0	0
158	TS07150	Pyrmont	1	1962	42	132/33	40/60	ONAN/ONAF	TR23	2	$ 1,039.12	1.00	50	$ 2,078.25	$ 332.52	132/33	40/60	ONAN/ONAF	TR23	2	$ 1,039.12	1.00	50	$ 2,078.25	$ 332.52		87286.37295	333	2078	42	87286	0	0	0	0
158	TS07150	Pyrmont	2	1991	13	132/33	60/120	ONAN/ONAF	TR24	2	$ 1,654.98	1.00	50	$ 3,309.97	$ 2,449.38	132/33	40/60	ONAN/ONAF	TR23	2	$ 1,039.12	1.00	50	$ 2,078.25	$ 1,537.90	Based on extrapolation of dist load forecast	27017.21068	1538	2078	13	27017	0	0	0	0
167	TS07240	Rozelle	1	1954	50	132/33	20/30	ONAN/ONAF	TR22	2	$ 815.28	1.00	50	$ 1,630.55	$ 163.06	132/33	20/30	ONAN/ONAF	TR22	2	$ 815.28	1.00	50	$ 1,630.55	$ 163.06		81527.73125	163	1631	50	81528	0	0	0	0
176	ZN14143	Somersby	1	1994	10	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 1,559.88	132/11	15/20/25	ONAN/ONAF/OFAF	TR19	2	$ 724.94	1.00	50	$ 1,449.89	$ 1,159.91	Based on extrapolation of dist load forecast	14498.869	0	0	0	0	1160	1450	10	14499
178	ZN02568	St. Peters	1	1971	33	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 662.95	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 662.95		64344.9807	0	0	0	0	663	1950	33	64345
178	ZN02568	St. Peters	2	1977	27	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	1	$ 974.92	1.00	50	$ 974.92	$ 448.47	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	1	$ 974.92	1.00	50	$ 974.92	$ 448.47		26322.94665	0	0	0	0	448	975	27	26323
178	ZN02568	St. Peters	3	1993	11	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	1	$ 974.92	1.00	50	$ 974.92	$ 760.44	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	1	$ 974.92	1.00	50	$ 974.92	$ 760.44		10724.16345	0	0	0	0	760	975	11	10724
190	HT80007	Tomago	1	1963	41	132/33	40/60	ONAN/ONAF	TR23	1	$ 1,039.12	1.00	50	$ 1,039.12	$ 187.04	132/33	40/60	ONAN/ONAF	TR23	1	$ 1,039.12	1.00	50	$ 1,039.12	$ 187.04		42604.06299	187	1039	41	42604	0	0	0	0
190	HT80007	Tomago	2	1981	23	132/33	40/60	ONAN/ONAF	TR23	1	$ 1,039.12	1.00	50	$ 1,039.12	$ 561.13	132/33	40/60	ONAN/ONAF	TR23	1	$ 1,039.12	1.00	50	$ 1,039.12	$ 561.13		23899.84021	561	1039	23	23900	0	0	0	0
190	HT80007	Tomago	3	1984	20	132/33	40/60	ONAN/ONAF	TR23	1	$ 1,039.12	1.00	50	$ 1,039.12	$ 623.47	132/33	40/60	ONAN/ONAF	TR23	1	$ 1,039.12	1.00	50	$ 1,039.12	$ 623.47		20782.46975	623	1039	20	20782	0	0	0	0
		West Gosford	1	2004	0	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,329.36	132/11	50/60/65	ONAN/ONAF/OFAF	TR21	2	$ 1,164.68	1.00	50	$ 2,329.36	$ 2,329.36		0	0	0	0	0	2329	2329	0	0
205	ZN14891	Wyong	1	1979	25	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 974.92	132/11	35/40/45	ONAN/ONAF/OFAF	TR20	2	$ 974.92	1.00	50	$ 1,949.85	$ 974.92		48746.1975	0	0	0	0	975	1950	25	48746
		TOTAL								**67**				**$ 74,290.23**	**$ 34,776.03**									**$ 72,558.54**	**$ 33,464.58**		27.05	14726	45453	33.98	1544510	18739	27106	15.43	418341

33465

EnergyAustralia

Circuit ages as of 30 June 2004

Asset Lives

Steel Tower	60 years
Steel/Concrete Pole	55 years
Wood Pole (wet area)	45 years
Underground Cable	45 years
Residual	5 years

Standard establishment cost / line in k$	< 250 k	150
(based on line value at unit rate)	< 500 k	150
	< 1M	300
	1M <	500

Feeder listing by CIRCUIT

a) Unit Rates shown are base values, reflecting Rural rates.
b) Locality factor is applied for Urban area.
adjustment and location factors for CBD installation.

ID	Feeder No	Level	Section	In Service	Data Supplied DNSP Supp list	Data Supplied Access End For list	Feeders in 1998 ODRC Tower	Steel Pole	Conc Pole	Wood Pole	Cable	New Feeders to 2004 ODRC Tower	Steel Pole	Conc Pole	Wood Pole	Cable	Voltage (kV)	Description	Length (km)	Construction	Line Type	Conductor Type	Size	Cond/ phase	Detail	Code Name	Location Rural 1.00	Urban 1.15	CBD	Asset Life (years)	Commission Date	Age (years)	% Strain Towers	% length c/w earthwire	OPGW	Easement	Adjustment factors Line Type	Location	Strain Towers	As Installed Length (km)	Line Type	Size	Valuation Code	Base Unit Rate ($k)	Line @ Unit Rate ($k)	Adjustments ($k) Location	Towers	Earthwire	Misc	Establish ($k)	Easement ($k)	RC ($k)
992	860			Yes		X									X		66	KURRI - Stroud	1.343	Wood	Single		Heavy				100			45	1/07/1930	74.00		100		Yes	1.00	1.00	0.00	1.343	Single	Heavy	66WP02	$ 76	$ 102.24	$ -	$ -	$ -	$ -		$ -		$ 102.24
1000	860			Yes		X				X							66	KURRI - Stroud	82.038	Wood	Single		Light				100			45	1/07/1930	74.00		100		Yes	1.00	1.00	0.00	82.038	Single	Light	66WP01	$ 60	$ 4,940.54	$ -	$ -	$ -	$ -		$ 500.00		$ 5,440.54
1002	860			Yes		X									X		66	KURRI - Stroud	7.306	Wood	Single		Light					100		45	1/07/1930	74.00		100		Yes	1.00	1.15	0.00	7.306	Single	Light	66WP01	$ 60	$ 439.99	$ 66.00	$ -	$ -	$ -		$ -		$ 505.98
1202	202		1	Yes		X					X						132	DRUMMOYNE - Rozelle STS	1.250	Cable	Single	CU	Medium	1	400 CU1			100		45	1/07/1980	24.00				Yes	1.00	1.00	0.00	1.250	Single	Medium	132CA08	$ 1,862	$ 2,327.23	$ -	$ -	$ -	$ -		$ -		$ 2,327.23
1203	202		2	Yes		X					X						132	DRUMMOYNE - Rozelle STS	1.539	Cable	Single	CU	Extra Heavy	1	800 CU1			100		45	1/07/1980	24.00				Yes	1.00	1.00	0.00	1.539	Single	Extra Heavy	132CA16	$ 2,145	$ 3,300.72	$ -	$ -	$ -	$ -		$ -		$ 3,300.72
1204	202		3	Yes		X					X						132	DRUMMOYNE - Rozelle STS	0.568	Cable	Single	CU	Extra Heavy	1	1150 CU1			100		45	1/07/1980	24.00				Yes	1.00	1.00	0.00	0.568	Single	Extra Heavy	132CA18	$ 2,361	$ 1,340.83	$ -	$ -	$ -	$ -		$ -		$ 1,340.83
1205	202		4	Yes		X					X						132	DRUMMOYNE - Rozelle STS	0.445	Cable	Single	CU	Extra Heavy	1	1150 CU1			100		45	1/07/1980	24.00				Yes	1.00	1.00	0.00	0.445	Single	Extra Heavy	132CA18	$ 2,361	$ 1,050.47	$ -	$ -	$ -	$ -		$ -		$ 1,050.47
1287	203		1	Yes		X	X										132	MASON PARK STSS - Drummoyne	0.740	Tower	Single	ACSR	Heavy	2	54/3.53 ACSR			100		60	1/07/1979	25.00		100		Yes	1.00	1.15	0.00	0.740	Single	Heavy	132ST02	$ 251	$ 185.83	$ 27.87	$ -	$ -	$ -		$ -		$ 213.70
1206	203		2	Yes		X					X						132	MASON PARK STSS - Drummoyne	7.227	Cable	Single	CU	Extra Heavy	1	800 CU1			100		45	1/07/1979	25.00				Yes	1.00	1.00	0.00	7.227	Single	Extra Heavy	132CA16	$ 2,145	$ 15,499.88	$ -	$ -	$ -	$ -		$ -		$ 15,499.88
1207	204		1	Yes		X	X										132	MASON PARK STSS - Drummoyne	0.720	Tower	Single	ACSR	Heavy	2	54/3.53 ACSR			100		60	1/07/1979	25.00		100		Yes	1.00	1.15	0.00	0.720	Single	Heavy	132ST02	$ 251	$ 180.80	$ 27.12	$ -	$ -	$ -		$ -		$ 207.92
1288	204		2	Yes		X					X						132	MASON PARK STSS - Drummoyne	7.151	Cable	Single	CU	Extra Heavy	1	800 CU1			100		45	1/07/1979	25.00				Yes	1.00	1.00	0.00	7.151	Single	Extra Heavy	132CA16	$ 2,145	$ 15,336.89	$ -	$ -	$ -	$ -		$ -		$ 15,336.89
1212	900		1	Yes		X					X						132	MASON PARK STSS - Rozelle STS		Cable	Single		Medium					100		45	1/07/1962	42.00				Yes	1.00	1.00	0.00		Single	Medium	132CA01	$ 1,862	$ -	$ -	$ -	$ -	$ -		$ -		$ -
1213	900		1	Yes		X					X						132	MASON PARK STSS - Rozelle STS	1.050	Cable	Single	CU	Medium		194 CU3			100		45	1/07/1962	42.00				Yes	1.00	1.00	0.00	1.050	Single	Medium	132CA04	$ 1,662	$ 1,744.89	$ -	$ -	$ -	$ -		$ -		$ 1,744.89
1214	900		2	Yes		X					X						132	MASON PARK STSS - Rozelle STS	10.100	Cable	Single	CU	Medium		194 CU3			100		45	1/07/1962	42.00				Yes	1.00	1.00	0.00	10.100	Single	Medium	132CA04	$ 1,662	$ 16,784.20	$ -	$ -	$ -	$ -		$ -		$ 16,784.20
1251	908		1	Yes							X						132	CANTERBURY STS - 908/909 Tee	13.700	Cable	Single	CU	Medium		194 CU3			100		45	30/06/1956	48.00				Yes	1.00	1.00	0.00	13.700	Single	Medium	132CA04	$ 1,662	$ 22,766.69	$ -	$ -	$ -	$ -		$ -		$ 22,766.69
1252	908		2	Yes							X						132	CANTERBURY STS - 908/909 Tee	1.680	Cable	Single	CU	Medium		240 CU1			100		45	30/06/1956	48.00				Yes	1.00	1.00	0.00	1.680	Single	Medium	132CA05	$ 1,662	$ 2,791.83	$ -	$ -	$ -	$ -		$ -		$ 2,791.83
1255	908/909		1	Yes		X					X						132	908/909 TEE - Bunnerong North		Cable	Single		Medium					100		45	30/06/1956	48.00				Yes	1.00	1.00	0.00		Single	Medium	132CA01	$ 1,862	$ -	$ -	$ -	$ -	$ -		$ -		$ -
1253	909		1	Yes							X						132	CANTERBURY STS - 908/909 Tee	13.700	Cable	Single	CU	Medium		194 CU3			100		45	30/06/1956	48.00				Yes	1.00	1.00	0.00	13.700	Single	Medium	132CA04	$ 1,662	$ 22,766.69	$ -	$ -	$ -	$ -		$ -		$ 22,766.69
1254	909		2	Yes							X						132	CANTERBURY STS - 908/909 Tee	1.680	Cable	Single	CU	Medium		240 CU1			100		45	30/06/1956	48.00				Yes	1.00	1.00	0.00	1.680	Single	Medium	132CA05	$ 1,662	$ 2,791.83	$ -	$ -	$ -	$ -		$ -		$ 2,791.83
1277	90F		1	Yes	X	X	X										132	MASON PARK STSS - Chullora STSS	4.750	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1960	44.00	85	100	No	Yes	0.50	1.15	0.47	4.750	Double	Heavy	132ST09	$ 251	$ 596.40	$ 89.46	$ 279.56	$ -	$ -		$ -		$ 965.43
1278	90J		1	Yes	X	X	X										132	MASON PARK STSS - Chullora STSS	4.750	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1960	44.00	85	100	No	Yes	0.50	1.15	0.47	4.750	Double	Heavy	132ST09	$ 251	$ 596.40	$ 89.46	$ 279.56	$ -	$ -		$ -		$ 965.43
1153	90W		1	Yes		X					X						132	ROZELLE STSS - Pyrmont STS	1.840	Cable	Single	CU	Medium		400 CU1				100	45	1/07/1962	42.00				Yes	1.00	1.00	0.00	1.840	Single	Medium	132CA07c	$ 2,220	$ 4,084.27	$ -	$ -	$ -	$ -		$ -		$ 4,084.27
1154	90W		2	Yes		X					X						132	ROZELLE STSS - Pyrmont STS	0.671	Cable	Single	CU	Medium		355 CU1				100	45	1/07/1962	42.00				Yes	1.00	1.00	0.00	0.671	Single	Medium	132CA06c	$ 2,220	$ 1,489.43	$ -	$ -	$ -	$ -		$ -		$ 1,489.43
1155	90W		3	Yes		X					X						132	ROZELLE STSS - Pyrmont STS	0.280	Cable	Single	CU	Medium		419 CU1				100	45	1/07/1962	42.00				Yes	1.00	1.00	0.00	0.280	Single	Medium	132CA09c	$ 2,220	$ 621.52	$ -	$ -	$ -	$ -		$ -		$ 621.52
1156	90W		4	Yes		X					X						132	ROZELLE STSS - Pyrmont STS	0.640	Cable	Single	CU	Medium		355 CU1				100	45	1/07/1962	42.00				Yes	1.00	1.00	0.00	0.640	Single	Medium	132CA06c	$ 2,220	$ 1,420.62	$ -	$ -	$ -	$ -		$ -		$ 1,420.62
1157	90X		1	Yes		X					X						132	MASON PARK STSS - Homebush Bay TP	4.100	Cable	Single	AL	Extra Heavy		1600 AL1			100		45	1/07/1999	5.00				Yes	1.00	1.00	0.00	4.100	Single	Extra Heavy	132CA03	$ 2,248	$ 9,217.29	$ -	$ -	$ -	$ -		$ -		$ 9,217.29
1158	90XA		1	Yes							X						132	MEADOWBANK - Homebush Bay TP	0.250	Cable	Single	CU	Medium		430 CU1			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	0.250	Single	Medium	132CA12	$ 1,862	$ 465.45	$ -	$ -	$ -	$ -		$ -		$ 465.45
1159	90XA		2	Yes							X						132	MEADOWBANK - Homebush Bay TP	1.180	Cable	Single	CU	Medium		430 CU1			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	1.180	Single	Medium	132CA12	$ 1,862	$ 2,196.91	$ -	$ -	$ -	$ -		$ -		$ 2,196.91
1160	90XA		3	Yes							X						132	MEADOWBANK - Homebush Bay TP	0.390	Cable	Single	CU	Medium		436 CU3			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	0.390	Single	Medium	132CA14	$ 1,862	$ 726.10	$ -	$ -	$ -	$ -		$ -		$ 726.10
1161	90XA		4	Yes							X						132	MEADOWBANK - Homebush Bay TP	0.432	Cable	Single	CU	Medium		430 CU1			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	0.432	Single	Medium	132CA12	$ 1,862	$ 804.29	$ -	$ -	$ -	$ -		$ -		$ 804.29
1162	90XA		5	Yes							X						132	MEADOWBANK - Homebush Bay TP	0.496	Cable	Single	CU	Heavy		645 CU1			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	0.496	Single	Heavy	132CA15	$ 2,049	$ 1,016.44	$ -	$ -	$ -	$ -		$ -		$ 1,016.44
1163	90XB		1	Yes							X						132	MEADOWBANK - Homebush Bay TP	0.250	Cable	Single	CU	Medium		430 CU1			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	0.250	Single	Medium	132CA12	$ 1,862	$ 465.45	$ -	$ -	$ -	$ -		$ -		$ 465.45
1164	90XB		2	Yes							X						132	MEADOWBANK - Homebush Bay TP	1.180	Cable	Single	CU	Medium		430 CU1			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	1.180	Single	Medium	132CA12	$ 1,862	$ 2,196.91	$ -	$ -	$ -	$ -		$ -		$ 2,196.91
1165	90XB		3	Yes							X						132	MEADOWBANK - Homebush Bay TP	0.390	Cable	Single	CU	Medium		436 CU3			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	0.390	Single	Medium	132CA14	$ 1,862	$ 726.10	$ -	$ -	$ -	$ -		$ -		$ 726.10
1166	90XB		4	Yes							X						132	MEADOWBANK - Homebush Bay TP	0.432	Cable	Single	CU	Medium		430 CU1			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	0.432	Single	Medium	132CA12	$ 1,862	$ 804.29	$ -	$ -	$ -	$ -		$ -		$ 804.29
1167	90XB		5	Yes							X						132	MEADOWBANK - Homebush Bay TP	0.496	Cable	Single	CU	Heavy		645 CU1			100		45	30/06/1980	24.00				Yes	1.00	1.00	0.00	0.496	Single	Heavy	132CA15	$ 2,049	$ 1,016.44	$ -	$ -	$ -	$ -		$ -		$ 1,016.44
1333	910	(1)	1	Yes	X	X	X										132	SYDNEY SOUTH BSP No 3 TX - 910 Tee 1	2.420	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	2.420	Double	Heavy	132ST08	$ 233	$ 281.85	$ 42.28	$ 123.31	$ -	$ -		$ -		$ 447.44
1334	910	(1)	2	Yes	X	X	X										132	SYDNEY SOUTH BSP No 3 TX - 910 Tee 1	0.730	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.730	Double	Heavy	132ST06	$ 233	$ 85.02	$ 12.75	$ 37.20	$ -	$ -		$ -		$ 134.97
1335	910	(1)	3	Yes	X	X	X										132	SYDNEY SOUTH BSP No 3 TX - 910 Tee 1	1.350	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	1.350	Double	Heavy	132ST08	$ 233	$ 157.23	$ 23.58	$ 68.79	$ -	$ -		$ -		$ 249.61
1336	910	(1)	4	Yes	X	X	X										132	SYDNEY SOUTH BSP No 3 TX - 910 Tee 1	1.970	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	1.970	Double	Heavy	132ST08	$ 233	$ 229.44	$ 34.42	$ 100.38	$ -	$ -		$ -		$ 364.24
1337	910	(2)	1	Yes	X	X	X										132	910 TEE 1 - 910 Tee 2	2.280	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	2.280	Double	Heavy	132ST06	$ 233	$ 265.55	$ 39.83	$ 116.18	$ -	$ -		$ -		$ 421.56
1338	910	(2)	2	Yes	X	X	X										132	910 TEE 1 - 910 Tee 2	0.130	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.130	Double	Heavy	132ST06	$ 233	$ 15.14	$ 2.27	$ 6.62	$ -	$ -		$ -		$ 24.04
1339	910	(2)	3	Yes	X	X	X										132	910 TEE 1 - 910 Tee 2	4.190	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	4.190	Double	Heavy	132ST06	$ 233	$ 488.00	$ 73.20	$ 213.50	$ -	$ -		$ -		$ 774.70
1340	910	(2)	4	Yes	X	X	X										132	910 TEE 1 - 910 Tee 2	0.260	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.260	Double	Heavy	132ST06	$ 233	$ 30.28	$ 4.54	$ 13.25	$ -	$ -		$ -		$ 48.07
1341	910	(3)	1	Yes	X	X	X										132	910 TEE 2 - Canterbury STS	0.330	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.330	Double	Heavy	132ST06	$ 233	$ 38.43	$ 5.77	$ 16.82	$ -	$ -		$ -		$ 61.01
1342	910	(3)	2	Yes	X	X	X										132	910 TEE 2 - Canterbury STS	0.460	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.460	Double	Heavy	132ST06	$ 233	$ 53.58	$ 8.04	$ 23.44	$ -	$ -		$ -		$ 85.05
1343	910	(3)	3	Yes	X	X	X										132	910 TEE 2 - Canterbury STS	5.250	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	5.250	Double	Heavy	132ST06	$ 233	$ 611.46	$ 91.72	$ 267.51	$ -	$ -		$ -		$ 970.69

Circuit ages as of **30 June 2004**

Asset Lives

Steel Tower	60 years
Steel/Concrete Pole	55 years
Wood Pole (wet area)	45 years
Underground Cable	45 years
Residual	5 years

Feeder listing by CIRCUIT

a) Unit Rates shown are base values, reflecting Rural rates.

b) Locality factor is applied for Urban area.

adjustment and location factors for CBD installation.

ID	Feeder No	Feeder Level	Feeder Section	In Service	DRC ($k)	Optimised Length (km)	Line Type	Size	Valuation Code	Base Unit Rate ($k)	Line @ Unit Rate ($k)	Adjustments ($k) Location	Towers	Earthwire	Misc	Establish ($k)	Easement ($k)	ORC ($k)	ODRC ($k)	Comments
992	860			Yes	$ 11.36	1.343	Single	Heavy	66WP02	$ 76	$ 102.24	$ -	$ -	$ -		$ -		$ 102.24	$ 11.36	
1000	860			Yes	$ 604.50	82.038	Single	Light	66WP01	$ 60	$ 4,940.54	$ -	$ -	$ -		$ 500.00		$ 5,440.54	$ 604.50	
1002	860			Yes	$ 56.22	7.306	Single	Light	66WP01	$ 60	$ 439.99	$ 66.00	$ -	$ -		$ -		$ 505.98	$ 56.22	
1202	202		1	Yes	$ 1,086.18	1.250	Single	Medium	132CA08	$ 1,862	$ 2,327.23	$ -	$ -	$ -		$ -		$ 2,327.23	$ 1,086.18	
1203	202		2	Yes	$ 1,540.54	1.539	Single	Medium	132CA08	$ 1,862	$ 2,865.29	$ -	$ -	$ -		$ -		$ 2,865.29	$ 1,337.31	
1204	202		3	Yes	$ 625.80	0.568	Single	Medium	132CA08	$ 1,862	$ 1,057.49	$ -	$ -	$ -		$ -		$ 1,057.49	$ 493.56	
1205	202		4	Yes	$ 490.28	0.445	Single	Medium	132CA08	$ 1,862	$ 828.50	$ -	$ -	$ -		$ -		$ 828.50	$ 386.68	
1287	203		1	Yes	$ 124.66	0.740	Single	Heavy	132ST02	$ 251	$ 185.83	$ 27.87	$ -	$ -		$ -		$ 213.70	$ 124.66	
1206	203		2	Yes	$ 6,889.07	7.227	Single	Extra Heavy	132CA16	$ 2,145	$ 15,499.88	$ -	$ -	$ -		$ -		$ 15,499.88	$ 6,889.07	
1207	204		1	Yes	$ 121.29	0.720	Single	Heavy	132ST02	$ 251	$ 180.80	$ 27.12	$ -	$ -		$ -		$ 207.92	$ 121.29	
1288	204		2	Yes	$ 6,816.63	7.151	Single	Extra Heavy	132CA16	$ 2,145	$ 15,336.89	$ -	$ -	$ -		$ -		$ 15,336.89	$ 6,816.63	
1212	900		1	Yes	$ -		Single	Medium	132CA01	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	
1213	900		1	Yes	$ 193.88	1.050	Single	Medium	132CA04	$ 1,662	$ 1,744.89	$ -	$ -	$ -		$ -		$ 1,744.89	$ 193.88	
1214	900		2	Yes	$ 1,864.91	10.100	Single	Medium	132CA04	$ 1,662	$ 16,784.20	$ -	$ -	$ -		$ -		$ 16,784.20	$ 1,864.91	
1251	908		1	Yes	$ 2,529.63	13.700	Single	Heavy	132CA16	$ 2,145	$ 29,382.65	$ -	$ -	$ -		$ -		$ 29,382.65	$ 3,264.74	
1252	908		2	Yes	$ 310.20	1.680	Single	Heavy	132CA16	$ 2,145	$ 3,603.13	$ -	$ -	$ -		$ -		$ 3,603.13	$ 400.35	
1255	908/909		1	Yes	$ -		Single	Medium	132CA01	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	
1253	909		1	Yes	$ 2,529.63	0.000	Single	Medium	132CA04	$ 1,662	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1254	909		2	Yes	$ 310.20	0.000	Single	Medium	132CA05	$ 1,662	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1277	90F		1	Yes	$ 257.45	4.750	Single	Heavy	132ST09	$ 251	$ 596.40	$ 89.46	$ 279.56	$ -		$ -		$ 965.43	$ 257.45	
1278	90J		1	Yes	$ 257.45	4.750	Single	Heavy	132ST09	$ 251	$ 596.40	$ 89.46	$ 279.56	$ -		$ -		$ 965.43	$ 257.45	
1153	90W		1	Yes	$ 453.81	1.840	Single	Medium	132CA07c	$ 2,220	$ 4,084.27	$ -	$ -	$ -		$ -		$ 4,084.27	$ 453.81	
1154	90W		2	Yes	$ 165.49	0.671	Single	Medium	132CA06c	$ 2,220	$ 1,489.43	$ -	$ -	$ -		$ -		$ 1,489.43	$ 165.49	
1155	90W		3	Yes	$ 69.06	0.280	Single	Medium	132CA09c	$ 2,220	$ 621.52	$ -	$ -	$ -		$ -		$ 621.52	$ 69.06	
1156	90W		4	Yes	$ 157.85	0.640	Single	Medium	132CA06c	$ 2,220	$ 1,420.62	$ -	$ -	$ -		$ -		$ 1,420.62	$ 157.85	
1157	90X		1	Yes	$ 8,193.29	4.100	Single	Extra Heavy	132CA03	$ 2,248	$ 9,217.29	$ -	$ -	$ -		$ -		$ 9,217.29	$ 8,193.29	
1158	90XA		1	Yes	$ 217.21	0.250	Single	Extra Heavy	132CA03	$ 2,248	$ 562.03	$ -	$ -	$ -		$ -		$ 562.03	$ 262.28	
1159	90XA		2	Yes	$ 1,025.22	1.180	Single	Extra Heavy	132CA03	$ 2,248	$ 2,652.78	$ -	$ -	$ -		$ -		$ 2,652.78	$ 1,237.96	
1160	90XA		3	Yes	$ 338.85	0.390	Single	Extra Heavy	132CA03	$ 2,248	$ 876.77	$ -	$ -	$ -		$ -		$ 876.77	$ 409.16	
1161	90XA		4	Yes	$ 375.34	0.432	Single	Extra Heavy	132CA03	$ 2,248	$ 971.19	$ -	$ -	$ -		$ -		$ 971.19	$ 453.22	
1162	90XA		5	Yes	$ 474.34	0.496	Single	Extra Heavy	132CA03	$ 2,248	$ 1,115.07	$ -	$ -	$ -		$ -		$ 1,115.07	$ 520.36	
1163	90XB		1	Yes	$ 217.21	0.000	Single	Medium	132CA12	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1164	90XB		2	Yes	$ 1,025.22	0.000	Single	Medium	132CA12	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1165	90XB		3	Yes	$ 338.85	0.000	Single	Medium	132CA14	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1166	90XB		4	Yes	$ 375.34	0.000	Single	Medium	132CA12	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1167	90XB		5	Yes	$ 474.34	0.000	Single	Heavy	132CA15	$ 2,049	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1333	910	(1)	1	Yes	$ 238.64	2.420	Single	Heavy	132ST08	$ 233	$ 281.85	$ 42.28	$ 123.31	$ -		$ -		$ 447.44	$ 238.64	
1334	910	(1)	2	Yes	$ 71.99	0.730	Single	Heavy	132ST06	$ 233	$ 85.02	$ 12.75	$ 37.20	$ -		$ -		$ 134.97	$ 71.99	
1335	910	(1)	3	Yes	$ 133.12	1.350	Single	Heavy	132ST08	$ 233	$ 157.23	$ 23.58	$ 68.79	$ -		$ -		$ 249.61	$ 133.12	
1336	910	(1)	4	Yes	$ 194.26	1.970	Single	Heavy	132ST08	$ 233	$ 229.44	$ 34.42	$ 100.38	$ -		$ -		$ 364.24	$ 194.26	
1337	910	(2)	1	Yes	$ 224.83	2.280	Single	Heavy	132ST06	$ 233	$ 265.55	$ 39.83	$ 116.18	$ -		$ -		$ 421.56	$ 224.83	
1338	910	(2)	2	Yes	$ 12.82	0.130	Single	Heavy	132ST06	$ 233	$ 15.14	$ 2.27	$ 6.62	$ -		$ -		$ 24.04	$ 12.82	
1339	910	(2)	3	Yes	$ 413.17	4.190	Single	Heavy	132ST06	$ 233	$ 488.00	$ 73.20	$ 213.50	$ -		$ -		$ 774.70	$ 413.17	
1340	910	(2)	4	Yes	$ 25.64	0.260	Single	Heavy	132ST06	$ 233	$ 30.28	$ 4.54	$ 13.25	$ -		$ -		$ 48.07	$ 25.64	
1341	910	(3)	1	Yes	$ 32.54	0.330	Single	Heavy	132ST06	$ 233	$ 38.43	$ 5.77	$ 16.82	$ -		$ -		$ 61.01	$ 32.54	
1342	910	(3)	2	Yes	$ 45.36	0.460	Single	Heavy	132ST06	$ 233	$ 53.58	$ 8.04	$ 23.44	$ -		$ -		$ 85.05	$ 45.36	
1343	910	(3)	3	Yes	$ 517.70	5.250	Single	Heavy	132ST06	$ 233	$ 611.46	$ 91.72	$ 267.51	$ -		$ -		$ 970.69	$ 517.70	

ID	CABLE ODRC	CABLE ORC	CABLE AGE	CABLE ORC X AGE	TOWER ODRC	TOWER ORC	TOWER AGE	TOWER ORC X AGE	CONCRETE ODRC	CONCRETE ORC	CONCRETE AGE	CONCRETE ORC X AGE	STEEL ODRC	STEEL ORC	STEEL AGE	STEEL ORC X AGE	132kV WOOD ODRC	132kV WOOD ORC	132kV WOOD AGE	132kV WOOD ORC X AGE	66kV WOOD ODRC	66kV WOOD ORC	66kV WOOD AGE	66kV WOOD ORC X AGE
992	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	11	102	74.00	7566
1000	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	605	5441	74.00	402592
1002	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	56	506	74.00	37442
1202	1086	2327	24.00	55847	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1203	1337	2865	24.00	68759	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1204	494	1057	24.00	25377	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1205	387	828	24.00	19882	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1287	0	0	0.00	0	125	214	25.00	5342	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1206	6889	15500	25.00	387487	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1207	0	0	0.00	0	121	208	25.00	5198	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1288	6817	15337	25.00	383412	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1212	0	0	42.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1213	194	1745	42.00	73283	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1214	1865	16784	42.00	704914	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1251	3265	29383	48.00	1410367	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1252	400	3603	48.00	172950	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1255	0	0	48.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1253	0	0	48.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1254	0	0	48.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1277	0	0	0.00	0	257	965	44.00	42479	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1278	0	0	0.00	0	257	965	44.00	42479	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1153	454	4084	42.00	171534	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1154	165	1489	42.00	62554	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1155	69	622	42.00	26103	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1156	158	1421	42.00	59664	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1157	8193	9217	5.00	46080	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1158	262	562	24.00	13489	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1159	1238	2653	24.00	63667	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1160	409	877	24.00	21042	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1161	453	971	24.00	23309	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1162	520	1115	24.00	26762	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1163	0	0	24.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1164	0	0	24.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1165	0	0	24.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1166	0	0	24.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1167	0	0	24.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1333	0	0	0.00	0	239	447	28.00	12528	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1334	0	0	0.00	0	72	135	28.00	3779	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1335	0	0	0.00	0	133	250	28.00	6989	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1336	0	0	0.00	0	194	364	28.00	10199	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1337	0	0	0.00	0	225	422	28.00	11804	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1338	0	0	0.00	0	13	24	28.00	673	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1339	0	0	0.00	0	413	775	28.00	21692	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1340	0	0	0.00	0	26	48	28.00	1346	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1341	0	0	0.00	0	33	61	28.00	1708	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1342	0	0	0.00	0	45	85	28.00	2381	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1343	0	0	0.00	0	518	971	28.00	27179	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0

Missed Asse	T2>T1	New

EnergyAustralia

Circuit ages as of 30 June 2004

Asset Lives

Steel Tower	60 years
Steel/Concrete Pole	55 years
Wood Pole (wet area)	45 years
Underground Cable	45 years
Residual	5 years

Standard establishment cost / line in k$ (based on line value at unit rate)	< 250 k	150
	< 500 k	150
	< 1M	300
	1M <	500

Feeder listing by CIRCUIT

a) Unit Rates shown are base values, reflecting Rural rates.
b) Locality factor is applied for Urban area.
adjustment and location factors for CBD installation.

ID	Feeder No	Level	Section	In Service	Data Supplied: DNSP Supplied	Data Supplied: Access End Fdr list	Feeders in 1998 ODRC: Tower	Steel Pole	Conc Pole	Wood Pole	Cable	New Feeders to 2004 ODRC: Tower	Steel Pole	Conc Pole	Wood Pole	Cable	Voltage (kV)	Description	Length (km)	Construction	Line Type	Conductor: Type	Size	Cond/ phase	Detail	Code Name	Location: Rural 1.00	Urban 1.15	CBD	Asset Life (years)	Commission Date	Age (years)	% Strain Towers	% length c/w earthwire	OPGW	Easement	Adjustment factors: Line Type	Location	Strain Towers	As Installed: Length (km)	Line Type	Size	Valuation Code	Base Unit Rate ($k)	Line @ Unit Rate ($k)	Adjustments ($k): Location	Towers	Earthwire	Misc	Establish ($k)	Easement ($k)	RC ($k)
1344	910	(3)	4	Yes	X	X	X										132	910 TEE 2 - Canterbury STS	0.710	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.710	Double	Heavy	132ST06	$ 233	$ 82.69	$ 12.40	$ 36.18	$ -		$ -		$ 131.27
1345	910	(3)	5	Yes	X	X	X										132	910 TEE 2 - Canterbury STS	1.120	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	1.120	Double	Heavy	132ST06	$ 233	$ 130.44	$ 19.57	$ 57.07	$ -		$ -		$ 207.08
1346	910	(4)	1	Yes	X	X	X										132	910 TEE 2 - Chullora STSS	0.280	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.280	Double	Heavy	132ST08	$ 233	$ 32.61	$ 4.89	$ 14.27	$ -		$ -		$ 51.77
1347	910	(4)	2	Yes	X	X	X										132	910 TEE 2 - Chullora STSS	0.200	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.200	Double	Heavy	132ST06	$ 233	$ 23.29	$ 3.49	$ 10.19	$ -		$ -		$ 36.98
1348	910	(4)	3	Yes	X	X	X										132	910 TEE 2 - Chullora STSS	0.600	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.600	Double	Heavy	132ST08	$ 233	$ 69.88	$ 10.48	$ 30.57	$ -		$ -		$ 110.94
1349	910	(4)	4	Yes	X	X	X										132	910 TEE 2 - Chullora STSS	0.180	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1976	28.00	80	100	No	Yes	0.50	1.15	0.44	0.180	Double	Heavy	132ST06	$ 233	$ 20.96	$ 3.14	$ 9.17	$ -		$ -		$ 33.28
1350	911	(1)	1	Yes	X	X	X										132	SYDNEY SOUTH BSP No 4 TX - 911 Tee	2.420	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	2.420	Double	Heavy	132ST08	$ 233	$ 281.85	$ 42.28	$ 123.31	$ -		$ -		$ 447.44
1351	911	(1)	2	Yes	X	X	X										132	SYDNEY SOUTH BSP No 4 TX - 911 Tee	0.730	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.730	Double	Heavy	132ST06	$ 233	$ 85.02	$ 12.75	$ 37.20	$ -		$ -		$ 134.97
1352	911	(1)	3	Yes	X	X	X										132	SYDNEY SOUTH BSP No 4 TX - 911 Tee	1.350	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	1.350	Double	Heavy	132ST08	$ 233	$ 157.23	$ 23.58	$ 68.79	$ -		$ -		$ 249.61
1353	911	(1)	4	Yes	X	X	X										132	SYDNEY SOUTH BSP No 4 TX - 911 Tee	1.970	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	1.970	Double	Heavy	132ST08	$ 233	$ 229.44	$ 34.42	$ 100.38	$ -		$ -		$ 364.24
1354	911	(1)	5	Yes	X	X	X										132	SYDNEY SOUTH BSP No 4 TX - 911 Tee	2.280	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	2.280	Double	Heavy	132ST06	$ 233	$ 265.55	$ 39.83	$ 116.18	$ -		$ -		$ 421.56
1355	911	(1)	6	Yes	X	X	X										132	SYDNEY SOUTH BSP No 4 TX - 911 Tee	0.130	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.130	Double	Heavy	132ST06	$ 233	$ 15.14	$ 2.27	$ 6.62	$ -		$ -		$ 24.04
1356	911	(1)	7	Yes	X	X	X										132	SYDNEY SOUTH BSP No 4 TX - 911 Tee	4.190	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	4.190	Double	Heavy	132ST06	$ 233	$ 488.00	$ 73.20	$ 213.50	$ -		$ -		$ 774.70
1357	911	(1)	8	Yes	X	X	X										132	SYDNEY SOUTH BSP No 4 TX - 911 Tee	0.260	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.260	Double	Heavy	132ST06	$ 233	$ 30.28	$ 4.54	$ 13.25	$ -		$ -		$ 48.07
1358	911	(2)	1	Yes	X	X	X										132	911 TEE - Canterbury STS	0.330	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.330	Double	Heavy	132ST06	$ 233	$ 38.43	$ 5.77	$ 16.82	$ -		$ -		$ 61.01
1359	911	(2)	2	Yes	X	X	X										132	911 TEE - Canterbury STS	0.460	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.460	Double	Heavy	132ST06	$ 233	$ 53.58	$ 8.04	$ 23.44	$ -		$ -		$ 85.05
1360	911	(2)	3	Yes	X	X	X										132	911 TEE - Canterbury STS	5.250	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	5.250	Double	Heavy	132ST06	$ 233	$ 611.46	$ 91.72	$ 267.51	$ -		$ -		$ 970.69
1361	911	(2)	4	Yes	X	X	X										132	911 TEE - Canterbury STS	0.710	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.710	Double	Heavy	132ST06	$ 233	$ 82.69	$ 12.40	$ 36.18	$ -		$ -		$ 131.27
1362	911	(2)	5	Yes	X	X	X										132	911 TEE - Canterbury STS	1.120	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	1.120	Double	Heavy	132ST06	$ 233	$ 130.44	$ 19.57	$ 57.07	$ -		$ -		$ 207.08
1363	911	(3)	1	Yes	X	X	X										132	911 TEE - Chullora STSS	0.280	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.280	Double	Heavy	132ST08	$ 233	$ 32.61	$ 4.89	$ 14.27	$ -		$ -		$ 51.77
1364	911	(3)	2	Yes	X	X	X										132	911 TEE - Chullora STSS	0.200	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.200	Double	Heavy	132ST06	$ 233	$ 23.29	$ 3.49	$ 10.19	$ -		$ -		$ 36.98
1365	911	(3)	3	Yes	X	X	X										132	911 TEE - Chullora STSS	0.600	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.600	Double	Heavy	132ST08	$ 233	$ 69.88	$ 10.48	$ 30.57	$ -		$ -		$ 110.94
1366	911	(3)	4	Yes	X	X	X										132	911 TEE - Chullora STSS	0.180	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	1/07/1958	46.00	80	100	No	Yes	0.50	1.15	0.44	0.180	Double	Heavy	132ST06	$ 233	$ 20.96	$ 3.14	$ 9.17	$ -		$ -		$ 33.28
1115	91A/1		1	Yes		X					X						132	BEACONSFIELD BSP - St. Peters	1.870	Cable	Single	CU	Medium		426 CU1				100	45	1/07/1968	36.00				Yes	1.00	1.00	0.00	1.870	Single	Medium	132CA10c	$ 2,220	$ 4,150.86	$ -	$ -	$ -		$ -		$ 4,150.86
1116	91A/2		1	Yes		X					X						132	ST. PETERS - Chullora STSS	14.330	Cable	Single	CU	Medium		426 CU1			100		45	1/07/1968	36.00				Yes	1.00	1.00	0.00	14.330	Single	Medium	132CA10	$ 1,862	$ 26,679.40	$ -	$ -	$ -		$ -		$ 26,679.40
1117	91B/1		1	Yes		X					X						132	BEACONSFIELD BSP - St. Peters	1.870	Cable	Single	CU	Medium		426 CU1			100		45	1/07/1968	36.00				Yes	1.00	1.00	0.00	1.870	Single	Medium	132CA10	$ 1,862	$ 3,481.54	$ -	$ -	$ -		$ -		$ 3,481.54
1118	91B/2		1	Yes		X					X						132	ST. PETERS - Chullora STSS	14.330	Cable	Single	CU	Medium		426 CU1			100		45	1/07/1968	36.00				Yes	1.00	1.00	0.00	14.330	Single	Medium	132CA10	$ 1,862	$ 26,679.40	$ -	$ -	$ -		$ -		$ 26,679.40
1311	91F		1	Yes	X	X	X										132	SYDNEY SOUTH BSP - Peakhurst STS	5.400	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1964	40.00	68	100	No	Yes	0.50	1.15	0.36	5.400	Double	Heavy	132ST09	$ 251	$ 678.02	$ 101.70	$ 245.78	$ -		$ -		$ 1,025.50
1312	91J		1	Yes	X	X	X										132	SYDNEY SOUTH BSP - Peakhurst STS	5.400	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1964	40.00	68	100	No	Yes	0.50	1.15	0.36	5.400	Double	Heavy	132ST09	$ 251	$ 678.02	$ 101.70	$ 245.78	$ -		$ -		$ 1,025.50
1239	91L		1	Yes		X					X						132	PEAKHURST STS - Bunnerong STSS	15.800	Cable	Single	CU	Extra Heavy		1200 CU1			100		45	30/06/1973	31.00				Yes	1.00	1.00	0.00	15.800	Single	Extra Heavy	132CA19	$ 2,361	$ 37,297.66	$ -	$ -	$ -		$ -		$ 37,297.66
1240	91L		2	Yes		X					X						132	PEAKHURST STS - Bunnerong STSS	5.910	Cable	Single	CU	Extra Heavy		1200 CU1			100		45	30/06/1973	31.00				Yes	1.00	1.00	0.00	5.910	Single	Extra Heavy	132CA19	$ 2,361	$ 13,951.21	$ -	$ -	$ -		$ -		$ 13,951.21
1119	91M/1		1	Yes		X					X						132	BEACONSFIELD BSP - Peakhurst	4.070	Cable	Single	CU	Extra Heavy		1200 CU1			100		45	30/06/1977	27.00				Yes	1.00	1.00	0.00	4.070	Single	Extra Heavy	132CA19	$ 2,361	$ 9,607.69	$ -	$ -	$ -		$ -		$ 9,607.69
1120	91M/1		2	Yes		X					X						132	BEACONSFIELD BSP - Peakhurst	15.760	Cable	Single	CU	Extra Heavy		1200 CU1			100		45	30/06/1973	31.00				Yes	1.00	1.00	0.00	15.760	Single	Extra Heavy	132CA19	$ 2,361	$ 37,203.23	$ -	$ -	$ -		$ -		$ 37,203.23
1121	91M/3		1	Yes		X					X						132	BEACONSFIELD BSP - Bunnerong STSS	4.070	Cable	Single	CU	Extra Heavy		1200 CU1			100		45	30/06/1977	27.00				Yes	1.00	1.00	0.00	4.070	Single	Extra Heavy	132CA19	$ 2,361	$ 9,607.69	$ -	$ -	$ -		$ -		$ 9,607.69
1122	91M/3		2	Yes		X					X						132	BEACONSFIELD BSP - Bunnerong STSS	5.910	Cable	Single	CU	Extra Heavy		1200 CU1			100		45	30/06/1973	31.00				Yes	1.00	1.00	0.00	5.910	Single	Extra Heavy	132CA19	$ 2,361	$ 13,951.21	$ -	$ -	$ -		$ -		$ 13,951.21
1123	91X/1		1	Yes		X					X						132	BEACONSFIELD BSP - Marrickville	3.220	Cable	Single	CU	Medium		429 CU1			100		45	30/06/1973	31.00				Yes	1.00	1.00	0.00	3.220	Single	Medium	132CA11	$ 1,862	$ 5,994.95	$ -	$ -	$ -		$ -		$ 5,994.95
1124	91X/2		1	Yes		X					X						132	MARRICKVILLE - Chullora STSS	13.200	Cable	Single	CU	Medium		429 CU1			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	13.200	Single	Medium	132CA11	$ 1,862	$ 24,575.58	$ -	$ -	$ -		$ -		$ 24,575.58
1125	91Y/1		1	Yes		X					X						132	BEACONSFIELD BSP - Marrickville	3.220	Cable	Single	CU	Medium		429 CU1			100		45	30/06/1973	31.00				Yes	1.00	1.00	0.00	3.220	Single	Medium	132CA11	$ 1,862	$ 5,994.95	$ -	$ -	$ -		$ -		$ 5,994.95
1126	91Y/2		1	Yes		X					X						132	MARRICKVILLE - Chullora STSS	13.200	Cable	Single	CU	Medium		429 CU1			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	13.200	Single	Medium	132CA11	$ 1,862	$ 24,575.58	$ -	$ -	$ -		$ -		$ 24,575.58
1298	926	(1)	1A	Yes	X	X	X										132	SYDNEY NORTH BSP - 926 Tee	14.900	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1968	36.00	59	100	No	Yes	0.50	1.15	0.31	14.900	Double	Heavy	132ST08	$ 233	$ 1,735.38	$ 260.31	$ 531.46	$ -		$ -		$ 2,527.14
1299	926	(1)	1B	Yes	X	X	X										132	SYDNEY NORTH BSP - 926 Tee	14.900	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1968	36.00	59	100	No	Yes	0.50	1.15	0.31	14.900	Double	Heavy	132ST08	$ 233	$ 1,735.38	$ 260.31	$ 531.46	$ -		$ -		$ 2,527.14
1300	926	(2)	1	Yes	X	X	X										132	926 TEE - Carlingford BSP	0.201	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1968	36.00	59	100	No	Yes	0.50	1.15	0.31	0.201	Double	Heavy	132ST08	$ 233	$ 23.41	$ 3.51	$ 7.17	$ -		$ -		$ 34.09
1301	926	(3)	1	Yes	X	X	X										132	926 TEE - Mason Park STSS	5.200	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR			100		60	30/06/1968	36.00	59	100	No	Yes	0.50	1.15	0.31	5.200	Double	Heavy	132ST08	$ 233	$ 605.63	$ 90.85	$ 185.48	$ -		$ -		$ 881.96
1302	926	(3)	2	Yes	X	X	X										132	926 TEE - Mason Park STSS	1.390	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive		100		60	30/06/1968	36.00	59	100	No	Yes	0.50	1.15	0.31	1.390	Double	Heavy	132ST06	$ 233	$ 161.89	$ 24.28	$ 49.58	$ -		$ -		$ 235.75

EnergyAustralia

SKM

Circuit ages as of **30 June 2004**

Asset Lives

Steel Tower	60 years
Steel/Concrete Pole	55 years
Wood Pole (wet area)	45 years
Underground Cable	45 years
Residual	5 years

Feeder listing by CIRCUIT

a) Unit Rates shown are base values, reflecting Rural rates.
b) Locality factor is applied for Urban area.
adjustment and location factors for CBD installation.

ID	Feeder No	Level	Section	In Service	DRC ($k)	Optimised Length (km)	Line Type	Size	Valuation Code	Base Unit Rate ($k)	Line @ Unit Rate ($k)	Adjustments ($k) Location	Towers	Earthwire	Misc	Establish ($k)	Easement ($k)	ORC ($k)	ODRC ($k)	Comments
1344	910	(5)	4	Yes	$ 70.01	0.710	Single	Heavy	132ST06	$ 233	$ 82.69	$ 12.40	$ 36.18	$ -		$ -		$ 131.27	$ 70.01	
1345	910	(3)	5	Yes	$ 110.44	1.120	Single	Heavy	132ST06	$ 233	$ 130.44	$ 19.57	$ 57.07	$ -		$ -		$ 207.08	$ 110.44	
1346	910	(4)	1	Yes	$ 27.61	0.280	Single	Heavy	132ST08	$ 233	$ 32.61	$ 4.89	$ 14.27	$ -		$ -		$ 51.77	$ 27.61	
1347	910	(4)	2	Yes	$ 19.72	0.200	Single	Heavy	132ST06	$ 233	$ 23.29	$ 3.49	$ 10.19	$ -		$ -		$ 36.98	$ 19.72	
1348	910	(4)	3	Yes	$ 59.17	0.600	Single	Heavy	132ST08	$ 233	$ 69.88	$ 10.48	$ 30.57	$ -		$ -		$ 110.94	$ 59.17	
1349	910	(4)	4	Yes	$ 17.75	0.180	Single	Heavy	132ST06	$ 233	$ 20.96	$ 3.14	$ 9.17	$ -		$ -		$ 33.28	$ 17.75	
1350	911	(1)	1	Yes	$ 104.41	2.420	Single	Heavy	132ST08	$ 233	$ 281.85	$ 42.28	$ 123.31	$ -		$ -		$ 447.44	$ 104.41	
1351	911	(1)	2	Yes	$ 31.50	0.730	Single	Heavy	132ST06	$ 233	$ 85.02	$ 12.75	$ 37.20	$ -		$ -		$ 134.97	$ 31.50	
1352	911	(1)	3	Yes	$ 58.25	1.350	Single	Heavy	132ST08	$ 233	$ 157.23	$ 23.58	$ 68.79	$ -		$ -		$ 249.61	$ 58.25	
1353	911	(1)	4	Yes	$ 85.00	1.970	Single	Heavy	132ST08	$ 233	$ 229.44	$ 34.42	$ 100.38	$ -		$ -		$ 364.24	$ 85.00	
1354	911	(1)	5	Yes	$ 98.37	2.280	Single	Heavy	132ST06	$ 233	$ 265.55	$ 39.83	$ 116.18	$ -		$ -		$ 421.56	$ 98.37	
1355	911	(1)	6	Yes	$ 5.61	0.130	Single	Heavy	132ST06	$ 233	$ 15.14	$ 2.27	$ 6.62	$ -		$ -		$ 24.04	$ 5.61	
1356	911	(1)	7	Yes	$ 180.78	4.190	Single	Heavy	132ST06	$ 233	$ 488.00	$ 73.20	$ 213.50	$ -		$ -		$ 774.70	$ 180.78	
1357	911	(1)	8	Yes	$ 11.22	0.260	Single	Heavy	132ST06	$ 233	$ 30.28	$ 4.54	$ 13.25	$ -		$ -		$ 48.07	$ 11.22	
1358	911	(2)	1	Yes	$ 14.24	0.330	Single	Heavy	132ST06	$ 233	$ 38.43	$ 5.77	$ 16.82	$ -		$ -		$ 61.01	$ 14.24	
1359	911	(2)	2	Yes	$ 19.85	0.460	Single	Heavy	132ST06	$ 233	$ 53.58	$ 8.04	$ 23.44	$ -		$ -		$ 85.05	$ 19.85	
1360	911	(2)	3	Yes	$ 226.52	5.250	Single	Heavy	132ST06	$ 233	$ 611.46	$ 91.72	$ 267.51	$ -		$ -		$ 970.69	$ 226.52	
1361	911	(2)	4	Yes	$ 30.63	0.710	Single	Heavy	132ST06	$ 233	$ 82.69	$ 12.40	$ 36.18	$ -		$ -		$ 131.27	$ 30.63	
1362	911	(2)	5	Yes	$ 48.32	1.120	Single	Heavy	132ST06	$ 233	$ 130.44	$ 19.57	$ 57.07	$ -		$ -		$ 207.08	$ 48.32	
1363	911	(3)	1	Yes	$ 12.08	0.280	Single	Heavy	132ST08	$ 233	$ 32.61	$ 4.89	$ 14.27	$ -		$ -		$ 51.77	$ 12.08	
1364	911	(3)	2	Yes	$ 8.63	0.200	Single	Heavy	132ST06	$ 233	$ 23.29	$ 3.49	$ 10.19	$ -		$ -		$ 36.98	$ 8.63	
1365	911	(3)	3	Yes	$ 25.89	0.600	Single	Heavy	132ST08	$ 233	$ 69.88	$ 10.48	$ 30.57	$ -		$ -		$ 110.94	$ 25.89	
1366	911	(3)	4	Yes	$ 7.77	0.180	Single	Heavy	132ST06	$ 233	$ 20.96	$ 3.14	$ 9.17	$ -		$ -		$ 33.28	$ 7.77	
1115	91A/1		1	Yes	$ 830.43	1.870	Single	Medium	132CA10c	$ 2,220	$ 4,150.86	$ -	$ -	$ -		$ -		$ 4,150.86	$ 830.43	
1116	91A/2		1	Yes	$ 5,337.50	14.330	Single	Medium	132CA10	$ 1,862	$ 26,679.40	$ -	$ -	$ -		$ -		$ 26,679.40	$ 5,337.50	
1117	91B/1		1	Yes	$ 696.52	1.870	Single	Medium	132CA10	$ 1,862	$ 3,481.54	$ -	$ -	$ -		$ -		$ 3,481.54	$ 696.52	
1118	91B/2		1	Yes	$ 5,337.50	14.330	Single	Medium	132CA10	$ 1,862	$ 26,679.40	$ -	$ -	$ -		$ -		$ 26,679.40	$ 5,337.50	
1311	91F		1	Yes	$ 341.83	5.400	Single	Heavy	132ST09	$ 251	$ 678.02	$ 101.70	$ 245.78	$ -		$ -		$ 1,025.50	$ 341.83	
1312	91J		1	Yes	$ 341.83	5.400	Single	Heavy	132ST09	$ 251	$ 678.02	$ 101.70	$ 245.78	$ -		$ -		$ 1,025.50	$ 341.83	
1239	91L		1	Yes	$ 11,603.15	15.800	Single	Extra Heavy	132CA19	$ 2,361	$ 37,297.66	$ -	$ -	$ -		$ -		$ 37,297.66	$ 11,603.15	
1240	91L		2	Yes	$ 4,340.17	5.910	Single	Extra Heavy	132CA19	$ 2,361	$ 13,951.21	$ -	$ -	$ -		$ -		$ 13,951.21	$ 4,340.17	
1119	91M/1		1	Yes	$ 3,842.93	4.070	Single	Extra Heavy	132CA19	$ 2,361	$ 9,607.69	$ -	$ -	$ -		$ -		$ 9,607.69	$ 3,842.93	
1120	91M/1		2	Yes	$ 11,573.77	15.760	Single	Extra Heavy	132CA19	$ 2,361	$ 37,203.23	$ -	$ -	$ -		$ -		$ 37,203.23	$ 11,573.77	
1121	91M/3		1	Yes	$ 3,842.93	4.070	Single	Extra Heavy	132CA19	$ 2,361	$ 9,607.69	$ -	$ -	$ -		$ -		$ 9,607.69	$ 3,842.93	
1122	91M/3		2	Yes	$ 4,340.17	5.910	Single	Extra Heavy	132CA19	$ 2,361	$ 13,951.21	$ -	$ -	$ -		$ -		$ 13,951.21	$ 4,340.17	
1123	91X/1		1	Yes	$ 1,865.01	3.220	Single	Medium	132CA11	$ 1,862	$ 5,994.95	$ -	$ -	$ -		$ -		$ 5,994.95	$ 1,865.01	
1124	91X/2		1	Yes	$ 7,099.61	13.200	Single	Medium	132CA11	$ 1,862	$ 24,575.58	$ -	$ -	$ -		$ -		$ 24,575.58	$ 7,099.61	
1125	91Y/1		1	Yes	$ 1,865.01	3.220	Single	Medium	132CA11	$ 1,862	$ 5,994.95	$ -	$ -	$ -		$ -		$ 5,994.95	$ 1,865.01	
1126	91Y/2		1	Yes	$ 7,099.61	13.200	Single	Medium	132CA11	$ 1,862	$ 24,575.58	$ -	$ -	$ -		$ -		$ 24,575.58	$ 7,099.61	
1298	926	(1)	1A	Yes	$ 1,010.86	14.900	Single	Heavy 2	132ST02	$ 251	$ 1,870.82	$ 280.62	$ 572.94	$ -		$ -		$ 2,724.38	$ 1,089.75	Size adjusted to match feeder 927(1)(3A)
1299	926	(1)	1B	Yes	$ 1,010.86	0.000	Double	Heavy	132ST08	$ 233	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1300	926	(2)	1	Yes	$ 13.64	0.201	Double	Heavy	132ST08	$ 233	$ 23.41	$ 3.51	$ 7.17	$ -		$ -		$ 34.09	$ 13.64	
1301	926	(3)	1	Yes	$ 352.78	5.200	Double	Heavy	132ST08	$ 233	$ 605.63	$ 90.85	$ 185.48	$ -		$ -		$ 881.96	$ 352.78	
1302	926	(3)	2	Yes	$ 94.30	1.390	Double	Heavy	132ST06	$ 233	$ 161.89	$ 24.28	$ 49.58	$ -		$ -		$ 235.75	$ 94.30	

	CABLE				TOWER				CONCRETE				STEEL				132kV WOOD				66kV WOOD			
ID	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE
1344	0	0	0.00	0	70	131	28.00	3676	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1345	0	0	0.00	0	110	207	28.00	5798	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1346	0	0	0.00	0	28	52	28.00	1450	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1347	0	0	0.00	0	20	37	28.00	1035	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1348	0	0	0.00	0	59	111	28.00	3109	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1349	0	0	0.00	0	18	33	28.00	932	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1350	0	0	0.00	0	104	447	46.00	20582	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1351	0	0	0.00	0	31	135	46.00	6209	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1352	0	0	0.00	0	58	250	46.00	11482	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1353	0	0	0.00	0	85	364	46.00	16755	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1354	0	0	0.00	0	98	422	46.00	19391	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1355	0	0	0.00	0	6	24	46.00	1106	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1356	0	0	0.00	0	181	775	46.00	35635	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1357	0	0	0.00	0	11	48	46.00	2211	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1358	0	0	0.00	0	14	61	46.00	2807	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1359	0	0	0.00	0	20	85	46.00	3912	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1360	0	0	0.00	0	227	971	46.00	44650	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1361	0	0	0.00	0	31	131	46.00	6038	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1362	0	0	0.00	0	48	207	46.00	9525	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1363	0	0	0.00	0	12	52	46.00	2381	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1364	0	0	0.00	0	9	37	46.00	1701	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1365	0	0	0.00	0	26	111	46.00	5103	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1366	0	0	0.00	0	8	33	46.00	1531	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1115	830	4151	36.00	149420	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1116	5338	26679	36.00	960385	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1117	697	3482	36.00	125326	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1118	5338	26679	36.00	960385	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1311	0	0	0.00	0	342	1025	40.00	41020	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1312	0	0	0.00	0	342	1025	40.00	41020	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1239	11603	37298	31.00	1156253	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1240	4340	13951	31.00	432497	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1119	3843	9608	27.00	259414	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1120	11574	37203	31.00	1153326	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1121	3843	9608	27.00	259414	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1122	4340	13951	31.00	432497	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1123	1865	5995	31.00	185848	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1124	7100	24576	32.00	786419	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1125	1865	5995	31.00	185848	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1126	7100	24576	32.00	786419	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1298	0	0	0.00	0	1090	2724	36.00	98078	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1299	0	0	0.00	0	0	0	36.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1300	0	0	0.00	0	14	34	36.00	1227	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1301	0	0	0.00	0	353	882	36.00	31750	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1302	0	0	0.00	0	94	236	36.00	8487	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0

EnergyAustralia

Circuit ages as of 30 June 2004

Asset Lives

Steel Tower	60 years
Steel/Concrete Pole	55 years
Wood Pole (wet area)	45 years
Underground Cable	45 years
Residual	5 years

Standard establishment cost / line in k$ (based on line value at unit rate)		
	< 250 k	150
	< 500 k	150
	< 1M	300
	1M <	500

Feeder listing by CIRCUIT

a) Unit Rates shown are base values, reflecting Rural rates.
b) Locality factor is applied for Urban area.
adjustment and location factors for CBD installation.

ID	Feeder No	Level	Section	In Service	Data Supplied: DNSP Supp list	Data Supplied: Access End For list	Feeders in 1998 ODRC: Tower	Steel Pole	Conc Pole	Wood Pole	Cable	New Feeders to 2004 ODRC: Tower	Steel Pole	Conc Pole	Wood Pole	Cable	Voltage (kV)	Description	Length (km)	Construction	Line Type	Conductor: Type	Size	Cond/ phase	Detail	Code Name	Location: Rural 1.00	Urban 1.15	CBD	Asset Life (years)	Commission Date	Age (years)	% Strain Towers	% length c/w earthwire	OPGW	Easement	Adjustment factors: Line Type	Location	Strain Towers	As Installed: Length (km)	Line Type	Size	Valuation Code	Base Unit Rate ($k)	Line @ Unit Rate ($k)	Adjustments ($k): Location	Towers	Earthwire	Misc	Establish ($k)	Easement ($k)	RC ($k)
1303	926	(3)	3	Yes	X	X										X	132	926 TEE - Mason Park STSS	4.100	Cable	Double	AL	Extra Heavy	1	1600 AL1			100		45	1/07/1999	5.00				Yes	0.50	1.00	0.00	4.100	Double	Extra Heavy	132CA21	$ 2,589	$ 5,307.46	$ -	$ -	$ -		$ -		$ 5,307.46
1304	927	(1)	1	Yes	X	X	X										132	SYDNEY NORTH BSP - 927 Tee	5.130	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	66	100	No	Yes	0.50	1.15	0.35	5.130	Double	Heavy	132ST09	$ 251	$ 644.11	$ 96.62	$ 225.44	$ -		$ -		$ 966.17
1305	927	(1)	2	Yes	X	X	X										132	SYDNEY NORTH BSP - 927 Tee	2.930	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	66	100	No	Yes	0.50	1.15	0.35	2.930	Double	Heavy	132ST09	$ 251	$ 367.89	$ 55.18	$ 126.76	$ -		$ -		$ 551.83
1306	927	(1)	3A	Yes	X	X	X										132	SYDNEY NORTH BSP - 927 Tee	7.000	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	66	100	No	Yes	0.50	1.15	0.35	7.000	Double	Heavy	132ST09	$ 251	$ 878.91	$ 131.84	$ 307.62	$ -		$ -		$ 1,318.36
1307	927	(1)	3B	Yes	X	X	X										132	SYDNEY NORTH BSP - 927 Tee	7.000	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	66	100	No	Yes	0.50	1.15	0.35	7.000	Double	Heavy	132ST09	$ 251	$ 878.91	$ 131.84	$ 307.62	$ -		$ -		$ 1,318.36
1308	927	(2)	1	Yes	X	X	X										132	927 TEE - Carlingford BSP	0.033	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	66	100	No	Yes	0.50	1.15	0.35	0.033	Double	Heavy	132ST09	$ 251	$ 4.14	$ 0.62	$ 1.45	$ -		$ -		$ 6.22
1309	927	(3)	1	Yes	X	X	X										132	927 TEE - Homebush Bay	5.200	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	66	100	No	Yes	0.50	1.15	0.35	5.200	Double	Heavy	132ST09	$ 251	$ 652.90	$ 97.94	$ 228.52	$ -		$ -		$ 979.36
1310	927	(3)	2	Yes	X	X	X										132	927 TEE - Homebush Bay	1.390	Tower	Double	ACSR	Heavy	2	54/3.50 ACSR	Olive		100		60	30/06/1968	36.00	66	100	No	Yes	0.50	1.15	0.35	1.390	Double	Heavy	132ST07	$ 251	$ 174.53	$ 26.18	$ 61.08	$ -		$ -		$ 261.79
1226	927	(3)	3	Yes	X	X										X	132	927 TEE - Homebush Bay	1.100	Cable	Double	AL	Extra Heavy	2	1600 AL1			100		45	1/07/1999	5.00				Yes	0.50	1.00	0.00	1.100	Double	Extra Heavy	132CA22	$ 2,589	$ 1,423.95	$ -	$ -	$ -		$ -		$ 1,423.95
1279	92A	(1)	1	Yes	X	X	X										132	SYDNEY NORTH BSP - 92A Tee	20.300	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	58	100	No	Yes	0.50	1.15	0.30	20.300	Double	Heavy	132ST09	$ 251	$ 2,548.84	$ 382.33	$ 764.65	$ -		$ -		$ 3,695.81
1280	92A	(1)	2	Yes	X	X	X										132	SYDNEY NORTH BSP - 92A Tee	0.200	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	58	100	No	Yes	0.50	1.15	0.30	0.200	Double	Heavy	132ST09	$ 251	$ 25.11	$ 3.77	$ 7.53	$ -		$ -		$ 36.41
1281	92A	(2)	1	Yes	X	X	X										132	92A TEE - Lane Cove STSS	3.000	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	58	100	No	Yes	0.50	1.15	0.30	3.000	Double	Heavy	132ST09	$ 251	$ 376.68	$ 56.50	$ 113.00	$ -		$ -		$ 546.18
1282	92A	(3)	1	Yes	X	X										X	132	92A TEE - Macquarie Park	1.356	Cable	Double	CU	Extra Heavy	2	800 CU1			100		45	30/06/2001	3.00				Yes	0.50	1.00	0.00	1.356	Double	Extra Heavy	132CA23	$ 2,589	$ 1,755.34	$ -	$ -	$ -		$ -		$ 1,755.34
1283	92B	(1)	1	Yes	X	X	X										132	SYDNEY NORTH BSP - 92B Tee	20.300	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	58	100	No	Yes	0.50	1.15	0.30	20.300	Double	Heavy	132ST09	$ 251	$ 2,548.84	$ 382.33	$ 764.65	$ -		$ -		$ 3,695.81
1284	92B	(1)	2	Yes	X	X	X										132	SYDNEY NORTH BSP - 92B Tee	0.200	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	58	100	No	Yes	0.50	1.15	0.30	0.200	Double	Heavy	132ST09	$ 251	$ 25.11	$ 3.77	$ 7.53	$ -		$ -		$ 36.41
1285	92B	(2)	1	Yes	X	X	X										132	92B TEE - Lane Cove STSS	3.000	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00	58	100	No	Yes	0.50	1.15	0.30	3.000	Double	Heavy	132ST09	$ 251	$ 376.68	$ 56.50	$ 113.00	$ -		$ -		$ 546.18
1286	92B	(3)	1	Yes	X	X										X	132	92B TEE - Macquarie Park	1.268	Cable	Double	CU	Extra Heavy	2	800 CU1			100		45	30/06/2001	3.00				Yes	0.50	1.00	0.00	1.268	Double	Extra Heavy	132CA23	$ 2,589	$ 1,641.43	$ -	$ -	$ -		$ -		$ 1,641.43
1168	92F	(1)	1	Yes		X	X										132	LANE COVE STSS - East Ryde TP	0.512	Tower	Single	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1960	44.00		100		Yes	1.00	1.15	0.00	0.512	Single	Heavy	132ST02	$ 251	$ 128.57	$ 19.29	$ -	$ -		$ -		$ 147.86
1169	92F	(2)	1	Yes		X					X						132	MASON PARK STSS - Homebush Bay TP	4.100	Cable	Single	AL	Extra Heavy		1600 AL1			100		45	30/06/1960	44.00				Yes	1.00	1.00	0.00	4.100	Single	Extra Heavy	132CA03	$ 2,248	$ 9,217.29	$ -	$ -	$ -		$ -		$ 9,217.29
1170	92FA		1	Yes		X					X						132	HOMEBUSH BAY TP - East Ryde TP	0.350	Cable	Single	CU	Heavy		645 CU1			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	0.350	Single	Heavy	132CA15	$ 2,049	$ 717.25	$ -	$ -	$ -		$ -		$ 717.25
1171	92FA		2	Yes		X					X						132	HOMEBUSH BAY TP - East Ryde TP	6.800	Cable	Single	CU	Medium		429 CU1			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	6.800	Single	Medium	132CA11	$ 1,862	$ 12,660.15	$ -	$ -	$ -		$ -		$ 12,660.15
1172	92FA		3	Yes		X					X						132	HOMEBUSH BAY TP - East Ryde TP	0.390	Cable	Single	CU	Medium		435 CU3			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	0.390	Single	Medium	132CA13	$ 1,862	$ 726.10	$ -	$ -	$ -		$ -		$ 726.10
1173	92FA		4	Yes		X					X						132	HOMEBUSH BAY TP - East Ryde TP	0.924	Cable	Single	CU	Medium		429 CU1			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	0.924	Single	Medium	132CA11	$ 1,862	$ 1,720.29	$ -	$ -	$ -		$ -		$ 1,720.29
1174	92FB		1	Yes		X					X						132	HOMEBUSH BAY TP - East Ryde TP	0.350	Cable	Single	CU	Heavy		645 CU1			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	0.350	Single	Heavy	132CA15	$ 2,049	$ 717.25	$ -	$ -	$ -		$ -		$ 717.25
1175	92FB		2	Yes		X					X						132	HOMEBUSH BAY TP - East Ryde TP	6.800	Cable	Single	CU	Medium		429 CU1			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	6.800	Single	Medium	132CA11	$ 1,862	$ 12,660.15	$ -	$ -	$ -		$ -		$ 12,660.15
1176	92FB		3	Yes		X					X						132	HOMEBUSH BAY TP - East Ryde TP	0.390	Cable	Single	CU	Medium		435 CU3			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	0.390	Single	Medium	132CA13	$ 1,862	$ 726.10	$ -	$ -	$ -		$ -		$ 726.10
1177	92FB		4	Yes		X					X						132	HOMEBUSH BAY TP - East Ryde TP	0.924	Cable	Single	CU	Medium		429 CU1			100		45	30/06/1972	32.00				Yes	1.00	1.00	0.00	0.924	Single	Medium	132CA11	$ 1,862	$ 1,720.29	$ -	$ -	$ -		$ -		$ 1,720.29
1178	92J		1	Yes		X	X										132	LANE COVE STSS - East Ryde TP	0.512	Tower	Single	ACSR	Heavy	2	54/3.53 ACSR			100		60	30/06/1968	36.00		100		Yes	1.00	1.15	0.00	0.512	Single	Heavy	132ST02	$ 251	$ 128.57	$ 19.29	$ -	$ -		$ -		$ 147.86
1179	92JA		1	Yes							X						132	MEADOWBANK - East Ryde TP	0.250	Cable	Single	CU	Medium		430 CU1			100		45	1/07/1980	24.00				Yes	1.00	1.00	0.00	0.250	Single	Medium	132CA12	$ 1,862	$ 465.45	$ -	$ -	$ -		$ -		$ 465.45
1180	92JA		2	Yes							X						132	MEADOWBANK - East Ryde TP	5.580	Cable	Single	CU	Medium		430 CU1			100		45	1/07/1979	25.00				Yes	1.00	1.00	0.00	5.580	Single	Medium	132CA12	$ 1,862	$ 10,388.77	$ -	$ -	$ -		$ -		$ 10,388.77
1181	92JA		3	Yes							X						132	MEADOWBANK - East Ryde TP	0.385	Cable	Single	CU	Heavy		645 CU1			100		45	1/07/1979	25.00				Yes	1.00	1.00	0.00	0.385	Single	Heavy	132CA15	$ 2,049	$ 788.97	$ -	$ -	$ -		$ -		$ 788.97
1182	92JB		1	Yes							X						132	MEADOWBANK - East Ryde TP	0.250	Cable	Single	CU	Medium		430 CU1			100		45	1/07/1980	24.00				Yes	1.00	1.00	0.00	0.250	Single	Medium	132CA12	$ 1,862	$ 465.45	$ -	$ -	$ -		$ -		$ 465.45
1183	92JB		2	Yes							X						132	MEADOWBANK - East Ryde TP	5.580	Cable	Single	CU	Medium		430 CU1			100		45	1/07/1979	25.00				Yes	1.00	1.00	0.00	5.580	Single	Medium	132CA12	$ 1,862	$ 10,388.77	$ -	$ -	$ -		$ -		$ 10,388.77
1184	92JB		3	Yes							X						132	MEADOWBANK - East Ryde TP	0.385	Cable	Single	CU	Heavy		645 CU1			100		45	1/07/1979	25.00				Yes	1.00	1.00	0.00	0.385	Single	Heavy	132CA15	$ 2,049	$ 788.97	$ -	$ -	$ -		$ -		$ 788.97
1238	935		1	Yes		X					X						132	HOMEBUSH BAY - Mason Park STSS	3.000	Cable	Single	AL	Extra Heavy		1600 AL1			100		45	1/07/1999	5.00				Yes	1.00	1.00	0.00	3.000	Single	Extra Heavy	132CA03	$ 2,248	$ 6,744.36	$ -	$ -	$ -		$ -		$ 6,744.36
952	951		1	No		X											132	GOSFORD STS - West Gosford		Concrete	Single		Heavy					100		55	1/07/1958	46.00		100		Yes	1.00	1.15	0.00	0.000	Single	Heavy	132CP01	$ 148	$ -	$ -	$ -	$ -		$ -		$ -
959	951		1	New		X								X			132	OURIMBAH STS - West Gosford	9.905	Concrete	Single		Heavy					100		55	1/05/2004	0.16		100		Yes	1.00	1.15	0.00	9.905	Single	Heavy	132CP01	$ 148	$ 1,463.12	$ 219.47	$ -	$ -		$ -		$ 1,682.59
New	958			New		X								X			132	GOSFORD STS - West Gosford	1.629	Concrete	Single		Heavy					100		85	1/05/2004	0.16		100		Yes	1.00	1.15	0.00	1.629	Single	Heavy	132CP02	$ 148	$ 240.63	$ 36.09	$ -	$ -		$ -		$ 276.72
1398	957/1		1	Yes	X	X					X					X	132	957 TEE - O-RX	25.130	Wood	Single	HDCU	Medium	1	37/2.64 HDCU1			100		45	29/05/1959	45.09		100	No	Yes	1.00	1.15	0.00	25.130	Single	Medium	132WP08	$ 122	$ 3,055.34	$ 458.30	$ -	$ -		$ -		$ 3,513.64
1399	957/1		2	Yes	X	X					X					X	132	957 TEE - O-RX	2.620	Wood	Single	SCA	Medium	1	54/2.95 SCA			100		45	29/05/1959	45.09		100	No	Yes	1.00	1.15	0.00	2.620	Single	Medium	132WP09	$ 122	$ 318.54	$ 47.78	$ -	$ -		$ -		$ 366.32
1400	957/2		1	Yes	X	X					X					X	132	957 TEE - Eraring STS	8.461	Wood	Single	HDCU	Medium	1	37/2.64 HDCU1			100		45	1/07/1979	25.00		100	No	Yes	1.00	1.15	0.00	8.461	Single	Medium	132WP08	$ 122	$ 1,028.70	$ 154.31	$ -	$ -		$ -		$ 1,183.01
1401	957/2		2	Yes	X	X					X					X	132	957 TEE - Eraring STS	0.540	Wood	Single	SCA	Medium	1	54/2.95 SCA			100		45	1/07/1979	25.00		100	No	Yes	1.00	1.15	0.00	0.540	Single	Medium	132WP09	$ 122	$ 65.65	$ 9.85	$ -	$ -		$ -		$ 75.50
1402	957/2		3	Yes	X	X					X					X	132	957 TEE - Eraring STS	0.470	Wood	Single	SCA	Medium	1	30/3.75 SCA			100		45	1/07/1979	25.00		100	No	Yes	1.00	1.15	0.00	0.470	Single	Medium	132WP10	$ 122	$ 57.14	$ 8.57	$ -	$ -		$ -		$ 65.71
1403	957/2		4	Yes	X	X					X					X	132	957 TEE - Eraring STS	0.640	Wood	Single	ACSR	Medium	1	54/3.00 ACSR	Mango		100		45	1/07/1979	25.00		100	No	Yes	1.00	1.15	0.00	0.640	Single	Medium	132WP05	$ 122	$ 77.81	$ 11.67	$ -	$ -		$ -		$ 89.48
1404	957/3		1	Yes	X	X					X					X	132	957 TEE - Vales Point BSP	3.847	Wood	Single	ACSR	Medium	1	54/3.00 ACSR	Mango		100		45	30/06/1960	44.00		100	No	Yes	1.00	1.15	0.00	3.847	Single	Medium	132WP05	$ 122	$ 467.72	$ 70.16	$ -	$ -		$ -		$ 537.88
1405	957/3		2	Yes	X	X					X					X	132	957 TEE - Vales Point BSP	2.019	Wood	Single	ACSR	Medium	1	54/3.00 ACSR	Mango		100		45	30/06/1960	44.00		100	No	Yes	1.00	1.15	0.00	2.019	Single	Medium	132WP05	$ 122	$ 245.47	$ 36.82	$ -	$ -		$ -		$ 282.29
1406	957/3		3	Yes	X	X					X					X	132	957 TEE - Vales Point BSP	2.772	Wood	Single	ACSR	Medium	1	54/3.00 ACSR	Mango		100		45	30/06/1960	44.00		100	No	Yes	1.00	1.15	0.00	2.772	Single	Medium	132WP05	$ 122	$ 337.02	$ 50.55	$ -	$ -		$ -		$ 387.56

EnergyAustralia

SKM

Circuit ages as of **30 June 2004**

Asset Lives

Steel Tower	60 years
Steel/Concrete Pole	55 years
Wood Pole (wet area)	45 years
Underground Cable	45 years
Residual	5 years

Feeder listing by CIRCUIT

a) Unit Rates shown are base values, reflecting Rural rates.
b) Locality factor is applied for Urban area.
adjustment and location factors for CBD installation.

ID	Feeder No	Level	Section	In Service	DRC ($k)	Optimised Length (km)	Line Type	Size	Valuation Code	Base Unit Rate ($k)	Line @ Unit Rate ($k)	Adjustments ($k) Location	Towers	Earthwire	Misc	Establish ($k)	Easement ($k)	ORC ($k)	ODRC ($k)	Comments
1303	926	(3)	3	Yes	$ 4,717.82	4.100	Double	Extra Heavy	132CA21	$ 2,589	$ 5,307.46	$ -	$ -	$ -		$ -		$ 5,307.46	$ 4,717.82	
1304	927	(1)	1	Yes	$ 386.47	5.130	Double	Heavy	132ST09	$ 251	$ 644.11	$ 96.62	$ 225.44	$ -		$ -		$ 966.17	$ 386.47	
1305	927	(1)	2	Yes	$ 220.73	2.930	Double	Heavy	132ST09	$ 251	$ 367.89	$ 55.18	$ 128.76	$ -		$ -		$ 551.83	$ 220.73	
1306	927	(1)	3A	Yes	$ 527.35	7.000	Single	Heavy 2	132ST02	$ 251	$ 878.91	$ 131.84	$ 307.62	$ -		$ -		$ 1,318.36	$ 527.35	
1307	927	(1)	3B	Yes	$ 527.35	0.000	Double	Heavy	132ST09	$ 251	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1308	927	(2)	1	Yes	$ 2.49	0.033	Double	Heavy	132ST09	$ 251	$ 4.14	$ 0.62	$ 1.45	$ -		$ -		$ 6.22	$ 2.49	
1309	927	(3)	1	Yes	$ 391.74	5.200	Double	Heavy	132ST09	$ 251	$ 652.90	$ 97.94	$ 228.52	$ -		$ -		$ 979.36	$ 391.74	
1310	927	(3)	2	Yes	$ 104.72	1.390	Double	Heavy	132ST07	$ 251	$ 174.53	$ 26.18	$ 61.08	$ -		$ -		$ 261.79	$ 104.72	
1226	927	(3)	3	Yes	$ 1,265.76	1.100	Single	Extra Heavy	132CA22	$ 2,589	$ 1,423.95	$ -	$ -	$ -		$ -		$ 1,423.95	$ 1,265.76	
1279	92A	(1)	1	Yes	$ 1,478.32	20.300	Single	Heavy	132ST09	$ 251	$ 2,548.84	$ 382.33	$ 764.65	$ -		$ -		$ 3,695.81	$ 1,478.32	
1280	92A	(1)	2	Yes	$ 14.56	0.200	Single	Heavy	132ST09	$ 251	$ 25.11	$ 3.77	$ 7.53	$ -		$ -		$ 36.41	$ 14.56	
1281	92A	(2)	1	Yes	$ 218.47	3.000	Single	Heavy	132ST09	$ 251	$ 376.68	$ 56.50	$ 113.00	$ -		$ -		$ 546.18	$ 218.47	
1282	92A	(3)	1	Yes	$ 1,638.29	1.356	Single	Extra Heavy	132CA23	$ 2,589	$ 1,755.34	$ -	$ -	$ -		$ -		$ 1,755.34	$ 1,638.29	
1283	92B	(1)	1	Yes	$ 1,478.32	20.300	Single	Heavy	132ST09	$ 251	$ 2,548.84	$ 382.33	$ 764.65	$ -		$ -		$ 3,695.81	$ 1,478.32	
1284	92B	(1)	2	Yes	$ 14.56	0.200	Single	Heavy	132ST09	$ 251	$ 25.11	$ 3.77	$ 7.53	$ -		$ -		$ 36.41	$ 14.56	
1285	92B	(2)	1	Yes	$ 218.47	3.000	Single	Heavy	132ST09	$ 251	$ 376.68	$ 56.50	$ 113.00	$ -		$ -		$ 546.18	$ 218.47	
1286	92B	(3)	1	Yes	$ 1,531.97	1.268	Single	Extra Heavy	132CA23	$ 2,589	$ 1,641.43	$ -	$ -	$ -		$ -		$ 1,641.43	$ 1,531.97	
1168	92F	(1)	1	Yes	$ 39.43	0.512	Single	Heavy	132ST02	$ 251	$ 128.57	$ 19.29	$ -	$ -		$ -		$ 147.86	$ 39.43	
1169	92F	(2)	1	Yes	$ 1,024.14	4.100	Single	Extra Heavy	132CA03	$ 2,248	$ 9,217.29	$ -	$ -	$ -		$ -		$ 9,217.29	$ 1,024.14	
1170	92FA		1	Yes	$ 207.20	0.350	Single	Extra Heavy	132CA03	$ 2,248	$ 786.84	$ -	$ -	$ -		$ -		$ 786.84	$ 227.31	
1171	92FA		2	Yes	$ 3,657.38	6.800	Single	Extra Heavy	132CA03	$ 2,248	$ 15,287.22	$ -	$ -	$ -		$ -		$ 15,287.22	$ 4,416.31	
1172	92FA		3	Yes	$ 209.76	0.390	Single	Extra Heavy	132CA03	$ 2,248	$ 876.77	$ -	$ -	$ -		$ -		$ 876.77	$ 253.29	
1173	92FA		4	Yes	$ 496.97	0.924	Single	Extra Heavy	132CA03	$ 2,248	$ 2,077.26	$ -	$ -	$ -		$ -		$ 2,077.26	$ 600.10	
1174	92FB		1	Yes	$ 207.20	0.000	Single	Heavy	132CA15	$ 2,049	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1175	92FB		2	Yes	$ 3,657.38	0.000	Single	Medium	132CA11	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1176	92FB		3	Yes	$ 209.76	0.000	Single	Medium	132CA13	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1177	92FB		4	Yes	$ 496.97	0.000	Single	Medium	132CA11	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1178	92J		1	Yes	$ 59.14	0.512	Single	Heavy	132ST02	$ 251	$ 128.57	$ 19.29	$ -	$ -		$ -		$ 147.86	$ 59.14	
1179	92JA		1	Yes	$ 217.24	0.250	Single	Extra Heavy	132CA03	$ 2,248	$ 562.03	$ -	$ -	$ -		$ -		$ 562.03	$ 262.31	
1180	92JA		2	Yes	$ 4,617.39	5.580	Single	Extra Heavy	132CA03	$ 2,248	$ 12,544.51	$ -	$ -	$ -		$ -		$ 12,544.51	$ 5,575.53	
1181	92JA		3	Yes	$ 350.67	0.385	Single	Extra Heavy	132CA03	$ 2,248	$ 865.53	$ -	$ -	$ -		$ -		$ 865.53	$ 384.69	
1182	92JB		1	Yes	$ 217.24	0.000	Single	Medium	132CA12	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1183	92JB		2	Yes	$ 4,617.39	0.000	Single	Medium	132CA12	$ 1,862	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1184	92JB		3	Yes	$ 350.67	0.000	Single	Medium	132CA15	$ 2,049	$ -	$ -	$ -	$ -		$ -		$ -	$ -	Circuit removed in optimisation
1238	935		1	Yes	$ 5,995.09	3.000	Single	Extra Heavy	132CA03	$ 2,248	$ 6,744.36	$ -	$ -	$ -		$ -		$ 6,744.36	$ 5,995.09	
952	951		1	No	$ -	0.000	Single	Heavy	132CP01	$ 148	$ -	$ -	$ -	$ -		$ -		$ -	$ -	1.629 km line replaced by Fdr No 956
959	951		1	New	$ 1,677.57	9.905	Single	Heavy	132CP01	$ 148	$ 1,463.12	$ 219.47	$ -	$ -		$ -		$ 1,682.59	$ 1,677.57	
New	956			New	$ 275.90	1.629	Single	Heavy	132CP02	$ 148	$ 240.63	$ 36.09	$ -	$ -		$ -		$ 276.72	$ 275.90	New fdr to new West Gosford substation
1398	957/1		1	Yes	$ 390.40	25.130	Single	Medium	132WP08	$ 122	$ 3,055.34	$ 458.30	$ -	$ -		$ -		$ 3,513.64	$ 390.40	
1399	957/1		2	Yes	$ 40.70	2.620	Single	Medium	132WP09	$ 122	$ 318.54	$ 47.78	$ -	$ -		$ -		$ 366.32	$ 40.70	
1400	957/2		1	Yes	$ 525.80	8.461	Single	Medium	132WP08	$ 122	$ 1,028.70	$ 154.31	$ -	$ -		$ -		$ 1,183.01	$ 525.80	
1401	957/2		2	Yes	$ 33.56	0.540	Single	Medium	132WP09	$ 122	$ 65.65	$ 9.85	$ -	$ -		$ -		$ 75.50	$ 33.56	
1402	957/2		3	Yes	$ 29.21	0.470	Single	Medium	132WP10	$ 122	$ 57.14	$ 8.57	$ -	$ -		$ -		$ 65.71	$ 29.21	
1403	957/2		4	Yes	$ 39.77	0.640	Single	Medium	132WP05	$ 122	$ 77.81	$ 11.67	$ -	$ -		$ -		$ 89.48	$ 39.77	
1404	957/3		1	Yes	$ 59.76	3.847	Single	Medium	132WP05	$ 122	$ 467.72	$ 70.16	$ -	$ -		$ -		$ 537.88	$ 59.76	
1405	957/3		2	Yes	$ 31.37	2.019	Single	Medium	132WP05	$ 122	$ 245.47	$ 36.82	$ -	$ -		$ -		$ 282.29	$ 31.37	
1406	957/3		3	Yes	$ 43.06	2.772	Single	Medium	132WP05	$ 122	$ 337.02	$ 50.55	$ -	$ -		$ -		$ 387.58	$ 43.06	

	CABLE				TOWER				CONCRETE				STEEL				132kV WOOD				66kV WOOD				
ID	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	ODRC	ORC	AGE	ORC X AGE	
1303	4718	5307	5.00	26534	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1304	0	0	0.00	0	386	966	36.00	34782	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1305	0	0	0.00	0	221	552	36.00	19866	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1306	0	0	0.00	0	527	1318	36.00	47461	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1307	0	0	0.00	0	0	0	36.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1308	0	0	0.00	0	2	6	36.00	224	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1309	0	0	0.00	0	392	979	36.00	35257	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1310	0	0	0.00	0	105	262	36.00	9424	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1226	1266	1424	5.00	7119	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1279	0	0	0.00	0	1478	3696	36.00	133049	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1280	0	0	0.00	0	15	36	36.00	1311	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1281	0	0	0.00	0	218	546	36.00	19662	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1282	1638	1755	3.00	5267	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	$ 1,638.29
1283	0	0	0.00	0	1478	3696	36.00	133049	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1284	0	0	0.00	0	15	36	36.00	1311	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1285	0	0	0.00	0	218	546	36.00	19662	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1286	1532	1641	3.00	4925	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	$ 1,531.97
1168	0	0	0.00	0	39	148	44.00	6509	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1169	1024	9217	44.00	405561	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1170	227	787	32.00	25179	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1171	4416	15287	32.00	489191	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1172	253	877	32.00	28057	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1173	600	2077	32.00	66472	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1174	0	0	32.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1175	0	0	32.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1176	0	0	32.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1177	0	0	32.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1178	0	0	0.00	0	59	148	36.00	5323	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1179	262	562	24.00	13487	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1180	5576	12545	25.00	313604	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1181	385	866	25.00	21638	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1182	0	0	24.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1183	0	0	25.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1184	0	0	25.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1238	5995	6744	5.00	33717	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
952	0	0	0.00	0	0	0	0.00	0	0	0	46.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
959	0	0	0.00	0	0	0	0.00	0	1678	1683	0.16	276	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
New	0	0	0.00	0	0	0	0.00	0	276	277	0.16	45	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	
1398	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	390	3514	45.09	158429	0	0	0.00	0	
1399	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	41	366	45.09	16517	0	0	0.00	0	
1400	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	526	1183	25.00	29574	0	0	0.00	0	
1401	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	34	76	25.00	1887	0	0	0.00	0	
1402	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	29	66	25.00	1643	0	0	0.00	0	
1403	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	40	89	25.00	2237	0	0	0.00	0	
1404	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	60	538	44.00	23667	0	0	0.00	0	
1405	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	31	282	44.00	12421	0	0	0.00	0	
1406	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	43	388	44.00	17053	0	0	0.00	0	

EnergyAustralia

Circuit ages as of **30 June 2004**

Standard establishment cost / line in k$ (based on line value at unit rate)

< 250 k	150
< 500 k	150
< 1M	300
1M <	500

Asset Lives

Steel Tower	60 years
Steel/Concrete Pole	55 years
Wood Pole (wet area)	45 years
Underground Cable	45 years
Residual	5 years

Feeder listing by CIRCUIT

a) Unit Rates shown are base values, reflecting Rural rates.

b) Locality factor is applied for Urban area.

adjustment and location factors for CBD installation.

ID	Feeder				Data Supplied		Feeders in 1998 ODRC					New Feeders to 2004 ODRC					Voltage (kV)	Description	Length (km)	Construction	Line Type	Conductor				
	No	Level	Section	In Service	DNSP Supp list	Access Xref Fdr list	Tower	Steel Pole	Conc Pole	Wood Pole	Cable	Tower	Steel Pole	Conc Pole	Wood Pole	Cable						Type	Size	Cond/ phase	Detail	Code Name
1410	958		1	Yes	X	X							X				132	TUGGERAH BSP - Gosford STS	9.500	Steel	Single	ACSR	Heavy	1	54/3.50 ACSR	Olive
1411	958		2	Yes	X	X							X				132	TUGGERAH BSP - Gosford STS	1.000	Steel	Single	ACSR	Heavy	1	54/3.50 ACSR	Olive
1412	958		3	Yes	X	X							X				132	TUGGERAH BSP - Gosford STS	7.853	Steel	Single	ACSR	Medium	1	54/3.25 ACSR	Orange
1391	95C		1	Yes	X	X									X		132	TUGGERAH BSP - Ourimbah STS	0.790	Wood	Single	ACSR	Medium	1	54/3.25 ACSR	Orange
1392	95C		2	Yes	X	X									X		132	TUGGERAH BSP - Ourimbah STS	7.850	Wood	Single	ACSR	Medium	1	54/3.25 ACSR	Orange
1393	95E		1	Yes	X	X									X		132	GOSFORD STS - Somersby	4.010	Wood	Single	ACSR	Heavy	1	54/3.50 ACSR	Olive
1394	95E		2	Yes	X	X									X		132	GOSFORD STS - Somersby	2.360	Wood	Single	HDCU	Medium	1	37/2.64 HDCU1	
1395	95E		3	Yes	X	X									X		132	GOSFORD STS - Somersby	1.700	Wood	Single	AAC	Medium	1	19/4.75 AAC	Taurus
1065	95L			Yes	X	X				X							132	CAPRAL KURRI - Kurri	4.260	Wood	Single		Heavy	1		
1396	95Z		1	Yes	X	X									X		132	SOMERSBY - Mt. Colah STSS	1.200	Wood	Single	AAC	Medium	1	19/4.75 AAC	Taurus
1397	95Z		2	Yes	X	X									X		132	SOMERSBY - Mt. Colah STSS	34.920	Wood	Single	HDCU	Medium	1	37/2.64 HDCU1	
1076	962		1	Yes	X	X				X							132	WARATAH WEST - Tomago	9.060	Wood	Double		Light	1		
1094	962		2	Yes	X	X						X					132	WARATAH WEST - Tomago	0.321	Tower	Double		Heavy	1		
1098	962		3	Yes	X	X						X					132	WARATAH WEST - Tomago	0.684	Tower	Double		Medium	1		
1077	963		1	Yes	X	X				X							132	TAREE - Tomago	57.000	Wood	Double		Light	1		
1095	963		2	Yes	X	X	X										132	TAREE - Tomago	0.700	Tower	Double		Light	1		
1086	96A			Yes	X	X				X							132	NEWCASTLE - Kurri	13.686	Wood	Single		Medium	1		
1087	96B			Yes	X	X				X							132	NEWCASTLE - Capral Kurri	17.747	Wood	Single		Medium	1		
1078	96F			Yes	X	X				X							132	STROUD - Kurri	77.445	Wood	Single		Light	1		
1088	96U			Yes	X	X				X							132	NEWCASTLE - Kurri	12.430	Wood	Single		Medium	1		
1089	96W			Yes	X	X				X							132	NEWCASTLE - Capral Kurri	16.430	Wood	Single		Medium	1		
1407	97E		1	Yes	X	X								X			132	MUNMORAH PS - Charmhaven	8.207	Concrete	Single	AAC	Heavy	1	61/3.25 AAC	Uranus
1408	98B		1	Yes	X	X								X			132	CHARMHAVEN - Wyong	7.651	Concrete	Single	AAC	Heavy	1	61/3.25 AAC	Uranus
1409	99C		1	Yes	X	X								X			132	WYONG - Tuggerah RX	5.731	Concrete	Single	AAC	Heavy	1	61/3.25 AAC	Uranus
1081	9NA			Yes	X	X				X							132	NEWCASTLE - Tomago	31.450	Wood	Single		Light	1		
1109	9S6/1		1	Yes		X					X						132	BEACONSFIELD BSP - 9S6 Tee	7.244	Cable	Single	CU	Extra Heavy		1000 CU1	
New	9S6/1		2	New		X										X	132	PYRMONT - Haymarket	0.708	Cable (Tunnel)	Single	CU	Extra Heavy	1	1200 CU1	
1112	9S9/1		1	Yes		X					X						132	BEACONSFIELD BSP - 9S9 Tee	6.810	Cable	Single	CU	Extra Heavy		1000 CU1	
New	9S9/1		2	New		X										X	132	PYRMONT - Haymarket	0.708	Cable (Tunnel)	Single	CU	Extra Heavy	1	1200 CU1	
New	9S2			New		X										X	132	HAYMARKET - Beaconsfield	0.708	Cable (Tunnel)	Single	CU	Extra Heavy	1	1200 CU1	
	9SA					X												SURRY HILLS - Beaconsfield			Single					
	9SA/1					X															Single					
New	9SC			New		X										X	132	CAMPBELL ST - Haymarket	1.205	Cable (Tunnel)	Single	CU	Extra Heavy	1	1200 CU1	
New	9SE			New		X										X	132	HAYMARKET - Beaconsfield	0.708	Cable (Tunnel)	Single	CU	Extra Heavy	1	1200 CU1	
1256	BUNN2		1	Yes		X	X										132	BUNNERONG STSS - Bunnerong North T2	0.122	Tower	Single	ACSR	Light		30/3.00 ACSR	Lemon
1257	BUNN3		1	Yes		X	X										132	BUNNERONG STSS - Bunnerong North T3	0.183	Tower	Single	ACSR	Light		30/3.00 ACSR	Lemon
1258	BUNN4		1	Yes		X	X										132	BUNNERONG STSS - Bunnerong North T4	0.216	Tower	Single	ACSR	Light		30/3.00 ACSR	Lemon
																		TOTAL	**915.454**							

ID	Location			Asset Life (years)	Commission Date	Age (years)	% Strain Towers	% length c/w earthwire	OPGW	Easement	Adjustment factors			As Installed												
	Rural 1.00	Urban 1.15	CBD								Line Type	Location	Strain Towers	Length (km)	Line Type	Size	Valuation Code	Base Unit Rate ($k)	Line @ Unit Rate ($k)	Adjustments ($k) Location	Towers	Earthwire	Misc	Establish ($k)	Easement ($k)	RC ($k)
1410		100		55	29/05/1978	26.09		100	No	Yes	1.00	1.15	0.00	9.500	Single	Heavy	132SP02	$ 155	$ 1,468.07	$ 220.21	$ -	$ -		$ -		$ 1,688.28
1411		100		55	29/05/1978	26.09		100	No	Yes	1.00	1.15	0.00	1.000	Single	Heavy	132SP02	$ 155	$ 154.53	$ 23.18	$ -	$ -		$ -		$ 177.71
1412		100		55	29/05/1978	26.09		100	No	Yes	1.00	1.15	0.00	7.853	Single	Medium	132SP01	$ 118	$ 928.01	$ 139.20	$ -	$ -		$ -		$ 1,067.21
1391		100		45	1/07/1959	45.00		100	No	Yes	1.00	1.15	0.00	0.790	Single	Medium	132WP06	$ 122	$ 96.05	$ 14.41	$ -	$ -		$ -		$ 110.46
1392		100		45	1/07/1959	45.00		100	No	Yes	1.00	1.15	0.00	7.850	Single	Medium	132WP06	$ 122	$ 954.41	$ 143.16	$ -	$ -		$ -		$ 1,097.58
1393		100		45	1/07/1978	26.00		100		Yes	1.00	1.15	0.00	4.010	Single	Heavy	132WP07	$ 144	$ 578.67	$ 86.80	$ -	$ -		$ -		$ 665.47
1394		100		45	1/07/1978	26.00		100		Yes	1.00	1.15	0.00	2.360	Single	Medium	132WP08	$ 122	$ 286.93	$ 43.04	$ -	$ -		$ -		$ 329.97
1395		100		45	1/07/1978	26.00		100		Yes	1.00	1.15	0.00	1.700	Single	Medium	132WP04	$ 122	$ 206.69	$ 31.00	$ -	$ -		$ -		$ 237.69
1065	100			45	1/07/1985	19.00		100	No	Yes	1.00	1.00	0.00	4.260	Single	Heavy	132WP03	$ 144	$ 614.75	$ -	$ -	$ -		$ 300.00		$ 914.75
1396		100		45	3/11/1994	9.66		100	No	Yes	1.00	1.15	0.00	1.200	Single	Medium	132WP04	$ 122	$ 145.90	$ 21.88	$ -	$ -		$ -		$ 167.78
1397		100		45	3/11/1994	9.66		100	No	Yes	1.00	1.15	0.00	34.920	Single	Medium	132WP08	$ 122	$ 4,245.62	$ 636.84	$ -	$ -		$ -		$ 4,882.47
1076	100			45	1/07/1963	41.00	100	100	No	Yes	0.50	1.00	0.56	9.060	Double	Light	132WP11	$ 144	$ 653.71	$ -	$ 367.71	$ -		$ 150.00		$ 1,171.42
1094	100			60	1/07/1963	41.00	100	100	No	Yes	0.50	1.00	0.56	0.321	Double	Heavy	132ST05	$ 233	$ 37.39	$ -	$ 21.03	$ -		$ 75.00		$ 133.42
1098	100			60	1/07/1963	41.00	100	100	No	Yes	0.50	1.00	0.56	0.684	Double	Medium	132ST04	$ 199	$ 68.01	$ -	$ 38.25	$ -		$ 75.00		$ 181.26
1077	100			45	1/07/1990	14.00		100	No	Yes	0.50	1.00	0.00	57.000	Double	Light	132WP11	$ 144	$ 4,112.75	$ -	$ -	$ -		$ 250.00		$ 4,362.75
1095	100			60	1/07/1990	14.00	100	100	No	Yes	0.50	1.00	0.56	0.700	Double	Light	132ST03	$ 164	$ 57.27	$ -	$ 32.21	$ -		$ 75.00		$ 164.48
1086	100			45	1/07/1970	34.00		100	No	Yes	1.00	1.00	0.00	13.686	Single	Medium	132WP02	$ 122	$ 1,663.96	$ -	$ -	$ -		$ 500.00		$ 2,163.96
1087	100			45	1/07/1969	35.00		100	No	Yes	1.00	1.00	0.00	17.747	Single	Medium	132WP02	$ 122	$ 2,157.71	$ -	$ -	$ -		$ 500.00		$ 2,657.71
1078	100			45	1/07/1975	29.00		100	No	Yes	1.00	1.00	0.00	77.445	Single	Light	132WP01	$ 95	$ 7,391.90	$ -	$ -	$ -		$ 500.00		$ 7,891.90
1088	100			45	1/07/1972	32.00		100	No	Yes	1.00	1.00	0.00	12.430	Single	Medium	132WP02	$ 122	$ 1,511.26	$ -	$ -	$ -		$ 500.00		$ 2,011.26
1089	100			45	1/07/1972	32.00		100	No	Yes	1.00	1.00	0.00	16.430	Single	Medium	132WP02	$ 122	$ 1,997.58	$ -	$ -	$ -		$ 500.00		$ 2,497.58
1407		100		55	1/07/1999	5.00		100	No	Yes	1.00	1.15	0.00	8.207	Single	Heavy	132CP03	$ 148	$ 1,212.30	$ 181.85	$ -	$ -		$ -		$ 1,394.15
1408		100		55	1/07/1999	5.00		100	No	Yes	1.00	1.15	0.00	7.651	Single	Heavy	132CP03	$ 148	$ 1,130.17	$ 169.53	$ -	$ -		$ -		$ 1,299.70
1409		100		55	1/07/1999	5.00		100	No	Yes	1.00	1.15	0.00	5.731	Single	Heavy	132CP03	$ 148	$ 846.56	$ 126.98	$ -	$ -		$ -		$ 973.54
1081	100			45	1/07/1960	44.00		100	No	Yes	1.00	1.00	0.00	31.450	Single	Light	132WP01	$ 95	$ 3,001.81	$ -	$ -	$ -		$ 500.00		$ 3,501.81
1109			100	45	30/06/1988	16.00				Yes	1.00	1.00	0.00	7.244	Single	Extra Heavy	132CA17c	$ 2,715	$ 19,670.45	$ -	$ -	$ -		$ -		$ 19,670.45
New (9S6/1)			100	45	1/04/2004	0.25				Yes	1.00	1.00	0.00	0.708	Single	Extra Heavy	132CA27	$ 1,818	$ 1,287.17	$ -	$ -	$ -		$ -		$ 1,287.17
1112			100	45	30/06/1980	24.00				Yes	1.00	1.00	0.00	6.810	Single	Extra Heavy	132CA17c	$ 2,715	$ 18,491.96	$ -	$ -	$ -		$ -		$ 18,491.96
New (9S9/1)			100	45	1/02/2004	0.41				Yes	1.00	1.00	0.00	0.708	Single	Extra Heavy	132CA27	$ 1,818	$ 1,287.17	$ -	$ -	$ -		$ -		$ 1,287.17
New (9S2)			100	45	1/03/2004	0.33				Yes	1.00	1.00	0.00	0.708	Single	Extra Heavy	132CA27	$ 1,818	$ 1,287.17	$ -	$ -	$ -		$ -		$ 1,287.17
(9SA)				55																		$ -		$ -		
(9SA/1)				55																		$ -		$ -		
New (9SC)			100	45	1/03/2004	0.33				Yes	1.00	1.00	0.00	1.205	Single	Extra Heavy	132CA27	$ 1,818	$ 2,190.74	$ -	$ -	$ -		$ -		$ 2,190.74
New (9SE)			100	45	1/12/2003	0.58				Yes	1.00	1.00	0.00	0.708	Single	Extra Heavy	132CA27	$ 1,818	$ 1,287.17	$ -	$ -	$ -		$ -		$ 1,287.17
1256		100		60	1/07/1974	30.00		100		Yes	1.00	1.15	0.00	0.122	Single	Light	132ST01	$ 127	$ 15.53	$ 2.33	$ -	$ -		$ -		$ 17.85
1257		100		60	1/07/1974	30.00		100		Yes	1.00	1.15	0.00	0.183	Single	Light	132ST01	$ 127	$ 23.29	$ 3.49	$ -	$ -		$ -		$ 26.78
1258		100		60	1/07/1974	30.00		100		Yes	1.00	1.15	0.00	0.216	Single	Light	132ST01	$ 127	$ 27.49	$ 4.12	$ -	$ -		$ -		$ 31.61
														915.454					**$ 576,627.16**	**$ 6,342.91**	**$ 8,134.79**	**$ -**	**$ -**	**$ 4,425.00**		**$ 595,529.86**

EnergyAustralia

SKM

Circuit ages as of **30 June 2004**

Asset Lives

Steel Tower	60 years
Steel/Concrete Pole	55 years
Wood Pole (wet area)	45 years
Underground Cable	45 years
Residual	5 years

Feeder listing by CIRCUIT

a) Unit Rates shown are base values, reflecting Rural rates.
b) Locality factor is applied for Urban area.
adjustment and location factors for CBD installation.

ID	Feeder No	Level	Section	In Service	DRC ($k)	Optimised Length (km)	Line Type	Size	Valuation Code	Base Unit Rate ($k)	Line @ Unit Rate ($k)	Adjustments ($k) Location	Towers	Earthwire	Misc	Establish ($k)	Easement ($k)	ORC ($k)	ODRC ($k)	Comments
1410	958		1	Yes	$ 887.45	9.500	Single	Heavy	132SP02	$ 155	$ 1,468.07	$ 220.21	$ -	$ -		$ -		$ 1,688.28	$ 887.45	
1411	958		2	Yes	$ 93.42	1.000	Single	Heavy	132SP02	$ 155	$ 154.53	$ 23.18	$ -	$ -		$ -		$ 177.71	$ 93.42	
1412	958		3	Yes	$ 560.98	7.853	Single	Medium	132SP01	$ 118	$ 928.01	$ 139.20	$ -	$ -		$ -		$ 1,067.21	$ 560.98	
1391	95C		1	Yes	$ 12.27	0.790	Single	Medium	132WP06	$ 122	$ 96.05	$ 14.41	$ -	$ -		$ -		$ 110.46	$ 12.27	
1392	95C		2	Yes	$ 121.95	7.850	Single	Medium	132WP06	$ 122	$ 954.41	$ 143.16	$ -	$ -		$ -		$ 1,097.58	$ 121.95	
1393	95E		1	Yes	$ 281.00	4.010	Single	Heavy	132WP07	$ 144	$ 578.67	$ 86.80	$ -	$ -		$ -		$ 665.47	$ 281.00	
1394	95E		2	Yes	$ 139.33	2.360	Single	Medium	132WP08	$ 122	$ 286.93	$ 43.04	$ -	$ -		$ -		$ 329.97	$ 139.33	
1395	95E		3	Yes	$ 100.37	1.700	Single	Medium	132WP04	$ 122	$ 206.69	$ 31.00	$ -	$ -		$ -		$ 237.69	$ 100.37	
1065	95L			Yes	$ 528.56	4.260	Single	Medium 1	132WP02	$ 122	$ 517.94	$ -	$ -	$ -		$ 300.00		$ 817.94	$ 472.62	
1396	95Z		1	Yes	$ 131.78	1.200	Single	Medium	132WP04	$ 122	$ 145.90	$ 21.88	$ -	$ -		$ -		$ 167.78	$ 131.78	
1397	95Z		2	Yes	$ 3,834.75	34.920	Single	Medium	132WP08	$ 122	$ 4,245.62	$ 636.84	$ -	$ -		$ -		$ 4,882.47	$ 3,834.75	
1076	962		1	Yes	$ 130.16	9.060	Single	Light	132WP11	$ 144	$ 653.71	$ -	$ 367.71	$ -		$ 150.00		$ 1,171.42	$ 130.16	
1094	962		2	Yes	$ 42.25	0.321	Single	Heavy	132ST05	$ 233	$ 37.39	$ -	$ 21.03	$ -		$ 75.00		$ 133.42	$ 42.25	
1098	962		3	Yes	$ 57.40	0.684	Single	Medium	132ST04	$ 199	$ 68.01	$ -	$ 38.25	$ -		$ 75.00		$ 181.26	$ 57.40	
1077	963		1	Yes	$ 3,005.58	57.000	Single	Light	132WP11	$ 144	$ 4,112.75	$ -	$ -	$ -		$ 250.00		$ 4,362.75	$ 3,005.58	
1095	963		2	Yes	$ 126.11	0.700	Single	Light	132ST03	$ 164	$ 57.27	$ -	$ 32.21	$ -		$ 75.00		$ 164.48	$ 126.11	
1086	96A			Yes	$ 529.03	13.686	Single	Medium	132WP02	$ 122	$ 1,663.96	$ -	$ -	$ -		$ 500.00		$ 2,163.96	$ 529.03	
1087	96B			Yes	$ 590.72	17.747	Single	Medium	132WP02	$ 122	$ 2,157.71	$ -	$ -	$ -		$ 500.00		$ 2,657.71	$ 590.72	
1078	96F			Yes	$ 2,806.13	77.445	Single	Light	132WP01	$ 95	$ 7,391.90	$ -	$ -	$ -		$ 500.00		$ 7,891.90	$ 2,806.13	
1088	96U			Yes	$ 581.15	12.430	Single	Medium	132WP02	$ 122	$ 1,511.26	$ -	$ -	$ -		$ 500.00		$ 2,011.26	$ 581.15	
1089	96W			Yes	$ 721.68	16.430	Single	Medium	132WP02	$ 122	$ 1,997.58	$ -	$ -	$ -		$ 500.00		$ 2,497.58	$ 721.68	
1407	97E		1	Yes	$ 1,267.43	8.207	Single	Heavy	132CP03	$ 148	$ 1,212.30	$ 181.85	$ -	$ -		$ -		$ 1,394.15	$ 1,267.43	
1408	98B		1	Yes	$ 1,181.56	7.651	Single	Heavy	132CP03	$ 148	$ 1,130.17	$ 169.53	$ -	$ -		$ -		$ 1,299.70	$ 1,181.56	
1409	99C		1	Yes	$ 885.05	5.731	Single	Heavy	132CP03	$ 148	$ 846.56	$ 126.98	$ -	$ -		$ -		$ 973.54	$ 885.05	
1081	9NA			Yes	$ 389.09	31.450	Single	Light	132WP01	$ 95	$ 3,001.81	$ -	$ -	$ -		$ 500.00		$ 3,501.81	$ 389.09	
1109	9S6/1		1	Yes	$ 12,676.51	7.244	Single	Extra Heavy	132CA17c	$ 2,715	$ 19,670.45	$ -	$ -	$ -		$ -		$ 19,670.45	$ 12,676.51	
New	9S6/1		2	New	$ 1,280.12	0.708	Single	Extra Heavy	132CA27	$ 1,818	$ 1,287.17	$ -	$ -	$ -		$ -		$ 1,287.17	$ 1,280.12	670 m tunnel (trefoil), 130 m flat spaced
1112	9S9/1		1	Yes	$ 8,629.58	6.810	Single	Extra Heavy	132CA17c	$ 2,715	$ 18,491.96	$ -	$ -	$ -		$ -		$ 18,491.96	$ 8,629.58	
New	9S9/1		2	New	$ 1,275.43	0.708	Single	Extra Heavy	132CA27	$ 1,818	$ 1,287.17	$ -	$ -	$ -		$ -		$ 1,287.17	$ 1,275.43	670 m tunnel (trefoil), 130 m flat spaced
New	9S2			New	$ 1,277.70	0.708	Single	Extra Heavy	132CA27	$ 1,818	$ 1,287.17	$ -	$ -	$ -		$ -		$ 1,287.17	$ 1,277.70	670 m tunnel (trefoil), 130 m flat spaced
	9SA						Single							$ -		$ -				
	9SA/1						Single							$ -		$ -				
New	9SC			New	$ 2,174.61	1.205	Single	Extra Heavy	132CA27	$ 1,818	$ 2,190.74	$ -	$ -	$ -		$ -		$ 2,190.74	$ 2,174.61	1103 m tunnel (trefoil), 102 m flat spaced
New	9SE			New	$ 1,270.57	0.708	Single	Extra Heavy	132CA27	$ 1,818	$ 1,287.17	$ -	$ -	$ -		$ -		$ 1,287.17	$ 1,270.57	670 m tunnel (trefoil), 130 m flat spaced
1256	BUNN2		1	Yes	$ 8.93	0.122	Single	Light	132ST01	$ 127	$ 15.53	$ 2.33	$ -	$ -		$ -		$ 17.85	$ 8.93	
1257	BUNN3		1	Yes	$ 13.39	0.183	Single	Light	132ST01	$ 127	$ 23.29	$ 3.49	$ -	$ -		$ -		$ 26.78	$ 13.39	
1258	BUNN4		1	Yes	$ 15.81	0.216	Single	Light	132ST01	$ 127	$ 27.49	$ 4.12	$ -	$ -		$ -		$ 31.61	$ 15.81	
					$ 208,688.90	860.747					$ 528,805.20	$ 5,971.08	$ 7,337.19	$ -	$ -	$ 4,425.00		$ 546,538.48	$ 194,947.41	

	CABLE ODRC	ORC	AGE	ORC X AGE	TOWER ODRC	ORC	AGE	ORC X AGE	CONCRETE ODRC	ORC	AGE	ORC X AGE	STEEL ODRC	ORC	AGE	ORC X AGE	132kV WOOD ODRC	ORC	AGE	ORC X AGE	66kV WOOD ODRC	ORC	AGE	ORC X AGE
1410	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	887	1688	26.09	44045	0	0	0.00	0	0	0	0.00	0
1411	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	93	178	26.09	4636	0	0	0.00	0	0	0	0.00	0
1412	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	561	1067	26.09	27842	0	0	0.00	0	0	0	0.00	0
1391	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	12	110	45.00	4970	0	0	0.00	0
1392	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	122	1098	45.00	49390	0	0	0.00	0
1393	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	281	665	26.00	17301	0	0	0.00	0
1394	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	139	330	26.00	8579	0	0	0.00	0
1395	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	100	238	26.00	6180	0	0	0.00	0
1065	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	473	818	19.00	15539	0	0	0.00	0
1396	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	132	168	9.66	1620	0	0	0.00	0
1397	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	3835	4882	9.66	47147	0	0	0.00	0
1076	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	130	1171	41.00	48028	0	0	0.00	0
1094	0	0	0.00	0	42	133	41.00	5470	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1098	0	0	0.00	0	57	181	41.00	7432	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1077	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	3006	4363	14.00	61072	0	0	0.00	0
1095	0	0	0.00	0	126	164	14.00	2303	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1086	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	529	2164	34.00	73572	0	0	0.00	0
1087	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	591	2658	35.00	93014	0	0	0.00	0
1078	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2806	7892	29.00	228860	0	0	0.00	0
1088	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	581	2011	32.00	64355	0	0	0.00	0
1089	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	722	2498	32.00	79916	0	0	0.00	0
1407	0	0	0.00	0	0	0	0.00	0	1267	1394	5.00	6970	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1408	0	0	0.00	0	0	0	0.00	0	1182	1300	5.00	6498	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1409	0	0	0.00	0	0	0	0.00	0	885	974	5.00	4867	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1081	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	389	3502	44.00	154070	0	0	0.00	0
1109	12677	19670	16.00	314727	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
New	1280	1287	0.25	317	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1112	8630	18492	24.00	443807	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
New	1275	1287	0.41	529	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
New	1278	1287	0.33	426	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
New	2175	2191	0.33	726	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
New	1271	1287	0.58	747	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1256	0	0	0.00	0	9	18	30.00	536	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1257	0	0	0.00	0	13	27	30.00	803	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
1258	0	0	0.00	0	16	32	30.00	948	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
	160807	460784	30.06	13851961	11597	30077	36.86	1108754	5288	5627	3.32	18656	1542	2933	26.09	76524	15041	41069	29.63	1217042	672	6049	74.00	447600

194947		13139	33010	35.907	1185278

7278 7339

3.17	-	7.28

$ 1,280.12
$ 1,275.43
$ 1,277.70
$ -
$ 2,174.61
$ 1,270.57

Asset ages as of	**30 June 2004**
CPI indexation from 30 June 2003 to 30 June 2004	**2.9%**
Interest During Construction	**0.0%**

Tunnel	Details	Commission Date	Age (years)	Asset Life (years)	Replacement Cost 2003 ($k)	CPI Indexation	Interest During Construction	Replacement Cost 2004 ($k)	Depreciated Replacement Cost 2004 ($k)	
TransGrid	EnergyAustralia contribution	1/02/2004	0.41	70	$ 5,400	$ 157	$ -	$ 5,557	$ 5,524	
EnergyAustralia	<details to be supplied>	1/02/2004	0.41	70	$ 9,000	$ 261	$ -	$ 9,261	$ 9,207	
TOTAL					**$ 14,400**	**$ 418**	**$ -**	**$ 14,818**	**$ 14,731**	0.41

NOTE :
(a) The asset life allocated to cable tunnels is the longest timeframe allowable for an electrical / civil asset.

	($k)
Easement value from 1998 valuation	**72,500**

Based on CPI statistics available from the Australian Bureau of Statistics

Period	Index	CPI increase since 30 June 1998	Indexed Easement Value ($k)
To 30 June 1998	121.0	0.00%	**$ 72,500.00**
To 30 June 1999	122.3	1.07%	**$ 73,278.93**
To 30 June 2000	126.2	4.30%	**$ 75,615.70**
To 30 June 2001	133.8	10.58%	**$ 80,169.42**
To 30 June 2002	137.6	13.72%	**$ 82,446.28**
To 30 June 2003	141.3	16.78%	**$ 84,663.22**
To 30 June 2004*	145.5	20.25%	**$ 87,179.75**

* Projected Index value

Easement costs since 1998 valuation

Item	($k)
Easement acquisition since 1998 valuation	$ -
Easement compensation cost associated with new line in Central Coast	$ 101.50
TOTAL	**$ 101.50**

CPI indexation from 30 June 2002 to 30 June 2004	**5.7%**
Interest During Construction	**7.5%**

	Book Value	CPI Indexation	IDC	Total
SCADA and Communications	$ 21,860.00	$ 1,246.02	$ -	$ 23,106.02
Emergency spares	$ 3,010.00	$ -	$ -	$ 3,010.00
Network and Other Non System Assets	$ 33,363.00	$ 1,901.69	$ -	$ 35,264.69
Work In Progress	$ 31,197.00	$ -	$ -	$ 31,197.00

Value as at 30/06/02 determined by Steve Buncombe from the above figures

		06/30/02	$
Order Type 422	Dist Sub Equip Emergency Spares		1,639,519.881
Order Type 410	Zone Sub Emergency Spares		9,278,097.157
Order Type 437	Sub-Trans Emergency Spares		2,886,553.714
			13,804,170.752

		$(k)		Factor	T1	T2	
401	ACCC Transm Subs equip 132kV/66kV	262,200.000					
408	Zone Subs equip 33kV	300,029.000		0.59	Copied from 2004 ODRC SAP ASSET		
411	ACCC Zone Subs equip 132kV/66kV	205,447.000		0.41	BREAKDOWN.., after substation details updated		
437	ACCC Transmission emergency spares 132kV/66kV	2,886.554	2,886.554		1,591	1,296	2,886.554
407	ACCC Zone Subs emergency spare 132kV/66kV	3,771.014			1,322	2,449	3,771.014
410	Zone Subs emergency spare 33kV	5,507.083	9,278.097				
422	Dist subs equip emergency spares	1,639.520	1,639.520		2,913.362	3,744.206	
		13,804.171					

Note 18/6/03 Kept these values for spares as no better estimate available
Take care re data in yellow - circular updates here!

1,591	1,296
1,322	2,449

0.551166
0.350672

Substation Bay Unit Rates

CPI indexation from 30 June 2002 to 30 June 2004	5.7%
Interest During Construction	7.5%

Asset Category	Replacement Cost 2002 ($k)	CPI Indexation 2002 to 2004 ($k)	Interest During Construction ($k)	Standard Unit Rate	
				Replacement Cost ($k)	Asset Life (years)
SUBSTATION BAYS					
132 CB outdoor – bus section	$ 335	$ 19	$ 27	$ 381	45
132 CB outdoor – feeder	$ 593	$ 34	$ 47	$ 674	45
132 CB outdoor – feeder or bus section (no CB)	$ 194	$ 11	$ 15	$ 220	45
132 CB outdoor – transformer	$ 464	$ 26	$ 37	$ 528	45
132 CB outdoor – transformer feeder (no CB)	$ 325	$ 19	$ 26	$ 369	45
132 GIS – bus section	$ 160	$ 9	$ 13	$ 182	45
132 GIS – feeder	$ 375	$ 21	$ 30	$ 426	45
132 GIS – transformer	$ 425	$ 24	$ 34	$ 483	45
66 CB outdoor – bus section	$ 250	$ 14	$ 20	$ 284	45
66 CB outdoor – feeder	$ 354	$ 20	$ 28	$ 402	45
66 CB outdoor – transformer	$ 320	$ 18	$ 25	$ 364	45
66 CB outdoor – bus section (no CB)	$ 156	$ 9	$ 12	$ 177	45
66 Capacitor bank	$ 430	$ 25	$ 34	$ 489	45
33 CB outdoor – bus section	$ 200	$ 11	$ 16	$ 227	45
33 CB outdoor – feeder	$ 250	$ 14	$ 20	$ 284	45
33 CB outdoor – transformer	$ 258	$ 15	$ 20	$ 293	45
33 CB outdoor – bus section (no CB)	$ 151	$ 9	$ 12	$ 172	45
33 Capacitor bank	$ 350	$ 20	$ 28	$ 398	45
11/22 CB indoor – bus section	$ 80	$ 5	$ 6	$ 91	45
11/22 CB indoor – double feeder single protection	$ 90	$ 5	$ 7	$ 102	45
11/22 CB indoor – single feeder	$ 73	$ 4	$ 6	$ 83	45
11/22 CB indoor – transformer	$ 105	$ 6	$ 8	$ 119	45
11/22 load control injection	$ 140	$ 8	$ 11	$ 159	45
Reactor	$ 300	$ 17	$ 24	$ 341	40
SUBSTATION NEM METERING					
Transmission metering	$ -	$ -	$ -	$ -	25
SUBSTATION ESTABLISHMENT					
Establishment - CBD	$ 10,000	$ 570	$ 793	$ 11,363	60
Establishment - Major OD	$ 2,500	$ 143	$ 198	$ 2,841	60
Establishment - Major ID	$ 2,800	$ 160	$ 222	$ 3,182	60
Establishment - Major 2 ID	$ 4,100	$ 234	$ 325	$ 4,659	60
Establishment - Medium OD	$ 1,900	$ 108	$ 151	$ 2,159	60
Establishment - Medium ID	$ 2,200	$ 125	$ 174	$ 2,500	60
Establishment - Small OD	$ 350	$ 20	$ 28	$ 398	60
Establishment - Small ID	$ 450	$ 26	$ 36	$ 511	60
Establishment - Large STS	$ 5,000	$ 285	$ 396	$ 5,681	60
Establishment - Small STS	$ 3,000	$ 171	$ 238	$ 3,409	60

Power Transformer Unit Rates

CPI indexation from 30 June 2002 to 30 June 2004	**5.7%**
Interest During Construction	**7.5%**

TRF Type No	Voltage	MVA Rating	Type	Replacement Cost 2002 ($k)	CPI Indexation 2002 to 2004 ($k)	Interest During Construction ($k)	Standard Unit Rate	
							Replacement Cost ($k)	Asset Life (years)
AUX	11/415	Auxiliary	-	$ 50.00	$ 2.85	$ 3.96	$ 56.81	50
TR01	33/11	1.5	ONAN	$ 115.50	$ 6.58	$ 9.16	$ 131.24	50
TR02	33/11	2.5	ONAN	$ 177.50	$ 10.12	$ 14.07	$ 201.69	50
TR03	33/11	5	ONAN	$ 268.50	$ 15.30	$ 21.29	$ 305.09	50
TR04	33/11	7.5	ONAN	$ 294.00	$ 16.76	$ 23.31	$ 334.06	50
TR05	33/11	10	ONAN	$ 319.50	$ 18.21	$ 25.33	$ 363.04	50
TR06	33/11	10/12.5	ONAN/ONAF	$ 345.00	$ 19.67	$ 27.35	$ 392.01	50
TR07	33/11	15/20	ONAN/ONAF	$ 421.00	$ 24.00	$ 33.37	$ 478.37	50
TR08	33/11	15/20/25	ONAN/ONAF/OFAF	$ 472.50	$ 26.93	$ 37.46	$ 536.89	50
TR09	33/11	20/28/35	ONAN/ONAF/OFAF	$ 560.00	$ 31.92	$ 44.39	$ 636.31	50
TR10	66/11	2.5	ONAN	$ 187.00	$ 10.66	$ 14.82	$ 212.48	50
TR11	66/11	5	ONAN	$ 280.00	$ 15.96	$ 22.20	$ 318.16	50
TR12	66/11	7.5	ONAN	$ 305.00	$ 17.39	$ 24.18	$ 346.56	50
TR13	66/11	10	ONAN	$ 375.50	$ 21.40	$ 29.77	$ 426.67	50
TR14	66/11	10/14	ONAN/ONAF	$ 420.00	$ 23.94	$ 33.30	$ 477.24	50
TR15	66/11	15/20/25	ONAN/ONAF/OFAF	$ 507.50	$ 28.93	$ 40.23	$ 576.66	50
TR16	66/11	20/28/35	ONAN/ONAF/OFAF	$ 607.50	$ 34.63	$ 48.16	$ 690.29	50
TR17	66/33/11	7.5	ONAN	$ 360.00	$ 20.52	$ 28.54	$ 409.06	50
TR18	66/33/11	15	ONAN	$ 700.00	$ 39.90	$ 55.49	$ 795.39	50
TR19	132/11	15/20/25	ONAN/ONAF/OFAF	$ 638.00	$ 36.37	$ 50.58	$ 724.94	50
TR20	132/11	35/40/45	ONAN/ONAF/OFAF	$ 858.00	$ 48.91	$ 68.02	$ 974.92	50
TR21	132/11	50/60/65	ONAN/ONAF/OFAF	$ 1,025.00	$ 58.43	$ 81.26	$ 1,164.68	50
TR22	132/33	20/30	ONAN/ONAF	$ 717.50	$ 40.90	$ 56.88	$ 815.28	50
TR23	132/33	40/60	ONAN/ONAF	$ 914.50	$ 52.13	$ 72.50	$ 1,039.12	50
TR24	132/33	60/120	ONAN/ONAF	$ 1,456.50	$ 83.02	$ 115.46	$ 1,654.98	50
TR25	132/66	20/30	ONAN/ONAF	$ 815.00	$ 46.46	$ 64.61	$ 926.06	50
TR26	132/66	30/60	ONAN/ONAF	$ 1,025.00	$ 58.43	$ 81.26	$ 1,164.68	50
TR27	132/66	60/120	ONAN/ONAF	$ 1,456.00	$ 82.99	$ 115.42	$ 1,654.42	50

Overhead & Underground Unit Rates

CPI indexation from 30 June 2002 to 30 June 2004	5.7%
Interest During Construction	7.5%

Voltage	Construction	Line Type	Conductor					Valuation Code	Unit Rate 2002 ($k)	CPI Indexation ($k)	IDC ($k)	Unit Rate ($k)	Asset Life (years)	Comments
			Type	Size	Cond / ph	Detail	Code							
66	Wood			Light				66WP01	$ 53	$ 3	$ 4	$ 60	45	
66	Wood			Heavy				66WP02	$ 67	$ 4	$ 5	$ 76	45	
132	Cable			Medium				132CA01	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable			NOT USED				132CA02	$ -	$ -	$ -	$ -	45	
132	Cable		AL	Extra Heavy		1600 AL1		132CA03	$ 1,979	$ 113	$ 157	$ 2,248	45	Base 1600 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		194 CU3		132CA04	$ 1,463	$ 83	$ 116	$ 1,662	45	Base 1084 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		240 CU1		132CA05	$ 1,463	$ 83	$ 116	$ 1,662	45	Base 1084 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		355 CU1		132CA06	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	CBD	CU	Medium		355 CU1		132CA06c	$ 1,954	$ 111	$ 155	$ 2,220	45	Base 1260 All pit/cond 25% base Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		400 CU1		132CA07	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	CBD	CU	Medium		400 CU1		132CA07c	$ 1,954	$ 111	$ 155	$ 2,220	45	Base 1260 All pit/cond 25% base Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium	1	400 CU1		132CA08	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		419 CU1		132CA09	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	CBD	CU	Medium		419 CU1		132CA09c	$ 1,954	$ 111	$ 155	$ 2,220	45	Base 1260 All pit/cond 25% base Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		426 CU1		132CA10	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	CBD	CU	Medium		426 CU1		132CA10c	$ 1,954	$ 111	$ 155	$ 2,220	45	Base 1260 All pit/cond 25% base Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		429 CU1		132CA11	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		430 CU1		132CA12	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		435 CU3		132CA13	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Medium		436 CU3		132CA14	$ 1,639	$ 93	$ 130	$ 1,862	45	Base 1260 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Heavy		645 CU1		132CA15	$ 1,804	$ 103	$ 143	$ 2,049	45	Base 1425 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Extra Heavy	1	800 CU1		132CA16	$ 1,888	$ 108	$ 150	$ 2,145	45	Base 1509 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Extra Heavy		1000 CU1		132CA17	$ 1,988	$ 113	$ 158	$ 2,258	45	Base 1609 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	CBD	CU	Extra Heavy		1000 CU1		132CA17c	$ 2,390	$ 136	$ 189	$ 2,715	45	Base 1609 All pit/cond 25% base Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Extra Heavy	1	1150 CU1		132CA18	$ 2,078	$ 118	$ 165	$ 2,361	45	Base 1699 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable		CU	Extra Heavy		1200 CU1		132CA19	$ 2,078	$ 118	$ 165	$ 2,361	45	Base 1699 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	Single	CU	Extra Heavy		1200 CU1		132CA20	$ 2,078	$ 118	$ 165	$ 2,361	45	Base 1699 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	Double	AL	Extra Heavy	1	1600 AL1		132CA21	$ 2,279	$ 130	$ 181	$ 2,589	45	Base 1900 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	Double	AL	Extra Heavy	2	1600 AL1		132CA22	$ 2,279	$ 130	$ 181	$ 2,589	45	Base 1900 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable	Double	CU	Extra Heavy	2	800 CU1		132CA23	$ 2,279	$ 130	$ 181	$ 2,589	45	Base 1900 Traffic control 3.5 Excavation 150 Reinstatement 225
132	Cable (Duct)	Single	CU	Medium	1			132CA24	$ 1,260	$ 72	$ 100	$ 1,432	45	Base rate only
132	Cable (Duct)	Single	CU	Heavy	1			132CA25	$ 1,425	$ 81	$ 113	$ 1,619	45	Base rate only
132	Cable (Tunnel)	Single	CU	Heavy	1			132CA26	$ 1,425	$ 81	$ 113	$ 1,619	45	Base rate only
132	Cable (Tunnel)	Single	CU	Extra Heavy	1			132CA27	$ 1,600	$ 91	$ 127	$ 1,818	45	Base rate only
132	Tower		ACSR	Light		30/3.00 ACSR	Lemon	132ST01	$ 112	$ 6	$ 9	$ 127	55	
132	Tower		ACSR	Heavy	2	54/3.53 ACSR		132ST02	$ 221	$ 13	$ 18	$ 251	55	
132	Tower	Double		Light	1			132ST03	$ 144	$ 8	$ 11	$ 164	55	
132	Tower	Double		Medium	1			132ST04	$ 175	$ 10	$ 14	$ 199	55	
132	Tower	Double		Heavy	1			132ST05	$ 205	$ 12	$ 16	$ 233	55	
132	Tower	Double	ACSR	Heavy	1	54/3.50 ACSR	Olive	132ST06	$ 205	$ 12	$ 16	$ 233	55	
132	Tower	Double	ACSR	Heavy	2	54/3.50 ACSR	Olive	132ST07	$ 221	$ 13	$ 18	$ 251	55	
132	Tower	Double	ACSR	Heavy	1	54/3.53 ACSR		132ST08	$ 205	$ 12	$ 16	$ 233	55	
132	Tower	Double	ACSR	Heavy	2	54/3.53 ACSR		132ST09	$ 221	$ 13	$ 18	$ 251	55	
132	Steel	Single	ACSR	Medium	1	54/3.25 ACSR	Orange	132SP01	$ 104	$ 6	$ 8	$ 118	55	
132	Steel	Single	ACSR	Heavy	1	54/3.50 ACSR	Olive	132SP02	$ 136	$ 8	$ 11	$ 155	55	
132	Concrete			Heavy				132CP01	$ 130	$ 7	$ 10	$ 148	55	
132	Concrete	Single		Heavy				132CP02	$ 130	$ 7	$ 10	$ 148	55	
132	Concrete	Single	AAC	Heavy	1	61/3.25 AAC	Uranus	132CP03	$ 130	$ 7	$ 10	$ 148	55	
132	Wood	Single		Light	1			132WP01	$ 84	$ 5	$ 7	$ 95	45	
132	Wood	Single		Medium	1			132WP02	$ 107	$ 6	$ 8	$ 122	45	
132	Wood	Single		Heavy	1			132WP03	$ 127	$ 7	$ 10	$ 144	45	

Overhead & Underground Unit Rates

CPI indexation from 30 June 2002 to 30 June 2004	**5.7%**
Interest During Construction	**7.5%**

Voltage	Construction	Line Type	Conductor					Valuation Code	Unit Rate 2002 ($k)	CPI Indexation ($k)	IDC ($k)	Unit Rate ($k)	Asset Life (years)	Comments
			Type	Size	Cond / ph	Detail	Code							
132	Wood	Single	AAC	Medium	1	19/4.75 AAC	Taurus	132WP04	$ 107	$ 6	$ 8	$ 122	45	
132	Wood	Single	ACSR	Medium	1	54/3.00 ACSR	Mango	132WP05	$ 107	$ 6	$ 8	$ 122	45	
132	Wood	Single	ACSR	Medium	1	54/3.25 ACSR	Orange	132WP06	$ 107	$ 6	$ 8	$ 122	45	
132	Wood	Single	ACSR	Heavy	1	54/3.50 ACSR	Olive	132WP07	$ 127	$ 7	$ 10	$ 144	45	
132	Wood	Single	HDCU	Medium	1	37/2.64 HDCU1		132WP08	$ 107	$ 6	$ 8	$ 122	45	
132	Wood	Single	SCA	Medium	1	30/3.75 SCA		132WP09	$ 107	$ 6	$ 8	$ 122	45	
132	Wood	Single	SCA	Medium	1	54/2.95 SCA		132WP10	$ 107	$ 6	$ 8	$ 122	45	
132	Wood	Double		Light	1			132WP11	$ 127	$ 7	$ 10	$ 144	45	

Notes:

(a) Underground cable base rate includes - excavation, disposal of all excavated material, backfill, temporary reinstatement, final reinstatement, traffic control, 10% conduit installation.
Additional factors added to base rate for urban installation to provide for additional traffic control, excavation through rock and additional reinstatement cost for bitumen roads.
For CBD cables, additional factors for urban installation applied, and increase of 25% on base rate to provide for 100% pit and conduit installation.

CPI Indexation

Based on CPI statistics available from the Australian Bureau of Statistics

Period	Index	CPI increase since 30 June 1998
To 30 June 1998	121.0	0.00%
To 30 June 1999	122.3	1.07%
To 30 June 2000	126.2	4.30%
To 30 June 2001	133.8	10.58%
To 30 June 2002	137.6	13.72%
To 30 June 2003	141.3	16.78%
To 30 June 2004*	145.5	20.25%

* Projected Index value

CPI indexation between 30 June 2002 and 30 June 2004	**5.7%**
CPI indexation between 30 June 2003 and 30 June 2004	**2.9%**