

Independent Pricing and Regulatory Tribunal
of New South Wales

Review of EnergyAustralia's Public
Lighting Capital Expenditure and
Operating Expenditure

August 2005

Wilson Cook & Co

Engineering and Management Consultants
Advisers and Valuers

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16 August, 2005

Mrs Fiona Towers and Ms Emma Kelso
Independent Pricing and Regulatory Tribunal of New South Wales
Level 2, 44 Market Street
Sydney NSW 2000

Dear Mrs Towers and Ms Kelso,

Review of EnergyAustralia's Public Lighting Capital Expenditure and Operating Expenditure

We are pleased to submit to the Tribunal our report on the review of EnergyAustralia's public lighting capital expenditure and operating expenditure for consideration in your price review.

Our main conclusions are that: EnergyAustralia's past expenditures on public lighting were not imprudent even though below sustainable levels; its projected expenditures are reasonable and efficient within the limits of our review; there are reasons for the significant increase in capex from YE 2004 onwards; opex should reduce after FY 2006 as the replacement of the twin-20W fluorescent luminaires proceeds; and depreciation charges after FY 2006 may be reduced by the adoption of longer lives for two asset categories – bracket arms and steel standards – although they will rise as asset replacements continue. These conclusions and other points that we wish to draw to the Tribunal's attention are summarised in section 4 of the report.

Our conclusions are based on the information presented to us, the representations made by the businesses, and our own assessments and judgement. We believe that all representations made by the businesses have been given full consideration.

In conclusion, we thank you for entrusting us with this important assignment and for the assistance given.

Yours faithfully

Wilson Cook & Co Limited






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Prepared for the Independent Pricing and Regulatory Tribunal of New South Wales

By Wilson Cook & Co Limited

Enquiries to Mr J W Wilson

Our reference 0508

August 2005

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Disclosure

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1 Introduction

1.1 Appointment and Terms of Reference

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) ¹ appointed Wilson Cook & Co Limited, Engineering and Management Consultants, Advisers and Valuers, of Auckland to conduct a review of the public lighting operating expenditure, capital expenditure and asset management practices of EnergyAustralia.

We were required to examine the DNSP's operations, identify major cost drivers and recommend efficient cost levels consistent with maintaining (or where necessary varying) standards and service delivery capacity. In doing so, we were to take into account capital expenditure and operating expenditure trade-offs such as maintenance v. capital replacement options and were to use appropriate best-practice industry benchmarks wherever possible. If we found the operating and/or capital expenditure assumptions to not be reasonable and efficient, we were to indicate the amount by which we considered the expenditure assumptions should be adjusted to obtain reasonable and efficient levels.

We were invited to make specific comment on the adequacy or efficiency of asset management practices if thought appropriate.

The background to the review is set out in the terms of reference for the Services, given in appendix A.

1.2 Scope and Purpose of the Review

IPART required us to provide a report that gives an overall strategic view of the following:

- (a) Whether EnergyAustralia's proposed levels of capital expenditure and operating expenditure are reasonable and efficient, that is, whether they represent efficient levels for the public lighting services being delivered;
- (b) The appropriateness of service levels included in or implied by the submission;
- (c) The implications for levels of expenditure should these standards fall short of or exceed appropriate levels; ²
- (d) The prudence of Energy Australia's past capital expenditure and operating expenditure on public lighting to the extent that it impacts on the efficiency of the expenditure assumptions made by the business in its proposals; and
- (e) The reasonableness of EnergyAustralia's planned expenditures beyond the initial year. ³

1.3 Documents and Information Received

We received and reviewed the following documents and information from IPART or obtained it from its web site:

¹ References to IPART are generally to the Secretariat to the Tribunal unless the sense requires reference to the Tribunal itself.

² IPART considers it important that service levels do not decline unless there is clear evidence that current service levels exceed customer willingness-to-pay.

³ Whilst the business can only apply for a price increase to cover a single year, it was expected to (and did) include in its submission proposed future price increases covering several years together with expenditure forecasts for the corresponding period.

- EnergyAustralia's public lighting pricing proposals and submissions made available to the public on IPART's web site.
- The submissions made by other parties and available on the same web site.
- Relevant correspondence between IPART and EnergyAustralia and between council representatives and IPART.

We received and reviewed the following documents and information from EnergyAustralia:

- Information on the breakdown of historical and projected public lighting expenditure.
- Information on EnergyAustralia's public lighting performance.
- A copy of the draft *NSW Public Lighting Code*.
- Information on EnergyAustralia's public lighting asset inventory.
- Internal analyses and papers on the development of public lighting operation and maintenance policies and the selection of lamps and luminaires.
- Information from Parsons Brinckerhoff Associates (PBA) on EnergyAustralia's cost allocation model, the reasonableness of asset replacement costs and lives and cost comparisons with the Essential Services Commission of Victoria's recent public lighting analysis.

We received and reviewed the following documents and information from other parties:

- A presentation from the Street Lighting Improvement Program (SLIP) to IPART and ourselves on 21 July with representatives from the Local Government and Shires Associations (LG&SA) and the Southern Sydney Regional Organisation of Councils (SSROC) present.

This material is reproduced in our report only to the extent needed for clarity of argument: readers are therefore referred to the source documents for any further information required.

1.4 Work Programme, Consultation and Reporting

The need for this review was first raised with us in late May, at which time IPART provided terms of reference for the work and briefed us on the background to the task. EnergyAustralia's revised submission was forwarded to us in early June, immediately after its receipt by IPART, and IPART gave us instructions to proceed on 16 June. We were then provided with further background information and arranged meetings with IPART and EnergyAustralia on 29 June and subsequently.

At our request, EnergyAustralia provided additional information to us on its asset inventory, past expenditures, bulk lamp replacement programmes, luminaire replacement plans, maintenance plans, cost allocation model and other aspects of its original, supplementary and revised (June 2005) submissions.

EnergyAustralia also arranged for us to meet PB Associates and to receive from their representative a detailed briefing on EnergyAustralia's cost allocation model, the differences between the NSW and Victorian cost analyses and the adjustments needed in the latter for comparability.

Subsequently, we held discussions with SLIP's representatives and with representatives of the LG&SA and SSROC and then had further meetings with both Energy Australia and IPART before concluding our analysis.

During this period, we also met with staff of the Essential Services Commission of Victoria to discuss the Commission's analysis of public lighting costs but the conclusions stated in our report remain ours alone and do not necessarily represent those of the Commission, its staff or its consultants.

Our draft report was presented to IPART on 4 August for comment and for confirmation that the terms of reference had been addressed fully. Agreed changes were then made to the report where required but the comments received and changes made did not have the effect of altering our opinion on the reasonableness of the expenditures reviewed. Our report was then re-sent to IPART on 12 August in its final draft form for review by EnergyAustralia for material errors of fact, after which it was submitted to IPART in its final form for its use and for public release if required.

The assignment was carried out by Mr Jeffrey Wilson and Mr Derek Todd with the assistance of Mr Steven Cooke, all of Wilson Cook & Co.

A list of the officers met is given in appendix B.

1.5 This Report

This report summarises the work carried out, our conclusions and recommendations. It is presented in four main sections as follows:

- Section 1 – Introduction (this section)
- Section 2 – Methodology
- Section 3 – Analysis
- Section 4 – Conclusions and Recommendations.

1.6 Units and Tables

“NA” in tables means ‘not applicable’ or ‘not available’, as the context requires; “c.” means circa or ‘about’; and ‘m’ means millions. Sums have generally been rounded and tables may thus not add exactly. FY 2005 or 2004/05 means the financial year ending 30 June, 2005 etc unless the context requires otherwise.

Unless noted otherwise, costs expressed in the tables are in real terms in 2004/05 dollars, as are amounts referred to in the text.

1.7 Probity

In some instances, EnergyAustralia provided us with copies of independent assessments of aspects of its expenditures. IPART’s staff provided guidance in respect of our terms of reference and assisted us with our work. We gave full consideration to all such representations and requests but are satisfied that none influenced our report or its conclusions inappropriately.

1.8 Earlier Material Superseded

For the avoidance of doubt, we confirm that this report supersedes all earlier written or oral opinions or statements presented by us on the matters discussed.

1.9 Acknowledgements

The cooperation and assistance of IPART, EnergyAustralia and the council representatives consulted is gratefully acknowledged, particularly in light of the short time-frame available for the work.

2 Methodology

2.1 Background

IPART's 2004 Electricity Distribution Determination designated public lighting as an excluded distribution service to be regulated under Rule 2004/01. Rule 2004/01 requires that if a DNSP wishes to increase its public lighting charges, it must make an application to the Tribunal. Rule 2004/01 provides for the Tribunal to either accept the DNSP's proposals or to require the DNSP to submit alternative proposals if it considers that the initial proposals do not meet the requirements of Rule 2004/01, which include:

- a requirement that DNSPs set prices to signal economic costs of provision (clause 2.2); and
- consideration of customer impacts, and how the impact of any significant changes can be mitigated (for example by transitional price options).

Rule 2004/01 requires the DNSP to apply to the Tribunal each time it wishes to make a price change. The Tribunal does not therefore have the option of approving multi-year price changes in advance although it may wish to understand planned price changes in subsequent years as part of a price change application.

The primary customers directly affected by public lighting price increases are local councils although some smaller customers may also be affected – for example, some hospitals, the RTA, defence establishments etc.

EnergyAustralia applied for a public lighting price change in November 2004 – it sought a single year average increase of 26% in real terms with further increases planned thereafter. The increases varied between councils. The Tribunal consulted on EnergyAustralia's price proposals and asked EnergyAustralia to write to all councils to inform them of its plans and how they would be affected. Submissions were received from councils and their representatives. IPART did not accept EnergyAustralia's proposals and asked EnergyAustralia to submit alternative prices. EnergyAustralia responded in June 2005 with a revised submission and it is that submission which is examined in this report.

The matters reviewed in this report, *viz*: EnergyAustralia's operations, major cost drivers and efficient cost levels, have been reviewed as an input into this process.

2.2 Approach

The approach adopted in the review was to:

- be briefed by IPART on the background to the matter;
- review the proposals, submissions and other information received;
- consult with EnergyAustralia on its proposals and submissions and on the submissions of the other parties;
- consult with SLIP, the LG&SA, SSROC and other parties as thought necessary to confirm the points that, in their view, ought to be considered in our work;
- request and receive more information and explanations from EnergyAustralia and other parties as required including in relation to current service levels and

obligations and the possible impact of any changes being considered in obligations or practices; and then to

- conclude our analysis.

2.3 Matters Not Considered

It was not within our terms of reference to consider the impact of price increases or cost allocations between councils, transitional pricing arrangements, the treatment of capital contributions, cost recovery issues, any matters to do with the regulatory asset base, customer service incentives, the level of contestability in the public lighting field, or any other economic or pricing matters except as required to formulate our opinions on past or future capital or operating expenditure levels. Nor, for the same reason, did we consider the correctness of any cost allocations between public lighting and network activities in past years or the efficiency of the shared workforce that carries out both network and public lighting activities for EnergyAustralia, as they had been scrutinised as part of the total cost review carried out in 2003 and 2004 for IPART's 2004 price determination.

3 Analysis

3.1 Review of Public Lighting Designs and Policies

Public lighting has been the subject of considerable discussion between the councils and EnergyAustralia since around 2002. Although the precise chain of events does not concern us, we understand that the discussion commenced after a review of lighting designs and practices in late 2002 or early 2003 that was initiated by the SSROC and some other councils. SSROC had engaged Next Energy to carry out the review in inner and southern Sydney, covering 17 council areas. The review identified benefits in changing lighting on residential roads. Next Energy and the councils, in consultation with EnergyAustralia, then called for expressions of interest with the objective of identifying one or more standard luminaires to serve as the default for all new and replacement luminaires on residential roads. This led to the presentation, by SLIP, of a 'street lighting technology improvement package', most of the recommendations of which were endorsed by EnergyAustralia.⁴ The main points of the package were:

- residential lamp upgrades to tri-phosphor fluorescent lamps;
- main road lamp upgrades from mercury vapour to high-pressure sodium lamps;
- the selection of 80W mercury vapour luminaires as a standard replacement luminaire for twin-20W fluorescent luminaires and other miscellaneous types in residential areas as the luminaires come to the end of their economic life;⁵
- the selection of 150W and 250W high-pressure sodium luminaires as a standard to replace 250W and 400W mercury vapour luminaires on main roads as the luminaires come to the end of their economic life;
- trial of T5 fluorescent luminaires on residential roads; and an
- increase in the bulk lamp replacement cycle to 30 months in all cases.

At or around the same time EnergyAustralia, recognising that its public lighting practices had not been given a strong focus in recent years, carried out a detailed analysis of its public lighting maintenance requirements to review the disparate maintenance strategies then in use.⁶ It is of note that the existence of different strategies in parallel with each other allowed EnergyAustralia to gather in-service information on lamp mortality and the causes of failures from a large population (over 70,000 lamp failure and replacement records were analysed) operated under both bulk and spot lamp replacement programmes. The work allowed the wear-out characteristics of various lamp types to be determined (from areas where bulk lamp replacement was not undertaken) and compared with manufacturers' data to see whether lamp mortality or the reduction in lumen output was the replacement driver. The costs of lamp replacement using the two strategies – bulk and spot replacement – were

⁴ Those recommendations that were not were subject to field trials or further investigation, e.g. of the capacity of the mains to handle higher starting currents or the like, or to other actions such as encouraging the other councils to accept the change in the interest of avoiding a proliferation of standards.

⁵ These luminaires constitute almost half of EnergyAustralia's luminaires and tend to incur higher operating costs than other luminaires, according to the company.

⁶ The practices had been inherited from its predecessor organisations when the electricity sector was reorganised in the mid-1990s and had been retained in some or most areas (the areas are, of course, quite different from each other, e.g. the Hunter valley v. the City of Sydney).

compared to determine if an optimal bulk lamp replacement period existed for each particular lamp type.⁷

The study examined whether savings in maintenance expenditure could be achieved by bundling maintenance tasks on other lighting components, or at least some of the maintenance tasks, into the bulk lamp replacement programmes.⁸

It concluded amongst other things that bulk lamp replacement programmes alone at the optimum intervals would not be sufficient to achieve the requirements of *AS/NZS 1158.1.3: 1997 Road lighting – vehicular traffic (category V) lighting – guide to design, installation, operation and maintenance* in respect of availability and minimum lumen output but that condition monitoring and failure-finding patrols would be required to increase the availability of the lighting system through the detection and resulting removal of defects. That system would be required to operate in addition to the current system where the public advise of defects as the public do not report all the faults that occur.⁹

It also recognised that a difficulty faced in determining an optimal strategy is due to the variety of lights currently in service and the fact that they do not exist in large areas of homogeneous populations except at intersections or along portions of traffic route lighting. A further complication is that the optimum bulk lamp replacement period varies with lamp type.

Failures of photo-electric cells were examined as well with the conclusion that the provision of a bulk lamp replacement strategy would potentially allow the scheduled discarding of the cell at every second lamp replacement but that there was insufficient firm data to support that conclusion.

We were provided with copies of material relating to these various investigations and the related policy issues and we discussed them with their principal authors and the managers concerned.

The outcome of this work was that, in combination with SLIP's 'street lighting technology improvement package', decisions were taken by EnergyAustralia to:

- widen the use of bulk lamp replacement programmes,
- increase their intervals to 30 months in all cases (residential areas are currently replaced after 18 months),
- replace the then remaining 90,000 twin-20W fluorescent luminaires in residential areas with mercury vapour luminaires over the next seven to eight years,
- subject to a satisfactory price outcome, raise capital expenditure levels to help achieve these objectives.

It is in this context (and to address various other matters in relation to cost recovery that are not the concern of this review) that EnergyAustralia is seeking to raise its public lighting prices.

3.2 Pricing Proposal

EnergyAustralia submitted its public lighting pricing proposal to IPART in November 2004 and made a further submission to IPART in February 2005 in response to certain matters raised by SLIP and councils which it believed were based on errors of fact. Following

⁷ Manufacturers' mortality data was found to be optimistic compared with actual performance data obtained from the field.

⁸ These changes are in the process of implementation now.

⁹ In conjunction with a bulk lamp replacement programme, an annual patrol was thought likely to be sufficient to maintain the number of failed lamps at any one time at less than the 5% required by the standard.

receipt of IPART's letter of March 2005, requesting reconsideration, EnergyAustralia presented a revised proposal to IPART in June 2005.¹⁰ We were provided with copies of these submissions.

The essence of EnergyAustralia's revised (June 2005) proposal as far as our work is concerned is that:

- capital expenditure on the public lighting network ought to be increased to fund the replacement of aged and unreliable luminaires, including the twin-20W fluorescent luminaires; and
- maintenance costs would be maintained at the levels proposed for the current financial year (2005/06); and
- any costs arising from the expected promulgation of the draft *NSW public lighting code* have been omitted from the proposal.

3.3 Submissions

Submissions were received from SLIP, LG&SA, SSROC and individual councils as well as other parties and are available on IPART's web site. The main complaints that were made in the submissions about EnergyAustralia's proposals that are of relevance to our review – and the ones emphasised by SLIP and other representatives in the discussion that we had – were that:

- (a) According to the councils, EnergyAustralia had been promoting or endorsing (our words) the continued use of inefficient lighting designs – specifically, the use of twin-20W fluorescent luminaires that are considered by the councils or their representatives to be inefficient;¹¹
- (b) According to the councils, EnergyAustralia has not adopted bulk lamp replacement strategies in all parts of its service area and has been assuming a shorter replacement interval than necessary in areas where the strategy is used;
- (c) According to the councils, EnergyAustralia's maintenance practices are inefficient;
- (d) According to the councils, EnergyAustralia has assumed shorter lives than it needs for its public lighting assets;
- (e) According to the councils, there is no ground to assume that EnergyAustralia will have a responsibility to replace Rate 2 (contributed or privately funded) assets at the end of their life; and
- (f) According to the councils, EnergyAustralia's costs do not compare favourably with those reported by the Essential Services Commission in Victoria.

The councils also said that they should not have to bear the cost of EnergyAustralia's past 'inefficiencies' as they see them.

We examined these points and discussed them with SLIP, council representatives and EnergyAustralia. Where relevant, we discuss them further in the following sections of the report.

¹⁰ EnergyAustralia also responded in January to a request from IPART for further information.

¹¹ One of the claims made by the councils was that EnergyAustralia is, or was, one of only a few electricity distributors in Australia to retain the use of twin-20W fluorescent luminaires. However, we noted from material provided by the NSW distributors for the purpose of the 1997/98 public lighting review carried out for IPART that, at the time, Integral Energy, Advance Energy and NorthPower all had large numbers of fluorescent luminaires in service as well. It also appeared from the correspondence that the then SECV in Victoria had undertaken its major programme to replace twin-20W fluorescent luminaires during the period 1989-91. Clearly, practices varied in the industry at that time.

3.4 Lighting Design

Responsibility for Design

Since one of the council arguments centres around alleged past lighting design inadequacies, we considered whether the responsibility for design was defined.¹² The *Foreword* to the draft *NSW public lighting code* provides some guidance on this matter, stating: “Lighting design decisions are made primarily by local government customers...however, service providers [such as EnergyAustralia] have historically played the leading role in many aspects of lighting design and its implementation”. The ambiguity of this statement reflects the status quo and highlights one of the reasons, we believe, why there are apparent disagreements over public lighting issues at present.¹³

A related factor is that some or all of the councils favour contestability in the design process (as well as in other public lighting activities) but EnergyAustralia, rightly in our view, argues that a wide diversity of designs, and the implicit use of a large range of lamps and luminaires, will add significantly to maintenance costs.¹⁴

It is not our task to assign responsibility for public lighting design but we did consider the point in the context of determining whether, in our opinion, the capital investment decisions made by EnergyAustralia in relation to the past replacement of public lighting assets or the past installation of new assets was prudent.¹⁵

AS/NZS Standard 1158

Sometimes misquoted in the submissions we received, AS/NZS 1158 and its component parts define the categories of road lighting and their application, specify the performance and installation design requirements for lighting of each category, state the requirements for the maintenance of light output from luminaires and the requirements for the maximum number of outages of luminaires at any one time, and state amongst other things the technical performance requirements of compliant lighting designs. The standard is not mandatory unless made so by statute or contract or by the requirements of bodies having jurisdiction over road lighting levels. The standard gives general guidance (particularly in part 1.3) for the cost-benefit assessment of lighting designs and the economic factors to be considered, paying particular attention in section 4 to policy considerations including the determination of warrants or criteria justifying road lighting and the levels of illumination to be designed for.

Impact of EnergyAustralia’s Policies and Actions on Expenditure

As we have already pointed out, council representatives say that EnergyAustralia was wrong to have continued the use in the past of luminaires or lamps that councils now consider inappropriate. In light of the general principles and factors just mentioned, however, it is not clear that EnergyAustralia should bear responsibility for that although its actions or lack of past responsiveness may have contributed to the situation. For the purpose of our assessing the prudence of past expenditure, therefore, we have considered

¹² Lighting design is a broad topic that includes not only the choice of luminaires and lamps but also the selection of luminaire mounting heights, lamp positions in relation to carriageways and lamp spacing and arrangement as well as the consideration of factors such as vegetation, the type of road surface, the predominant use of the lit space and thus the lighting objectives involved.

¹³ Introduction of the *NSW public lighting code* in its present form is unlikely to resolve this issue.

¹⁴ EnergyAustralia’s preference to see Rate 2 assets converted, on replacement, to Rate 1 assets appears to be related in the main to this point.

¹⁵ The matter should not be over-simplified, however: there are a considerable number of luminaires to be changed if a new standard is to be introduced widely – and wide use of standard assets is implicit if the desired maintenance cost savings are to be achieved. Also, the choice of luminaire is based on competing criteria: illumination needs, capital costs, ongoing maintenance costs, energy costs, environmental considerations, etc, some or all of which can be expected to change over time, complicating investment decisions.

only the impact on expenditures in the period analysed (FY 2001 to FY 2009, the period for which data was provided by EnergyAustralia¹⁶) and have noted that, in this period, EnergyAustralia responded quickly to representations for changes in luminaire and lamp selection¹⁷ and rightly continued to emphasise standardisation of equipment as a desirable method of keeping maintenance costs and charges down. Standardisation in this context should mean the use of standard items for a reasonable period of time, not merely in the short term; and it should also mean the adoption of new standards by the majority if not all councils. We discuss the prudence of past expenditures in later sections of this report in this context.

3.5 Service Obligations and Prospective Service Levels

Other than in respect of levels of illumination (which in general are mandated only for main traffic routes), EnergyAustralia's (and other DNSPs') current public lighting service obligations appear to be limited to the following requirement:

“A customer connection contract must provide that if a DNSP fails to repair faulty street lighting on or before the date agreed between the retail customer and the DNSP as the date by which the repair is to be completed, the DNSP must pay to the retail customer, by way of compensation for the loss of illumination, not less than \$15”.

The requirement applies to street lighting that is owned by the DNSP or that the DNSP is under a legally enforceable obligation to maintain, but does not apply to street lighting to which the DNSP merely supplies electricity or customer connection services. The conditions apply only to or in respect of the retail customer if the retail customer's premises are part of the street that (but for the fault) would ordinarily be illuminated by the street lighting.¹⁸

We considered whether the service levels included in or implied by EnergyAustralia's proposal were appropriate, noting that no reduction from present service levels appeared to be implied in respect of this criterion. We noted that, to the contrary, the changes being introduced are likely to improve service levels in terms of this measure.

EnergyAustralia's present service level in respect of the repair of faults reported by customers has been steady at 8 to 9 days over the period FY 2001 to FY 2005. We consider that an 8-day repair time is not unreasonable in a big city (other than on main traffic routes and special locations such as pedestrian crossings to which different rules apply anyway) although 7 days might be preferred.¹⁹

With regard to the performance of the lighting system itself, we noted that the general principles expressed in AS/NZ 1158 – at least in respect of Category V lighting – are that lumen output should be maintained at not less than 70% of its initial level (unless a lower maintenance factor is allowed for in the design) and that the number of outages at any one time should not exceed 5%.

¹⁶ We considered the necessity for a longer period of review of past expenditure but noted that: (a) five years was a reasonable period; and (b) no representations of unsatisfactory design or equipment selection appeared to have been made by council representatives during the 1997-98 review of public lighting charges and thus it appears that any related issues are of relatively recent origin.

¹⁷ EnergyAustralia's correspondence with IPART in January 2005 gives evidence of the consultations undertaken with councils during the period 2002 to 2004 and addresses the issue of lighting design and design changes.

¹⁸ Although the *NSW public lighting code* will not clarify design responsibility, it will remove ambiguities relating to service level requirements.

¹⁹ Repair time targets should be set at a level that can be achieved economically. This implies that, other than in critical areas, they are long enough for a number of failures to be accumulated before repair crews are dispatched. If this is not done, repair costs can be expected to be higher than necessary.

We considered that the service levels were reasonable and that no adjustment was required in the expenditure projections given to us for review on their account.²⁰

3.6 Asset Management Practice

The terms of reference invited us to comment on the adequacy or efficiency of EnergyAustralia's public lighting asset management practices if thought appropriate. We therefore discussed EnergyAustralia's public lighting asset management practices with the managers concerned, considering the three main areas of activity, *viz*: bulk lamp replacement, other maintenance tasks and tree trimming.²¹

Bulk Lamp Replacement

We were advised that bulk lamp replacement had not been standard practice in all areas in the past; is now the company's standard policy; is carried out in all areas except Newcastle, the Hunter valley and certain other areas; and is considered necessary in some form (but not sufficient by itself) to meet the availability target in AS/NZS 1158.

We noted as already discussed in section 3.1 that the selected bulk lamp replacement period of 30 months is supported by the analysis of field data.

Other Maintenance Costs

We noted in relation to other maintenance tasks that EnergyAustralia has identified more efficient approaches to public lighting and that it is applying or will apply new strategies from the current year onwards (see section 3.1). Its 'service improvement plan' is expected to increase the efficiency of public lighting maintenance services, decrease the frequency and duration of faults, make use of more energy-efficient lighting options and improve lighting data integrity and accuracy. The plan will be accompanied by improvements to IT systems to better identify faults. We noted that, as part of the plan, changes are to be made in the next bulk lamp replacement programme to bring about work efficiencies.²² We were advised that only one region has dedicated public lighting maintenance crews, all other regions being served by field staff shared with the network.

The cost of the changes, along with the cost of meeting the availability target in AS/NZS 1158, have been allowed for in the expenditure estimates given to us for review.

Tree Trimming

We were advised in relation to tree trimming that EnergyAustralia carries it out only to the extent needed for the safe maintenance of its assets and not for illumination purposes.²³

Projected Savings

We noted that the wider use of bulk lamp replacement programmes would allow other maintenance costs (for spot lamp replacement in particular) to be reduced.

Importantly, we also noted that the maintenance costs associated with twin-20W fluorescent luminaires are said to be a significant driver of maintenance expenditure and

²⁰ The Tribunal has noted that EnergyAustralia plans to apply for a future price increase to cover any costs associated with the introduction of the *NSW public lighting code*. The Tribunal has also indicated that it would not be appropriate for it to consider any price changes in relation to the introduction of the code until the exact form of the code and its obligations are finalised, and until the code has been introduced. EnergyAustralia has therefore excluded these costs from its revised proposal of June 2005 and we do not consider them in this report. We do note, however, that the new code may require more expenditure by EnergyAustralia than at present to achieve compliance with the minimum standards of the code.

²¹ We did not carry out a detailed work study as that was considered beyond our terms of reference.

²² The changes are subject to negotiation.

²³ The company said – but we did not verify – that this was the limit of its responsibility.

thus that their replacement will bring about operating expenditure reductions in the medium- to long-term.^{24 25}

The likely magnitude of these savings cannot be judged reliably without detailed study, especially as the cost optimisation curves are relatively flat near the cost minima. However, for the purpose of this report, we estimate that operating expenditure reductions could be around 5% in the period YE 2007 to 2009.

Comparison with Victorian Estimates

We then considered, as part of our assessment, whether any conclusions could be drawn from the cost comparisons made with the Essential Services Commission's work in Victoria. We noted SLIP's analysis in this respect and we also discussed the basis of the Victorian estimates with staff of the Commission itself. We also considered PBA's report of July 2005 on the comparisons and formed the view that it presented the most accurate analysis. PBA's report concludes that, after necessary adjustments, "*[the rates it calculated] indicate that EnergyAustralia is comparable with or lower than the equivalent Victorian prices when compared as stand-alone street lighting businesses*". We did not, therefore, consider it appropriate to find fault with EnergyAustralia's practices on the ground of the comparison. Notwithstanding that conclusion, we placed only limited weight on the comparison anyway because of the materiality of the adjustments that had to be made to match the differing circumstances in the two States and the fact that EnergyAustralia's documented field experience contradicted some of the important Victorian assumptions.²⁶

We noted that EnergyAustralia uses 'maintenance requirements analysis software' to analyse the efficiency of its maintenance activities and we were presented with a summary of its output.²⁷

Best Practice Features

We considered whether experience elsewhere could provide guidance on the suitability of EnergyAustralia's practices. In this context, we noted recent work from South Australia that concluded that low-cost high-service-level public lighting service providers tend to make significant use of contracting, operate bulk lamp replacement programmes, have smaller proportions of fluorescent lamps and carry out frequent night patrols to detect inoperative lights.²⁸ We noted that EnergyAustralia is following similar policies in most instances, the main exception being the use of its own contracting division for maintenance work instead of outsourcing. We did not consider that this policy departure constituted a weakness in best practice as opinions differ in the industry about the relative cost-effectiveness of outside contracting v. the use of in-house contracting divisions for this type of work.

Overall, we have no comment to make on EnergyAustralia's past public lighting asset management practices other than to note that, as a result of the reviews already referred to, improvements are being made. Notwithstanding that, we did not consider that there is sufficient ground to adjust the past expenditures in terms of prudence in this respect.

²⁴ There are still around 75,000 of these luminaires in service with 10,000 to be replaced this financial year. In total, the replacement programme, which has been running since FY 2004, is projected to take seven to eight years to complete.

²⁵ Another driver of maintenance expenditure was reported to be bracket arm repairs, photo-electric cell replacements and the repair of storm damage including damage to control equipment damaged by lightning.

²⁶ Wilson Cook & Co is familiar with both jurisdictions and thus aware of the differing circumstances in the two States.

²⁷ According to EnergyAustralia, this software is used for all its assets.

²⁸ Source: SKM benchmarking study referred to in 'Public street lighting tariffs, final report, November 2000', SAIR.

3.7 Operating (Maintenance) Expenditure

Table 3.1 presents EnergyAustralia's past and projected operating (maintenance) expenditure on public lighting over the period FY 2001 to FY 2009. It shows a steady level of expenditure in past years except in the FY 2005 when resources were diverted to other urgent work on the network and expenditure on public lighting was thus reduced.²⁹

Table 3.1: Maintenance Expenditure (2001-09)

YE 30 June	2001	2002	2003	2004	2005	2006	2007	2008	2009
Bulk lamp replacement (external contracts)	2.50	1.60	2.20	2.10	2.20	2.90	2.90	2.90	2.90
Maintenance (incl. on-costs) (Enerserve)	7.50	8.30	8.30	8.65	7.43	8.85	8.85	8.85	8.85
Total	10.00	9.90	10.50	10.75	9.63	11.75	11.75	11.75	11.75
Number of corrective works completed	29,488	28,505	30,796	32,357	26,569				

Source: EnergyAustralia

Costs up to 2003/04 are actual costs incurred.

Costs for 2004/05 include actual costs up to May 2005 and an estimate for the remainder of the year.

Costs for 2005/06 are budgetary estimates based on historical opex and are expressed in 2005/06 dollars. a/

Costs for subsequent years are in 2005/06 dollars. a/

Corrective public lighting works lagged the target of 31,194 in 2004 due to resource allocations to other network priorities.

The scope of the bulk lamp replacement contract is projected to increase from 2006 onwards.

a/ EnergyAustralia's pricing proposal of June 2005 describes these costs on p.12 as 2004/05 costs but the company advised us that "no indexation has occurred between 2004/05 and 2005/06".

The table also shows a projected increase from FY 2006 onwards, reflecting changes in the bulk lamp replacement programme – the expansion of its scope and the expected additional cost of its renewal, after three years, at higher rates – for which an additional \$0.8 m has been budgeted over the FY 2004 cost (\$0.7 m over the FY 2005 cost), and an increased, steady, level of other maintenance expenditure (\$0.2 m increase over the FY 2004 cost).³⁰

The projections do not reflect the potential savings identified in section 3.6.

We noted that around 23% of the expenditure in FY 2005 was related to the bulk lamp replacement programme and was competitively bid. Those costs might therefore be considered to reflect competitive market rates. The remainder of the expenditure that year related to the cost of services provided by Enerserve or to on-costs. Enerserve provides EnergyAustralia with maintenance services for its network operations and combined crews servicing both public lighting assets and network assets are used in all but one region. We noted in that context that EnergyAustralia's network operating costs had been scrutinised as part of IPART's recent total cost review and distribution network price determination. The potential savings discussed in section 3.3 ought, however, to reduce this estimate from YE 2007 onwards, notwithstanding the fact that PBA had reviewed the individual cost items in EnergyAustralia's cost model and found the cost elements to be reasonable.

Overall, having reviewed these factors, we formed the view that past operating expenditure on public lighting over the period FY 2001 to FY 2005 could be considered prudent to the extent that it impacts on the efficiency of the future operating expenditure assumptions made by the business in its proposals.

We also formed the view that EnergyAustralia's proposed levels of operating expenditure are reasonable and efficient for YE 2006 – that is, they represent efficient levels for the public lighting services being delivered – but ought to show savings of increasing amounts in subsequent years for the reasons given in section 3.3. For the purpose of this report, an

²⁹ As the table shows, this was reflected in a significant reduction in the number of corrective works completed that year.

³⁰ Comparison with the FY 2005 expenditure is not valid because of the work deferrals that year.

indicative level of those savings has been assessed as 5% for FY 2007 but should be greater in subsequent years.

3.8 Capital Expenditure

Past Expenditure

Table 3.2 presents EnergyAustralia's past capital expenditure on public lighting over the period FY 1999 to FY 2004. The table shows a considerable variability in total expenditure and in replacement expenditure and some variability in new load expenditure. Much of the latter relates to contestable work. The table also shows low levels of replacement expenditure in all years other than FY 2004 and FY 2005 when the targeted replacement of the twin-20W fluorescent luminaires was commenced.

Table 3.2: Past Capital Expenditure (1999-2005)

YE 30 June	1999	2000	2001	2002	2003	2004	2005 (forecast)
New load	6.00	5.90	4.50	3.30	3.30	2.90	3.20
Replacement on failure	0.11	0.87	0.59	1.30	0.64	2.40	2.25
Targeted replacement	-	-	-	-	-	4.50	2.55
Total replacement	0.11	0.87	0.59	1.30	0.64	6.90	4.80
Total	6.11	6.77	5.09	4.60	3.94	9.80	8.00
Public lighting capex - reg accounts	6.50	7.50	5.70	4.70	4.20	10.00	8.00

Source: EnergyAustralia

Whilst the levels of replacement expenditure undertaken during this period were below sustainable average annual long-term levels as derived in section 3.10, that in itself does not imply imprudence as: (a) replacements may not have been required in all asset categories during the period e.g. we were advised that there was little or no requirement to replace mains; (b) from 2003 onwards, replacement may have been deferred whilst the changes to different standard luminaires and lamps were assessed or introduced; (c) precise replacement needs would have been dependent on the age profile of the then population of assets and may not have required replacement; (d) condition rather than age is the main replacement driver and may not have required expenditures during the period other than to remedy failures;³¹ (e) *prima facie*, deferral of unnecessary capital expenditure is efficient; and (f) the deferral of replacement expenditure during this period does not appear to have been reflected in a decline in service performance.³²

In other words, it could reasonably be argued on the evidence available to us that the level of replacement expenditure during the period was not insufficient for the intended purpose – *viz.*: prudent provision of public lighting assets – even if it fell below a long-term sustainable level.

Likewise, whilst some of the changes being made in standard luminaires or lamps may conserve energy, savings in energy are of second-order importance only and would not have been sufficient to precipitate earlier replacement.

We considered whether higher capital expenditure in the following period than otherwise might have been needed implied imprudence of low past expenditure levels but decided that if the total costs, operating and capital combined, had been minimised, there was no

³¹ We considered whether that implied longer lives for the assets than had been assumed but the argument would require more analysis before it could be accepted.

³² This comment does not relate to lamps, the replacement of which is expensed not capitalised.

ground to argue that the deferral had been imprudent. In this context, we noted that total expenditures had clearly been depressed in the past period.

We also considered whether any assets that had been created during the period ought to be considered stranded and decided that was not the case.

Consistent with these assessments, we noted that EnergyAustralia is generally not planning to replace assets during the period FY 2006 to FY 2009 that have not reached the end of their lives (although it is possible that some assets will be replaced before then as part of the targeted replacement programme of twin-20W luminaires).

As far as the other capital expenditure category is concerned – expenditure on new load – we have already noted that much of it relates to contestable work.

Given these considerations, noting the commencement of an agreed programme of luminaire replacement in FY 2004 and FY 2005, noting the small amount of other replacement expenditure during the period FY 1999 to FY 2003, and notwithstanding that the use of a less efficacious luminaire had been perpetuated, we were not able to say that Energy Australia's past capital expenditure on public lighting had been imprudent during the period we examined to the extent that it impacts on the efficiency of the expenditure assumptions made by the business in its proposals.

(Although a digression from our consideration of the prudence of past capital expenditure, we note that the lack of replacement expenditure in the period 1999 to 2004 in comparison with the depreciation charge taken, as shown in table 3.3, ought to be taken into account when fixing prices for the coming period.)

Table 3.3: Past Replacement Expenditure v. Depreciation (1999-2004)

YE 30 June	1999	2000	2001	2002	2003	2004
Public lighting capex	6.5	7.5	5.7	4.7	4.2	10.0
Public lighting depreciation	12.6	13.3	14.4	15.1	15.8	16.5

Source: EnergyAustralia - taken from IPART's financial model for the company.

Projected Expenditure

EnergyAustralia's projected public lighting capital expenditure as stated in its June 2005 submission is shown in table 3.4.

Table 3.4: Projected Capital Expenditure (2006-09)

YE 30 June	2006	2007	2008	2009
Public lighting capex a/ b/	9.00	10.00	10.00	10.00

Source: EnergyAustralia

a/ Includes, in 2006, the replacement of another 10,000 twin-20W fluorescent luminaires.

b/ Capex for new load is projected at present levels.

The projected expenditure in FY 2006 is composed of \$2 m to \$3 m for contestable work for new load and \$4.5 m to \$ 5 m for the ongoing twin-20W fluorescent luminaire replacement programme with the remaining \$1 m to \$2.5 m budgeted for other replacements. The amounts are not fixed. The pattern is expected to be similar in the following years. The expenditure is sustained over the period because of the seven-to-eight-year replacement programme for the twin-20W fluorescent luminaires.

In reviewing these projections, we considered the following factors:

Choice of Luminaires: The choice of luminaires has already been discussed in section 3.1 of the report and it is noted that two thirds of the replacement expenditure is for the agreed luminaire replacement programme.

Standard Asset Lives: Ignoring lamps, whose replacement is expensed, the standard asset life assigned by EnergyAustralia to its public lighting luminaires, bracket arms, steel standards and ancillary items is presently 20 years. A 20-year life for luminaires is supported by a letter from PBA dated 6 June 2005 which notes "...the EnergyAustralia average asset life to be within the average range of asset lives [of luminaires]." PBA went on to note that EnergyAustralia's specifications for luminaires and bracket arms require a life of 20 and 25 years respectively but that in terms of the combined replacement of dependent items (bracket arm and luminaire together) – they describe that as a common practice in the industry – the effective useful life of bracket arms is "more commonly set at a similar age to the luminaire". PBA also considered the life of steel lamp standards, considering "EnergyAustralia's life to be at the lower end of the average range of asset lives [for steel standards]".

We discussed these opinions with EnergyAustralia. It acknowledged that it did not have sufficient data to be confident about the lives of its steel standards. It referred to damage to them due to various causes and to the remedial measures it was considering to mitigate those problems and said that, in its view, more data was required to determine the standard life of this asset category. It is presently inspecting all steel standards – a task that is expected to be completed in the next twelve months – and, until then, it proposes to retain a 20-year life. We then discussed the lives of bracket arms, suggesting that it was unlikely that all would need replacement with their luminaires. No conclusion was reached on the point.³³ We agreed with the proposed standard life for luminaires.

We concluded that there was not sufficient evidence to propose a change in the standard lives of bracket arms or steel standards for YE 2006 but that, when determining price increases in subsequent years, and when considering what a reasonable long-term level of annual replacement expenditure might be (see section 3.10), the standard lives for these two asset categories ought to be re-visited and at least a proportion of the assets in each category, if not all of them, should be assigned longer lives. The impact of a change in standard life for these two asset categories can only be conjectured because the age profile of the assets in the two classes is not known to us (and therefore neither is the timing of their replacement) but table 3.5 in section 3.10 gives an indication of the impact on the long-term level of annual replacement expenditure for a possible set of assumptions (see the three columns on the right-hand side of the table).

Asset Replacement Costs: We discussed EnergyAustralia's standard asset replacement costs with the business and noted PBA's advice that it had "...found the EnergyAustralia streetlight configurations to be lower priced than the comparison companies [in Queensland, NSW and Victoria]". We accepted their opinion and the reasonableness of the unit replacement costs used.

Assets to be Replaced: Considering firstly the projected expenditures from FY 2006 to FY 2009, we noted that around a half of the replacement component is for the replacement programme agreed with the councils and that the balance is for replacement on failure. That expenditure was considered reasonable and efficient.

³³ EnergyAustralia reiterated the point that its purchase specification for bracket arms requires a service life of 25 years only and referred again to PBA's advice on 'dependent items'. It noted that operational savings were achieved by replacing bracket arms with their luminaires and considered it an efficient practice, notwithstanding the shorter life assigned. It also noted that the asset life assigned to steel standards in the NSW Treasury's "Valuation of electricity network assets: a policy guideline for NSW DNSPs (draft)", July 2001, is 20 years. The principal author of this report, however, was also the original author of the Guidelines and his view is that this life ought to be reviewed and probably extended.

For completeness, considering secondly the long-term level of average annual replacement expenditure, we noted that the regulatory asset base does not include all assets required for the operation of the public lighting system and that the items that were omitted would need to be replaced at the end of their lives. These assets comprise: (a) dedicated lighting poles (as opposed to steel standards) and the low voltage overhead mains on them that serve public lighting alone; and (b) dedicated underground mains serving public lighting alone. Whilst anomalous, their omission from the regulatory asset base is not relevant to our work; but the need to provide for the replacement of the assets at the end of their lives is of relevance and needs to be included in our estimate of long-term replacement expenditure requirements discussed in section 3.10.³⁴

Expenditure for New Load: We noted that expenditure for new load is contestable and that it is projected to continue at similar levels to the past. We therefore considered it reasonable, noting that it may vary depending on the business' wish to bid for the work.

Having considered these factors, we are of the view that EnergyAustralia's proposed levels of capital expenditure are reasonable and efficient, that is, that they represent efficient levels for the public lighting services being delivered.

3.9 Capex-Opex Trade-Offs

The terms of reference required us to take into account capital expenditure and operating expenditure trade-offs such as maintenance v. capital replacement options. We are satisfied that appropriate trade-offs have been achieved through EnergyAustralia's internal analysis and we do not consider that there is a need for adjustment in this respect.

3.10 Long-Term Level of Replacement Expenditure

The terms of reference required us to consider the reasonableness of EnergyAustralia's planned expenditures beyond the initial year and this has been addressed in section 3.8 of this report in relation to period ending in FY 2009.³⁵

Additionally, we have considered what the long-term level of EnergyAustralia's average annual replacement capital expenditure might be. Table 3.5 on the next page shows our calculations. Depending on whether EnergyAustralia replaces only Rate 1 assets or both Rate 1 and Rate 2 assets, and depending also on the assumptions made about standard lives – particularly for bracket arms and steel standards – the long-term level of replacement expenditure ranges from \$9 m to \$13 m as shown in the table.³⁶

We note that EnergyAustralia's proposed level of replacement capital expenditure (\$6 m to \$7 m in FY 2006 – see table 3.4 and the paragraph that follows it) falls below this range.

These estimates are based on the assets currently in service and do not include the impact of increases in the number of installations over time. They are indicative only and do not supplant the short-term estimates reported and commented on earlier in this report.

³⁴ Replacement of these mains and poles is not envisaged by EnergyAustralia during the period FY 2006 to FY 2009.

³⁵ Whilst DNSPs can only apply for a price increase to cover a single year, it was expected that EnergyAustralia would (and did) include in its submission its proposed future price increases covering several years together with expenditure forecasts for the corresponding period.

³⁶ Rate 1 assets are those financed, owned and maintained by EnergyAustralia. Rate 2 assets are those financed by councils, developers or others but maintained by EnergyAustralia. Their ownership is vested in EnergyAustralia but they are not included in the regulatory asset base. At the end of their life, councils are responsible for their replacement although EnergyAustralia said it would like councils to allow it to replace the assets with Rate 1 assets. Rate 3 assets are those neither financed nor maintained by EnergyAustralia. They are included in the 'Rate 2 & 3' column in table 3.5 but are small in number and value as a percentage of the total.

Table 3.5: Long-Term Average Annual Replacement Expenditure (Based on Current Assets)

	Replacement Cost (\$)	Pct of RC	RC - Rate 1 assets (\$)	RC - Rates 2 & 3 assets (\$)	Rate 2 & 3 assets as pct of RC	Life a/	Replacement capex - Rate 1 assets a/	Replacement capex - all assets a/	Life b/	Replacement capex - Rate 1 assets b/	Replacement capex - all assets b/
Luminaire	38,423,546	18%	36,277,933	2,145,613	6%	20	1,814	1,921	20	1,814	1,921
Lamp	1,470,309	1%	1,343,722	126,587	9%	c/			c/		
Bracket	66,723,106	31%	63,782,378	2,940,728	4%	20	3,189	3,336	25	2,551	2,669
Connection	-	-	-	-	-	-	-	-	-	-	-
Support d/	106,372,918	50%	72,307,539	34,065,379	32%	20	3,615	5,319	30	2,410	3,546
Total	212,989,879	100%	173,711,572	39,278,307	18%		8,618	10,576		6,775	8,136
Total excluding lamps	211,519,570	-	172,367,850	39,151,720	19%	e/	8,618	10,576	e/	6,775	8,136
Add for replacement of dedicated mains and poles:											
Overhead	57,002,863	-	57,002,863	-	0%	45	1,267	1,267	45	1,267	1,267
Underground	59,156,536	-	59,156,536	-	0%	60	986	986	60	986	986
Total excluding lamps	116,159,399	-	116,159,399	-	0%		10,871	12,829		9,028	10,389

Source of replacement cost data: EnergyAustralia. Lives and replacement capex are consultant's estimates.

a/ Present, 20-year, life assumption for luminaires, brackets and supports.

b/ Sensitivity test with assumed longer lives for brackets and supports (Wilson Cook & Co estimates).

c/ Lamp replacements are expensed.

d/ The high percentage of supports in the Rates 2 and 3 presumably reflect the use of distribution poles in many instances in the Rate 1 category.

e/ These estimates do NOT take account of the need to replace assets that are dedicated to public lighting but are excluded from the present asset base - specifically, certain mains and supports. However, an allowance for their replacement has been added in the lines below.

4 Conclusions and Recommendations

4.1 Summary of Conclusions

In summary, our opinion is that:

- (a) EnergyAustralia's proposed levels of capital expenditure are reasonable and efficient, that is, they represent efficient levels for the public lighting services being delivered.
- (b) EnergyAustralia's proposed levels of operating expenditure are reasonable and efficient for YE 2006 – that is, they represent efficient levels for the public lighting services being delivered.
- (c) The service levels included in or implied by EnergyAustralia's submission are appropriate.
- (d) EnergyAustralia's past capital expenditure on public lighting cannot be considered imprudent to the extent that it impacts on the efficiency of the expenditure assumptions made by the business in its proposals.
- (e) EnergyAustralia's past operating expenditure on public lighting is prudent to the extent that it impacts on the efficiency of the future operating expenditure assumptions made by the business in its proposals.
- (f) EnergyAustralia's planned expenditures beyond the initial year are reasonable except that: (i) two asset categories, bracket arms and steel standards, ought to be assigned longer lives with a consequential reduction in replacement expenditure and in depreciation charges as discussed in section 3.8; and (ii) operating expenditures ought to show savings of increasing amounts after the initial year for the reasons given in section 3.3.
- (g) An indicative level of the savings in (f)(ii) above has been assessed by us as 5% in FY 2007 but should be greater in subsequent years. The savings in (f)(i) above during the period FY 2007 to FY 2009 can only be conjectured although the reduction in the long-term level of annual replacement expenditure has been indicated in table 3.5.

4.2 Matters for the Tribunal's Consideration

In concluding this report, we wish to draw to the Tribunal's attention the following matters:

- (a) EnergyAustralia's public lighting programme is being improved in response to council representations and does now or will shortly exhibit most of the recognised 'best practice' features. (Reference in text: section 3.6.)
- (b) There are legitimate reasons for the jump in capital expenditure in the coming period. (Reference in text: section 3.8.)
- (c) Future capital expenditure will be sustained over the period reviewed because of the seven-to-eight-year replacement programme for the twin-20W fluorescent luminaires. (Reference in text: section 3.8.)

- (d) The increased level of capital expenditure in the coming period is better characterised as a step change than as 'catch-up'. (Reference in text: section 3.8.)
- (e) There are reasons for the increase in operating expenditure in the current year FY 2006 but, as mentioned already, there ought to be savings in subsequent years. (Reference in text: section 3.7.)
- (f) Introduction of the *NSW public lighting code* as currently drafted will clarify service level responsibilities but will not remove the ambiguities about responsibility for public lighting design – a matter that appears to underlie the apparent disagreements between the parties. (Reference in text: Section 3.4.)
- (g) The *Code*, if promulgated, is likely to require more operating and capital expenditure by EnergyAustralia than at present to achieve compliance with its minimum standards. (Reference in text: section 3.5.)
- (h) Repair time targets should be set at a level that can be achieved economically. If set at too low a level, operating costs will be increased unnecessarily. The current target of repair within 5 days may be uneconomic and should be kept under review. (Reference in text: section 3.5.)
- (i) Depreciation charges over the period FY 1999 to FY 2005 have not been matched by commensurate asset replacement expenditure. This should be taken into account when considering charges for the coming period. (Reference in text: section 3.8.)
- (j) All dedicated assets used to effect public lighting supply will need to be replaced at the end of their lives, whether they were included in the regulatory asset base at the time of its establishment or not. (Reference in text: sections 3.8 and 3.10.)
- (k) Notwithstanding their increase, EnergyAustralia's proposed levels of replacement expenditure in the period FY 2006 to FY 2009 fall below the long-term average annual replacement expenditure level that we have calculated and therefore further increases in them may be anticipated later. (Reference in text: section 3.10.)
- (l) Whether EnergyAustralia should replace Rate 2 assets with Rate 1 assets at the end of their life is apparently not decided but that action, if agreed between the parties, would aid standardisation and cost reduction. (Reference in text: section 3.10.)

Appendix A: Terms of Reference

Background

The 2004 Electricity Distribution Determination designated public lighting as an excluded distribution service, to be regulated under Rule 2004/01. Rule 2004/01 requires that if a DNSP wishes to increase its public lighting charges, it must make an application to the Tribunal. Rule 2004/01 provides for Tribunal to either accept the DNSP's proposals, or to require the DNSP to submit alternative proposals if it considers that the initial proposals do not meet the requirements of Rule 2004/01, which include:

- a requirement that DNSPs set prices to signal economic costs of provision (Clause 2.2); and
- consideration of customer impacts, and how the impact of any significant changes can be mitigated (for example by transitional price options).

Rule 2004/01 requires the DNSP to apply to the Tribunal each time it wishes to make a price change. The Tribunal does not therefore have the option of approving multi-year price changes in advance. However, the Tribunal considers it important to understand planned price changes in subsequent years as part of the wider context of a price change application.

The primary customers directly affected by public lighting price increases are local councils. (A number of smaller customers would also be affected – for example, some hospitals, the RTA, defence establishments etc).

EA applied for a public lighting price change in November 2004 – it sought a single year average increase of 26 percent (real), with further increases planned thereafter. The size of the proposed increases varied significantly between councils. The Tribunal consulted on EA's price proposals, and asked EA to write to all councils to inform them of the plans and how they would be affected. A large number of submissions were received from councils and their representatives (available on IPART's website, along with a document from EA summarising its initial proposals). Having considered EA's proposals and the consultation responses, the Tribunal did not accept EA's proposals, and asked EA to submit alternative prices.

EA is due to submit its alternative price proposals shortly. As part of its assessment of these proposals, the Tribunal wishes to understand the extent to which the operating and capital expenditure assumptions underlying these proposals represent efficient expenditure and represent good value for money for public lighting customers. It is therefore seeking to appoint consultants to undertake a review of EA's public lighting operating and capital expenditure proposals.

Terms of Reference

Scope

The Tribunal is seeking suitably qualified consultants to conduct a review of the public lighting operating expenditure, capital expenditure and asset management practices of EnergyAustralia.

The successful consultant must examine the DNSPs' operations, identify major cost drivers and recommend efficient costs levels consistent with maintaining (or where necessary varying) standards and service delivery capacity. In doing so, the consultant should take

into account capital expenditure and operating expenditure trade-offs such as maintenance versus capital replacement options.

The focus of the study is on providing an overall strategic view of the following.

- a) Whether the DNSPs' proposed levels of capital and operating expenditure are reasonable and efficient, that is, whether they represent efficient levels for the public lighting services being delivered. In order to assess this, it is expected that the consultant will need to understand what current service levels are. The Tribunal considers it important that service levels do not decline unless there is clear evidence that current service levels exceed customer willingness to pay. The consultant will also be required to provide their professional judgement on the appropriateness of service levels included in or implied by the submission, and to make recommendations on any implications for levels of expenditure should these standards fall short of/exceed appropriate levels.
- b) The prudence of the DNSPs' public lighting past capital and operating expenditure to the extent that this impacts on the efficiency of expenditure assumptions within EA's proposals.

While EA can only apply for a price increase to cover a single year, they are expected to include in their submission proposed future price increases covering several years, and to provide expenditure forecasts for the corresponding period. The consultant will be required to analyse planned expenditure over this entire period.

The consultancy will assist the Tribunal by reviewing estimates of operating expenditure, capital expenditures and asset management policies, using appropriate best-practice industry benchmarks wherever possible. If the consultant finds operating and/or capital expenditure assumptions to not be reasonable/efficient, it should indicate the amount by which it considers the expenditure assumptions should be adjusted to obtain reasonable/efficient levels. If appropriate, the consultant may make specific comment on the adequacy/efficiency of asset management practices. The Tribunal may rely on this review in determining whether to accept EnergyAustralia's public lighting price proposals.

Outputs

The required outputs from the consultancy are:

1. One draft report and a final written report which addresses the objectives of the consultancy.
2. Discussions and meetings with DNSPs, the Tribunal and/or Tribunal Secretariat.
3. Presentation of draft findings to the Tribunal and/or the Tribunal Secretariat, incorporating any comments where agreed into the final report.

The consultant may also be required to make presentations to the Tribunal and/or Tribunal Secretariat which outline the major issues and findings.

The consultant should note that the final report may be released as a public document. As such the report should be clearly and logically set out and written in plain English, avoiding the use of unnecessary technical terms.

On completion of the consultation, the consultant's reports, working papers and advice provided to the Tribunal will become the property of the Tribunal.

It is anticipated that the Consultancy would begin in early June 2005, and that the final report would be delivered in the week commencing 11th July 2005 (dates to be confirmed, subject to date of receipt of EnergyAustralia's application).³⁷

³⁷ These dates were subsequently revised.

Appendix B: List of Officers Met

Meetings or discussions were held with the following officials:

IPART

Mrs Fiona Towers, Director, Energy
Ms Emma Kelso, Programme Manager, Electricity

EnergyAustralia

Mr Michael Martinson, Group Manager, Regulatory Strategy
Mr Peter Birk, Manager, Network Venture Development
Mr Scott Young, Acting Manager, Regulatory Policy
Mr Troy Fazakerley, Commercial Manager – Public Lighting
Mr John Hardwick, Manager – Operations Investment (Network Division)
Mr Gary Winsor, Operations Investment Manager – Maintenance Analyst
Mr George Maltabarow, General Manager

Council Representatives

Mr Ryan Fletcher, Local Government and Shires Associations of NSW
Ms Melissa Gibbs, Executive Director, Southern Sydney Regional
Organisation of Councils
Mr Graham Mawer, Next Energy (Program Manager, SLIP)
Mr Robin Roy, Next Energy

Parsons Brinckerhoff Associates

Mr Paul Topfer, Manager, NSW

Essential Services Commission of Victoria

Mrs Marianne Lourey, Manager, Network Regulation