



The power is in your hands

Prices for the construction and maintenance of Public Lighting Infrastructure

**Report by
Integral Energy**

**to the
Independent Pricing and
Regulatory Tribunal**

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1 Overview

1.1 Summary

Integral Energy (Integral) proposes to change the prices it charges for the construction and maintenance of public lighting infrastructure as of 1 September 2006.

Public lighting prices are regulated under the Independent Pricing and Regulatory Tribunal's (the Tribunal's) *Rule 2004/1- Regulation of Excluded Services* dated June 2004 (Rule 2004/1); *Rule 2004/1* was issued by the Tribunal as part of the 2004 Network Determination.

In accordance with *Rule 2004/1*, this submission sets out:

- The overall costs of the construction and maintenance of public lighting infrastructure that has been undertaken by Integral during 2004/05 and to 31 December of 2005/06;
- The service standards allowed for by Integral having regard to those costs;
- The prospective changes to Integral's prices for the construction or maintenance of public lighting infrastructure and an explanation for the reason for the changes; and
- An explanation of how Integral has considered and addressed the impact of these changes on its customers.

Integral is proposing to increase its public lighting charges by the change in the Consumer Price Index as defined in the Tribunal's Determination No 2, 2004, NSW Electricity Distribution Pricing 2004/05 to 2008/09. In the Tribunal's Determination the Consumer Price Index is defined as:

the All Groups index number for the weighted average of eight capital cities as published by the Australian Bureau of Statistics, or if the Australian Bureau of Statistics does not or ceases to publish the index, then CPI will mean an index which the Tribunal considers is the best estimate of the index.

The change in the Consumer Price Index means the number derived from the application of the formula published in the Tribunal's Determination No 2, 2004. For 2006/07 the change in the Consumer Price Index is 2.7%.

Integral notes that this submission does not incorporate additional costs associated with the introduction of the new NSW Public Lighting Code (Code), which took effect from 1 January 2006. Integral will consider separately the impact of the new Code on its public lighting business.

1.2 Structure of report

The report is structured as follows:

Section	Title	Details
2	Context for report	Sets out the background against which this report has been prepared and provides a summary of Integral's current public lighting services.
3	Information on overall costs and costing methodology	Sets out the Rule 2004/1 disclosure requirements including the services provided, methodology applied by Integral to price those services and the service standards applicable to those services.
4	Proposed changes	Sets out Integral's proposed changes in the prices for the construction and maintenance of public lighting infrastructure and an explanation of the reasons for the changes. Information on changes to other aspects of the provision of public lighting services is also detailed.
5	Impact on customers	Sets out the details of the impacts on customers of the proposed changes to the SLUOS charges.
6	Potential future changes	Sets out potential changes to the public lighting excluded services provided by Integral.

2 Context for report

This report has been prepared for the Tribunal in accordance with section 2.3 of Rule 2004/1 to advise of the price adjustments proposed by Integral for its public lighting services.

This report demonstrates the nature of the lighting services offered by Integral and the costs involved in delivering those services. The report sets out how prices need to be adjusted to reflect those costs and provide more accurate signals to customers to facilitate efficient and informed decisions regarding their public lighting requirements. It is recognised that changes in prices need to be managed in a way that demonstrates an understanding of the impact on individual customers. Integral proposes a strategy that minimises the impact on an individual customer's bill.

2.1 Background

The prices for public lighting services are regulated by IPART.

In the 2004 Network Determination, IPART defined public lighting as an Excluded Service. As of 1 July 2004, public lighting has been regulated under *Rule 2004/1 - Regulation of Excluded Distribution Services* which requires, among other things, that prices be set at levels that provide clear signals to customers regarding the economic cost of service provision.

Historically, public lighting services were regulated as part of overall network charges, which effectively resulted in public lighting charges being subsidised by the prescribed distribution services¹. IPART's change to its framework in its 2004 Determination - whereby public lighting became treated as an Excluded Service – would, in the absence of corresponding price increases, expose Integral to a value loss.

A one-time price adjustment of approximately 14% would be required to offset the revenue impact of the regulatory change to the treatment of public lighting as an Excluded Service and to bring the revenues received for public lighting into alignment with the underlying costs of providing the service.

Integral's prices for public lighting services were last increased on 1 August 2002 by 2.9%, resulting in real price reductions of approximately 9% in the intervening period. Integral has since not sought to change public lighting charges to address any lack of cost reflectivity or the revenue shortfall due to IPART's change of the regulatory treatment of these assets. Clearly, real price reductions are not sustainable. This application is the first made to IPART under the Excluded Services Rule to attempt to bring public lighting prices to more cost reflective levels.

¹ This cross subsidisation is highlighted by the 2004 Determination which removed approximately \$16m in revenue requirement associated with public lighting. The revenue earned from public lighting in 2004/05 was \$14.1m.

In January 2006, the NSW Department of Energy, Utilities and Sustainability (DEUS) introduced a new Public Lighting Code. To be sustainable and efficient over time, public lighting prices will need to recover any incremental costs that occur as a result of complying with the Code.

Integral is currently working to implement the Code and to gain a fuller understanding of the cost implications. The impacts of the new Code have therefore not been incorporated in this report.

2.2 Integral's current public lighting services and charges

Integral currently provides three types of public lighting services: Schedule 1; Schedule 2 and Schedule 3 services.

The key difference between the scheduled types relates to the funding of the initial capital costs and the responsibility for ongoing maintenance and replacement of public lighting assets.

The majority of Integral's public lighting services are Schedule 1 and Schedule 2 services.

- **Schedule 1** - Integral provides the capital up to a pre-determined limit for each type of public lighting asset and also funds all operating costs relating to the service. Integral provides maintenance and replacement of the equipment.
- **Schedule 2** - the capital costs of installation are funded by the developer or customer. Integral provides maintenance and replacement of the equipment.

For Schedule 3 services, the customer installs, maintains and replaces the lighting equipment. Integral provides maintenance and replacement services (limited to replacement of lamps, PE cells and fuses). Schedule 3 services are contestable and are not subject to review by the Tribunal; therefore they are not considered in this report.

3 Information on overall costs and costing methodology

3.1 Current public lighting costs and revenues

The key objective of this report is to identify the sustainability of the public lighting services through considering the revenues earned and the costs associated with providing these services.

Section 2.2(a)(1) of Rule 2004/01 sets out the pricing principles for excluded services:

pricing principles: *the DNSP must use its reasonable endeavours to comply with the following pricing principles:*

- (A) *prices are to signal the economic costs of service provision by being subsidy free (ie between incremental costs and stand alone costs)...*

Integral has considered the following three approaches to determining to costs of providing the public lighting services:

- **Incremental costs** – recovery of the long term marginal costs associated with providing the public lighting service, assuming that the shared and common costs are recovered through the prescribed network tariffs. This scenario includes Integral's incremental labour, vehicle and other costs. Cost inputs determined in prior years have been indexed for inflation, consistent with the Determination, to 2004/05 dollars.
- **Stand-alone costs** – the new entrant cost determined by the revenue requirement under the building block approach based on valuing the assets at the full replacement cost.
- **Economic cost** - the prices which Integral believes are cost reflective for each lighting type offered. The costs include the additional capital and operating expenditures incurred for each additional light and a proportional allocation of shared corporate costs. Costs for utilising shared assets such as electricity poles are excluded. Modelling for the economic costs has been based on adopting the challenging Victorian Essential Services Commission assumptions applied in its recent decision on excluded services², where applicable, to the NSW environment, combined with Integral's actual material costs and existing lighting portfolio.

Integral's proposal is consistent with the above pricing principles as Integral's prices lie between the incremental costs and the stand alone costs. This is further discussed in the following section.

² Final Decision "Review of Public Lighting Excluded Services Charges" August 2004.

3.2 Modelling outcomes

The modelling outcomes confirm that Integral's current public lighting revenues are well below the economic cost of service provision, and are even below the level previously incorporated in the prescribed services network business prior to 1 July 2004.

Integral's modelling has identified that:

- Current public lighting prices do not recover the economic costs of service provision. This has implications for the efficient use of, and continued investment in, public lighting infrastructure in the medium to long term.
- The total revenue currently earned by Integral for providing Schedule 1 and Schedule 2 public lighting services does not cover the costs of providing the services. The overall shortfall is in the order of \$2m, or approximately 14% compared to current revenue of \$14.1m.
- There is currently significant cross subsidisation between the various public lighting prices, with some prices being below even direct costs. This has implications for the efficient use of public lighting infrastructure over time as well as for equity considerations between customers.
- A detailed analysis of the costs of providing individual public lighting charges for each element of inventory services is not possible without more detailed data; this data will form the basis of future regulatory reviews.

Table 1 below shows the revenues and costs associated with public lighting services.

Revenue or Costs	Total
Revenue earned	\$14.1m
Economic costs	\$16.0m
Stand alone costs	\$28.0m
Table 1 Revenue or Costs	

The current position is not sustainable as the profitability of these services is insufficient to cover the costs of operating, maintaining and replacing the assets. Integral believes that maintaining the status quo would not comply with the cost reflectivity provisions of Rule 2004/1.

This position is potentially exacerbated by the introduction of the Code. To be sustainable and efficient over time, public lighting prices will need to recover any incremental costs that occur as a result of complying with the Code. As indicated previously, the costs of complying with the Code will be considered as a separate matter, and as such have not been included in this Report.

3.3 Service standards

Integral is required to disclose the service standards allowed for in the provision of public lighting services over the period that correspond to the proposed pricing arrangements.

Integral intends to work towards compliance with the service standards inherent in the Code. In particular, these include a requirement to:

- Operate a 24 hour call centre to receive fault reports from customers;
- Restrict the maximum number of lighting outages at any one time to fewer than 10% of the lighting population;
- Establish a management plan and reporting system for the design, construction and maintenance of public lighting assets;
- Manage and monitor the bulk lamp replacement program to ensure efficient and safe operation of the system to achieve agreed maintenance standards and to maintain the designed lighting technical parameters of the luminaire;
- Replace obsolete and unserviceable luminaires during bulk lamp replacement process;
- Clean, inspect and repair luminaires during re-lamping;
- Ensure that repairs of public lighting assets are undertaken within an average of eight working days per customer per year from receipt of the reported fault and endeavouring to provide repairs more quickly in high priority cases;
- Ensure that repairs of public lighting assets are undertaken within three working days from receipt of a reported fault involving supplementary floodlights at pedestrian crossings or groups of three or more lights on Category V roads.

It should be recognised that in certain circumstances, such as severe storms, or supply network faults these standards may not be achievable.

In addition to the Code requirements, Integral has also put in place a condition based maintenance program to improve public lighting network safety and reliability. This includes a corrosion inspection for tapered public lighting columns every four years with an electrical inspection every eight years.

Guaranteed service level

Integral has already introduced the requirements of the Code for provision of guaranteed service levels. If a streetlight is not repaired with twelve working days from lodgement of a fault report, Integral pays the first eligible person or public lighting customer a sum of \$15. Eligibility is determined in accordance with the Code. No allowance for the recovery of any penalty payments has been proposed in this report.

4 Proposed changes

4.1 Changes to SLUOS charges

Section 2.3(a)(2)(c) of *Rule 2004/1* requires the DNSP to provide the Tribunal with disclosure of:

any prospective changes in the DNSP's prices or rates for the construction or maintenance of Public Lighting Infrastructure and an explanation of the reasons for the prospective changes.

Integral's disclosure of this requirement is set out below.

Integral is proposing to increase its public lighting charges by the change in the Consumer Price Index as defined in the Tribunal's Determination No 2, 2004, NSW Electricity Distribution Pricing 2004/05 to 2008/09. In the Tribunal's Determination the Consumer Price Index is defined as:

the All Groups index number for the weighted average of eight capital cities as published by the Australian Bureau of Statistics, or if the Australian Bureau of Statistics does not or ceases to publish the index, then CPI will mean an index which the Tribunal considers is the best estimate of the index.

The change in the Consumer Price Index means the number derived from the application of the formula published in the Tribunal's Determination No 2, 2004. On this basis the change in the Consumer Price Index for the 1 September 2006 price change is 2.7%.

At an individual tariff level, the price changes are required to move towards cost reflectivity as required under *Rule 2004/1*.

A number of options were considered for changing prices to address the revenue shortfall from public lighting services and to address any existing cross subsidisation over a reasonable period. In order to achieve cost reflectivity in 2006/07, an average price increase of approximately 14% would be required. While Integral believes price increases of this magnitude would meet IPART's requirement for cost reflectivity, the customer impacts of a change of this magnitude were not seen as desirable.

As a detailed analysis of the costs of providing individual public lighting charges for each element of inventory services is not possible without more detailed data, Integral believes that a CPI increase from 1 September 2006 will:

- address the real reductions in the public lighting prices over the past year;
- allow sufficient time to obtain additional data to underpin more detailed analysis;
- allow for consultation with local Councils to occur on a number of issues identified during the review of public lighting prices and implementation of the new Code; and
- ensure that the impact on an individual customer's bill is managed equitably.

Integral believes that a CPI increase as of 1 September 2006 offers an appropriate balance between the financial sustainability of Integral's public lighting business and the price impact on customers.

The detailed proposed prices to be charged from 1 September 2006 are set out in Appendix B.

5 Customer impact

Section 2.3(a)(2)(D) of *Rule 2004/1* requires the DNSP to provide the Tribunal with:

an explanation of how the DNSP has considered the impact of its prospective price change on customers and how it has structured its prospective prices to take account of those impacts...

Integral considered a number of options for changing prices to address the revenue shortfall from public lighting services and to address any existing cross subsidisation over a reasonable period.

Integral's proposed option results in customers facing an increase in their annual bill of CPI³. A "cost of living" increase to customer's bills is seen as a conservative balance between addressing the growing gap between revenues and costs and minimising the bill impacts.

³ Assuming constant inventory as at 31 August 2006

6 Potential future changes

A number of potential future changes could impact on the costs of providing public lighting infrastructure. Some of these are identified below. It is important to note that the potential impacts of the following items have not been factored into the proposed prices in this report.

6.1 New Code obligations

In January 2006 DEUS released the NSW Public Lighting Code. The Code specifies minimum lighting standards for illumination, repair and maintenance. Integral notes that in some cases the new Code is more onerous than its standards and that will result in additional costs being incurred by Integral to comply. This submission does not incorporate any additional costs associated with the introduction of the new Code.

6.2 Data

Integral notes that the assumptions adopted in its modelling are based on a conservative assessment of costs. In some cases Integral does not have comprehensive and accurate data on each item of its public lighting inventory to determine the true economic cost of providing each individual service, or to justify an “efficient” allocation of costs. In these circumstances Integral has assumed the lowest cost item for inclusion in its modelling, however it must be noted that the model outcomes will generally understate the actual costs.

Integral is currently reviewing the data capture for its public lighting assets. This information will assist in further refining the modelling of prices and identifying the underlying investment in public lighting assets including any instances where assets are in service but are not being charged.

Integral will continue to review the relationship between costs and revenues to ensure a sustainable business that sends efficient price signals to customers.

6.3 Distortions within existing SLUOS charges

There are a number of distortions within the existing SLUOS charges that have arisen over a number of years. The SLUOS charges have not been calculated from their component bases since prior to 1994. Over the years they have been subject to overall percentage increases and decreases. The most significant distortion occurred approximately three years ago when the energy and NUOS components were removed from the SLUOS charges. The methodology for removing the energy and NUOS components has meant that lights with high energy consumptions have had their SLUOS charges substantially reduced whereas lights with lower energy consumptions would have maintained their SLUOS charges at a higher level.

This is illustrated in the following table.

Description	Rate Code	Current SLUOS Charge (\$ pa)
150 watt HPS on a column	338	\$63.92
250watt HPS on a column	343	\$48.02
400watt HPS on a column	352	\$42.16

Provided the lanterns are installed on the same type of column or wood pole, the SLUOS charge for all three streetlights should be more or less the same, yet the charge for the 150-watt unit is 51% higher than that of the 400-watt unit.

Another extreme example of the distortion is:

Description	Rate Code	Current SLUOS Charge (\$ pa)
60 watt incandescent lamp	1	\$64.90
500 watt incandescent lamp	7	\$20.17

The cost of a 500 watt incandescent lamp is much higher than a 60 watt incandescent and it is required to be replaced more often. Yet the SLUOS charges for a 500 watt incandescent are about one third that of a 60 watt incandescent lamp.

While these anomalies are a result of history, they not only result in equity issues between customers, but also can lead to inefficient decisions regarding the most appropriate type of lighting infrastructure. The lack of cost reflectivity is exacerbated when attempting to add SLUOS charges for new or modified types of lights as any pricing distortions on existing inventory may lead to inefficient purchase decisions if the prices are inappropriately higher or lower than other potential options.

In order to address these anomalies, the structure and existing SLUOS charges needs to be revisited so that prices are developed based on individual components, such as, a lantern type charge and a separate charge for the support that reflects the costs of the item of inventory. As well as changing the structure of the SLUOS charge, it will also be necessary to transition the SLUOS charges to the correct level over a reasonable transition period. Moving forward, Integral will be working towards cost reflective prices for the components of its public lighting inventory.

6.4 Public lighting coding system and customer account format

The current coding system used in the SLUOS billing program assigns (although not universally) an individual type code for any particular lantern or combination of lights supported on a wood pole or a column or other structure. Over the years this has led to a proliferation of a large number of poorly defined street light type codes.

There are two significant effects arising from the use of the current coding system:

- It makes the customer's bill cumbersome and overly complex, often leading to a large number of account queries from customers. This adds unnecessary costs and is not conducive to maintaining good customer relations.
- Section 13.1 of the Code requires bills to provide, in summary form, the charge for each type of public lighting, as well as the details of the number and type of lights. Even though a listing of lighting types is provided with the monthly bills to public lighting customers at present, the billing format is not user-friendly.

The billing format needs to be revised to clearly indicate the number and type of lights being charged for each schedule rate category (rate 1, 2 or 3). A change to the billing format in conjunction with the proposed change to the structure of the SLUOS lighting charges will address the issues identified above. It would also make any audit or analysis process less complicated and more reliable.

6.5 Moving forward

Integral will consult with its customers on these matters with a view to continuing to address these issues and the issue of cost reflectivity.

Appendix A - Glossary

Term	Definition
Code	NSW Public Lighting Code
CPI	Consumer Price Index
Determination	The Tribunal's 2004 Network Determination
DEUS	NSW Department of Energy, Utilities and Sustainability
DNSP	Distribution Network Service Provider
HPS	High Pressure Sodium
Integral	Integral Energy
IPART	Independent Pricing and Regulatory Tribunal of NSW
NUOS	Network Use of System
PE	Photo Electric
RTA	Roads and Traffic Authority of NSW
SLUOS	Street Lighting Use of System
Tribunal	Independent Pricing and Regulatory Tribunal of NSW
URD	Underground Residential Development
WACC	Weighted Average Cost of Capital

Appendix B – Pricing Schedules 1 and 2

Proposed Public lighting prices to apply from 1 September 2006
