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## ANALYSIS SUPPORTING FOR APPROVAL OF REFERENCE TARIFFS FOR STANDARD NETWORK ACCESS SERVICES, 2004-05

As set out in the 2004 Reset Final Determination, the Commission must approve the schedule of individual network access tariffs submitted by the Power and Water Corporation for the 2004-05 year, unless:

- the weighted average of tariffs included in the schedule, expressed in index number form, does not comply with the constraint:

$$P_t = [ (P_{t-1} * (1 + Z)) * (CPI_{t-1} / CPI_{t-2}) * (1 - (X_1 + X_2)) ]$$

- in conjunction with the submission of the schedule of annual network access tariffs for approval, the network service provider fails to submit to the Commission a statement of reasons for any modifications proposed to the structure of network access tariffs that is consistent with the approved Pricing Principles Statement and capable of publication (with the Commission intervening only if it considers the proposed change in structure to be inconsistent with the approved Pricing Principles Statement); or
- the resultant impact on the weighted average tariff for each individual end-use customer does not comply with a CPI+S side constraint, where S is the factor applying to a particular year or years determined by the Commission.

### (a) Weighted average of tariffs: compliance with the CPI-X constraint

In accordance with the Commission's final determination the index number representing the weighted average of approved individual network access tariffs applying in 2003-04 (before the Z factor adjustment) has been calculated as **98.50<sup>1</sup>**.

<b>Parameters</b>	
CPI (average of 4 quarters Mar 02 to Dec 02)	138.050
CPI (average of 4 quarters Mar 02 to Dec 02)	141.875
Z	4.40%
X <sub>1</sub>	1.75%
X <sub>2</sub>	0.25%

<sup>1</sup> Given limitations evident in the available data on the price and quantity components associated with approved tariffs during the first regulatory control period, the Commission has proxied the components of equation (5) by using the average cents per kWh revenue implied by the respective revenue caps. The value of the 2003-04 index has no bearing on the price constraint imposed by equation (3). The Commission's use of this index is for presentation purposes only.

<b>Price and quantity data</b>	
$S_{i=1..n} [p_{2004-05}^i * q_{2002-03}^i]$	77,148,075
$S_{i=1..n} [p_{2003-04}^i * q_{2002-03}^i]$	73,372,311

Weighted average tariff index for 2004-05:

$$P_t = P_{t-1} * \left[ \frac{S_{i=1..n} [p_t^i * q_{t-2}^i]}{S_{i=1..n} [p_{t-1}^i * q_{t-2}^i]} \right]$$

$$P_{2004-05} = P_{2003-04} * \left[ \frac{S_{i=1..n} [p_{2004-05}^i * q_{2002-03}^i]}{S_{i=1..n} [p_{2003-04}^i * q_{2002-03}^i]} \right]$$

$$= 98.500 * \left[ \frac{77,148,075}{73,372,311} \right]$$

$$= 103.569$$

Constraint equation for 2004-05:

$$P_t = \left[ (P_{t-1} * (1 + Z)) * \left( \frac{CPI_{t-1}}{CPI_{t-2}} \right) * (1 - (X_1 + X_2)) \right]$$

$$P_{2004-05} = \left[ (P_{2003-04} * (1 + Z)) * \left( \frac{CPI_{2003}}{CPI_{2002}} \right) * (1 - (X_1 + X_2)) \right]$$

$$103.569 = \left[ (98.500 * (1 + 4.40\%)) * \left( \frac{138.050}{141.875} \right) * (1 - (1.75\% + 0.25\%)) \right]$$

$$103.569 = 103.570$$

Power and Water's proposed tariff schedules for 2004-05 comply with the price constraint equation.

**(b) Statement of reasons consistent with the approved Pricing Principles Statement and capable of publication**

*“Power and Water considers that the 2004-05 tariff schedule complies with the approved Pricing Principles Statement because:*

- *The structure of the 2004-05 tariffs is unchanged from that approved by the Regulator for use between 2000-2001 and 2003-04; and*
- *The 2000-01 – 2003-04 tariff structure was deemed to comply with clause 74 of the Code.”*

Application of the ‘CPI + Z – X’ constraint to each tariff component initially gave rise to a technical breach of the constraint equation due to rounding anomalies. Following discussions with Power and Water, the Commission advised that it was prepared to approve schedules that made the necessary adjustment to one of the component p's. Accordingly, Power and Water chose to escalate the Tennant Creek energy charge for streetlighting by slightly less than ‘CPI + Z – X’.

As set out in the Approval Instrument, in light of Power and Water's decision not to change the tariff structures in the 2004-05 year, the Commission has approved these tariffs against the existing approved Pricing Principles Statement (approved on 25 August 2000). The Commission considers that the formal tariff

pre-ambles defining, to some extent, the network access services for which the reference tariffs apply, submitted with the tariff schedules for the 2003-04 year constitutes an elaboration of (and therefore part of) these pricing principles<sup>2</sup>.

The Commission has assessed Power and Water's statement of reasons as complying with the relevant requirement of paragraph 3.20 of the 2004 Reset Final Determination paper.

**(c) Weighted average tariff for each individual end-use customer: compliance with a CPI+S side constraint**

The 2004 Reset Final Determination provided that the S factor for application in relation to 2004-05 and 2005-06 could be, at Power and Water's option, either Z+5% in 2004-05 and 5% in 2005-06 or Z in 2004-05 and 10% in 2005-06.

Power and Water has opted to use an S factor equal to Z (i.e., 4.40%) in the 2004-05 year.

*"Power and Water ... confirms that it has opted not to undertake any re balancing of individual tariff components in setting prices for 2004-05, and therefore chooses to utilise the CPI+10% side constraint in the setting of tariffs for 2005-06."*

The S factor constraint requires that the change in tariff confronting each individual end-user complies with the following constraint:

$$P_t^j = [ P_{t-1}^j * (CPI_{t-1} / CPI_{t-2}) * (1 + S) ]$$

where the "j" superscript denotes an individual customer.

$$P_{2004-05}^j = [ P_{2003-04}^j * (CPI_{2003} / CPI_{2002}) * (1 + S) ]$$

$$P_{2004-05}^j = [ P_{2003-04}^j * (138.050 / 141.875) * (1 + 4.40\%) ]$$

$$P_{2004-05}^j = [ P_{2003-04}^j * 1.072926 ]$$

This can be re-expressed as:

$$P_{2004-05}^j / P_{2003-04}^j = 1.072926$$

Power and Water has provided data and calculation of the above ratio for each contestable customer and for non-contestable customers as a group.

The ratio of the change in tariff confronting each individual end-user falls within the range of 1.051 and 1.052.

Power and Water's proposed tariff schedules for 2004-05 comply with the side constraint equation.

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<sup>2</sup> The pre-ambles are provided at the end of this Attachment. References to the MAR (which applied in the first regulatory control period) should be considered to apply, as appropriate, to the price cap methodology applying in the second regulatory control period.

## *“Standard” Reference Network Service*

The scheduled rates are “reference rates” which represent a strategy to recover the determined Maximum Allowable Revenue (MAR) through the delivery of “standard” network services. The MAR itself is based, inter alia, on an anticipated standard of capital investment and an associated investment risk in addition to a standard of operation and maintenance such as might be expected by a prudent operator in the industry.

While “standard” network services may not be defined more specifically, in principle this implies at least the following characteristics of a customer’s energy delivery requirements and the associated networks to deliver them:

- The network will be designed, constructed, maintained and operated in accordance with good and appropriate industry practice, with suitable capacity, reliability and redundancy, and in accordance with relevant Codes for network design and performance.
- The customer will draw all its normal energy requirements through the network and will thus be an importer of energy under normal circumstances.

Hence it is apparent that different circumstances may require individual consideration and negotiation for tariffs and/or capital contributions. Such circumstances could include:

- A customer requiring greater than normal reliability or back-up to the site so that network assets are under-utilised under normal circumstances.
- A customer acknowledging that supply will only be required at the site for a limited duration (eg till the mine runs out or the sleepers are all manufactured) so that revenue recovery ought be accelerated because of the shorter expected useful lifetime of the assets.
- A customer with exceptionally low load factor power factor product characteristics resulting in low utilisation of the assets (eg a site with energy needs which show seasonal or cyclic variation, possibly with comparatively low energy delivery over the whole period).
- A customer proposing to arrange local generation of all or part of its normal energy requirements so that use of the network would only be under abnormal circumstances, and hence would be regarded as providing “back-up” or “standby” connection without the energy delivery expected from the capacity of the assets employed by the Network Service Provider.
- A site where local generation may seek to export power to the general network and possibly thence to customers of that generation at other locations.

The Utilities Commission has approved a framework for certain of these negotiations. - “Framework for Negotiating Agreements for Network Services for Embedded Generation and Similar Situations” – March 2002

Part of the MAR is normally recovered through energy related charges as the “least distorting” recovery mechanism for the funds deficiency above the System Availability Charge and demand elements even though practically none of the real network costs are related to energy per se. Consequently, the charges associated with non standard services may not directly relate to demand or energy actually required, but rather more directly towards recovery of a portion of the MAR which would be expected from the network assets under normal use.

Peak and off-peak periods for demand and energy related charging rates will be as determined from time to time. The peak period rates currently apply to usage between 6.00 am and 6.00 pm on any day. Off-peak period rates apply at other times.

Note: If a customer requiring less than 750 MWh per year is supplied at high voltage, a discount of 5% applies to Energy rate charges only.