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## **ANALYSIS SUPPORTING FOR APPROVAL OF REFERENCE TARIFFS FOR STANDARD NETWORK ACCESS SERVICES, 2005-06**

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:

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

- 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**

#### *Effect of Asset Valuation Off-ramp*

The 2004 Reset Final Determination provided for an asset valuation off-ramp to be triggered if, prior to 31 March 2005, the Commission was satisfied that the valuation of the initial asset base at 30 June 2000 and/or the asset amounts rolled-forward during the first regulatory control period underlying the Final Determination involved a 'material error'. If a material error were established, the Final Determination also provided for that error to be automatically corrected depending on the size of the required correction, but without any retrospectivity.

Following the Commission's off-ramp review, on 30 March 2005 the Commission issued a decision determining that, for the forthcoming year 2005-06:

*"...Power and Water must make the equivalent of a Z factor adjustment to the current year's [i.e., 2004-05] weighted average tariff when applying equation (3) in the 2004 Reset Determination for the purpose of proposing the network access tariffs to apply to its regulated networks on or after 1 July 2005, to be implemented as follows:*

- (1) *for the purposes of the weighted-average price index of network tariffs in 2004-05 to be used when calculating the approved index of tariffs in 2005-06 and subsequent years, the approved 2003-04 index be adjusted by a corrected Z factor and then escalated by CPI X (with the 2004-05 index calculated in the 2004 Reset being put aside); and*

- (2) to allow sufficient time for the subsequent consideration of Power and Water's network pricing principles and methods, the allowed S factors for application during the second regulatory control period be slipped by a year on those approved in the 2004 Reset Determination."

The Commission decided that the value of Z applied to the 2003-04 price index number to derive the price constraint should have been **-7.4%**.

Accordingly, the revised constraint equation for 2004-05 is as follows:

<b>Parameters</b>	
P <sub>2003-04</sub>	98.50
CPI <sub>2002</sub> (average of 4 quarters Mar 02 to Dec 02)	138.050
CPI <sub>2003</sub> (average of 4 quarters Mar 03 to Dec 03)	141.875
<b>Z</b>	<b>-7.40%</b>
X <sub>1</sub>	1.75%
X <sub>2</sub>	0.25%

Revised constraint equation for 2004-05:

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

$$P''_{2004-05} \leq [ (P_{2003-04} * (1 + Z)) * (CPI_{2003} / CPI_{2002}) * (1 - (X_1 + X_2))]$$

$$P''_{2004-05} \leq [ (98.500 * (1 + -7.40%)) * (141.875 / 138.050) * (1 - (1.75% + 0.25%))]$$

$$P''_{2004-05} \leq 91.863$$

### Price constraint for 2005-06

Given that, for the purposes of calculating the price constraint P<sub>2003-04</sub> is equal to the revised figure of 91.863 calculated above (rather than the actual figure of 103.569 derived from the price and quantity data provided by Power and Water), then the constraint for 2005-06 tariffs would be as follows:

<b>Parameters</b>	
P'' <sub>2004-05</sub>	91.863
CPI <sub>2003</sub> (average of 4 quarters Mar 03 to Dec 03)	141.875
CPI <sub>2004</sub> (average of 4 quarters Mar 04 to Dec 04)	145.200
X <sub>1</sub>	1.75%
X <sub>2</sub>	0.25%

Constraint equation for 2005-06:

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

$$P_{2005-06} \leq [ P_{2004-05} * (CPI_{2004} / CPI_{2003}) * (1 - (X_1 + X_2))]$$

$$P_{2005-06} \leq [ 91.863 * (145.200 / 141.875) * (1 - (1.75\% + 0.25\%))]$$

$$P_{2005-06} \leq 92.136$$

Based on the price and quantity data provided by Power and Water, the weighted average tariff index for 2005-06 is calculated below.

<b>Price and quantity data</b>	
$\sum_{i=1..n} [p_{2005-06}^i * q_{2003-04}^i]$	78,561,448
$\sum_{i=1..n} [p_{2004-05}^i * q_{2003-04}^i]$	69,887,193

Weighted average tariff index for 2005-06:

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

$$P_{2005-06} = P_{2004-05} * \left[ \frac{\sum_{i=1..n} [p_{2005-06}^i * q_{2003-04}^i]}{\sum_{i=1..n} [p_{2004-05}^i * q_{2003-04}^i]} \right]$$

$$= 103.569 * \left[ \frac{69,887,193}{78,561,448} \right]$$

$$= 92.134$$

Power and Water's proposed tariff schedules for 2005-06 comply with the price constraint equation.

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

As set out in the Approval Instrument, in light of Power and Water's decision not to change the tariff structures in the 2005-06 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-amble 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>1</sup>

The Commission also notes Power and Water's intention to review its tariff structures during 2005-06, and to seek approval from the Commission prior to implementing any changes in future regulatory years. As previously advised, the Commission will only approve any changes to the structure of Power and Water's network access tariffs once a revised Pricing Principles and Methods Statement is approved. The Commission will only approve a revised Statement that provides a rigorous and

<sup>1</sup> The pre-amble is 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.

transparent basis for any rebalancing associated with the move to the price cap form of price control.

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.

The Commission's Asset Valuation Off-ramp Decision allowed S factors for application during the second regulatory control period to be slipped by a year on those approved in the 2004 Reset Determination. Power and Water has nominated the S factor applicable to the 2005-06 tariffs to be zero, so that the side-constraint in 2005-06 is equal to Z.

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

$$P_{j,t} \leq [ P_{j,t-1} * (CPI_{t-1} / CPI_{t-2}) * (1 + S) ]$$

where the "j" superscript denotes an individual customer.

$$P_{j,2005-06} \leq [ P_{j,2004-05} * (CPI_{2004} / CPI_{2003}) * (1 + S) ]$$

$$P_{j,2005-06} \leq [ P_{j,2004-05} * (145.200 / 141.875) * (1 + 0.00\%) ]$$

$$P_{j,2004-05} \leq [ P_{j,2003-04} * 1.023436 ]$$

This can be re-expressed as:

$$P_{j,2004-05} / P_{j,2003-04} \leq 1.023436$$

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 Commission has satisfied itself that Power and Water's proposed tariff schedules for 2005-06 comply with the side constraint equation.

## *"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.