



Address all correspondence to:
The Utilities Commissioner, GPO Box 915, Darwin NT 0801
Location: 38 Cavenagh Street, Darwin
E-mail: utilities.commission@nt.gov.au

Telephone: (08) 8999 5480
Facsimile: (08) 8999 6262
Website: www.utilicom.nt.gov.au

ANALYSIS SUPPORTING FOR APPROVAL OF REFERENCE TARIFFS FOR STANDARD NETWORK ACCESS SERVICES, 2009-10

As set out in the 2009 Reset Final Determination, the Commission must approve the schedule of individual network access tariffs submitted by the Power and Water Corporation for the 2009-10 year, unless:

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

$$P_t \leq [(P_{t-1} * (1 + P_0)) * (CPI_{t-1} / CPI_{t-2}) * (1 - (X_1 + X_2 - X_3))]]$$

- the resultant impact on the weighted average tariff for each individual end-use customer does not comply with a CPI – X + Y side constraint, where Y 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

The price constraint calculations for 2009-10 are set out below:

Parameters	
CPI ₂₀₀₇ (average of 4 quarters Mar 07 to Dec 07)	157.950
CPI ₂₀₀₈ (average of 4 quarters Mar 08 to Dec 08)	164.825
P ₂₀₀₈₋₀₉	94.329
P ₀	13.10%
X ₁	0.00%
X ₂	0.25%
X ₃	1.10%

Base period adjustment for 2008-09:

$$P^*_{2008-09} = P_{2008-09} * (1 + P_0)$$

$$P^*_{2008-09} = 94.329 * (1 + 13.10\%)$$

$$P^*_{2008-09} = 106.686$$

Constraint equation for 2009-10:

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

$$\begin{aligned}
P_{2009-10} &\leq [P_{2008-09}^* * (CPI_{2008} / CPI_{2007}) * (1 - (X_1 + X_2 - X_3))] \\
P_{2009-10} &\leq [106.686 * (164.825 / 157.950) * (1 - (0.00\% + 0.25\% - 1.10\%))] \\
P_{2009-10} &\leq [106.686 * 1.0425 * 1.0085 \\
P_{2009-10} &\leq 112.276
\end{aligned}$$

The weighted average tariff index for 2009-10 tariff schedule proposed by Power and Water was calculated as follows:

Price and quantity data	
$\sum_{i=1...n} [p_{2009-10}^i * q_{2007-08}^i]$	82,158,439
$\sum_{i=1...n} [p_{2008-09}^i * q_{2007-08}^i]$	95,528,465

$$\begin{aligned}
P_t &= P_{t-1} * [\sum_{i=1...n} [p_t^i * q_{t-2}^i] / \sum_{i=1...n} [p_{t-1}^i * q_{t-2}^i]] \\
P_{2009-10} &= P_{2008-09} * [\sum_{i=1...n} [p_{2009-10}^i * q_{2007-08}^i] / \sum_{i=1...n} [p_{2008-09}^i * q_{2007-08}^i]] \\
&= 94.329 * [95,528,465 / 82,158,439] \\
&= 109.680
\end{aligned}$$

Since $109.680 \leq 112.276$, Power and Water's proposed tariff schedules for 2009-10 comply with the price constraint equation.

(b) Weighted average tariff for each individual end-use customer: compliance with a CPI-X+Y side constraint

The 2009 Reset Final Determination provided that the resultant impact on the weighted average tariff for each individual end-use customer must comply with a CPI-X+Y side constraint, where Y is:

- in relation to 2009/10: Po+2%; and
- in relation to each of the four years after 2009/10: 2%.

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

$$P_t^j \leq [P_{t-1}^j * (CPI_{t-1} / CPI_{t-2}) * (1 - X + Y)]$$

where the "j" superscript denotes an individual customer.

For 2009-10, the side constraint is calculate as follows:

$$P_{2009-10}^j \leq [P_{2008-09}^j * (CPI_{2008} / CPI_{2007}) * (1 - X + Po+2\%)]$$

$$P_{2009-10}^i \leq [P_{2008-09}^i * (164.825 / 157.950) * (1 + 0.85\% + 13.10\% + 2\%)]$$

$$P_{2009-10}^i \leq [P_{2008-09}^i * 1.2100]$$

This can be re-expressed as:

$$P_{2008-09}^i / P_{2007-08}^i \leq 1.2100$$

The impact on the weighted average tariff for each individual end-use customer ranges from a fall of 7.55% to an increase of 20.31%.

Power and Water's proposed tariff schedules for 2009-10 complied with the side constraint for individual customers.