Jemena Gas Networks (NSW) Ltd - Initial response to the draft decision

Appendix 6.2

Effective Tax Rates

19 March 2010

1 Conditions under which the effective tax rates in different periods during the life of an asset will be equal

1.1 Summary

This appendix shows that for the effective tax rates to be the same in different periods during the life of an asset, the revenue and tax depreciation schedules must be the same. If that condition is met then the effective tax rates for those periods will be equal and equal to the statutory tax rate.

This appendix begins by deriving the condition algebraically and concludes by providing an economic interpretation of the condition, which cannot hold for JGN in reality.

Step 1: calculating the building blocks revenue and tax

Regulatory building block revenue can be defined as:

$$R = P + I + D + O + T, \tag{1}$$

where:

'R' is revenue

'P' is the post tax return on equity

'I' is interest

'D' is regulatory depreciation

'O' is operating expenditure

'T' is the regulatory allowance for tax

Further, tax (T) can be defined as:

$$T = (R - I - O - D_t) \times t, \tag{2}$$

where 'D_t' is estimated tax depreciation and 't' is the statutory tax rate, currently 30 per cent.

Substituting revenue (R) from equation (1) and rearranging gives:

$$T = (P + D - D_t) \times \frac{t}{1-t}. \qquad (3)$$

Step 2: calculating the effective tax rate

The effective tax rate (e) for a single year can be defined as:

$$e = \frac{T}{P + T}. \qquad (4)$$

Extending this equation to multiple years—such as a five year regulatory period—each term is defined as the present value of the amounts for those years, discounted at the pre-tax internal rate of return. For example, over a five year period, ‘T’ is defined as the present value of the regulatory allowance for tax in years one through to five.

Substituting equation (3) into equation (4) and rearranging, the effective tax rate becomes:

$$e = \frac{P \times t + (D - D_t) \times t}{P + (D - D_t) \times t}. \qquad (5)$$

Setting $d = D - D_t$ this equation reduces to:

$$e = \frac{P \times t + d \times t}{P + d \times t}. \qquad (6)$$

Step 3: under what condition is the effective tax rate the same for different periods?

The effective tax rates, e_1 and e_2, for two periods ‘1’ and ‘2’ will be equal if:

$$\frac{P_1 \times t + d_1 \times t}{P_1 + d_1 \times t} = \frac{P_2 \times t + d_2 \times t}{P_2 + d_2 \times t}, \qquad (7)$$

As mentioned previously, present values would be used if the periods involved multiple years. For example, P_1 is the post-tax return on equity in a period and would be:

- for a one year period, the post-tax return on equity for that year

- for a multi-year period, the present value of the post-tax return on equity for each year in that period.

Rearranging equation (7), the condition reduces to:

$$P_2 \times d_1 - P_1 \times d_2 = (P_2 \times d_1 - P_1 \times d_2) \times t \,. \qquad (8)$$

So, noting that the statutory tax rate (t) is not 100 per cent under current or historic Australian tax law, this condition will hold if and only if:

$$P_2 \times d_1 - P_1 \times d_2 = 0 \,. \qquad (9)$$

Hence, given that the post-tax returns on equity (P_1 and P_2) are non-zero when the cost of equity and net assets are positive, equation (9) will hold if:

$$d_1 = d_2 = 0 \,. \qquad (10)$$

or:

$$D_1 = D_{t,1} \text{ and } D_2 = D_{t,2} \qquad (11)$$

There may be combinations of P_1 and P_2 and non-zero values of d_1 and d_2 that satisfy condition (9), but these will be rare in practice. Moreover, JGN considers that no such combination applied to the JGN network over the current and previous regulatory periods.

Step 4: economic interpretation: tax and regulatory depreciation values must be the same, which cannot occur in reality

The result in equation (11) requires that the amounts of regulatory depreciation (D) and tax depreciation (D_t) be equal in each year of the two periods.[1] But, as noted in chapter 6, this cannot hold in the AER's draft decision because:

- different depreciation methods are used: *nominal* straight line depreciation for tax purposes (if the AER's amendment was adopted) and *real* straight line depreciation for regulatory purposes

[1] JGN notes for completeness that there may be multi-year cases where the annual amounts of D and D_t are unequal and yet the present values of the D and D_t streams are equal (and hence d = 0). Once again these situations will be rare in practice.

Also, if the condition in equation (10) holds, then substituting equation (10) into equation (6) above implies that the effective tax rate (e) must equal the statutory tax rate (t).

- different standard asset lives are used: where tax standard lives—based on tax law—are generally shorter than regulatory standard asset lives—based on economic and engineering assessments.

Both of these differences will contribute to the depreciation schedules for tax and regulatory purposes being different.

Moreover, it is not possible for the condition to hold in reality as a benchmark efficient gas network business cannot elect to use *real* straight line depreciation under Australian tax law and has no incentive to choose longer standard tax lives, even if it could so choose. Rule 74(2) requires that the implications of the tax law be considered when estimating a tax allowance for a benchmark efficient gas network business.