

## F. Conclusions

This report has reviewed the "ratemaking rate of return" concept as it was conceived and developed in Order No. 442. Our review indicates that, while the concept has potential merit, the discussion and analysis on this issue in Order No. 442 may have been misleading, and there are some questions on both the concept and its application that deserve further comment and consideration.

First, the discussion of the ratemaking rate concept in Order No. 442 appears to have been unclear. The concept of the ratemaking rate and the adjustment to the cost of capital implied by that concept was linked predominately with establishing consistency between the definitions of rate base and rate of return in setting utility revenue requirements. However, the adjustment was actually doing more. It was also converting an effective rate of return to a nominal rate by reducing the effective rate for the intrayear reinvestment of dividends by investors and for the intrayear reinvestment of retained earnings by the utility.

Second, it appears that the analysis of Order No. 442 supporting the ratemaking rate adjustment was at least misleading. The adjustment to the cost of common equity was said to be based on the number of compounding periods used in the measure of rate base. Instead, staff's more recent analysis suggests that it should be a function of the frequency of compounding and the rate of return on the intrayear reinvestment of retained earnings by the utility.

It also appears that the ratemaking rate concept may be better characterized as relating to a difference between the rate of return that ratepayers "pay in" and the rate of return that utilities "pay out" due to the intrayear reinvestment phenomenon. (In this regard, the Appendix to this report shows how the 420 Model estimates the return that investors expect/require the utility to "pay out" to them.)

Finally, there are a number of questions related to the ratemaking rate concept and its application that deserve further comment and consideration. Is the concept valid? Is there really a difference between the so-called "pay in" and "pay out" rates? Is this difference due to the intrayear reinvestment of retained earnings or is it due to the way rate base is defined or estimated?

If the concept is valid, how should it be dealt with from a policy perspective? Should it be ignored and the benefits be allowed to accrue to investors? Should an adjustment be made to the cost of common equity for purposes of setting allowed rates of return? Or, should the adjustment be made through some other element of the cost of service?

If the ratemaking rate concept is valid and the Commission chooses to make some adjustment to the cost of service to reflect its effects, what is the empirical magnitude of such adjustment? What are the parameters that determine the size of the adjustment? Are they merely the frequency of compounding and the reinvestment rate of return? If the adjustment is made through the rate of return, is there some formula, similar to that adopted in Order No. 442, that could be used?

In sum, given the still unresolved issues, particularly the question of the validity of the

ratemaking rate concept, we believe it is appropriate for the Commission to rely on the 420 nominal rate for purposes of determining benchmark rates of return in this proceeding. This is the rate that has traditionally been

used as the basis for allowed rates of return. As shown in the preceding analysis, it is the rate that investors expect and require from the utility, and, as such, it is the rate that the utility has to pay out to investors.

### Attachment 1

#### Derivation of the 420 Model From the 442 Effective Rate Model

The DCF model adopted in Order No. 442 estimates the shareholder's required effective annual rate of return.<sup>1</sup>

$$k_e = \frac{D_0}{4P_0} \{[(1+k_e)^{-75} + (1+k_e)^{-5} + (1+g)(1+k_e)^{-25} + (1+g)] + g\}$$

Where:

$k_e$  = market required rate of return (annual effective rate)

$D_0$  = current (indicated) annual dividend rate

$P_0$  = current market price of stock

$g$  = dividend growth rate (annual rate).

This effective rate includes the return which investors have the opportunity to obtain on their own by reinvesting the quarterly dividends in the same or another investment yielding the same effective rate.<sup>2</sup>

The term:

$$\frac{D_0}{4P_0} \{[(1+k_e)^{-75} + (1+k_e)^{-5} + (1+g)(1+k_e)^{-25} + (1+g)]\}$$

represents the return earned from the dividends received during the year and the income earned by reinvesting the dividends during the course of the year.

The term:

$$\frac{D_0}{4P_0} \{[(1+k_e)^{-75} - 1] + [(1+k_e)^{-5} - 1] + (1+g)[(1+k_e)^{-25} - 1]\}$$

represents the return earned on dividend reinvestment income alone.

When the dividend reinvestment income is subtracted from the 442 Effective Rate Model, the result is the 420 Model:

$$k_{420} = k_e - \frac{D_0}{4P_0} \{[(1+k_e)^{-75} - 1] + [(1+k_e)^{-5} - 1] + (1+g)[(1+k_e)^{-25} - 1]\}$$

$$= \frac{D_0}{4P} [1 + 1 + (1+g) + (1+g)] + g = \frac{D_0}{4P} [4 + 2g] + g$$

Dividing through by 4,

$$k_{420} = \frac{D_0}{P_0} (1 + .5g) + g$$

where

$k_{420}$  = Market required rate of return less the return from reinvestment of dividends. All other definitions are the same.

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<sup>1</sup> The derivation of this model from the general form of the discounted cash flow model may be found in Appendix A of Order No. 442.

<sup>2</sup> Order No. 442, P. 24.