# Application of claw-back

## A report for Vector

**Dr. Tom Hird**
**Daniel Young**

**June 2012**

# Table of Contents

# 1. Introduction

1. Due to a High Court decision on 26 September 2011, the Commerce Commission's timetable for the implementation of its starting price adjustments (SPA) for electricity distribution services has been delayed.

2. The Commission's previous modelling of starting prices was based around new prices set under the IMs from 1 April 2012. However, prices for the year starting 1 April 2012 have now been set equal in real terms to previous prices for the 2012/13 year. It is therefore likely that the new prices to be applied by a SPA will only begin to be applied from 1 April 2013.

3. In the intervening period, the revenues that Vector and other EDBs earn between 1 April 2012 and 31 March 2013 will give rise to either over-recovery or a shortfall relative to the revenues that would have been allowed to it under a SPA. Under the Commerce Act, there is the prospect that once the Commission has finalised the prices under the IMs, it will seek to "claw back" some or all of this difference in the new prices and/or future prices that it sets for Vector and other EDBs.

4. Vector has asked CEG to develop a model of claw-back in order to identify the issues that are likely to be material to determining the effect that claw-back will have on starting prices and the path of future prices.

5. This brief report is structured as follows:

   - section 2 addresses the issue of how the claw-back amount should be determined; and
   - section 3 considers how this claw-back amount should be recovered in prices.

## 2. How to determine the claw-back amount

6. We consider that the principled way to approach the calculation of the claw-back amount is to calculate the amount by which Vector benefits (or loses) purely as a result of its actual pricing of regulated electricity distribution services in 2012-13 differing from the pricing that would have been imposed by the Commission under a SPA adjustment on 1 April 2012.

7. Under this approach, the amount to be 'clawed back' would be equal to

$$[\widetilde{P_A} - \widetilde{P_{SPA}}] \times \widetilde{V_A} - [(costs\ that\ were\ higher\ (lower)\ because\ P_A \neq P_{SPA}]\ ;\ \text{- (Eqn 1)}$$

where

- $\widetilde{P_A}$ is the vector of actual prices in 2012/13;
- $\widetilde{P_{SPA}}$ is the vector of prices that would have been set if the SPA was applied in 2012/13; and
- $\widetilde{V_A}$ is the vector of actual volumes in 2012/13.

8. In considering the prices that Vector charges in 2012-13 against the prices permitted by the Commission's methodology, it is relevant to consider what base of volumes this difference is to be applied over to estimate the claw-back amount

9. This is important because Vector's price path has been derived within the Commission's model based on a projected allowed revenue path. If actual volumes deviate from the projected volume growth used to derive prices, then the revenue that Vector can earn from its price path will change commensurately. In our view, the entirety of this change cannot be described as "over-recovery" or a "short-fall". However, the component that is due to prices being above/below SPA levels multiplied by the variation in volumes from predicted levels can be described as "over-recovery" or "short-fall" – because this impact of variations in volumes would not have occurred if prices were equal to SPA levels.

10. By contrast, alternative approaches to determining the amount to be clawed back might potentially involve:

    i. Only the revenue part of equation 1 ($[\widetilde{P_A} - \widetilde{P_{SPA}}] \times \widetilde{V_A}$) but not the cost component (noting that the cost component will likely be restricted to tax costs);

    ii. As per equation 1 but using predicted volumes instead of actual volumes. This would mean that any benefit/loss as a result of both $P_A \neq P_{SPA}$ and volumes being different to predicted would not be clawed back;

    iii. As per i) above but using predicted volumes instead of actual volumes.

    iv. The difference between actual revenues in 2012/13 and predicted revenues in 2012/13. Compared to equation 1 (and options i) to ii) above) this would claw

back all deviations of actual from predicted revenues not just those that were due to prices not equalling $\widetilde{P_{SPA}}$;

v. The difference between actual profits in 2012/13 and predicted profits in 2012/13 (i.e. as per iv) above but taking into account changes in costs as well as changes in revenues);

11. We prefer the approach in equation 1 to the other approaches suggested for the following reasons (the Roman numeral numbering here follows the Roman numeral numbering above).

i. Compared to equation 1), option i) will tend to over-estimate the benefit (loss) as a result of excess (deficient) revenues because it fails to recognise that there will be associated higher (lower) tax costs that flow automatically as a result of this. To the extent that option i) was adopted the approach to recovering the claw back amount would also need to ignore tax benefits/losses that result from lower/higher revenues;

ii. Compared to equation 1), option ii) will fail to capture any benefits as a result of 'above SPA' prices being applied to volumes that are above the level predicted in the Commission's model. Similarly, it will overestimate the benefits of 'above SPA' prices if actual volumes are lower than assumed in the regulatory model. (The opposite is true if prices are 'too low';

iii. Compared to equation 1), option iii) will fail to claw back benefits/losses that result from above/below SPA prices being applied to volumes that differ from SPA volumes. It would also fail to capture the fact that profits may vary less than revenues;

iv. Compared to equation 1), option iv) will in effect reopen the regulatory decision not just to adjust for prices differing from SPA prices but also for volumes differing from SPA volumes. This would remove volume risk (and volume incentives) from 2012/13;

v. Compared to equation 1), option v) will in effect reopen the regulatory decision entirely. This would, remove volume and cost risk (and volume/cost incentives) from 2012/13;

12. However, our proposed approach is not necessarily suggested by the legislation allowing for the claw-back. Section 52D(1) of the Commerce Act 1986, which states:

> *A reference to the Commission applying claw-back is a reference to the Commission doing either of the following:*
>
> *(a) requiring a supplier to lower its prices on a temporary basis in order to compensate consumers for some or all of any over-recovery that occurred under the prices previously charged by the supplier:*
>
> *(b) allowing a supplier to recover some or all of any shortfall in its revenues that occurred under the prices previously charged by the supplier.*

13. The reference at 52D(1)(b) to "any shortfall in its revenues" could be argued to suggest that the legislation may have intended that Vector or other regulated businesses should only recover/disgorge differences in revenues without considering differences in costs.

14. Although this interpretation appears to be inconsistent with the general principle stated above guiding the calculation of the claw-back amount, it may in fact be consistent with a more limited application of the principle - specifically, the revenue only definitions of 'claw back' in options i) and iii).

### 2.1. Allowance for lower amount of claw-back

15. Section 52D of the Commerce Act 1986 allows for the possibility that "some or all" of the over-recovery or shortfall (as the case may be) would not be recovered in a claw-back. There are reasons why it might be desirable that a sum less than the total claw-back amount be recovered.

16. We note that these reasons are similar to those that the Commission considered in deciding not applying a clawback for the 2010/11 and 2011/12 years when setting prices for 1 April 2012. We incorporate a percentage claw back factor that can be applied to alter the percentage actually clawed back.

### 2.2. How to measure present value

17. There is a question about what is the appropriate discount rate to use in determining how new and future prices should change in order to recover a shortfall or disgorge an over-recovery that has been made in the past?

18. It can be argued that shortfalls or over-recoveries that have been made in the past are known quantities with no uncertainty associated with them. If accepted, these should be expressed in present value terms today using the risk-free rate as the appropriate discount rate.

19. Consequently, it may be argued that over-recovery earned in the middle of 2012/13 should be carried forward at the risk free rate to the year in which it is subsequently to be disgorged.

20. Alternatively, it may be argued that cashflows which are modelled as part of the recovery of this shortfall (or disgorgement of an over-recovery), to the extent that these form part of Vector's general revenue, are subject to the same risks as Vector's ordinary business and should be discounted back to the present time at Vector's regulated WACC of 8.77%.

21. We therefore incorporate the option for the discount rate used to carry forward the benefit/loss to be different to the regulatory WACC.

## 2.3. Taxation

22. Taxation is an important issue to consider in the context of estimating and recovering a claw-back amount.

23. As already alluded to, higher revenues as a result of price being above SPA levels will automatically result in higher taxable profits and tax costs. This will reduce the net benefit to Vector. However, the same is true when it comes to disgorgement of that over-recovery. This would involve reductions in Vector's future projected allowed revenues and therefore future permitted prices. Assuming no change to other costs, this will involve lower profitability and therefore a saving on future tax costs

24. Therefore, to the extent that Vector's profitability may have been enhanced by its over-recovery, leading to higher taxes, this is reversed upon recovery (although whether it is reversed in a present value neutral manner depends on how the disgorgement is implemented).

## 2.4. Claw-back amount

25. Based on the above considerations, we can calculate up to eight different candidates for the claw-back amount using the model provided with this report. These are set out in Table 1 below. Each of these candidates assumes 100% of the assumed over-recovery is reflected in the claw-back amount.

**Table 1: Calculated claw-back amount, $ million (as at beginning of 2013/14)**

| | Carry forward at WACC | Carry forward at risk-free rate |
|---|---|---|
| Projected volumes | | |
| Account for tax costs | 27.96 | 27.52 |
| Ignore tax costs | 38.84 | 38.22 |
| Actual volumes | | |
| Account for tax costs | 28.72 | 28.26 |
| Ignore tax costs | 39.89 | 39.25 |

*Notes: Risk-free rate assumed to be 5.31%, consistent with the calculation of a WACC of 8.77%. Projected volumes taken from Commerce Commission modelling 7,594.23 GWh. 'Actual' volumes are assumed to be 7,800.00 GWh for the purpose of demonstrating calculation.*

26. As indicated by the estimated in Table 1 above, consideration of tax costs is the single most important issue affecting the calculation of the claw-back amount. Variations from projected volumes have a proportional effect on the claw-back amount, assuming actual volumes are used, and the use of the risk-free rate has a relatively small (although not insignificant) effect as only half a year carry-forward is applied.

27. In the following section, we discuss how recovery of the claw-back amount can be modelled and estimated.

# 3. Recovering the claw-back amount

28. We have implemented a general approach to disgorging/recovering the amount to be clawed back. To allow the maximum amount of generality in this calculation we have implemented it outside the Commission's regulatory model. However, we also show that a limited form of this recovery profile can be implemented using the Commission's model.

29. We also describe how the outputs of the model must be considered in deriving changes to prices where there are multiple services.

## 3.1. Duration of claw-back period

30. Once a claw-back amount has been determined under an approach set out in section 2, it is relevant to next consider:

- what time period the claw-back amount is to be recovered over; and
- how the recovery profile over that period is to be determined.

31. These considerations are not arbitrary. The claw-back amounts calculated in section 2 are significant, amounting to between 6% and 10% of Vector's projected allowed revenue in 2013/14 under the SPA, after pass-through and recoverable costs. Section 52D(1) and 52D(2) of the Commerce Act 1986 require the Commission, in applying claw-back to consider that:

> *(1) If the Commission requires a supplier to lower its prices, it must also require that the lowering of prices must be spread over time in order to minimise undue financial hardship to the supplier.*
>
> *(2) If the Commission allows a supplier to recover any shortfall, it must require that any recovery must be spread over time in order to minimise price shocks to consumers.*

32. Consequently, a time period and profile that spreads the recovery so as to minimise shocks is appropriate and required by the Act. We consider that this indicates a period of at least four years is required (and longer if the claw-back amount is at the top end of the range) so that the annual effect of the claw-back is less than 2%. The exact effect of the recovery period on the claw-back in 2013-14 and 2014-15 is discussed further below.

## 3.2. Assessing actual volumes

33. The calculation of the claw-back amounts at Table 1 above is simplified by the assumption that, when using actual volumes in the calculation, one would know these for 2012/13 immediately at the end of that financial year. In fact, we understand that the actual volumes for 2012/13 are unlikely to be known until November 2013, and

hence these cannot be fully utilised in determining the recovery of the claw-back amount in 2013/14.

34. We note that an improved estimate of the actual volumes during 2012/13 could in principle be obtainable directly at the end of the financial year, and that this would represent an improved estimate compared to using the projected volumes estimates within the SPA with no adjustment. We have modelled two ways in which this information could be used:

    i. A recovery amount is determined for 2013/14 based on the updated estimate of actuals. In November 2013, when full actuals are known, a "make-up" amount is calculated that takes into account the difference between forecasts and actuals during 2012/13, and this is added to the amount to be recovered in future years.

    ii. Alternatively, this difference between actual and the update estimate of volumes could be ignored, on the basis that it is "second order" (since it involves making up a difference in volumes multiplied by a difference in prices, a number that is likely to be relatively small).

35. Our preference is for the first option, since it results in the most accurate calculation and application of the claw-back amount. We note that the required correction may be in the order of hundreds of thousands of dollars, depending upon the extent to which the updated forecast of actual volumes is incorrect. On this basis, we do not consider that the issue is too trivial to ignore.

36. We expect that assessment of volumes would be required on at least two occasions:

    - in November 2012, to set prices in 2013/14; and
    - in November 2013, to set prices in 2014/15 taking into account "make-up" due to volumes varying from the updated forecast in 2012/13.

### 3.3. Revenue recovery by tilted annuity

37. It may also be important to consider the profile of recovery of the claw-back amount over time. We consider that four options present themselves as natural alternatives:

    i. a constant real claw-back amount per unit volume per year;

    ii. a constant nominal claw-back amount per unit volume per year;

    iii. a constant real claw-back amount per year; and

    iv. a constant nominal claw-back amount per year.

38. The first option represents the same option as chosen by the Commission for the recovery of present value costs in its model. Implementing the recovery of the claw-back amount within the Commission's model effectively constrains one to accept this methodology, unless more significant changes are made. We show in the model

provided how the Commission's model can be adjusted to model claw-back in this way.

39. This is also the most back-loaded method of recovering the claw-back amount. The other three alternatives offer increasingly front-loaded recovery in terms of real prices. Under each alternative, the recovery per year can be calculated from the claw-back amount using the formula for a tilted annuity:

$$P_t = A\frac{(r-\alpha)(1+\alpha)^{t-1}}{1-\left(\frac{1+r}{1+\alpha}\right)^n}$$

where: $P_t$ is the recovery payment at time *t*, *A* is the claw-back amount, *r* is the WACC and $\alpha$ is the annual percentage increase in payments required.

### 3.4. Implementing claw-back in the Commission's model

40. Our model of claw-back is highly flexible and capable of accepting a number of different assumptions about volumes, tax treatment, percentage recovery, "make-up" amounts, the recovery profile and the discount rate.

41. The task required to alter the Commission's model to be capable of accepting all these inputs is beyond the scope of this report, and is not required in order to calculate what the claw-back amount is and how it should be recovered. However, we note that the Commission's model can be used to estimate claw-back recovery, assuming:

- a recovery profile of two years;
- accounting for changes in tax as a result of any over- or under-recovery;
- utilising SPA forecast volumes;
- adopting a recovery modelled as a constant real claw-back amount per unit volume per year; and
- utilising the Commission's WACC as the discount rate.

42. Under these specific assumptions, the Commission's model is capable of estimating claw-back recovery with only minor amendments. We have made these changes and commented them in the worksheet tab "EDB25 (amended)" in the model provided. The results from the Commission's model and our model coincide under these assumptions.

### 3.5. Claw-back beyond the Commission's model

43. We note that we do not have projections of volumes, costs or allowed revenues beyond 2014-15. However, as described above it seems appropriate that the claw-back period would be longer than just the remaining two years of the regulatory period.

44. Where the recovery period is more than two years, we have isolated the recovery required in the first two years and used these to calculate price changes required in 2013/14 and 2014/15. The unrecovered amount is also calculated in present value terms as at the start of 2013/14 and is another output of the model. This amount will need to be recovered in a future regulatory period.

### 3.6. Claw-back cashflows

45. In Table 2 and Table 3 below we show the results of two representative scenarios for claw-back amount on Vector's projected allowed revenues in 2013/14 and 2014/15 and on its allowed prices in these years under a range of recovery profiles and periods. The recovery profiles are enumerated consistent with their ordering at paragraph 37 above.

**Table 2: Effect of alternative recovery of $27 million on notional revenues and prices in 2013/14 and 2014/15**

| Recovery scenario | Change in revenue 2013/14 | % change | Change in revenue 2014/15 | % change |
|---|---|---|---|---|
| 2 years | | | | |
| i. | -$14.30m | -3.49% | -$15.07m | -3.49% |
| ii. | -$14.47m | -3.53% | -$14.89m | -3.45% |
| iii. | -$14.50m | -3.54% | -$14.86m | -3.44% |
| iv. | -$14.67m | -3.58% | -$14.67m | -3.40% |
| 4 years | | | | |
| i. | -$7.38m | -1.77% | -$7.77m | -1.77% |
| ii. | -$7.64m | -1.83% | -$7.86m | -1.79% |
| iii. | -$7.69m | -1.84% | -$7.87m | -1.79% |
| iv. | -$7.95m | -1.91% | -$7.95m | -1.81% |

*Source: CEG analysis*

**Table 3: Effect of alternative recovery of $39 million on notional revenues and prices in 2013/14 and 2014/15**

| Recovery scenario | Change in revenue 2013/14 | % change | Change in revenue 2014/15 | % change |
|---|---|---|---|---|
| 2 years | | | | |
| i. | -$20.66m | -5.12% | -$21.77m | -5.12% |
| ii. | -$20.90m | -5.18% | -$21.50m | -5.06% |
| iii. | -$20.95m | -5.19% | -$21.46m | -5.05% |
| iv. | -$21.19m | -5.25% | -$21.19m | -4.98% |
| 4 years | | | | |
| i. | -$10.66m | -2.58% | -$11.23m | -2.58% |
| ii. | -$11.03m | -2.67% | -$11.35m | -2.61% |
| iii. | -$11.10m | -2.69% | -$11.37m | -2.61% |
| iv. | -$11.48m | -2.78% | -$11.48m | -2.64% |

*Source: CEG analysis*

46. These results indicate that if the claw-back amount were as high as $39 million (which as per Table 1 would be consistent with an unprincipled position of ignoring tax costs) then recovery would potentially need to be over a period of even more than 4 years to avoid shocks. A period of 5 or 6 years might be appropriate in this case.

### 3.7. Price changes with multiple services

47. The model provided with this report shows how the claw-back amount can be calculated and how a recovery profile can be fitted across the remaining two years of the regulatory period with a balance to be recovered in future regulatory periods. Table 2 and Table 3 above show this effect in terms of changes in notional revenues.

48. When there is just one service to recover notional revenue from, then the notional price can be easily observed as revenue divided by volume, and percentage changes to that price required by claw-back are identical to the required percentage changes in revenue. This is also the weighted average change in prices required across multiple services.

49. However, where there is more than one service, and regulation does not direct a particular allocation of recovery across these services, then setting notional revenue does not give rise to a unique set of notional prices or price changes. That is, given a vector of volumes, there are many different sets of prices that could return the maximum allowable revenue. It is also the case that for a given claw-back amount, there will be many ways of changing these unobserved prices in order to recover/disgorge the required amount.

50. Recognising this uncertainty, we consider that there are broadly two methods by which prices can be adjusted to recover/disgorge the claw-back amount:

a. Require Vector to adjust each of its prices by the same average percentage change, such that its expected revenue at input methodology projected volumes is consistent with the revised maximum allowed revenue.

b. Allow Vector to adjust its prices so that the average price change is consistent with the required percentage change in maximum notional revenue, where prices are weighted by:

   i. input methodology volume projections; or

   ii. revised projected volumes (as per the discussion in section 3.2).

51. Under the first option, Vector is required to change all of its prices by the same proportion from the price charged during 2012-13. This is potentially a very heavy-handed approach to determining prices, which places very high weight on the likelihood of and consequence of the network operator assigning the greatest increases to those services that are growing more quickly than forecast.

52. The second pair of options allows Vector to choose its own price increases subject to its overall revenue cap. An option that minimises the types of issues addressed by the less flexible formulation in the first option is to use a more up to date forecast of volumes in weighting Vector's price changes by minimising the gap between forecasts and actuals. This option would better meet the purpose of the low-cost DPP.