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Our Reference: UE SU 01

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Dear Chris

Proposed service target incentive scheme – February 2009

Any service target performance incentive scheme (STPIS) should be simple, drive the correct outcomes and not place too great a burden on either the customer or company. The Australian Energy Regulator (AER) has proposed a number of changes that it says

> removes potentially unintended consequences and to improve transparency in the operation of the scheme

This response largely agrees that the AER has made the scheme simpler and more transparent. However UED believes that some changes unfairly penalise first movers that have already significantly improved performance and will now be penalised at higher rates if performance deteriorates – even if that deterioration is due to normal weather fluctuations. The capping assists in easing the level of risk however the cap remains too high for those businesses whose performance is more likely to deteriorate rather than improve.

UED believes that there remain a number of formulation errors in the proposed changes. These have been identified in this response. Detailed comments are provided below.

1. Performance incentive scheme parameters

The AER has proposed to define the following reliability of supply parameters:

- Unplanned SAIDI
- Unplanned SAIFI
- MAIFI

UED supports the application of these parameters in the operation of the scheme. These indicators are well known by the businesses. Projects to improve reliability can be directly targeted and measured against these parameters.

2. Performance targets

The AER has proposed that the scheme:

- be based on measuring actual performance against target; and
- set targets based on the previous 5 years of historic data (adjusted for any reliability programs funded in the capital allowances).

UED has long advocated that that any incentive scheme be based on the measurement of actual performance against a set target. The current Victorian scheme fails in this regard by setting targets based on the prior year actual results.

The VCR rates places a monetary value on better performance. More specifically, the VCR places a value on each unit of energy that the DNSP fails to deliver as a result of network outages. Thus, at any point of time, consumers value all "unserved energy" at VCR, regardless of the level of reliability performance achieved by the DNSP in the previous year. In other words the VCR measures the value of reliability in absolute terms with the intent to provide DNSP's with an incentive to improve performance, based in VCR.

Settings targets is consistent with the building block component of other components of the incentive regime whereby incentives (and penalties) are provided for differences between actual expenditure against allowed expenditure.

A target-based scheme is considerably easier and less complex to administer, since it requires potentially less subjectivity in defining the relevant performance bands.

UED believes that targets should be based on 10 years of historic data (where 10 years of historic data is available) rather than 5. Although UED's modelling indicates that UED is neutral i.e. targets set using 5 year historic data would be the same targets as those set using 10 year historic data the fundamental decision framework to invest in capital intensive assets is over 30 years.

Distribution networks are long lived assets whose performance should be measured over a longer term rather than periods of 5 years because it coincides with regulatory reviews. The full potential of any improvement works can take over 5 years and will span multiple regulatory periods. Setting targets based on the driver of an improvement rather than a regulatory period is consistent with aim of the improvements work.

3. Incentive Caps

UED believes it is appropriate to set a cap (and floor) on any incentive scheme. UED's average performance level increased significantly up to 2003, however since that time reliability improvements have been more difficult to achieve. UED believes that its current level of performance has begun to plateau and without a significant change of approach such as significant investment in undergrounding in targeted areas, further material improvement in reliability levels is unlikely.

UED would argue that given the marginal cost to achieve further improvements the incentive to improve should be higher than the penalty. The improvements made to date have been funded either at current incentive rates or older s factor rates – rates that are significantly lower than

those proposed by the AER. Given that UED believes that there is minimal likelihood of significant improvements without significant investment, the scheme has the potential to become asymmetric over time. UED's performance is subjected to weather events (that may not be excluded) that have the potential to put UED's overall revenue at risk.

The AER has proposed a cap of +/-5 per cent of revenue (previously 3 per cent). This equates to approximately $15m pa of revenue at risk in any one year. This is a significant penalty (or reward) that may impact on business operations in the event of a penalty. The AER must be mindful that one its objectives is to ensure the financial viability of the businesses. A scheme that puts 5 per cent of revenues at risk places an increased risk of cash flow pressures. The AER has not demonstrated why a change from a 3 per cent cap is warranted. UED understands that the current formulation is incorrect (and that requires fixing) however the intent was to place a cap of 3 per cent rather than change the inputs in the formula to 5 per cent.

4. Incentive rates

The AER proposes to apply an incentive rate that is based on the value that customers place on supply reliability - referred to as 'value of customer reliability' (VCR). UED agrees that this method is appropriate.

UED has a residual concern that the current VCR rate is high, however combined with a cap, and the ability to propose an amendment to the rate in accordance with clause 2.2 of the scheme, UED accepts the rate at this stage of the consultation process.

5. Exclusions

UED has previously advocated for exclusion events to be statistically based. The current ESC scheme and the proposed AER both exclude vents based on statistical parameters – specifically IEEE standard 1366 (2003). UED welcomes this approach to exclusion based events and welcomes the AER's clarification that the scheme will exclude the entire duration of those outages originating within the midnight to midnight period of a major event day.

6. Removal of t-6

UED is pleased to see the removal of the t-6 component of the s-factor formula. It is complicated and has an effect on revenues some 8 years after the actual event. The scheme as proposed ensures that payment/receipt of the penalty/reward is as close as possible, in time, to the performance being measured. This creates clear and immediate linkage between actual performance and financial outcomes, thereby strengthening incentives for good performance and avoiding the potential for 8 years of lag that exists under the current ESC scheme.

Victorian businesses have been required to calculated s-factor calculation since 2001. Accordingly t-6 calculations will have an effect to 2018 (for 2010 performance). Rather than continue with the t-6 calculation for that period of time UED proposes that when calculating revenues for the 2011 – 2016 period the tariff formula should include a once of payment (to either the business or customers) for the NPV effect of the t-6 formulation under the current regulatory regime at the time of the price reset.

7. Customer Service Component

The Customer Service Component of the AER's proposed STPIS program is not materially different to the current scheme operating in Victoria. The current scheme works well and UED therefore has no comments to make on the AER's proposed changes.

8. Concluding comments

UED believes that overall the AER's proposed changes will improve the scheme. There are a number of transitional issues that the AER needs to correct and the simplest way would be to close the current ESC scheme and construct the formulas so that the two schemes do not interact with each other.

Refer the appendix below for further suggestions regarding the formulations.

Appendix – Formulation suggestions

The s factor, on the surface is a simple scheme whereby businesses are rewarded or penalised based on performance compared to target. The formulations, however can be complicated and do not always calculate in accordance with the intent. Part of the difficulty in the past has been the value of the reward/penalty from a dollar figure to a percentage change in prices.

This part of the response provides comments regarding the s factor formulation

a. Reward/penalty scaling

UED is pleased to see the correction in the formula whereby the value of the rewards/penalty was different in the second year. In other words a penalty of say a 1 per cent in year one would never be the same amount in the following year if performance returned to the same level. The AER has corrected this anomaly by multiplying by (1+S'0 in year one and dividing by the same term in the following year.

b. X(0) formulation

The treatment of S-factors at the transition between control periods: i.e. where base revenue has been adjusted by a factor X0 is not entirely clear.

S-factor Formulation

The formulation proposed by the AER takes the form:

$$AR_{t+1} = AR_t * (1-X_{t+1}) * (1+S_t)$$

For ease of exposition, UED have ignored CPI (so everything is in real terms). It can also be assumed (without affecting the results for the purposes of this issue) that X is zero, so the formulation becomes:

$$AR_{t+1} = AR_t * (1+S_t) \quad (1)$$

Now:

$$S_t = (1+S'_t)/(1+S'_{t-1}) -1 \quad (2)$$

Again, for simplicity, UED assumes that there is only a single performance measure, and so[1]

$$S'_t = ir_t * GAP_{t-1} \quad (3)$$

Where GAP is the difference between target and actual.

[1] This equation (3) is based on equation (5A) in the AER proposal (P32). But in equation 5A, the incentive rate (ir) in fact has no t index, so it is not at all clear which incentive rates should be used. UED have assumed that this is an oversight and that the intention is that the incentive rate from the current year t (or, more exactly, the incentive rate for the control period in which year t falls) should be applied.

To illustrate the outcomes numerically UED has some simplified numbers:

ir_t = 1% for the current control period: ie for t=1 to 5
AR_t = \$100m for the current control period: ie for t=1 to 5

A GAP of 1 in year 2 (say) then gives S'_3=1% and so (assuming that this is the first time GAP<>0), S_3=1%. This leads to a revenue increase (an S-factor reward) of \$1m (1% of \$100m) in year 4, which is consistent with the intention of the incentive rate setting

Control Period Transition

The above example operates in the middle of a control period. But consider how it would operate if the GAP was in year 4. Then S_5 is 1% but this is applied to AR_6, which is in the next control period. Assume that, over the transition X_0 was 10%. This means that AR_6 will be \$90m. Applying S_5 (1%) to revenue of \$90m gives a reward \$0.9m, which is lower than it should have been.

The problem is that there is an inconsistency between the incentive rates for the last control period (based on assumed revenue of \$100m) and the current revenue. To correct for this, the S-factor for the *last year* of the control period (i.e. S_5) needs to be adjusted upwards by X_0, replacing equation (3) with the formula

$$S'_t = ir_t/(1-X_0) * GAP_{t-1} \qquad (4)$$

So, in the example above, S_5 would be calculated as 1.1% instead of 1%, and when this factor is applied to the AR_6=\$90m revenue a (correct) reward of \$1m is calculated.

If there are no further "GAPs" in performance (so year 5 was a one-off) then, in year 6, S'_5 will appear in the denominator of equation (2), leading S_6 to equal minus 1.1% so that revenue in year 7 returns (correctly) to the base level of \$90m

New Control Period
The previous example considers a "delta" performance in year 4 (i.e. GAP is zero in every year except for year 4, when it is 1). Now we will consider a delta performance in year 5.

Now we have:

$$S'_6 = ir_6 * GAP_5$$

Because year 6 is in the new control period, the incentive rate ir_6 will be adjusted. Other things being equal, the formulae for the incentive rates will cause them to increase by a factor of X_0. So, since ir_5=1%, then ir_6=1.1% and so S'_6=1.1%. When applied to the revenue AR_7 (\$90m), this gives the correct reward of \$1m. (Note that incentive rates formulae are designed to give a consistent (real) monetary reward for a given performance).

So, in this case, we do *not* need to adjust the S'_6 by $(1-X_0)$ and so equation (3) applies rather than equation (4)

In general, an adjustment to S'_t (using equation 4) is only required when the relevant incentive rate (ir_t) and revenue level (AR_{t+1}) fall in different control periods. This will occur when t=5, 10, 15…etc

How the AER Proposes to deal the X0 Problem

In its scheme proposal (P33-34), the AER states:

> "To account for any step change in the revenue (or prices) from one *regulatory control period* to the next, the 'raw' *s-factor* which is calculated for the last and second last *regulatory years* of the *regulatory control period* and which is applied in the first and second *regulatory years* of the next *regulatory control period* is:
>
> $S'''_t = S'_t/(1-X_0)$ (5)
>
> In this instance, the value of S'''_t is used in equation [2] in place of S'_t , for the purposes of calculating the s-factor for the second last and the last *regulatory year* of the current *regulatory control period* and the first year of the next *regulatory control period*."

What exactly does this mean? The first paragraph implies that S'_t should be adjusted for years t=4,5,9,10,14,15…etc ("the last and second last years…") . The first paragraph also implies that these adjusted S''' values should be used when calculating S_t for t=6,7,11,12,16,17…etc. ("the first and second years…") Yet the second paragraph implies that the adjusted S''' values should be used when calculating S_t for t=4,5,6,9,10,11,15,16,17…etc (the "second last…last…and first year…")

In fact, either interpretation will give the wrong result. As shown in the previous section, S'_t only needs to be adjusted for t=5,10,15…etc. This adjusted value will be used (in the numerator) for calculating S_t in t=5,10,15… and (in the denominator) for calculating S_t in t=6,11,16…

A Simpler Correction

The X_0 problem arises because equations (1) and (3) mean that there is potentially a mismatch between the incentive rate and the revenue. This could easily be corrected by changing these equations as follows:

$AR_t = AR_{t-1} * (1+S_t)$ (1A)

$S'_t = ir_t * GAP_{t-2}$ (3A)

So a delta performance in year 4 creates an S' factor in year 6 which is calculated using year 6 (i.e. X0-corrected) incentive rates. This will give the correct reward. Indeed, the reward will be correctly calculated in every year because the relevant revenue and incentive factors are always drawn from the same year and hence the same control period.

AER Spreadsheet

The AER spreadsheet model does not follow the AER formulation but does something quite different. It calculates the S'_t based on performance in year **t** (eg row 28): i.e.

$S'_t = ir_t * GAP_t$ (3B)

It then applies a two-year lag (row 72) to the calculation of the S factors (row 73): i.e.

$S_t = (1+S'_{t-2})/(1+S'_{t-3}) -1$ (2B)

And applies the current year S to revenue (row 77): i.e.

$AR_t = AR_{t-1} * (1+S_t)$ (1B)

Because of the two-year lag there is now a *two*-year X_0 problem. S'_4 and S'_5 are each calculated using "old" incentive rates and then applied to the "new" revenue level for AR_6 and AR_7. So, S'_t now needs to be adjusted by X_0 for years t = 4, 5 , 9, 10, 14, 15…etc. The AER model does this correctly (e.g. cells I72, J72).

So, in this respect, the AER model gives the correct outcomes, although it is quite inconsistent with the AER formulation.

Conclusion

The AER has appears to have changed the convention for S_t: where previously (in the ESC scheme) it applied to revenue in year t, it now applies to revenue in year t+1. The AER appears to have realised the "X_0 problem" that this causes, but does not seem to have properly corrected it. The appropriate correction is either to modify S'_t by X_0 for the last year of each control period or (preferably) to change the convention for S_t back to what it was in the current ESC scheme.

c. Incorrect interest on banking

The AER correctly notes that the current scheme does not work correctly when calculating interest on banking amounts, however appears to has not corrected in correctly. The banking repayment should be equal to (1+WACC+X)"$Sbank_{t-1}$. This would give the correct interest rate of WACC +X-X = WACC.