ElectraNet Transmission Network Revised Revenue Proposal

Appendix K PWC, *Operating expenditure efficiency assumption and the efficiency benefit sharing scheme*, 16 January 2013

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16 January 2013

Dear Rainer,

Operating expenditure efficiency assumption and the efficiency benefit sharing scheme

1. Introduction and summary of conclusions

Scope of advice

In the Australian Energy Regulator's (AER) Draft Decision on the regulatory allowance for operating expenditure for ElectraNet, the AER has applied an "efficiency factor" of 2.5 per cent to the base year level of expenditure as part of its calculation of this allowance. The AER's reasons for applying this factor appeared to stem from either or both:

- efficiency gains being observed or expected in the period after the base year (i.e., in years 4 and 5 in the case of ElectraNet), and
- the extent or rate of efficiency improvements achieved in the current regulatory period, which includes the achievements made prior to the base year.

I have been asked by ElectraNet to advise as to whether applying such a factor on the basis of these reasons would be consistent with the incentive framework for operating expenditure that applies to ElectraNet.

Summary of conclusions

I note that a key question raised by the AER's Draft Decision is how the AER should derive the trajectory or trend in operating expenditure after the base year (which, for ElectraNet, has been agreed to be year 3 of the current regulatory period). While I note that a number of matters may be relevant to the derivation of this trend or trajectory (such as input price changes and expected volumes of work), there are at least two potential sources of evidence for this trend or trajectory that should not be used to inform that trend or trajectory, because to do so would not be consistent with the incentive framework for operating expenditure. The two factors that should not be used to inform the assumed trend or trajectory are:

- efficiency gains relative to the original regulatory allowance that are observed or expected in the period after the base year (i.e., in years 4 and 5 in the case of ElectraNet), and
- the extent or rate of efficiency improvements achieved prior to the base year (noting, for the avoidance of doubt, that the combined effect of past achievements will be factored into the

starting point for the allowance already, what is at issue is the subsequent trend or trajectory in that allowance).

I note for completeness that this letter is limited to addressing these matters at an 'in principle' level. While this letter assumes that the AER may have done one or both of the practices described above when reaching the conclusions in its draft decision (which gives relevance to the discussion), the factual questions of how the AER has reached its conclusions in the draft decisions and the related question of the correctness of the facts underpinning these conclusions are not addressed.

2. Intention of the incentive framework for operating expenditure

I use the term "incentive framework for operating expenditure" to refer to the arrangements that are in place to encourage a TNSP to minimise its operating expenditure. The key components of this framework are, in broad terms, that:

- a regulatory allowance for operating expenditure is determined for a regulatory control period
- during a regulatory control period, revenues are held fixed, and so a TNSP will earn higher profit if it is able to spend less operating expenditure than otherwise
- the revenue cap is reviewed every five years, which requires (amongst other things) a new regulatory allowance for operating expenditure, which is informed (amongst other things) by the TNSP's cost performance in the last regulatory control period, and
- some of the benefit that the TNSP was earning from expenditure reducing initiatives in the last regulatory control period may be carried over into the following period, with this mechanism referred to as the efficiency benefit sharing scheme (EBSS).

The objective of the incentive framework for operating expenditure is that a TNSP should be permitted to retain the benefit from an incremental reduction in annual operating expenditure for five years after the year in which the initiative was carried out. Given the time constraints on the preparation of this latter, I have therefore not sought to elaborate or justify this objective further, but have taken it as given.

In the discussion below, I note that there are three separate decisions that can be distinguished that affect the benefit that is retained from an incremental reduction in operating expenditure, which are:

- how the starting point for the new regulatory allowance for operating expenditure is arrived at
- how the trend for operating expenditure (i.e., the trajectory in expenditure after the starting point) is determined, and
- the method that is used to calculate the EBSS.

Figure 1 sets out, as a base case, a model that is based upon the AER's general method for deriving the new operating expenditure allowance and the EBSS, which is then adjusted in the following sections to illustrate the two matters being addressed in this letter. This example is highly stylised as complexity is introduced only where it is relevant to the matters being analysed.

Figure 1: Base case (year 1 gain)

		Current regulatory period					Next regulatory period				
		1	2	3	4	5	6	7	8	9	10
[1]	Regulatory allowance	100	100	100	100	100	95	95	95	95	95
[2]	Actual opex	95	95	95	95	95	95	95	95	95	95
[3]	Opex used in EBSS	95	95	95	95	95					
[4]	*Underspend*	5	5	5	5	5					
[5]	*Incremental gain*	5	0	0	0	0					
[6]	*EBSS yr 1*	5	5	5	5	5	5				
[7]	*EBSS yr 2*		0	0	0	0	0	0			
[8]	*EBSS yr 3*			0	0	0	0	0	0		
[9]	*EBSS yr 4*				0	0	0	0	0	0	
[10]	*EBSS yr 5*					0	0	0	0	0	0
[11]	Within-period gain	5	5	5	5	5	0	0	0	0	0
[12]	EBSS amount						5	0	0	0	0
[13]	**Total gain**	**5**	**5**	**5**	**5**	**5**	**5**	**0**	**0**	**0**	**0**

The following matters are assumed in the model.

- The regulatory allowance assumes a constant level of expenditure, except where step changes are achieved and revealed, and actual expenditure follows the same pattern.
- The new regulatory allowance uses the actual expenditure in year 3 as the base for the new forecast (the "base year", highlighted with a yellow border), more specifically:[1]
  - the year 6 forecast being the year 3 actual amount, adjusted for any changes in the original regulatory allowance between years 3 and 5 (this change is assumed to be zero in this example), and then adjusted further for any changes in expenditure assumed between years 5 and 6 (also assumed to be zero in this model), and
  - the forecasts for years 7 to 10 reflect additional adjustments for assumed changes in expenditure requirements after year 6 (also assumed to be zero in this example).
- The EBSS is calculated on the basis of the incremental gain (expenditure reduction) in each year, in excess of the change in expenditure between years that was assumed in the regulatory allowance. The exception is for year 5, where information on actual expenditure is not available at the time of the determination. Instead an imputed value for expenditure is used in the EBSS (highlighted with a red border), with this value calculated in a manner that is consistent with how the new regulatory allowance is determined. More specifically, when year 3 is used as the base year, the imputed value is the year 3 actual expenditure, adjusted for the change in regulatory allowance between years 3 and 5.

The example assumes that a step reduction in expenditure of 5 per annum was achieved in year 1 of the period. As shown, this delivered a benefit during all five years of the regulatory period (assuming the initiative came into effect at the start of the year), and a carry-over of this benefit is only required for the first year of the next period in order to deliver the target "1+5" holding period for the gain. Figure 2 repeats this example on the assumption that the efficiency gain is made in year 3 of the regulatory

[1] It is noted for completeness that care is required to ensure that the method employed to project forward the base year expenditure to arrive at the regulatory allowance is consistent with the incentive framework for operating expenditure. This matter is the central focus of this letter.

period. The gain from the initiative in this case is the same, the only difference is that a greater portion of the gain is provided in the next regulatory period via the EBSS.

Figure 2: Base case (year 3 gain)

		Current regulatory period					*Next regulatory period*				
		1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
[1]	**Regulatory allowance**	100	100	100	100	100	95	95	95	95	95
[2]	**Actual opex**	100	100	95	95	95	95	95	95	95	95
[3]	**Opex used in EBSS**	100	100	95	95	95					
[4]	***Underspend***	*0*	*0*	*5*	*5*	*5*					
[5]	***Incremental gain***	*0*	*0*	*5*	*0*	*0*					
[6]	***EBSS yr 1***	*0*	*0*	*0*	*0*	*0*	*0*				
[7]	***EBSS yr 2***		*0*	*0*	*0*	*0*	*0*	*0*			
[8]	***EBSS yr 3***			*5*	*5*	*5*	*5*	*5*	*5*		
[9]	***EBSS yr 4***				*0*	*0*	*0*	*0*	*0*	*0*	
[10]	***EBSS yr 5***					*0*	*0*	*0*	*0*	*0*	*0*
[11]	**Within-period gain**	0	0	5	5	5	0	0	0	0	0
[12]	**EBSS amount**						5	5	5	0	0
[13]	**Total gain**	**0**	**0**	**5**	**5**	**5**	**5**	**5**	**5**	**0**	**0**

3. Efficiency gains observed after the base year

Figure 3 repeats the base case example to demonstrate how the above calculations would apply in relation to an observed efficiency gain in year 4. In this case, the gain would be observed because year 4 expenditure information would be available at the time of the determination.

Figure 3: Year 4 efficiency gain

		Current regulatory period					*Next regulatory period*				
		1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
[1]	**Regulatory allowance**	100	100	100	100	100	100	100	100	100	100
[2]	**Actual opex**	100	100	100	95	95	95	95	95	95	95
[3]	**Opex used in EBSS**	100	100	100	95	100					
[4]	***Underspend***	*0*	*0*	*0*	*5*	*0*					
[5]	***Incremental gain***	*0*	*0*	*0*	*5*	*-5*					
[6]	***EBSS yr 1***	*0*	*0*	*0*	*0*	*0*	*0*				
[7]	***EBSS yr 2***		*0*	*0*	*0*	*0*	*0*	*0*			
[8]	***EBSS yr 3***			*0*	*0*	*0*	*0*	*0*	*0*		
[9]	***EBSS yr 4***				*5*	*5*	*5*	*5*	*5*	*5*	
[10]	***EBSS yr 5***					*-5*	*-5*	*-5*	*-5*	*-5*	*-5*
[11]	**Within-period gain**	0	0	0	5	5	5	5	5	5	5
[12]	**EBSS amount**						0	0	0	0	-5
[13]	**Total gain**	**0**	**0**	**0**	**5**	**5**	**5**	**5**	**5**	**5**	**0**

In this case, the fact that year 3 is used as the base year means that the gain observed in year 4 is not factored into the new expenditure allowance – however, figure 3 shows that this provides the intended correct outcome, namely that the benefit from a gain is retained for five years after the year in which it was achieved. While the new regulatory allowance may ignore the year 4 gain, this is appropriate because the gain is also not properly reflected in the EBSS (in turn because the imputed value for year 5 is treated in the EBSS as a reduction in efficiency). By ignoring the year 4 efficiency gain when setting the new regulatory allowance, the regulated entity would receive the same reward that would follow if the year 4 efficiency gain was properly factored into the EBSS, and likewise the same reward that would result if year 4 was used as the base year.

Figure 4 considers the further case of an efficiency gain that was expected to be made in year 5 (again, a reduction in operating expenditure of 5 per annum). It would be expected rather than observed because this year would only be part way through at the time of the determination.

Figure 4: Year 5 efficiency gain

		Current regulatory period					*Next regulatory period*				
		1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
[1]	**Regulatory allowance**	100	100	100	100	100	100	100	100	100	100
[2]	**Actual opex**	100	100	100	100	95	95	95	95	95	95
[3]	**Opex used in EBSS**	100	100	100	100	100					
[4]	***Underspend***	*0*	*0*	*0*	*0*	*0*					
[5]	***Incremental gain***	*0*	*0*	*0*	*0*	*0*					
[6]	***EBSS yr 1***	*0*	*0*	*0*	*0*	*0*	*0*				
[7]	***EBSS yr 2***		*0*	*0*	*0*	*0*	*0*	*0*			
[8]	***EBSS yr 3***			*0*	*0*	*0*	*0*	*0*	*0*		
[9]	***EBSS yr 4***				*0*	*0*	*0*	*0*	*0*	*0*	
[10]	***EBSS yr 5***					*0*	*0*	*0*	*0*	*0*	*0*
[11]	**Within-period gain**	0	0	0	0	5	5	5	5	5	5
[12]	**EBSS amount**						0	0	0	0	0
[13]	**Total gain**	**0**	**0**	**0**	**0**	**5**	**5**	**5**	**5**	**5**	**5**

Again, the correct outcome results if the expected efficiency gain after the base year is ignored when setting the new regulatory allowance. Moreover, again the mechanism through which the gain is carried over into the new regulatory period is from the new regulatory allowance being greater than what is actually expected to be spent in the second regulatory period. This mechanism is used because any gains made after the base year are not properly factored into the EBSS.

Figures 5 and 6 show for completeness the outcome that would result if the regulatory allowance for year 6 was adjusted to remove the efficiency gains that were observed or expected in years 4 or 5 of the regulatory period – in this example, by reducing the allowance in year 6 by the amount of the observed gain of 5 per annum (thus implying a new allowance of 95, highlighted with the purple border).

Figure 5: Year 4 efficiency gain with adjustment to year 6

		Current regulatory period					*Next regulatory period*				
		1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
[1]	**Regulatory allowance**	100	100	100	100	100	95	95	95	95	95
[2]	**Actual opex**	100	100	100	95	95	95	95	95	95	95
[3]	**Opex used in EBSS**	100	100	100	95	100					
[4]	***Underspend***	*0*	*0*	*0*	*5*	*0*					
[5]	***Incremental gain***	*0*	*0*	*0*	*5*	*-5*					
[6]	***EBSS yr 1***	*0*	*0*	*0*	*0*	*0*	*0*				
[7]	***EBSS yr 2***		*0*	*0*	*0*	*0*	*0*	*0*			
[8]	***EBSS yr 3***			*0*	*0*	*0*	*0*	*0*	*0*		
[9]	***EBSS yr 4***				*5*	*5*	*5*	*5*	*5*	*5*	
[10]	***EBSS yr 5***					*-5*	*-5*	*-5*	*-5*	*-5*	*-5*
[11]	**Within-period gain**	0	0	0	5	5	0	0	0	0	0
[12]	**EBSS amount**						0	0	0	0	-5
[13]	**Total gain**	**0**	**0**	**0**	**5**	**5**	**0**	**0**	**0**	**0**	**-5**

Figure 6: Year 5 efficiency gain with adjustment to year 6

		Current regulatory period					Next regulatory period				
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
[1]	**Regulatory allowance**	100	100	100	100	100	95	95	95	95	95
[2]	**Actual opex**	100	100	100	100	95	95	95	95	95	95
[3]	**Opex used in EBSS**	100	100	100	100	100					
[4]	***Underspend***	*0*	*0*	*0*	*0*	*0*					
[5]	***Incremental gain***	*0*	*0*	*0*	*0*	*0*					
[6]	***EBSS yr 1***	*0*	*0*	*0*	*0*	*0*	*0*				
[7]	***EBSS yr 2***		*0*	*0*	*0*	*0*	*0*	*0*			
[8]	***EBSS yr 3***			*0*	*0*	*0*	*0*	*0*	*0*		
[9]	***EBSS yr 4***				*0*	*0*	*0*	*0*	*0*	*0*	
[10]	***EBSS yr 5***					*0*	*0*	*0*	*0*	*0*	*0*
[11]	**Within-period gain**	0	0	0	0	5	0	0	0	0	0
[12]	**EBSS amount**						0	0	0	0	0
[13]	**Total gain**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**

In both of the cases, rather than delivering a holding period of 5 years after the year in which the gain was made, only one year of the gain is retained by the regulated entity (with the gain from a year 4 initiative marginally higher than for year 5 in NPV terms). This results from the fact that the full gain would be factored into the new forecasts, but would not be properly incorporated into the EBSS.

Thus, these simple examples demonstrate it is appropriate to ignore efficiency gains that are observed or expected after the base year when setting the new regulatory allowance for operating expenditure. While this may result in a regulatory allowance for operating expenditure that exceeds the amount that is expected to be spent in the following regulatory period, this is necessary because adopting the higher allowance is a substitute mechanism to the EBSS for providing a carry-over of the benefit from an efficiency gain into the next period and thus achieving the intended sharing of the benefits of efficiency gains.

4. Efficiency gains informing the "trend or trajectory" in future operating expenditure

The second question that is addressed in this letter is closely related to the previous issue, and relates to how the AER should form its assumption about how costs should be expected to change after the base year. For the avoidance of doubt, a central element of the incentive framework for operating expenditure is that operating expenditure is forecast by commencing with the observed (actual) expenditure in a base year, and that this starting point will thereby factor in the accumulated efficiency gains over the period prior to and including the base year. The issue addressed here is how that starting point should be projected forward in order to derive the new regulatory allowance, which I refer to as the assumed "trend or trajectory" in expenditure.

In the stylised example above, it was assumed that any changes in operating expenditure that were observed in the period prior to and during the base year would be fully reflected in the new regulatory allowance for operating expenditure, consistent with the comment above. It was also assumed that no further changes in operating expenditure were assumed – that is, a constant trend or trajectory after the base year was assumed. This assumption of a constant trend or trajectory is overly restrictive and inappropriate. In practice, it would be inappropriate to ignore factors that may affect expenditure over the next regulatory period, such as the expected volume of works (for lumpy expenditure) and input price changes. However, it is inappropriate and inconsistent with the incentive framework for the assumed trend or trajectory after the base year to be based upon the *observed performance* in the preceding regulatory period.

Figure 7 demonstrates the effect of the contrary case. This figure is based on figure 1 above (where a one-off gain was assumed to be made in year 1), but with the additional assumption that after observing the one-off gain made in the current regulatory period, the regulator assumes that this gain is able to be replicated from the start of the next period (with the further adjustment to year 6 again highlighted with a purple border).

Figure 7: Year 1 gain assumed to be replicated in year 6

		Current regulatory period					*Next regulatory period*				
		1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
[1]	**Regulatory allowance**	100	100	100	100	100	90	90	90	90	90
[2]	**Actual opex**	95	95	95	95	95	95	95	95	95	95
[3]	**Opex used in EBSS**	95	95	95	95	95					
[4]	***Underspend***	*5*	*5*	*5*	*5*	*5*					
[5]	***Incremental gain***	*5*	*0*	*0*	*0*	*0*					
[6]	***EBSS yr 1***	*5*	*5*	*5*	*5*	*5*	*5*				
[7]	***EBSS yr 2***		*0*	*0*	*0*	*0*	*0*	*0*			
[8]	***EBSS yr 3***			*0*	*0*	*0*	*0*	*0*	*0*		
[9]	***EBSS yr 4***				*0*	*0*	*0*	*0*	*0*	*0*	
[10]	***EBSS yr 5***					*0*	*0*	*0*	*0*	*0*	*0*
[11]	**Within-period gain**	5	5	5	5	5	-5	-5	-5	-5	-5
[12]	**EBSS amount**						5	0	0	0	0
[13]	**Total gain**	**5**	**5**	**5**	**5**	**5**	**0**	**-5**	**-5**	**-5**	**-5**

Figure 8 shows the same outcome where the one-off gain was observed in year 3 of the current regulatory period (following figure 2), and also assumed to be replicated in the first year of the next period.

Figure 8: Year 3 gain assumed to be replicated in year 6

		Current regulatory period					*Next regulatory period*				
		1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
[1]	**Regulatory allowance**	100	100	100	100	100	90	90	90	90	90
[2]	**Actual opex**	100	100	95	95	95	95	95	95	95	95
[3]	**Opex used in EBSS**	100	100	95	95	95					
[4]	***Underspend***	*0*	*0*	*5*	*5*	*5*					
[5]	***Incremental gain***	*0*	*0*	*5*	*0*	*0*					
[6]	***EBSS yr 1***	*0*	*0*	*0*	*0*	*0*	*0*				
[7]	***EBSS yr 2***		*0*	*0*	*0*	*0*	*0*	*0*			
[8]	***EBSS yr 3***			*5*	*5*	*5*	*5*	*5*	*5*		
[9]	***EBSS yr 4***				*0*	*0*	*0*	*0*	*0*	*0*	
[10]	***EBSS yr 5***					*0*	*0*	*0*	*0*	*0*	*0*
[11]	**Within-period gain**	0	0	5	5	5	-5	-5	-5	-5	-5
[12]	**EBSS amount**						5	5	5	0	0
[13]	**Total gain**	**0**	**0**	**5**	**5**	**5**	**0**	**0**	**0**	**-5**	**-5**

What these figures demonstrate is that if a TNSP's revealed efficiency gains are factored into **both** the setting of the starting point for the new regulatory allowance (the base year) and into the assumed change in expenditure from that point onwards, then the reward (penalty) from an improvement (decline) in operating expenditure is substantially diminished. In fact, if the above examples are extended to include a third regulatory period they would show that the TNSP would be required to 'pay back' all of the efficiency gains. In effect, the incentive properties ordinarily provided by the regulatory

framework would be almost entirely eliminated, as the only benefit to the TNSP would be the timing difference between receiving the rewards and repaying them.[2]

It could also be observed more generally that using a TNSP's past efficiency gains to inform its expected future gains would result in tougher improvement targets being set for the entities that have already demonstrated themselves to be better performers. This outcome could be considered inequitable across regulated businesses, and also unreasonable in view of the fact that only a finite scope for efficiency gains must exist.

* * *

Yours sincerely,

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[2] These calculations have been performed and are available on request.