Issues raised by QTC at the AER Inflation Working Group meeting

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Purpose

- The purpose of this note is to expand on the points raised by QTC at the AER Inflation Working Group meeting on 28 November 2019. The points raised consisted of two related parts:
  - Part one related to the implications of a negative implied expected inflation risk premium on the amount of inflation compensation in the allowed return on equity and the amount of inflation that should be deducted from the allowed revenues to avoid double counting for inflation compensation.
  - Part two related to the observation that based on prevailing Commonwealth Government Security (CGS) yields and the AER's 2.45 per cent estimate of expected inflation, the assumed return to equity from the indexation of the RAB is materially higher than the allowed return on equity. This means the return contribution from net profit after tax (NPAT) in the post-tax revenue model (PTRM) is **negative** in each year of the FY21–FY25 regulatory period. This note uses the AER's draft determinations for Ergon Energy and Energex as an example to demonstrate this.
- QTC did not raise any issues with how the nominal allowed return on equity is calculated. QTC acknowledges that the return on equity approach is now part of the legally binding Rate of Return Instrument. The purpose of the points raised was to highlight the need for consistency between revenue deductions for inflation on the RAB and the amount of inflation compensation in the allowed return on equity.
- This note reflects QTC's current thinking on some issues relating to the regulatory treatment of inflation. As our thinking continues to evolve our updated views will be shared with the Inflation Working Group.

Background

- The purpose of the revenue deductions for inflation in the PTRM is to avoid providing compensation for inflation twice. Without the deductions, the equity providers would be compensated for inflation through the indexation of the RAB and again by applying a nominal return on equity to the indexed RAB.
- For this process to be effective, there must be consistency between the amount of revenue deducted and the amount of total inflation compensation in the allowed return on equity.
- The AER is required to calculate a nominal allowed return on equity by adding a fixed 3.66 per cent equity risk premium to the prevailing 10-year nominal CGS yield. It follows that the total amount of expected inflation compensation in the 10-year nominal CGS yield will also be reflected in the allowed return on equity.

Total expected inflation compensation

- The 10-year nominal CGS yield can be expressed as follows:
  - 10-yr nominal CGS yield = 10-yr real CGS yield + 10-yr expected inflation + 10-yr expected inflation risk premium
- Nominal and real CGS yields can be directly observed in the market, with straight line interpolation used to produce yields for an exact 10-year tenor.
- Expected inflation and the inflation risk premium cannot be observed individually. However, the combined value can be observed based on the margin between the 10-year nominal and real CGS yields. This margin is referred to as the bond break-even inflation rate (BBIR):
  - 10-yr BBIR = 10-yr nominal CGS yield - 10-yr real CGS yield
- The BBIR measures the total amount of expected inflation compensation in the 10-year nominal CGS yield and the allowed return on equity. Although there is scope for disagreement about the composition of the BBIR, there can be little (if any) disagreement about its absolute value because it is based on nominal and real yields that can be

observed on traded CGS instruments in a well-functioning capital market, with the nominal CGS yield being the same yield used by the AER to calculate the allowed return on equity.

The expected inflation risk premium

- The expected inflation risk premium can be expressed as follows:
  - 10-yr expected inflation risk premium = 10-yr BBIR - 10-yr expected inflation
- At a high level, the expected inflation risk premium reflects the expected covariance between inflation outcomes and the performance of the broader equity market:
  - A positive expected inflation risk premium exists when the expected covariance is negative (ie, unexpected increases in inflation coinciding with *negative* equity market performance and vice-versa).
  - A negative expected inflation risk premium is less common, and exists when the expected covariance is positive (ie, unexpected increases in inflation coinciding with *positive* equity market performance and vice-versa). A negative inflation risk premium typically reflects investor concerns about the risk of deflation.
  - Historically, the average inflation risk premium has been positive. This means the historical average inflation risk premium has been deducted from the historical market risk premium used in the allowed return on equity.
- The expected inflation risk premium is often viewed as a source of 'bias' that prevents the BBIR from being interpreted as a pure estimate of expected inflation. However, the expected inflation risk premium is still a part of the total expected compensation for inflation in the allowed return on equity. This is relevant to the revenue deductions that are made to avoid double counting for inflation.

Part one

- The average 10-year nominal and real CGS yields in the draft determinations are 1.32 per cent and -0.04 per cent respectively, which produce a BBIR of 1.36 per cent.
- Based on the AER's 2.45 per cent estimate of expected inflation, the implied expected inflation risk premium is **-1.09 per cent** (ie, 1.36 per cent minus 2.45 per cent).
- A negative expected inflation risk premium reduces the amount of expected inflation compensation in the allowed return on equity relative to the AER's estimate of expected inflation. As a consequence, to avoid double counting for inflation compensation, the revenue deductions based on the 40 per cent equity-funded portion of the RAB should be made using 1.36 per cent, not 2.45 per cent.
- QTC does not consider the expected inflation risk premium is -1.09 per cent because the best estimate of expected inflation is likely to be significantly lower than 2.45 per cent. A formal method for estimating the inflation risk premium is beyond the scope of this note. However, the CAPM and a range of nominal CGS betas can be used to produce different combinations of expected inflation and the expected inflation risk premium for a given BBIR.
- By forming a view on the likely 10-year nominal CGS beta, the CAPM can be used to infer the expected inflation and expected inflation risk premium that add up to equal the 1.36 per cent BBIR (Table 1):

TABLE 1: INDICATIVE COMPOSITION OF A 1.36 PER CENT BBIR

Scenario	10-year BBIR (%)	MRP (%)	Indicative 10-year nominal CGS beta	Expected inflation risk premium (%)	Expected inflation (%)
1	1.36	6.10	0.05	0.31	1.05
2	**1.36**	**6.10**	**0.00**	**0.00**	**1.36**
3	1.36	6.10	(0.05)	(0.31)	1.67
4	1.36	6.10	(0.10)	(0.61)	1.97
5	1.36	6.10	(0.15)	(0.92)	2.28
AER	**1.36**	**6.10**	**(0.18)**	**(1.09)**	**2.45**

- As shown in the next section, the excessive revenue deductions have created an unusual outcome in the draft determinations where the *expected* NPAT is significantly negative in the PTRM for each year of the FY21–FY25 regulatory period.

Part two

- The allowed return on equity is delivered in the PTRM through a combination of dividends (NPAT) and asset growth (indexation on the RAB), and can be expressed as follows:
  - Allowed return on equity = NPAT ÷ (opening RAB × 0.4) + (expected inflation ÷ 0.4)
- The indexation return in the draft determinations is 6.12 per cent (ie, 2.45 per cent ÷ 0.4), which is 1.14 per cent higher than the allowed return on equity of 4.98 per cent. As a consequence, the return contribution from NPAT is **negative 1.14 per cent per annum** of opening equity in the PTRM. This can be confirmed by constructing a simple profit and loss statement using the PTRM cash flows from the AER's draft determinations (Table 2).
- If the draft determinations were made when the last inflation review was completed in December 2017, the allowed return on equity (6.26 per cent) would have been higher than the indexation return (6.12 per cent), leading to a slightly positive NPAT in the PTRM.

TABLE 2: PROFIT AND LOSS STATEMENT USING PTRM CASH FLOWS

	Ergon Energy PTRM cash flows					
	FY21	FY22	FY23	FY24	FY25	Total
Revenue	$1,120.8	$1,141.2	$1,158.0	$1,171.4	$1,191.7	
Straight line depreciation	-$453.8	-$477.3	-$496.5	-$513.1	-$537.5	
Opex	-$386.1	-$390.0	-$394.6	-$398.9	-$403.1	
Interest	-$331.9	-$326.7	-$321.0	-$314.7	-$307.5	
Tax	-$1.44	$0.0	$0.0	$0.0	$0.0	
Imputation credits	$0.8	$0.0	$0.0	$0.0	$0.0	
Revenue adjustments	-$1.1	-$1.1	-$1.1	-$1.1	-$1.1	
Net Profit After Tax	**-$52.7**	**-$53.9**	**-$55.2**	**-$56.4**	**-$57.6**	**-$275.8**

	Energex PTRM cash flows					
	FY21	FY22	FY23	FY24	FY25	Total
Revenue	$1,144.4	$1,133.2	$1,158.8	$1,185.3	$1,214.1	
Straight line depreciation	-$452.2	-$446.4	-$472.8	-$499.1	-$526.1	
Opex	-$374.0	-$380.9	-$388.2	-$396.0	-$403.4	
Interest	-$370.3	-$363.4	-$355.8	-$347.3	-$338.0	
Tax	-$13.40	-$3.7	-$4.9	-$9.6	-$21.3	
Imputation credits	$7.8	$2.1	$2.8	$5.6	$12.5	
Revenue adjustments	-$1.1	-$1.1	-$1.1	-$1.1	-$1.1	
Net Profit After Tax	**-$58.8**	**-$60.0**	**-$61.2**	**-$62.3**	**-$63.3**	**-$305.5**
Combined Net Profit After Tax	**-$111.5**	**-$113.9**	**-$116.3**	**-$118.7**	**-$120.9**	**-$581.3**
Combined opening equity	**$9,776.1**	**$9,986.6**	**$10,197.5**	**$10,402.8**	**$10,599.2**	
NPAT return	**-1.14%**	**-1.14%**	**-1.14%**	**-1.14%**	**-1.14%**	

- The only factors that affect NPAT in the PTRM are the nominal allowed return on equity and the revenue deductions for inflation. Taking the nominal allowed return on equity as a given, it follows that the negative NPAT in Table 2 is due to excessive revenue deductions for inflation because the AER's estimate of expected inflation is too high.
- Incentive-based regulation does not guarantee actual equity returns or dividends. If a service provider spends inefficiently, adopts an overly aggressive capital structure or speculates unsuccessfully in the interest rate market, the equity providers may incur *actual* losses. However, this is very different to having net losses after tax as the *expected* outcome in the PTRM, which assumes the benchmark service provider spends efficiently, maintains benchmark gearing of 60 per cent, and aligns its debt strategy with the trailing average return on debt approach.
- Imposing expected losses on an efficiently operated and financed benchmark service provider is clearly unreasonable and may be inconsistent with the AER's requirement under the National Electricity Law to make revenue determinations that promote efficient investment in network infrastructure, and provide a service provider with a reasonable opportunity to recover at least its efficient costs.
- The problems highlighted in Table 2 are unlikely to be limited to a single regulatory period. The implied inflation swap rates five and ten years forward are both **below 2.0 per cent** (ie, the bottom of the RBA target band). It is virtually impossible for the AER's current inflation approach to produce an estimate this low as this would require the RBA to cut its 1- and 2-year forecasts to zero.

Summary

- The AER's current inflation approach will always produce an estimate of expected inflation that is close to 2.5 per cent, which in the current real and nominal interest rate environment locks in net losses after tax in the PTRM for an efficiently operated and financed benchmark service provider.
- This demonstrates that a review of the current approach is warranted. Regardless of whether a full review is undertaken, if the AER retains its current approach it is essential to add a 'sense check' that prevents the estimate of expected inflation from producing net losses after tax in the PTRM. This would be similar in spirit to the financeability tests that are performed by regulators in the United Kingdom to test the overall reasonableness of their regulatory decisions.
- QTC would appreciate feedback from stakeholders, especially consumer representatives and the AER, on the points outlined in this note and the implications for the AER's approach to inflation. In particular, we are interested in people's thoughts on the negative NPAT outcomes in the AER's recent draft revenue determinations.