



TransGrid

**TransGrid Revised Revenue Proposal
2018/19 – 2022/23**

Appendix D

**HOUSTONKEMP Economists:
Review of the CESS model**



HOUSTONKEMP
Economists

Review of the CESS model

A report for TransGrid

30 November 2017

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Executive Summary

I have been asked to prepare this report by TransGrid. The context for my report is the Australian Energy Regulator's (AER's) draft decision in relation to the revenue determination applying to TransGrid's electricity transmission network for the period commencing on 1 July 2018 through to 30 June 2023 (the draft decision).¹

TransGrid has asked that I address a question concerning the operation of the capital efficiency sharing scheme (CESS) that applies in the current regulatory control period from 1 July 2015 and the resulting calculation of the CESS carryover amounts to be added to TransGrid's revenues for the forthcoming regulatory control period. TransGrid's instructions to me are attached as Annexure A to my report. For ease of exposition, I set out the specific question I have been asked to consider below.

Does the CESS model attached to TransGrid's draft decision correctly provide for a 30 per cent sharing of the total efficiency gains and losses resulting from TransGrid's capital expenditure performance over the 2015-16 to 2017-18 period? If not, what changes to the CESS model are necessary to achieve a 30 per cent sharing?

I find that the draft decision incorrectly applies the CESS for the current regulatory control period. Specifically, the CESS calculation of the within period financing benefit is inconsistent with the AER's post-tax revenue model (PTRM) and overstates the benefit that TransGrid has received from underspending its capital expenditure (capex) allowance in the period 1 July 2015 to 30 June 2018. As a consequence, the CESS model does not correctly provide TransGrid with a 30 per cent sharing of total capex efficiency gains and losses resulting from capital expenditure performance over the 2015-16 to 2017-18 period.

I recommend the following changes to the AER's draft CESS model:

- the removal of any financing benefit in the year that the underspend or overspend is incurred, because a return on capital is not provided on capex within the PTRM until the start of the year following the incurring of the capital expenditure;
- that the financing benefit for each subsequent year incorporates the capitalisation of a ½ year WACC on capex, consistent with the approach adopted in the PTRM and roll forward model (RFM); and
- that the financing benefit is calculated for remaining years of the regulatory period following the capex under/overspend using the real vanilla WACC, because the PTRM delivers a real rate of return in revenues.²

These corrections ensure that the CESS model delivers the intended 30/70 sharing of any under/overspend between TransGrid and its customers.³ Table 1 sets out the corrected and updated CESS payments for the 2018-19 to 2022-23 regulatory control period.

Table 1: CESS payment (\$2017-18 million)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
CESS Payment	6.73	6.73	6.73	6.73	6.73	33.65

¹ AER, *Draft decision | TransGrid transmission determination 2018 to 2023*, September 2017.

² An explanation of why the regulatory framework delivers a real return on capital is set out in the AER's, *Regulatory treatment of inflation | Preliminary position*, October 2017, pages 60-61.

³ AER, *Draft decision | TransGrid transmission determination 2018 to 2023 | Attachment 10 – Capital expenditure sharing scheme*, September 2017, page 10-6.

1. Introduction

I have been asked to prepare this report by TransGrid. The context for my report is the Australian Energy Regulator's (AER's) draft decision in relation to the revenue determination applying to TransGrid's electricity transmission network for the period commencing on 1 July 2018 through to 30 June 2023 (the draft decision).⁴

TransGrid has asked that I address a question concerning the operation of the capital efficiency sharing scheme (CESS) that applies in the current regulatory control period from 1 July 2015 and the resulting calculation of the CESS carryover amounts to be added to TransGrid's revenues for the forthcoming regulatory control period. TransGrid's instructions to me are attached as annexure A.1 to my report. For ease of exposition, I set out the specific question I have been asked to consider below.

Does the CESS model attached to TransGrid's draft decision correctly provide for a 30 per cent sharing of the total efficiency gains and losses resulting from TransGrid's capital expenditure performance over the 2015-16 to 2017-18 period? If not, what changes to the CESS model are necessary to achieve a 30 per cent sharing?

I find that the draft decision incorrectly applies the CESS for the current regulatory control period. Specifically, the CESS calculation of the within period financing benefit is inconsistent with the AER's post-tax revenue model (PTRM) and overstates the benefit that TransGrid has received from underspending its capital expenditure (capex) allowance in the 2015-16 to 2017-18 period. As a consequence, the CESS model does not correctly provide TransGrid with a 30 per cent sharing of total capex efficiency gains and losses resulting from capital expenditure performance over the 2015-16 to 2017-18 period.

I recommend the following changes to the AER's draft CESS model:

- the removal of any financing benefit in the year that the underspend or overspend is incurred, because a return on capital is not provided on capex within the PTRM until the start of the year following the incurring of the capital expenditure;
- that the financing benefit for each subsequent year incorporates the capitalisation of a ½ year WACC on capex, consistent with the approach adopted in the PTRM and roll forward model (RFM); and
- that the financing benefit is calculated for remaining years of the regulatory period following the capex under/overspend using the real Vanilla WACC, because the PTRM delivers a real rate of return in revenues.⁵

These corrections ensure that the CESS model delivers the intended 30/70 sharing of any under/overspend between TransGrid and its customers.⁶

1.1 My experience and expertise

Since June 2014 I have been a senior economist at the economic consulting firm, HoustonKemp. For the twelve years prior to joining HoustonKemp, I was an economist with NERA economic consulting, where I held the position of Senior Consultant for seven years. Over the last sixteen years I have advised infrastructure service providers, regulators and governments on the application of the building block

⁴ AER, *Draft decision | TransGrid transmission determination 2018 to 2023*, September 2017.

⁵ An explanation of why the regulatory framework delivers a real return on capital is set out in the AER's, *Regulatory treatment of inflation | Preliminary position*, October 2017, pages 60-61.

⁶ AER, *Draft decision | TransGrid transmission determination 2018 to 2023 | Attachment 10 – Capital expenditure sharing scheme*, September 2017, page 10-6.

approach, incentive mechanisms, operating and capital allowances, regulatory finance and asset valuation matters.

I attach a copy of my curriculum vitae as annexure A.2.

1.2 Structure of this report

This report is structured as follows:

- section 2 – provides context to this report, including the development of the CESS and the clarification on the intended operation of the CESS outlined in TransGrid's framework and approach decision;
- section 3 – outlines the necessary changes to the AER's draft CESS model applied in TransGrid's draft decision to ensure that the intended 30/70 sharing of any under/overspend between TransGrid and its customers; and
- section 4 – sets out TransGrid's revised CESS payment calculations that correctly model the financial benefit/cost received by TransGrid on its capital expenditure performance over the 2015-16 to 2017-18 period.

I confirm that in the course of preparing this report, I have been provided with a copy of and read and complied and agree to be bound by the Federal Court of Australia practice note, entitled Expert Evidence Practice Note GPN-EXPT in the Federal Court of Australia (the Practice Note). My declaration, made in accordance with clause 5.2 of the Practice Note, is contained at the end of my report, as section 5.



2. CESS Guideline

The CESS was developed as part of the AER's Better Regulation set of reforms in 2013. The objective of the CESS is to:⁷

... provide NSPs with an incentive to undertake efficient capex during a regulatory control period. It achieves this by rewarding NSPs that outperform their capex allowance and penalising NSPs that spend more than their capex allowance. The CESS also provides a mechanism to share efficiency gains and losses between NSPs and network users.

The AER's CESS guideline describes the capital efficiency mechanism as having the following four steps:⁸

1. We calculate efficiency gains and losses in net present value (NPV) terms. We do this for each year of the regulatory control period and then the total efficiency gain/loss is calculated for the regulatory control period.
2. We apply a sharing factor to the total efficiency gain/loss to calculate the NSP's share of the gain/loss.
3. We calculate financing benefits/costs that accrue through the regulatory control period.
4. We calculate the CESS reward/penalty by subtracting the financing benefit/cost that has accrued from the NSP's share of the total efficiency gain/loss.

Further, the AER provided additional clarification on how each of these steps will be calculated in TransGrid's framework and approach decision.⁹

2.1 Calculating efficiency gains and losses

Capex efficiency gains are measured relative to the network service provider's (NSP's) capex allowance. Consequently, if an NSP spends less than its allowance, this counts as an efficiency gain. On the other hand, if an NSP spends more than its allowance, this counts as an efficiency loss.

Note that the AER clarified that the CESS efficiency gains and losses are to be calculated on a:¹⁰

- capex net of capital contributions basis; and
- capex net of asset disposals basis.

The implications of these clarifications are that the CESS operates only on capex that affects the regulatory asset base (RAB) of the NSP.

The net present value (NPV) of all efficiency gains and losses are calculated as at the end of the regulatory control period. The total efficiency gain for the regulatory period is calculated as the sum of the annual efficiency gains in NPV terms.

Total efficiency gain = NPV year 1 efficiency gain + NPV year 2 efficiency gain + NPV year 3 efficiency gain + NPV year 4 efficiency gain + NPV year 5 efficiency gain

⁷ AER, *Better Regulation | Capital Expenditure Incentive Guideline for Electricity Network Service Providers*, November 2013, page 5. (the "CESS guideline")

⁸ AER, *Better Regulation | Capital Expenditure Incentive Guideline for Electricity Network Service Providers*, November 2013, page 6.

⁹ See AER, *Framework and approach for TransGrid | For regulatory control period commencing 1 July 2018*, July 2016, pages 18-22.

¹⁰ AER, *Framework and approach for TransGrid | For regulatory control period commencing 1 July 2018*, July 2016, page 22.

Note that because information on actual capex in the final year of the regulatory control period will be unknown at the time of the final decision, an estimate of capex will be used. A true-up for any differences between final year forecast and actual capex will be made in the subsequent regulatory control period.

Finally, the CESS guideline notes that an adjustment to the CESS payments will be made where an NSP has deferred capex in the current regulatory control period and:¹¹

- the amount of the deferred capex in the current regulatory control period is material, and
- the amount of the estimated underspend in capex in the current regulatory control period is material, and
- total approved forecast capex in the next regulatory control period is materially higher than it is likely to have been if a material amount of capex was not deferred in the current regulatory control period.

The adjustment will equal the present value of the estimated marginal increase in forecast capex in the next regulatory control period attributable to deferred capex.

2.2 Applying the sharing factor

The intent as set out in the CESS guideline is that NSPs receive 30 per cent of the total capex efficiency gains and losses.¹² The application of a 30 per cent sharing ratio was confirmed in TransGrid's framework and approach decision.¹³

2.3 Accounting for financial benefits and costs already accrued

The CESS seeks to ensure that the power of the capex incentive is the same in each year of the regulatory control period. This objective is achieved by the CESS model accounting for any benefits/costs of any under/over spend in capex during the regulatory period.

The CESS guideline contains a formula for calculating the financial benefit/cost of any under/overspend. However, the AER in TransGrid's framework and approach clarified that:¹⁴

We have designed the CESS so that the **timing assumptions are consistent with the PTRM**. The PTRM assumes that capex is incurred in the middle of the year. The return on capital is not calculated until the start of the next year. To compensate the service provider for the time between when capex is assumed to have been incurred and when the return on capital is calculated, before it is rolled into the RAB, we inflate the nominal capex by a half yearly WACC. We confirm that we will apply the same adjustment to forecast and actual capex when estimating the CESS rewards and penalties. [**emphasis added**]

2.4 CESS reward or penalty

The CESS reward or penalty included in the NSP's revenues for the subsequent regulatory period is calculated by the following formula.

$$\text{CESS reward} = \text{NSP share} - \text{net financing benefit}$$

where

NSP share is the amount calculated in section 2.2; and

Net financing benefit is the amount calculated in section 2.3.

¹¹ AER, *Better Regulation | Capital Expenditure Incentive Guideline for Electricity Network Service Providers*, November 2013, page 9.

¹² AER, *Better Regulation | Capital Expenditure Incentive Guideline for Electricity Network Service Providers*, November 2013, page 7.

¹³ AER, *Framework and approach for TransGrid | For regulatory control period commencing 1 July 2018*, July 2016, page 18.

¹⁴ AER, *Framework and approach for TransGrid | For regulatory control period commencing 1 July 2018*, July 2016, page 20.

3. Necessary changes to the Draft CESS Model

The following three changes to the draft CESS model are necessary to ensure that TransGrid shares 30 per cent of the total capex efficiency gains and losses for the 1 July 2015 to 30 June 2018 period:

1. remove any financing benefit in the year that the underspend or overspend is incurred, because a return on capital is not provided on capex until the start of the year following the incurring of the capital expenditure;
2. the financing benefit for each subsequent year should incorporate the capitalisation of a ½ year return on capital on capex, consistent with the approach adopted in the PTRM and roll forward model (RFM); and
3. the financing benefit for each subsequent year should be calculated by multiplying the underspend (or overspend) grossed up for the ½ year return on capital and the real Vanilla WACC, because the PTRM delivers a real rate of return.¹⁵

These changes are necessary to align the calculation of financing benefits in CESS with the cash flows provided by the PTRM. As a result, the draft CESS model incorrectly calculates the financing benefits/costs received by an NSP from under/overspending its capex allowance. Consequently, the draft CESS model does not provide for a 30 per cent sharing of total capex efficiency gains and losses as intended.

Each of these changes are explained in greater detail in the remainder of this section.

3.1 No return on capital in the year capex is incurred

The financing benefit/cost of any under/overspend calculated in the draft CESS model includes a ½ year return on capital in the year that capex is incurred. Figure 1, highlights the cells in the draft CESS model where a ½ year return on capital is provided.

Figure 1: ½ return on capital for under/over spend

Calc NPV of CESS payments				
Regulatory period 1				
Year	n/a	2015-16	2016-17	2017-18
Discount rate:		6.03%	5.73%	6.16%
Capex allowance		309.72	242.43	230.17
Actual capex		237.30	190.67	200.20
Underspend		72.42	51.77	29.97
Year 1 benefit		0.00	0.00	0.00
Year 2 benefit		2.15	4.15	4.46
Year 3 benefit			1.46	3.19
Year 4 benefit				0.91
Year 5 benefit				
Total financing benefit		2.15	5.61	8.57
Discount factor (middle of year)*		1.16	1.09	1.03
Discount factor (end of year)**		1.12	1.06	1.00
NPV underspend		83.70	56.51	30.88
NPV financing benefit		2.41	5.95	8.57

½ year WACC on underspend

Figure 1, highlights that the draft CESS model calculates that:

- the underspend of \$72.42 million in 2015-16, resulted in TransGrid receiving a financial benefit of \$2.15 million in 2015-16;

¹⁵ An explanation of why the regulatory framework delivers a real return on capital is set out in the AER’s, *Regulatory treatment of inflation | Preliminary position*, October 2017, pages 60-61.

- the underspend of \$51.77 million in 2016-17, resulted in TransGrid receiving a financial benefit of \$1.46 million in 2016-17; and
- the forecast underspend of \$29.97 million in 2017-18, will result in TransGrid receiving a financial benefit of \$0.91 million in 2017-18.

However, as correctly described by the AER in TransGrid's framework and approach decision:¹⁶

The PTRM assumes that capex is incurred in the middle of the year. The return on capital is not calculated until the start of the next year.

This proposition is consistent with the description contained in the PTRM handbook which states:¹⁷

Capex is assumed to be incurred evenly throughout the regulatory year and therefore a timing assumption is adopted that on average places capex half-way through the year. However, the PTRM calculates the return on capital based on the opening RAB for each regulatory year and capex is not added to the RAB until the end of the regulatory year in which the expenditure on the asset is incurred.

It is therefore incorrect to include a ½ year return on capital in the year that under/overspend of capex is incurred in the CESS calculation of the financial benefit/cost already received by NSP as the NSP does not receive this benefit under the PTRM. These returns on capital should be removed from the final version of the CESS model to ensure that an NSP receives a 30 per cent share of total capex efficiency gains and losses.¹⁸

¹⁶ AER, *Framework and approach for TransGrid | For regulatory control period commencing 1 July 2018*, July 2016, page 20.

¹⁷ AER, *Final decision Amendment | Post-tax revenue model handbook | Electricity distribution network service providers*, 29 January 2015, pages 18-19.

¹⁸ I note that TransGrid's RAB at 30 June 2018 is calculated by rolling forward TransGrid's actual/forecast capex. Consequently, any financing benefits/costs from any under/overspend during the 2015-16 to 2017-18 period are not carried forward into future regulatory control periods.

3.2 Capitalisation of the ½ year return on capital

The PTRM recognises that capex does not occur on the last day of the regulatory year but occurs evenly through the year. To compensate for the on average six-month period before capex is included in the RAB, the PTRM capitalises a ½ year return on capital into the value of capex before entering the RAB at the end of the year.¹⁹

However as shown in Figure 2, the draft CESS model does not include this capitalised return in its calculation of the financial benefit/cost of any under/overspend of capex.

Figure 2: Underspend without capitalising ½ return on capital

Calc NPV of CESS payments				
Regulatory period 1		2015-16	2016-17	2017-18
Year	n/a			
Discount rate:		6.03%	5.73%	6.16%
Capex allowance		309.72	242.43	230.17
Actual capex		237.30	190.67	200.20
Underspend		72.42	51.77	29.97
Year 1 benefit		0.00	0.00	0.00
Year 2 benefit		2.15	1.15	4.46
Year 3 benefit			1.46	3.19
Year 4 benefit				0.91
Year 5 benefit				
Total financing benefit		2.15	5.61	8.57
Discount factor (middle of year)*		1.16	1.09	1.03
Discount factor (end of year)**		1.12	1.06	1.00
NPV underspend		83.70	56.51	30.88
NPV financing benefit		2.41	5.95	8.57

Underspend without capitalising ½ year WACC on underspend

Figure 2, highlights that the draft CESS model calculates the underspend in:

- 2015-16 of \$72.42 million, as the difference between the nominal capex allowance of \$309.72 million and TransGrid's actual capex of \$237.30 million;
- 2016-17 of \$51.77 million, as the difference between the nominal capex allowance of \$242.43 million and TransGrid's actual capex of \$190.67 million; and
- 2017-18 of \$29.97 million, as the difference between the nominal capex allowance of \$230.17 million and TransGrid's forecast capex of \$200.20 million.

The CESS model should be corrected by inserting an additional line in the model that calculates the under/overspend (grossed up for the ½ year WACC) to align the CESS with the return on capex provided by the PTRM. Further, since the CESS model is currently calculated in nominal terms, the rate of return used to capitalise the ½ year return should be the *Nominal Vanilla WACC (fixed, real, time varying)* for the year that the under/overspend is incurred.

¹⁹ AER, *Final decision Amendment | Post-tax revenue model handbook | Electricity distribution network service providers*, 29 January 2015, page 19.

3.3 Return on under(over)spend

The draft CESS model presumes that an NSP receives, in annual revenues, an inflation adjusted nominal vanilla weighted average cost of capital (WACC) on any capital expenditure (capex). This is incorrect.

The PTRM effectively provides a real return on capex in the year following when an NSP is forecast to incur capex through:

- forecast capex entering the RAB at the start of the year following the incurring of expenditure (with a ½ year return capitalised into the asset value);
- the return on capital building block is calculated by multiplying the RAB value at the start of the regulatory year by a nominal vanilla post-tax WACC;
- a depreciation allowance that removes from the annual revenue requirement the expected increase in the RAB value at the start due to inflation indexation; and
- an explicit calculation of the benchmark tax costs of the NSP.

The PTRM's effective delivery of a real rate of return in annual revenues is explained in detail in the AER's recently published issues paper on the *Regulatory treatment of inflation*.²⁰

As a consequence, the financing benefit (cost) in year following a capex under (over)-spend within the PTRM can be expressed by the following formula:²¹

$$\text{Financing benefit}_t = \underbrace{(Cap_{t-1}^e - Cap_{t-1}^a)[(1 + WACC)^{0.5} - 1] \times WACC}_{\text{Return on capital "benefit"}} - \underbrace{(Cap_{t-1}^e - Cap_{t-1}^a)[(1 + WACC)^{0.5} - 1] \times \pi^e}_{\text{Return of capital "benefit"}}$$

The AER's draft CESS model equates the financial benefit as the return on capital "benefit" without removing the inflation adjustment associated with the return of capital.

Consequently, the draft CESS model overstates the financing benefit (penalty) of an NSP's under (over) spend. We note that TransGrid's, regulatory proposal also contained this error. This error should be corrected, by calculating the financing benefit using the real vanilla WACC.

²⁰ An explanation of why the regulatory framework delivers a real return on capital is set out in the AER's, *Regulatory treatment of inflation | Preliminary position*, October 2017, pages 60-61.

²¹ Note that the AER's position that incentive payments should be calculated on a before tax basis allows the tax implications of any under (over) spend to be ignored. See, AER, AER, *Better Regulation | Explanatory Statement | Capital Expenditure Incentive Guideline for Electricity Network Service Providers*, November 2013, page 41.

4. TransGrid's revised CESS model

TransGrid has provided HoustonKemp with an updated CESS model that includes the corrections outlined in section 3, and updated actual and forecast capex data.

Table 2 sets out the updated calculation of the net present value (NPV) of TransGrid's underspend and financing benefit for the 2015-16 to 2017-18 period.

Table 2: NPV of underspend and financing benefit (\$'million)

Year	2015-16	2016-17	2017-18
Finance rate (Real WACC):	4.27%	4.19%	4.08%
Discount rate:	6.03%	5.73%	6.16%
Capex allowance	309.72	242.43	230.17
Actual capex	237.30	174.72	220.43
Underspend	72.42	67.71	9.74
Underspend + 1/2 Nominal WACC	74.57	69.62	10.04
Year 1 benefit	0.00	0.00	0.00
Year 2 benefit		3.12	3.04
Year 3 benefit			2.84
Year 4 benefit			
Year 5 benefit			
Total financing benefit	0.00	3.12	5.89
Discount factor (middle of year)*	1.16	1.09	1.03
Discount factor (end of year)**	1.12	1.06	1.00
NPV underspend	83.70	73.92	10.04
NPV financing benefit	0.00	3.31	5.89

Table 3 sets out the updated calculation of the NPV of capex that is deferred into the 2018-19 to 2022-23 period.

Table 3: NPV of deferred capex (\$'million)

Year	2018-19	2019-20	2020-21	2021-22	2022-23
Discount rate:	6.49%	6.49%	6.49%	6.49%	6.49%
Increase in forecast capex in regulatory period 2 attributable to capex deferred in regulatory period 1	13.03	26.63	0.00	0.00	0.00
Discount factor (middle of year 5)	0.97	0.91	0.85	0.80	0.75
NPV of increase in forecast capex from deferred capex	12.63	24.23	0.00	0.00	0.00

Table 4 sets out the updated calculation of the NPV of CESS payment to be included in 2018-19 to 2022-23 revenues.

Table 4: NPV of CESS payment (30 June 2018, \$' million)

CESS calculation (post-adjustment)	
Total underspend (NPV) adjusted for deferrals	130.79
Relevant sharing ratio	30%
Consumer share	91.55
NSP share	39.24
Total NSP financing benefit (NPV)	9.20
NPV of CESS payments (post-adjustment)	30.04

Table 5 sets out the updated calculation of the CESS payment to be included in 2018-19 to 2022-23 revenues.

Table 5: CESS payment (\$2017-18 million)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
CESS Payment	6.73	6.73	6.73	6.73	6.73	33.65

The CESS payments set out in Table 5 correctly delivers TransGrid with a 30 per cent share of total gains and losses resulting from its capex performance over the 2015-16 to 2017-18 period.



5. Declaration

In accordance with the Practice Note, I confirm that I have made all inquiries that I believe are desirable and appropriate, and that no matters of significance that I regard as relevant have, to my knowledge, been withheld from the Court.



Brendan P Quach
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6 November 2017

A1. Instructions



Expert Terms of Reference Capital Efficiency Sharing Scheme (CESS)

**TransGrid
2018/19-2022/23
Revenue Determination**

18 October 2017

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1. Background

TransGrid is the owner, operator and manager of the high voltage electricity network in New South Wales and the Australian Capital Territory. As such, TransGrid is a transmission network service provider (TNSP) regulated under the NEL and the NER.

Chapter 6A of the NER sets out rules for the economic regulation of prescribed transmission services and negotiated transmission services provided by TNSPs. This regime requires the AER to determine the revenue allowed to be earned by TransGrid for prescribed transmission services during each regulatory year, in accordance with the post-tax revenue model (PTRM), described in Chapter 6A of the NER for each regulatory control period. In addition, a pricing methodology, negotiating framework and negotiated transmission service criteria must also be determined by the AER. The process for making a transmission determination is set out in Part E of Chapter 6A of the NER.

TransGrid has a right to apply to the Federal Court for judicial review of the AER's final transmission determination.

TransGrid is currently preparing its revised revenue proposal for the next regulatory period. The Capital Efficiency Sharing Scheme (CESS) is one of the building blocks used to determine TransGrid's allowed revenue. The AER has modified TransGrid's CESS building block calculation. TransGrid is seeking expert advice on the draft decision calculation of the CESS in relation to TransGrid's 2018/19-2022/23 revised revenue proposal.

The report will be submitted to the AER as part of the supporting documents to TransGrid's revised revenue proposal.

2. Scope of work

TransGrid requires:

- A draft report answering the following questions:
 - Does the CESS model attached to TransGrid's draft decision correctly provide for a 30 per cent sharing of the total efficiency gains and losses resulting from TransGrid's capital expenditure performance over the 2015-16 to 2017-18 period?
 - If not, what changes to the CESS model are necessary to achieve a 30 per cent sharing?
- A final report upon revision of the draft report

3. Other information to be considered

The expert is also expected to consider the following additional information:

- The AER's "Framework and approach for TransGrid | For regulatory control period commencing 1 July 2018", published July 2016.

- The AER's draft decision on TransGrid's transmission determination for the 2018-23 regulatory control period, published 28 September 2017.
- The AER's post-tax revenue model (PTRM).

4. Proposal requirements

The service provider is requested to provide a proposal addressing the project brief, including:

- Approach to the engagement, including any suggested changes to the brief or value-adds;
- High level project plan with milestone dates;
- Proposed personnel, including CVs;
- Capped price.

5. Deliverables

At the completion of its review the Expert will provide an independent expert report which:

- is of a professional standard capable of being submitted to the AER and published in the public domain with no confidentiality provisions. It must also be prepared on the understanding that it may be referenced in a judicial review, should this eventuate;
- in case where analysis is undertaken or models are used, sufficient detail of the analysis must be provided to meet the requirements of the National Electricity Rules Schedule S6A.1.1 (2) and (4), and Schedule S6A.1.2 (2), (3) and (5). These schedules require a Revenue Proposal to include methods for developing forecasts, methods for developing forecasts of key variables and key assumptions that underlie forecasts. Specifically, the use of "black box" analysis is precluded.
- contains a section summarising the Expert's experience and qualifications, and attaches the Expert's curriculum vitae (preferably in a schedule or annexure);
- identifies any person and their qualifications, who assists the Expert in preparing the report or in carrying out any research or test for the purposes of the report;
- summarises TransGrid's instructions and attaches these terms of reference;
- includes an executive summary which highlights key aspects of the Expert's work and conclusions; and
- (without limiting the points above) carefully sets out the facts that the Expert has assumed in putting together his or her report, as well as identifying any other assumptions made, and the basis for those assumptions.
- Notes that the expert has read and understood the attached Federal Court Expert Evidence Practice Note and include the declaration in paragraph 5.2.

The Expert's report will include the findings for each of the parts defined in the scope of works (section 2).

6. Timetable

The Expert's report will deliver the draft report to TransGrid by 06 November 2017 followed by the final report by 17 November 2017 with updated calculations for the final submission to the AER by 1 December 2017.

7. Terms of engagement

The terms on which the Expert will be engaged to provide the requested advice shall be as provided in accordance with the TransGrid's Regulatory Consultancy panel arrangement Terms and Conditions.

TransGrid intends to use this report as part of the revised revenue submission.

8. Remuneration

TransGrid, subject to the capped fees requested by this proposal, will pay you for time spent on this matter in accordance with the instructions of TransGrid at the agreed rates.

Attachment 1 – Expert Evidence Practice Note GPN-EXPT

EXPERT EVIDENCE PRACTICE NOTES (GPN-EXPT)

General Practice Note

1. INTRODUCTION

1.1 This practice note, including the *Harmonised Expert Witness Code of Conduct* (“**Code**”) (see Annexure A) and the *Concurrent Expert Evidence Guidelines* (“**Concurrent Evidence Guidelines**”) (see Annexure B), applies to any proceeding involving the use of expert evidence and must be read together with:

- (a) the Central Practice Note (CPN-1), which sets out the fundamental principles concerning the National Court Framework (“**NCF**”) of the Federal Court and key principles of case management procedure;
- (b) the *Federal Court of Australia Act 1976* (Cth) (“**Federal Court Act**”);
- (c) the *Evidence Act 1995* (Cth) (“**Evidence Act**”), including Part 3.3 of the Evidence Act;
- (d) Part 23 of the *Federal Court Rules 2011* (Cth) (“**Federal Court Rules**”); and
- (e) where applicable, the Survey Evidence Practice Note (GPN-SURV).

1.2 This practice note takes effect from the date it is issued and, to the extent practicable, applies to proceedings whether filed before, or after, the date of issuing.

2. APPROACH TO EXPERT EVIDENCE

2.1 An expert witness may be retained to give opinion evidence in the proceeding, or, in certain circumstances, to express an opinion that may be relied upon in alternative dispute resolution procedures such as mediation or a conference of experts. In some circumstances an expert may be appointed as an independent adviser to the Court.

2.2 The purpose of the use of expert evidence in proceedings, often in relation to complex subject matter, is for the Court to receive the benefit of the objective and impartial assessment of an issue from a witness with specialised knowledge (based on training, study or experience - see generally s 79 of the Evidence Act).

2.3 However, the use or admissibility of expert evidence remains subject to the overriding requirements that:

- (a) to be admissible in a proceeding, any such evidence must be relevant (s 56 of the Evidence Act); and

(b) even if relevant, any such evidence, may be refused to be admitted by the Court if its probative value is outweighed by other considerations such as the evidence being unfairly prejudicial, misleading or will result in an undue waste of time (s 135 of the Evidence Act).

2.4 An expert witness' opinion evidence may have little or no value unless the assumptions adopted by the expert (ie. the facts or grounds relied upon) and his or her reasoning are expressly stated in any written report or oral evidence given.

2.5 The Court will ensure that, in the interests of justice, parties are given a reasonable opportunity to adduce and test relevant expert opinion evidence. However, the Court expects parties and any legal representatives acting on their behalf, when dealing with expert witnesses and expert evidence, to at all times comply with their duties associated with the overarching purpose in the Federal Court Act (see ss 37M and 37N).

3. INTERACTION WITH EXPERT WITNESSES

3.1 Parties and their legal representatives should never view an expert witness retained (or partly retained) by them as that party's advocate or "hired gun". Equally, they should never attempt to pressure or influence an expert into conforming his or her views with the party's interests.

3.2 A party or legal representative should be cautious not to have inappropriate communications when retaining or instructing an independent expert, or assisting an independent expert in the preparation of his or her evidence. However, it is important to note that there is no principle of law or practice and there is nothing in this practice note that obliges a party to embark on the costly task of engaging a "consulting expert" in order to avoid "contamination" of the expert who will give evidence. Indeed the Court would generally discourage such costly duplication.

3.3 Any witness retained by a party for the purpose of preparing a report or giving evidence in a proceeding as to an opinion held by the witness that is wholly or substantially based in the specialised knowledge of the witness¹ should, at the earliest opportunity, be provided with:

- (a) a copy of this practice note, including the Code (see Annexure A); and
- (b) all relevant information (whether helpful or harmful to that party's case) so as to enable the expert to prepare a report of a truly independent nature.

¹ Such a witness includes a "Court expert" as defined in r 23.01 of the Federal Court Rules. For the definition of "expert", "expert evidence" and "expert report" see the Dictionary, in Schedule 1 of the Federal Court Rules.

3.4 Any questions or assumptions provided to an expert should be provided in an unbiased manner and in such a way that the expert is not confined to addressing selective, irrelevant or immaterial issues.

4. ROLE AND DUTIES OF THE EXPERT WITNESS

4.1 The role of the expert witness is to provide relevant and impartial evidence in his or her area of expertise. An expert should never mislead the Court or become an advocate for the cause of the party that has retained the expert.

4.2 It should be emphasised that there is nothing inherently wrong with experts disagreeing or failing to reach the same conclusion. The Court will, with the assistance of the evidence of the experts, reach its own conclusion.

4.3 However, experts should willingly be prepared to change their opinion or make concessions when it is necessary or appropriate to do so, even if doing so would be contrary to any previously held or expressed view of that expert.

Harmonised Expert Witness Code of Conduct

4.4 Every expert witness giving evidence in this Court must read the *Harmonised Expert Witness Code of Conduct* (attached in Annexure A) and agree to be bound by it.

4.5 The Code is not intended to address all aspects of an expert witness' duties, but is intended to facilitate the admission of opinion evidence, and to assist experts to understand in general terms what the Court expects of them. Additionally, it is expected that compliance with the Code will assist individual expert witnesses to avoid criticism (rightly or wrongly) that they lack objectivity or are partisan.

5. CONTENTS OF AN EXPERT'S REPORT AND RELATED MATERIAL

5.1 The contents of an expert's report must conform with the requirements set out in the Code (including clauses 3 to 5 of the Code).

5.2 In addition, the contents of such a report must also comply with r 23.13 of the Federal Court Rules. Given that the requirements of that rule significantly overlap with the requirements in the Code, an expert, unless otherwise directed by the Court, will be taken to have complied with the requirements of r 23.13 if that expert has complied with the requirements in the Code and has complied with the additional following requirements. The expert shall:

- (a) acknowledge in the report that:
 - (i) the expert has read and complied with this practice note and agrees to be bound by it; and
 - (ii) the expert's opinions are based wholly or substantially on specialised knowledge arising from the expert's training, study or experience;

- (b) identify in the report the questions that the expert was asked to address;
- (c) sign the report and attach or exhibit to it copies of:
 - (i) documents that record any instructions given to the expert; and
 - (ii) documents and other materials that the expert has been instructed to consider.

5.3 Where an expert's report refers to photographs, plans, calculations, analyses, measurements, survey reports or other extrinsic matter, these must be provided to the other parties at the same time as the expert's report.

6. CASE MANAGEMENT CONSIDERATIONS

6.1 Parties intending to rely on expert evidence at trial are expected to consider between them and inform the Court at the earliest opportunity of their views on the following:

- (a) whether a party should adduce evidence from more than one expert in any single discipline;
- (b) whether a common expert is appropriate for all or any part of the evidence;
- (c) the nature and extent of expert reports, including any in reply;
- (d) the identity of each expert witness that a party intends to call, their area(s) of expertise and availability during the proposed hearing;
- (e) the issues that it is proposed each expert will address;
- (f) the arrangements for a conference of experts to prepare a joint-report (see Part 7 of this practice note);
- (g) whether the evidence is to be given concurrently and, if so, how (see Part 8 of this practice note); and
- (h) whether any of the evidence in chief can be given orally.

6.2 It will often be desirable, before any expert is retained, for the parties to attempt to agree on the question or questions proposed to be the subject of expert evidence as well as the relevant facts and assumptions. The Court may make orders to that effect where it considers it appropriate to do so.

7. CONFERENCE OF EXPERTS AND JOINT-REPORT

7.1 Parties, their legal representatives and experts should be familiar with aspects of the Code relating to conferences of experts and joint-reports (see clauses 6 and 7 of the Code attached in Annexure A).

7.2 In order to facilitate the proper understanding of issues arising in expert evidence and to manage expert evidence in accordance with the overarching purpose, the Court may

require experts who are to give evidence or who have produced reports to meet for the purpose of identifying and addressing the issues not agreed between them with a view to reaching agreement where this is possible (“**conference of experts**”). In an appropriate case, the Court may appoint a registrar of the Court or some other suitably qualified person (“**Conference Facilitator**”) to act as a facilitator at the conference of experts.

- 7.3 It is expected that where expert evidence may be relied on in any proceeding, at the earliest opportunity, parties will discuss and then inform the Court whether a conference of experts and/or a joint-report by the experts may be desirable to assist with or simplify the giving of expert evidence in the proceeding. The parties should discuss the necessary arrangements for any conference and/or joint-report. The arrangements discussed between the parties should address:
- (a) who should prepare any joint-report;
 - (b) whether a list of issues is needed to assist the experts in the conference and, if so, whether the Court, the parties or the experts should assist in preparing such a list;
 - (c) the agenda for the conference of experts; and
 - (d) arrangements for the provision, to the parties and the Court, of any joint-report or any other report as to the outcomes of the conference (“**conference report**”).

Conference of Experts

- 7.4 The purpose of the conference of experts is for the experts to have a comprehensive discussion of issues relating to their field of expertise, with a view to identifying matters and issues in a proceeding about which the experts agree, partly agree or disagree and why. For this reason the conference is attended only by the experts and any Conference Facilitator. Unless the Court orders otherwise, the parties' lawyers will not attend the conference but will be provided with a copy of any conference report.
- 7.5 The Court may order that a conference of experts occur in a variety of circumstances, depending on the views of the judge and the parties and the needs of the case, including:
- (a) while a case is in mediation. When this occurs the Court may also order that the outcome of the conference or any document disclosing or summarising the experts' opinions be confidential to the parties while the mediation is occurring;
 - (b) before the experts have reached a final opinion on a relevant question or the facts involved in a case. When this occurs the Court may order that the parties exchange draft expert reports and that a conference report be prepared for the use of the experts in finalising their reports;
 - (c) after the experts' reports have been provided to the Court but before the hearing of the experts' evidence. When this occurs the Court may also order that a

conference report be prepared (jointly or otherwise) to ensure the efficient hearing of the experts' evidence.

- 7.6 Subject to any other order or direction of the Court, the parties and their lawyers must not involve themselves in the conference of experts process. In particular, they must not seek to encourage an expert not to agree with another expert or otherwise seek to influence the outcome of the conference of experts. The experts should raise any queries they may have in relation to the process with the Conference Facilitator (if one has been appointed) or in accordance with a protocol agreed between the lawyers prior to the conference of experts taking place (if no Conference Facilitator has been appointed).
- 7.7 Any list of issues prepared for the consideration of the experts as part of the conference of experts process should be prepared using non-tendentious language.
- 7.8 The timing and location of the conference of experts will be decided by the judge or a registrar who will take into account the location and availability of the experts and the Court's case management timetable. The conference may take place at the Court and will usually be conducted in-person. However, if not considered a hindrance to the process, the conference may also be conducted with the assistance of visual or audio technology (such as via the internet, video link and/or by telephone).
- 7.9 Experts should prepare for a conference of experts by ensuring that they are familiar with all of the material upon which they base their opinions. Where expert reports in draft or final form have been exchanged prior to the conference, experts should attend the conference familiar with the reports of the other experts. Prior to the conference, experts should also consider where they believe the differences of opinion lie between them and what processes and discussions may assist to identify and refine those areas of difference.

Joint-report

- 7.10 At the conclusion of the conference of experts, unless the Court considers it unnecessary to do so, it is expected that the experts will have narrowed the issues in respect of which they agree, partly agree or disagree in a joint-report. The joint report should be clear, plain and concise and should summarise the views of the experts on the identified issues, including a succinct explanation for any differences of opinion, and otherwise be structured in the manner requested by the judge or registrar.
- 7.11 In some cases (and most particularly in some native title cases), depending on the nature, volume and complexity of the expert evidence a judge may direct a registrar to draft part, or all, of a conference report. If so, the registrar will usually provide the draft conference report to the relevant experts and seek their confirmation that the conference report accurately reflects the opinions of the experts expressed at the conference. Once that confirmation has been received the registrar will finalise the conference report and provide it to the intended recipient(s).

8. CONCURRENT EXPERT EVIDENCE

- 8.1 The Court may determine that it is appropriate, depending on the nature of the expert evidence and the proceeding generally, for experts to give some or all of their evidence concurrently at the final (or other) hearing.
- 8.2 Parties should familiarise themselves with the *Concurrent Expert Evidence Guidelines* (attached in Annexure B). The Concurrent Evidence Guidelines are not intended to be exhaustive but indicate the circumstances when the Court might consider it appropriate for concurrent expert evidence to take place, outline how that process may be undertaken, and assist experts to understand in general terms what the Court expects of them.
- 8.3 If an order is made for concurrent expert evidence to be given at a hearing, any expert to give such evidence should be provided with the Concurrent Evidence Guidelines well in advance of the hearing and should be familiar with those guidelines before giving evidence.

9. FURTHER PRACTICE INFORMATION AND RESOURCES

- 9.1 Further information regarding Expert Evidence and Expert Witnesses is available on the Court's website.
- 9.2 Further information to assist litigants, including a range of helpful guides, is also available on the Court's website. This information may be particularly helpful for litigants who are representing themselves.

J L B ALLSOP
Chief Justice
25 October 2016

Annexure A

HARMONISED EXPERT WITNESS CODE OF CONDUCT²

APPLICATION OF CODE

1. This Code of Conduct applies to any expert witness engaged or appointed:
 - (a) to provide an expert's report for use as evidence in proceedings or proposed proceedings; or
 - (b) to give opinion evidence in proceedings or proposed proceedings.

GENERAL DUTIES TO THE COURT

2. An expert witness is not an advocate for a party and has a paramount duty, overriding any duty to the party to the proceedings or other person retaining the expert witness, to assist the Court impartially on matters relevant to the area of expertise of the witness.

CONTENT OF REPORT

3. Every report prepared by an expert witness for use in Court shall clearly state the opinion or opinions of the expert and shall state, specify or provide:
 - (a) the name and address of the expert;
 - (b) an acknowledgment that the expert has read this code and agrees to be bound by it;
 - (c) the qualifications of the expert to prepare the report;
 - (d) the assumptions and material facts on which each opinion expressed in the report is based [a letter of instructions may be annexed];
 - (e) the reasons for and any literature or other materials utilised in support of such opinion;
 - (f) (if applicable) that a particular question, issue or matter falls outside the expert's field of expertise;
 - (g) any examinations, tests or other investigations on which the expert has relied, identifying the person who carried them out and that person's qualifications;
 - (h) the extent to which any opinion which the expert has expressed involves the acceptance of another person's opinion, the identification of that other person and the opinion expressed by that other person;
 - (i) a declaration that the expert has made all the inquiries which the expert believes are

² Approved by the Council of Chief Justices' Rules Harmonisation Committee

- desirable and appropriate (save for any matters identified explicitly in the report), and that no matters of significance which the expert regards as relevant have, to the knowledge of the expert, been withheld from the Court;
- (j) any qualifications on an opinion expressed in the report without which the report is or may be incomplete or inaccurate;
 - (k) whether any opinion expressed in the report is not a concluded opinion because of insufficient research or insufficient data or for any other reason; and
 - (l) where the report is lengthy or complex, a brief summary of the report at the beginning of the report.

SUPPLEMENTARY REPORT FOLLOWING CHANGE OF OPINION

- 4. Where an expert witness has provided to a party (or that party's legal representative) a report for use in Court, and the expert thereafter changes his or her opinion on a material matter, the expert shall forthwith provide to the party (or that party's legal representative) a supplementary report which shall state, specify or provide the information referred to in paragraphs (a), (d), (e), (g), (h), (i), (j), (k) and (l) of clause 3 of this code and, if applicable, paragraph (f) of that clause.
- 5. In any subsequent report (whether prepared in accordance with clause 4 or not) the expert may refer to material contained in the earlier report without repeating it.

DUTY TO COMPLY WITH THE COURT'S DIRECTIONS

- 6. If directed to do so by the Court, an expert witness shall:
 - (a) confer with any other expert witness;
 - (b) provide the Court with a joint-report specifying (as the case requires) matters agreed and matters not agreed and the reasons for the experts not agreeing; and
 - (c) abide in a timely way by any direction of the Court.

CONFERENCE OF EXPERTS

- 7. Each expert witness shall:
 - (a) exercise his or her independent judgment in relation to every conference in which the expert participates pursuant to a direction of the Court and in relation to each report thereafter provided, and shall not act on any instruction or request to withhold or avoid agreement; and
 - (b) endeavour to reach agreement with the other expert witness (or witnesses) on any issue in dispute between them, or failing agreement, endeavour to identify and clarify

the basis of disagreement on the issues which are in dispute.

ANNEXURE B

CONCURRENT EXPERT EVIDENCE GUIDELINES

APPLICATION OF THE COURT'S GUIDELINES

1. The Court's Concurrent Expert Evidence Guidelines ("**Concurrent Evidence Guidelines**") are intended to inform parties, practitioners and experts of the Court's general approach to concurrent expert evidence, the circumstances in which the Court might consider expert witnesses giving evidence concurrently and, if so, the procedures by which their evidence may be taken.

OBJECTIVES OF CONCURRENT EXPERT EVIDENCE TECHNIQUE

2. The use of concurrent evidence for the giving of expert evidence at hearings as a case management technique³ will be utilised by the Court in appropriate circumstances (see r 23.15 of the *Federal Court Rules 2011* (Cth)). Not all cases will suit the process. For instance, in some patent cases, where the entire case revolves around conflicts within fields of expertise, concurrent evidence may not assist a judge. However, patent cases should not be excluded from concurrent expert evidence processes.
3. In many cases the use of concurrent expert evidence is a technique that can reduce the partisan or confrontational nature of conventional hearing processes and minimises the risk that experts become "opposing experts" rather than independent experts assisting the Court. It can elicit more precise and accurate expert evidence with greater input and assistance from the experts themselves.
4. When properly and flexibly applied, with efficiency and discipline during the hearing process, the technique may also allow the experts to more effectively focus on the critical points of disagreement between them, identify or resolve those issues more quickly, and narrow the issues in dispute. This can also allow for the key evidence to be given at the same time (rather than being spread across many days of hearing); permit the judge to assess an expert more readily, whilst allowing each party a genuine opportunity to put and test expert evidence. This can reduce the chance of the experts, lawyers and the judge misunderstanding the opinions being expressed by the experts.
5. It is essential that such a process has the full cooperation and support of all of the individuals involved, including the experts and counsel involved in the questioning

³ Also known as the "hot tub" or as "expert panels".

process. Without that cooperation and support the process may fail in its objectives and even hinder the case management process.

CASE MANAGEMENT

6. Parties should expect that, the Court will give careful consideration to whether concurrent evidence is appropriate in circumstances where there is more than one expert witness having the same expertise who is to give evidence on the same or related topics. Whether experts should give evidence concurrently is a matter for the Court, and will depend on the circumstances of each individual case, including the character of the proceeding, the nature of the expert evidence, and the views of the parties.
7. Although this consideration may take place at any time, including the commencement of the hearing, if not raised earlier, parties should raise the issue of concurrent evidence at the first appropriate case management hearing, and no later than any pre-trial case management hearing, so that orders can be made in advance, if necessary. To that end, prior to the hearing at which expert evidence may be given concurrently, parties and their lawyers should confer and give general consideration as to:
 - (a) the agenda;
 - (b) the order and manner in which questions will be asked; and
 - (c) whether cross-examination will take place within the context of the concurrent evidence or after its conclusion.
8. At the same time, and before any hearing date is fixed, the identity of all experts proposed to be called and their areas of expertise is to be notified to the Court by all parties.
9. The lack of any concurrent evidence orders does not mean that the Court will not consider using concurrent evidence without prior notice to the parties, if appropriate.

CONFERENCE OF EXPERTS & JOINT-REPORT OR LIST OF ISSUES

10. The process of giving concurrent evidence at hearings may be assisted by the preparation of a joint report or list of issues prepared as part of a conference of experts.
11. Parties should expect that, where concurrent evidence is appropriate, the Court may make orders requiring a conference of experts to take place or for documents such as a joint-report to be prepared to facilitate the concurrent expert evidence process at a

hearing (see Part 7 of the Expert Evidence Practice Note).

PROCEDURE AT HEARING

12. Concurrent expert evidence may be taken at any convenient time during the hearing, although it will often occur at the conclusion of both parties' lay evidence.
13. At the hearing itself, the way in which concurrent expert evidence is taken must be applied flexibly and having regard to the characteristics of the case and the nature of the evidence to be given.
14. Without intending to be prescriptive of the procedure, parties should expect that, when evidence is given by experts in concurrent session:
 - (a) the judge will explain to the experts the procedure that will be followed and that the nature of the process may be different to their previous experiences of giving expert evidence;
 - (b) the experts will be grouped and called to give evidence together in their respective fields of expertise;
 - (c) the experts will take the oath or affirmation together, as appropriate;
 - (d) the experts will sit together with convenient access to their materials for their ease of reference, either in the witness box or in some other location in the courtroom, including (if necessary) at the bar table;
 - (e) each expert may be given the opportunity to provide a summary overview of their current opinions and explain what they consider to be the principal issues of disagreement between the experts, as they see them, in their own words;
 - (f) the judge will guide the process by which evidence is given, including, where appropriate:
 - (i) using any joint-report or list of issues as a guide for all the experts to be asked questions by the judge and counsel, about each issue on an issue-by-issue basis;
 - (ii) ensuring that each expert is given an adequate opportunity to deal with each issue and the exposition given by other experts including, where considered appropriate, each expert asking questions of other experts or supplementing the evidence given by other experts;
 - (iii) inviting legal representatives to identify the topics upon which they will cross-examine;
 - (iv) ensuring that legal representatives have an adequate opportunity to ask

all experts questions about each issue. Legal representatives may also seek responses or contributions from one or more experts in response to the evidence given by a different expert; and

- (v) allowing the experts an opportunity to summarise their views at the end of the process where opinions may have been changed or clarifications are needed.
15. The fact that the experts may have been provided with a list of issues for consideration does not confine the scope of any cross-examination of any expert. The process of cross-examination remains subject to the overall control of the judge.
 16. The concurrent session should allow for a sensible and orderly series of exchanges between expert and expert, and between expert and lawyer. Where appropriate, the judge may allow for more traditional cross-examination to be pursued by a legal representative on a particular issue exclusively with one expert. Where that occurs, other experts may be asked to comment on the evidence given.
 17. Where any issue involves only one expert, the party wishing to ask questions about that issue should let the judge know in advance so that consideration can be given to whether arrangements should be made for that issue to be dealt with after the completion of the concurrent session. Otherwise, as far as practicable, questions (including in the form of cross-examination) will usually be dealt with in the concurrent session.
 18. Throughout the concurrent evidence process the judge will ensure that the process is fair and effective (for the parties and the experts), balanced (including not permitting one expert to overwhelm or overshadow any other expert), and does not become a protracted or inefficient process.

A2. Curriculum vitae



Brendan Quach

Senior Economist

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Overview

Brendan has worked as a consulting economist, specialising in network economics and finance in Australia, New Zealand and Asia Pacific region. Over the last 16 years Brendan has advised clients on the application of regulatory principles to airports, ports, telecommunications electricity transmission and distribution networks, water networks and gas pipelines. He has provided advice on application of the building block approach, incentive mechanisms, operating and capital allowances, financing and asset valuation to businesses, regulators and governments.

Brendan is a specialist in the cost of capital for use in regulatory price reviews and contract arbitrations. He has authored reports on all aspects of the cost of capital including equity estimation techniques, the impact of tax imputation credits, and estimating benchmark debt costs.

Qualifications

1991-1995 **Australian National University**
Bachelor of Economics
(High Second Class Honours)

1991-1997 **Australian National University**
Bachelor of Laws

Career Details

2014- **HoustonKemp Economists**
Senior Economist, Sydney, Australia

2001-2014 **NERA Economic Consulting**
Senior Consultant, Sydney, Australia

1998-1999 **Australian Chamber of Commerce and Industry**

Project Experience

Finance

- 2017** **ESCOSA**
Cost of capital for a benchmark water business
Provided advice to the Commission on the implications of a move to a long-term cost of equity allowance for a benchmark water utility. This advice consider the implications of this change to customer prices, the volatility of regulated revenues, and the impact on incentives for efficient investment by a regulated business.
- 2017** **Western Power**
Refinements to the ERA's approach to the MRP
Brendan co-authored an expert report that assesses the approach of Economic Regulation Authority to setting a prevailing MRP and suggesting a number of refinements. We review both the calculation of the long term historical MRP and estimates of the MRP derived from dividend growth models.
- 2017** **ActewAGL Retail, ACT**
Retail margin for regulated retail tariffs
Brendan co-authored a report responding to the ICRC's draft decision to change its methodology for determining the retail margin component of regulated electricity standing offer prices. We considered the adequacy of the ICRC's approach in light of the factors that may be expected to affect the costs recovered by the retail margin.
- 2014-16** **Sale of the Port of Melbourne**
Cost of capital and financial modelling
Provided strategic advice on economic regulation of the Port of Melbourne in the context of the proposed long term lease of the port by way of long term lease to Victorian Department of Treasury and Finance. Key tasks included to building of a regulatory financial mode for the lease period, and provided an indicative cost of capital estimate for the port.
- 2015** **Colonial First State Global Asset Management**
Due Diligence Report for the Vector Gas Transaction
Brendan was part of a team that provided strategic advice on economic regulation of the Vector gas transmission and distribution businesses in the context of sale. Our advice detailed the legal and institutional arrangements applying to New Zealand gas businesses and steps through the key factors considered by the Commerce Commission (the Commission) in its periodic determination of the applicable price-quality paths.
- 2015** **DLA Piper/Confidential Client**
Expert reports on the economic and regulatory principles of infrastructure pricing
Brendan provided strategic advice on the appropriate cost of capital and financial models for an Australian aeronautical services business.

- 2015** **ESCOSA**
Cost of capital for a benchmark water business
Provided a range of reports on the cost of capital for a benchmark water utility. Reports covered the use of different cost of equity models, the value of the market risk premium, gamma, and the use of a trailing average cost of debt.
- 2015** **Sydney Water**
Equity beta for a regulated Australian water business
Brendan authored an expert report for submission to the Independent Pricing and Regulatory Tribunal on empirical evidence of the equity beta for a benchmark Australian water network service provider.
- 2014-15** **TransGrid**
Cost of Capital
Co-authored two expert reports submitted by TransGrid in support of its 2014-18 revenue proposal. The expert report covered all aspects of the new cost of capital framework, including return on equity estimates generated by the CAPM, Black CAPM, the Fama-French three-factor model, and DGMs, and the approach method of transitioning to a trailing average cost of debt.
- 2014** **New Zealand Airports Association / Powerco (New Zealand)**
Review of the WACC Percentile
Brendan assisted in the preparation of two expert reports – one for the New Zealand Airports Association, and the other for Powerco – for submission to the New Zealand Commerce Commission in response to its review of the cost of capital input methodologies. The reports reviewed the Commission’s approach to setting the regulatory WACC at the 75th percentile, discussed the economic rationale for setting a WACC above an unbiased midpoint estimate of the cost of capital, and considered the merits and practicability of undertaking an in-depth empirical estimate of the ‘optimal’ cost of capital percentile.
- 2014** **Queensland Competition Authority**
Price review
Undertook an independent quality assurance assessment of the models used to calculate regulated revenues for Queensland water utilities. The review considered: the formulation of the WACC; the intra year timing of cash flows; and the structural, computational and economic integrity of the models.
- 2014** **DLA Piper/Confidential Client**
Expert reports on the economic and regulatory principles of infrastructure pricing
Brendan assisted in the preparation of three expert reports in relation to the economic and regulatory principles used to allocate shared costs, supporting peak pricing and developing an economic framework for pricing aeronautical services. In addition, Brendan provided strategic advice on the appropriate cost of capital and financial modelling.
- 2013-15** **Sydney Water Corporation**
Cost of capital estimation
Prepare three expert reports for submission to the Independent Pricing and Regulatory Tribunal (IPART) on the framework for determining the weighted average cost of capital for infrastructure service providers, and on estimation of an appropriate equity beta.

- 2013** **Queensland Competition Authority**
Price review
Undertook an independent quality assurance assessment of the models used to calculate regulated revenues for Queensland water utilities. The review considered: the formulation of the WACC; the intra year timing of cash flows; and the structural, computational and economic integrity of the models.
- 2012-13** **Gilbert + Tobin/Rio Tinto Coal Australia**
Assistance in drafting expert report on port prices
Analysis and expert reports prepared in the context of an arbitration concerning the price to be charged for use of the coal loading facilities at Abbott Point Coal Terminal. Issues addressed included asset valuation, cost of capital, forecast operation and maintenance costs and the economic interpretation of building block regulation.
- 2012-13** **Ashurst/Brisbane Airport Corporation**
Draft access undertaking
Advice, analysis and expert report on the weighted average cost of capital (WACC) in the context of the preparation of a draft access undertaking specifying the basis for determining a ten year price path for landing charges necessary to finance a new parallel runway at Brisbane airport.
- 2012** **APA GasNet**
Assistance in drafting cost of capital submission
Provided drafting assistance and strategic advice to APA on GasNet's cost of capital submission to the AER for the Victorian principal gas transmission network.
- 2012** **APA Brisbane to Roma Pipeline**
Assistance in drafting cost of capital submission
Provided drafting assistance and strategic advice to APA on the Brisbane to Roma Pipeline cost of capital submission to the AER.
- 2012** **Energy Networks Association**
Rate of return framework guideline
Co-authored a number of expert reports submitted to the Australian Energy Regulator on the rate of return framework guideline. These report considered a range of financial issues including: the applicability of various financial models to the estimation of the cost of equity; the estimates of the cost of equity from the Black CAPM; estimates of the historic market, size and value premiums; and the payout ratio of created imputation credits.
- 2012** **Energy Networks Association**
Advice on the new rate of return framework
Advice to the Energy Networks Association on the appropriate the implications of the new allowed rate of return framework to apply to electricity and gas transmission and distribution businesses. This report considered a range of financial models and other information that the regulator should have regard to when setting the regulated return on equity.
- 2012** **Victorian Gas Networks**
Black Capital Asset Pricing Model
Brendan co-authored a report that examined whether a version of the Black CAPM is better able than an empirical version of the Sharpe-Lintner (SL) CAPM to produce an estimate of the cost of equity that meets the requirements of Rule 87 (1) of the National Gas Rules (NGR). Following an examination of Australian financial data we concluded that an empirical version of the Black CAPM is better able than an empirical version the SL CAPM.

- 2011-12** **Energy Networks Association**
Review of Economic Regulation of Network Service Providers
Advice and expert reports submitted to the Australian Energy Market Commission on the new allowed rate of return framework to apply to electricity and gas transmission and distribution businesses, as proposed by the Australian Energy Regulator and the Energy Users Rule Change Committee.
- 2011-12** **Energy Networks Association**
Review of Economic Regulation of Network Service Providers
Advice and expert reports submitted to the Australian Energy Market Commission on the expenditure and incentive frameworks to apply to electricity transmission and distribution businesses, as proposed by the Australian Energy Regulator.
- 2011** **Multinet Gas and SP AusNet - Gas Distribution**
Report on the market risk premium
Co-authored a report that examined a number of issues arising from the draft decision on Envestra's access proposal for the SA gas network. The report considered whether: the historical evidence supported the use of a long term average of 6 per cent; there is any evidence to warrant a MRP at its long term average; and the evidence relied on by the AER to justify its return to a MRP of 6 per cent.
- 2011** **Dampier to Bunbury Natural Gas Pipeline - Gas Transmission**
Cost of equity of a regulated natural gas pipeline
Co-authored two reports that updated the cost of equity for a gas transmission business and responded to issues raised by the regulator in its draft decision. The report re-estimated the cost of equity of a gas distribution business using the Sharpe Lintner CAPM, Black CAPM, Fama-French three-factor model and a zero beta version of the Fama-French three-factor model.
- 2010-11** **Queensland Competition Authority**
Weighted Average Cost of Capital (WACC) for SunWater
Retained to provide two expert reports on the WACC for SunWater a Queensland rural infrastructure business. The first report considered issues pertaining to whether a single or multiple rates of return can be applied across SunWater's network segments. The second report focuses market evidence on the appropriate rate of return for SunWater.
- 2011** **Mallesons Stephens Jaques/ActewAGL Distribution**
Determining the averaging period
Assisted in the development of an expert report that considered the economic and financial matters arising from the Australian Energy Regulator's decision to reject ActewAGL's proposed risk free rate averaging period.
- 2010** **Industry Funds Management/Queensland Investment Corporation**
Due diligence, Port of Brisbane
Brendan was retained to advise on various regulatory and competition matters likely to affect the future financial and business performance of the Port of Brisbane, in the context of its sale by the Queensland government.
- 2010** **Dampier to Bunbury Natural Gas Pipeline (DBNGP) - Gas Transmission**
Cost of equity of a regulated natural gas pipeline
Co-authored a report that examined four well accepted financial models to estimate the cost of equity for a gas transmission business. The report of estimating the cost of equity of a gas distribution business using the Sharpe Lintner CAPM, Black CAPM, Fama-French three-factor model and a zero beta version of the Fama-French three-factor model.

- 2009-10** **Jemena - Gas Distribution**
Cost of equity of a regulated natural gas distribution network
Co-authored two reports on the use of the Fama-French three-factor model to estimate the cost of equity for regulated gas distribution business. The report examined whether the Fama-French three-factor model met the dual requirements of the National Gas Code to provide an accurate estimate of the cost of equity and be a well accepted financial model. Using Australian financial data the report also provided a current estimate of the cost of equity for Jemena.
- 2009** **WA Gas Networks**
Cost of equity of a regulated natural gas distribution network
Co-authored a report that examined a range of financial models that could be used to estimate the cost of equity for a gas distribution business. The report of estimating the cost of equity of a gas distribution business using the Sharpe Lintner CAPM, Black CAPM, Fama-French three-factor model and Fama-French two-factor model. The report examined both the domestic and international data.
- 2009** **Jemena and ActewAGL**
Cost of equity of a regulated natural gas distribution network
Co-authored a report on alternative financial models for estimating the cost of equity. The report examined the implication of estimating the cost of equity of a gas distribution business using the Sharpe Lintner CAPM, Black CAPM and Fama-French models. The report examined both the domestic and international data.
- 2009** **Prime Infrastructure**
Sale of Dalrymple Bay Coal Terminal (DBCT)
Brendan provided regulatory advice to a number of potential bidders for the assets of DBCT. Advice included an assessment of the rate of return parameters, depreciation, regulatory modelling and the regulatory arrangements in Queensland.
- 2008** **Joint Industry Associations - APIA, ENA and Grid Australia**
Weighted Average Cost of Capital for a regulated energy network
Assisted in the drafting of the Joint Industry Associations submission to the Australian Energy Regulator's weighted average cost of capital review. The submission examined the current market evidence of the cost of capital for Australian regulated electricity transmission and distribution businesses.
- 2008** **Joint Industry Associations - APIA, ENA and Grid Australia**
Weighted Average Cost of Capital for a regulated energy network
Expert report for the Joint Industry Associations on the value of imputation credits. The expert report was attached to their submission to the Australian Energy Regulator's weighted average cost of capital review. The report examined the current evidence of the market value of imputation credits (gamma) created by Australian regulated electricity transmission and distribution businesses.

Regulatory Analysis

- 2017** **ActewAGL Distribution**
Remittal opex strategy
Brendan, together with Ann Whitfield, has been advising ActewAGL Distribution on potential strategies for the remittal of its operating expenditure allowance for the 2014-19 period. This assistance includes decision modelling the financial implications of different strategies, potential implications for the 2019 revenue reset, the interaction with the AER's opex incentive mechanism (EBSS), and the implications of adverse capital expenditure and service quality outcomes.

- 2017** **Endeavour Energy**
Development of its opex proposal
Brendan provided strategic advice to Endeavour Energy on its operating expenditure allowance proposal for its 2019-24 regulatory reset.
- 2016-2017** **Icon Water, ACT**
Workshop on key regulatory issues
Brendan facilitated a series of workshops for Icon Water's senior management on key aspects of their upcoming regulatory submission for their water and wastewater business, including the rate of return, regulatory modelling and depreciation.
- 2016** **DLA Piper**
Appeal by the Victorian DNSPs
Brendan provided submission to the Australian Competition Tribunal on the application of the efficiency benefit sharing scheme (EBSS) on behalf of the Victorian DNSP's.
- 2016** **Manildra**
The economic regulation of a price cap on wholesale ethanol
Brendan provided strategic advice to Manildra on the potential introduction of a maximum wholesale price, or pricing mechanism, for ethanol in NSW. This advice included the development of an expert report that was submitted to the IPART the NSW economic regulator.
- 2016** **Western Power**
Regulatory assistance
Regulatory advisor to Western Power on its proposed move to the national electricity market. The advice included assistance in developing regulatory incentive mechanisms, cost of capital, depreciation, asset roll forward, regulatory revenue, and tariff design.
- 2015-16** **Government of New South Wales**
Economic regulation for privatisation
Advisor to government of New South Wales on all economic regulatory aspects of the proposed partial lease the electricity transmission and distribution entities, TransGrid, AusGrid and Endeavour Energy.
- 2015** **ActewAGL GAS Distribution**
Operation of the efficiency benefit sharing scheme
Brendan is provided an independent expert report responding to the Australian Energy Regulator's draft decision on the efficiency benefit sharing scheme (EBSS) carry forward amounts to be included in the revenues for 2016/17 to 2020/21 period.
- 2015** **Jemena Gas Networks**
Estimation of standalone, avoidable and LRM of the ACT gas network
Brendan authored an expert report that estimated the standalone, avoidable and long-run marginal cost of the ACT gas network. This report was submitted to the AER as part of ActewAGL's 2015 access arrangement proposal.

- 2015** **SA Power Networks**
Expert report on regulatory depreciation
Brendan authored an expert report for submission to the Australian Energy Regulator on whether SA Power Network's the proposed depreciation schedules were compliant with the requirements of the National Electricity Rules to depreciate assets over their economic lives.
- 2015** **Ergon Energy**
Review of regulatory depreciation
Provided Ergon with an internal strategy paper assessing different methods for calculating the remaining lives of asset or groups of assets.
- 2014/15** **ActewAGL Electricity Distribution**
Incentive arrangements applying with opex benchmarking
Brendan authored an expert report on the application of the EBSS for ActewAGL electricity distribution in the circumstances where the regulator has not used revealed costs to determine the forthcoming opex allowance. This report focuses on the incentive arrangements existing for ActewAGL and whether these arrangements are consistent with the national electricity objective.
- 2014** **Ausgrid**
Application of the AER's efficiency benefit sharing scheme
Brendan provided expert advice to Ausgrid on the estimation of the efficiency carry-forward to be applied in the 2014-19 period. This advice extended to strategic advice on the implications of the AER's Better Regulation new EBSS.
- 2014** **ActewAGL Gas Distribution**
Tariff control mechanism for gas distribution network
Brendan provided analysis and advice in relation to the tariff variation mechanisms available under the National Gas Rules (NGR), and the issues that ActewAGL should consider in arriving at a decision on the mechanism to be proposed in its 2016-21 gas network access arrangement.
- 2014** **Johnson Winter & Slattery/ATCO GAS**
Application of depreciation options under the new gas rules
Assisted in the drafting of an expert report on depreciation options consistent with the new gas rules for ATCO Gas for submission to the Economic Regulation Authority of Western Australia.
- 2013** **Energy Networks Association**
Submission to the AER's Proposed Efficiency Incentive Schemes
Brendan led a team that undertook to quantitatively investigate the incentive properties of the Australian Energy Regulator's (AER's) proposed efficiency schemes. The output of this assignment was an expert report to the AER's Better Regulation issues paper and internal advice to the ENS on the implications on aspects of the draft determination.
- 2013** **Actew Corporation**
Interpretation of economic terms
Advice on economic aspects of the draft and final decisions of the Independent Competition and Regulatory Commission in relation to the price controls applying to Actew.

- 2012-13** **Gilbert + Tobin/Rio Tinto Coal Australia**
Assistance in drafting expert report on port prices
Analysis and expert reports prepared in the context of an arbitration concerning the price to be charged for use of the coal loading facilities at Abbott Point Coal Terminal. Issues addressed included asset valuation, cost of capital, forecast operation and maintenance costs and the economic interpretation of building block regulation.
- 2012** **ACTEW Water**
Review of regulatory models
Brendan provided strategic and analytical advice to ACTEW on its regulatory models. The analysis included analysis of the risks and challenges of adopting a post-tax revenue model and the application of expenditure incentive mechanisms.
- 2012** **Queensland Competition Authority**
Review of the retail water regulatory models
Brendan undertook an independent quality assurance assessment of the financial models relied on by the QCA to set the regulated revenues of SunWater. The review considered: SunWater's Financial model, a model used by SunWater to calculate future electricity prices, an renewals annuity model, as well as the QCA's regulatory model. These models established a set of recommended prices for each of the 30 irrigation schemes operated by SunWater for the period 2014 to 2019.
- 2011** **Queensland Competition Authority**
Review of the retail water regulatory models
Undertook an independent quality assurance assessment of the models used to calculate regulated revenues for Queensland Urban Utilities, Allconnex Water, and Unitywater. The review considered: the formulation of the WACC; the intra year timing of cashflows; and the structural, computational and economic integrity of the models.
- 2011** **Western Power**
Review of Service Standards and Incentive Framework for AA3
Brendan co-authored an expert report for Western Power that advised whether the proposed service standard framework was consistent with the Access Code and provided appropriate incentives for efficiency in the long term interests of consumers.
- 2011** **Queensland Competition Authority**
Review of the wholesale water regulatory models
Undertook an independent quality assurance assessment of the models used to calculate regulated revenues for LinkWater, Seqwater; and WaterSecure. The review considered: the formulation of the WACC; the intra year timing of cashflows; and the structural, computational and economic integrity of the models.
- 2010-11** **Minter Ellison /UNELCO**
Review of regulatory decision by the Vanuatu regulator
Assisted in the development of an expert report on a range of matters arising from the Vanuatu regulator's decision to reset electricity prices under four concession contracts held by UNELCO. The matters considered included the methodology employed to calculate the new base price, the appropriateness of the rate of return, the decision by the regulator to reset future prices having regard to past gains/losses.

- 2010** **Orion Energy, New Zealand**
Information disclosure regime
Provided advice and assistance in preparing submissions by Orion to the New Zealand Commerce Commission, in relation to the Commission's proposed weighted average cost of capital for an electricity lines businesses. Issues addressed included the financial model used to calculate the required return on equity, the appropriate term for the risk free rate and the WACC parameter values proposed by the Commission.
- 2010** **Grid Australia**
Amendments to the AER's transmission revenue and asset value models
Developed and drafted a submission to the AER on the proposed amendments to the AER's post-tax revenue model (PTRM) and roll forward model (RFM). The proposal focused on a number of suggestions to simplify and increase the usability of the existing models.
- 2009** **CitiPower and Powercor – Victorian Electricity Distribution**
Network Reliability Incentive Mechanism (S-factor)
Brendan was engaged by CitiPower and Powercor to provide advice on the proposed changes to the operation of the reliability incentive mechanism and was subsequently engaged to analysis the final version of the new arrangements. The advice considered the effects of the proposed changes to the operation of the two distribution network service providers. Specifically, how the 'S-factors' would be changed and implications this has to the revenue streams of the two businesses. A comparison was also made with the current ESC arrangements to highlight the changes to the mechanism.
- 2007** **Electricity Transmission Network Owners Forum (ETNOF)**
Amendments to the AER's transmission revenue and asset value models
Developed and drafted a submission to the AER on the proposed post-tax revenue model (PTRM) and roll forward model (RFM) that would apply to all electricity transmission network service providers (TNSPs). The proposal focused ensuring that the regulatory models gave effect to the AER's regulatory decisions and insures that TNSPs have a reasonable opportunity to recover their efficient costs.
- Policy**
- 2010** **Ministerial Council on Energy, Smart Meter Working Group**
The costs and benefits of electricity smart metering infrastructure in rural and remote communities
This report extends NERA's earlier analysis of the costs and benefits of a mandatory roll out of smart meters, by consider the implications of a roll out in rural and remote communities in the Northern Territory, Western Australia and Queensland. The project has focused on eight case study communities and has examined the implications of prepayment metering and remoteness on the overall costs and benefits of a roll out.

2007-08**Ministerial Council on Energy, Smart Meter Working Group
Assessment of the costs and benefits of a national mandated rollout of smart metering and direct load control**

Part of a project team that considered the costs and benefits of a national mandated rollout of electricity smart meters. Brendan was primarily responsible for the collection of data and the modelling of the overall costs and benefits of smart metering functions and scenarios. The analysis also considering the likely costs and benefits associated with the likely demand responses from consumers and impacts on vulnerable customers.



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