



FINAL REPORT

Depreciation Consultancy

Submitted to

ENERGEX Ltd

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1. INTRODUCTION

In their recent draft determination, the QCA has estimated that ENERGEX received a windfall gain of \$41m during the current regulatory period associated with the decision to change the standard lives of a number of network assets for the next regulatory period. In essence, the QCA calculated that the change in asset lives meant that ENERGEX was allowed too much depreciation and not enough return on assets in the current period and that the depreciation over-provision significantly out-weighed the RoA under-provision. Hence, the QCA has decided to adjust ENERGEX's revenue cap in the next regulatory period to take account of this windfall gain.

ENERGEX has commissioned Charles River Associates (CRA) to:

1. Assess the ex-post changes in network standard asset lives on ENERGEX's Annual Aggregate Revenue Requirements (AARR) for the 2001-2005 (previous regulatory determination) regulatory period.
2. Review the ENERGEX financial model for same. *Please note that Ernst & Young have been engaged to check and audit the accuracy and validity of ENERGEX's financial model that calculates the changes in AARR as a result of the change in network standard asset lives.*
3. Review chapter 6 of the QCA's (2004) "Draft Determination – Regulation of Electricity Distribution", and advise ENERGEX on an appropriate response to the QCA's position of a "windfall gain" in depreciation as detailed in the Draft Determination.
4. Provide a report summarising conclusions from this investigation.

1.1. LIMITATIONS ON THE SCOPE OF THIS REPORT

CRA has been asked to review the formulae used in the spreadsheet supplied by ENERGEX. We did not review or test the input data, as that task was not feasible in the available time. We did not audit the spreadsheet model in the sense of verifying that formulae were consistently applied to all cells in a column, or across all columns. We understand that the task of auditing the spreadsheet was undertaken by another firm.

The calculations performed by the QCA were not always transparent in the QCA draft determination. We have not confirmed the validity of any QCA calculations. In some cases it was difficult to determine with certainty precisely what method the QCA used to derive the AARR for some years, as the verbal description of their method was ambiguous and the mathematical description was not set out comprehensively. As a result, we are unable to form an opinion as to whether the method proposed by the QCA for adjustment to the AARR is consistent with the

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Financial Capital Maintenance principle which appears to motivate it—assuming that an adjustment is needed and that the QCA is legally entitled to make such an adjustment. As we discuss below, an examination of the relevant principles suggests that no adjustment is needed.

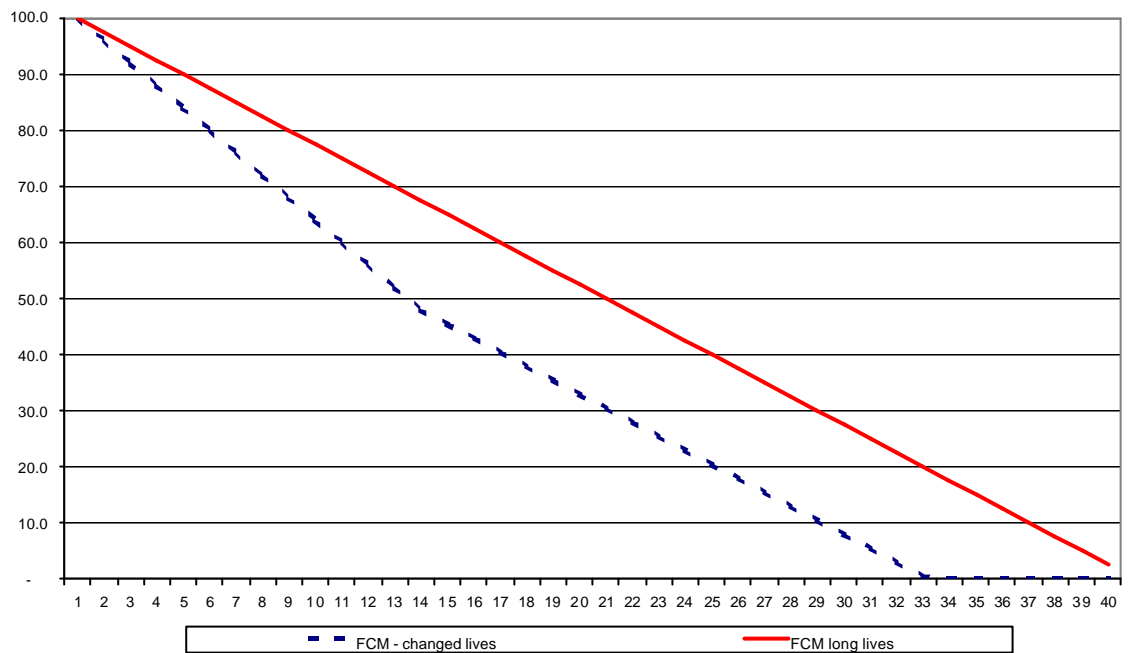
2. RELEVANT PRINCIPLES

The building block method of determining an annual average revenue requirement, which is applied by the QCA in this case, is widely used in Australian regulation. It represents one embodiment of the Financial Capital Maintenance principle which, in simple terms, states that a regulated firm should operate under prices that ensure its financial capital remains intact, assuming prudent investment and operating choices. In other words, if the Financial Capital Maintenance principle is observed, then the regulated investor should “get its money back” in the form of return of assets (depreciation) and return on assets (risk-adjusted opportunity cost of capital).

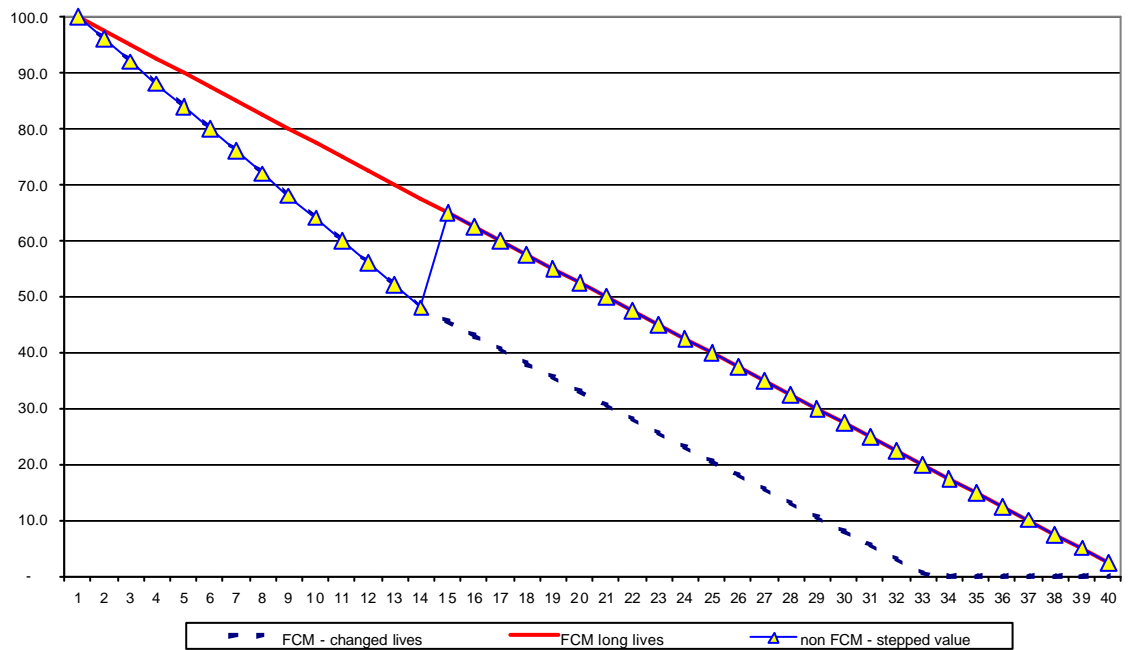
The notion of over-recovery, which appears to play an important role in the QCA’s analysis of the changed asset lives, comes into play because the QCA has formed a view that ENERGEN has, in essence, gotten more than its money back over the past regulatory period. Implicitly, the principle on which the QCA relies is that ENERGEN could suffer a repayment of some depreciation-related revenues from 2002 – 2005 and still achieve Financial Capital Maintenance overall.

Many different depreciation profiles over time would be consistent with Financial Capital Maintenance. Although linear depreciation has been selected by the QCA in this case, that choice is not dictated by Financial Capital Maintenance. A kinked depreciation profile would also be consistent with the principle as long as there are no step changes in the DORC value at any time and the DORC value reaches zero before the asset stops earning income.

The diagram below compares a linear depreciation profile with a kinked one. Such a kinked profile might arise if an asset were initially depreciated at a high rate consistent with a relatively short asset life, and then later depreciated at a slower rate as a result of an upward revision of the asset life (as has happened in the present case).

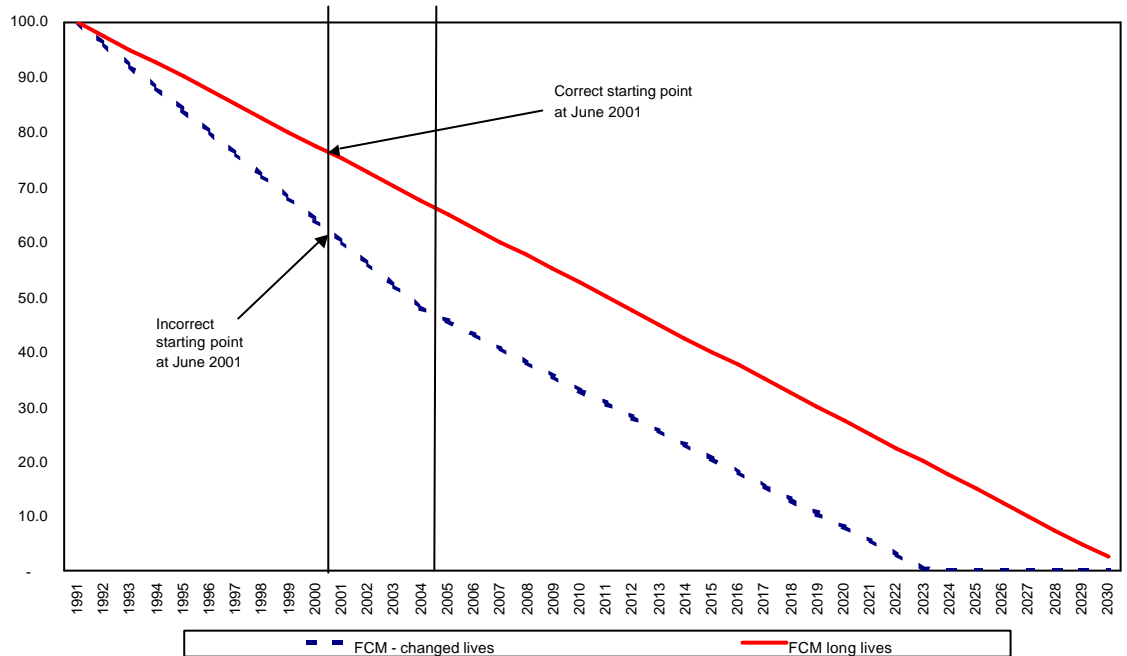


Both of these depreciation profiles are consistent with Financial Capital Maintenance. These may be contrasted with the stepped depreciation profile shown in the diagram below, which is inconsistent with Financial Capital Maintenance.



The question of principle in the present instance is whether or not the revision to ENERGEX asset lives has had the effect of making its aggregate depreciation profile a stepped one like that in the diagram above.

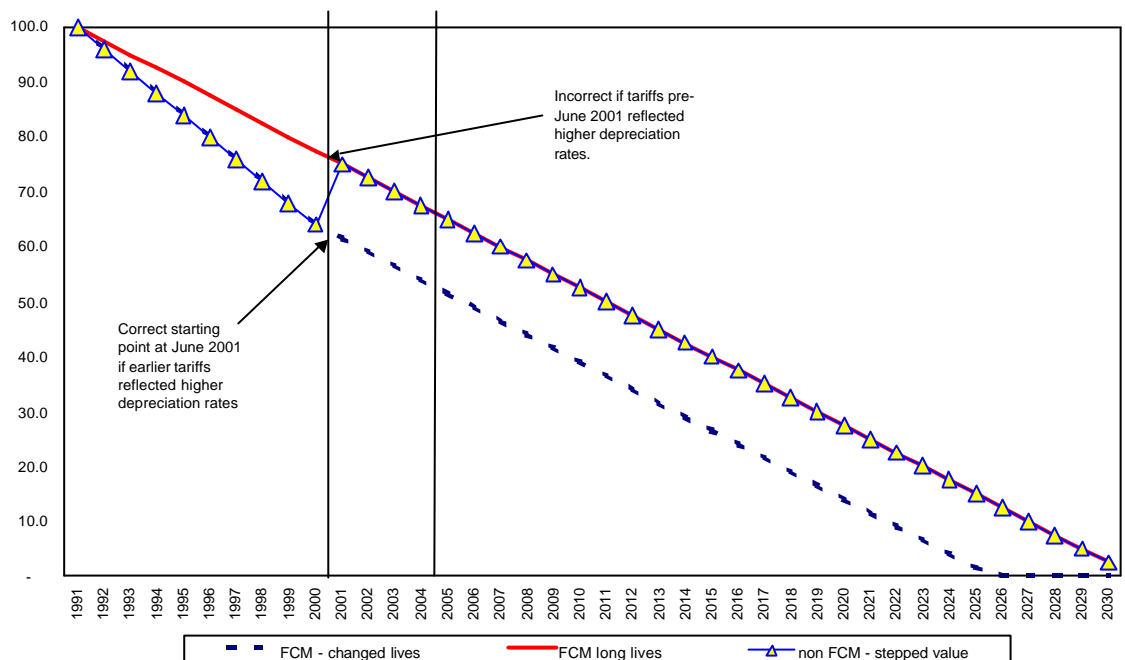
In order to address that question properly, it is necessary to introduce a realistic time scale to our diagrams. In the diagram below, the kink in the depreciation profile occurs at June 2005. Vertical lines highlight the boundaries of the previous regulatory period.



If the correct asset lives had been known in June 2001, then the correct DORC valuation of assets would have been higher than the value permitted by the QCA at that time. In other words, the QCA pricing determinations for the previous regulatory period presumed an incorrect, low starting point for DORC.

There is a possible objection to this approach, which is illustrated in the diagram below.

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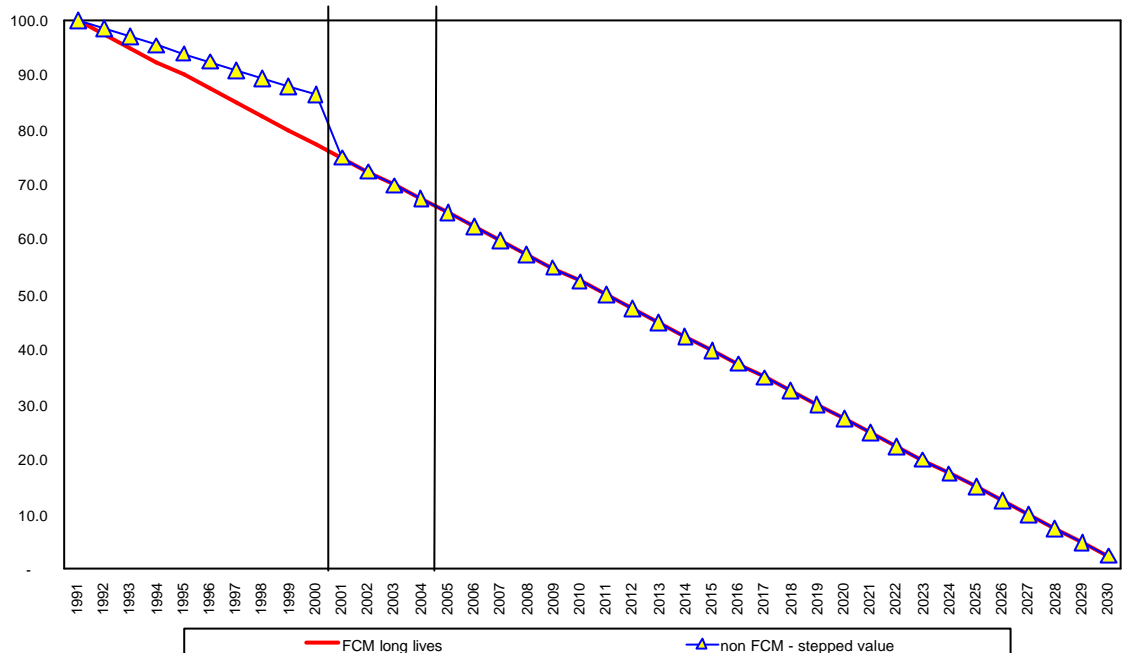


If tariffs prior to June 2001 had reflected the higher depreciation charges associated with the incorrect shorter asset lives, then correcting the June 2001 asset value would have involved a step change in the depreciation profile, as shown hypothetically in the diagram above. If such a step change could be shown to have occurred, then one might object that this value correction would violate the Financial Capital Maintenance principle.

As a matter of fact, we understand that it would be extremely difficult to demonstrate that tariffs prior to June 2001 did reflect higher depreciation charges associated with shorter asset lives. The QCA did not begin regulating ENERGEX until 2001. Prior to that time, a different regulatory paradigm was in operation. To the best of our understanding, it is not feasible to reconstruct the revenues and expenditures that would be needed to arrive at a precise quantification of the return of assets over the years between when the assets were new and June 2001.

It is theoretically possible that tariffs prior to June 2001 reflected higher depreciation rates, but it is equally possible that they reflected lower depreciation rates than those that will apply post June 2005. There is simply no way of telling. The diagram below represents an equally possible past profile of asset values prior to June 2001. If the profile shown in that diagram represented depreciation recoveries in pre 2001 tariffs, then the June 2001 DORC adjustment that is implicit in the ENERGEX calculation would involve a loss of value, rather than an over-recovery.

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This discussion demonstrates that the possible, hypothetical objection to the ENERGEX calculation cannot be substantiated, due to the lack of relevant cost and price data prior to the advent of QCA regulation.

Rejecting that unsubstantiable objection, we are left with the remaining possibility that if the correct asset lives had been known in June 2001, then the correct DORC valuation of assets would have been higher than the value permitted by the QCA at that time. In other words, the QCA pricing determinations for the previous regulatory period presumed an incorrect, low starting point for DORC.

The only plausible starting point is that the DORC valuation at June 2001 should have reflected current ORC values depreciated linearly from their acquisition dates to June 2001 **at the new standard asset lives**.

The ENERGEX calculation, to which we now turn, proceeds on that conceptual basis.

3. ENERGEX CALCULATIONS

The ENERGEX calculation proceeds on the basis that the June 2001 DORC valuation is to reflect the position that would have prevailed then had the new standard asset lives been known at that time. As noted above, there is no evidence to suggest that this starting point would necessarily involve any over-recoveries prior to June 2001.

Given that starting point, ENERGEX calculated the depreciation and return on assets that would have applied for each year from 2002 – 2005, given the new standard asset lives. The ENERGEX calculation looked only at that subset of its assets for which there had been a change in the standard asset lives. For that reason the total DORC values, depreciation and return on asset figures in the ENERGEX calculation should not be expected to match the totals in the QCA or SKM reports.

The results of the ENERGEX calculation for those assets which experienced a change in standard asset lives are summarised in the tables below.

Table 1: AARR Calculation – old lives (\$'000)

	2001-02	2002-03	2003-04	2004-05	Total
Return on assets	66,171	63,962	61,632	59,178	250,942
Return of Assets	60,058	61,307	52,582	63,770	247,717
Total AARR	126,228	125,269	124,214	122,948	498,659

Table 2: AARR Calculation – new lives (\$'000)

	2001-02	2002-03	2003-04	2004-05	Total
Return on assets	78,656	77,362	75,980	74,507	306,504
Return of Assets	49,080	50,101	51,143	52,207	202,531
Total AARR	127,736	127,463	127,123	126,714	509,035

Table 3: Difference: case with new lives – case with old lives (\$'000)

	2001-02	2002-03	2003-04	2004-05	Total
Return on assets	12,485	13,400	14,348	15,329	55,562
Return of Assets	(10,978)	(11,206)	(11,439)	(11,564)	(45,186)
Total AARR	1,507	2,194	2,909	3,766	10,376

The depreciation values are lower under the new standard asset lives, but the return on assets (on a higher initial DORC valuation) is greater. The net effect of the changing asset lives, as this calculation demonstrates, is that ENERGEX revenues were **\$10m lower** than they would have been had the longer asset lives been known in June 2001, not \$41m higher as the QCA claims.

4. QCA APPROACH

The QCA Draft Determination tabulates its estimates of the over-recovered depreciation on page 116 (Table 6.1). The \$41m in claimed over-recovered depreciation corresponds to a figure of between \$10m and \$11m roughly in each of the four years. Both the \$41m total, and the annual figures correspond reasonably closely to the differences calculated by ENERGEX in the return of assets under the new versus old standard asset lives.

We have not had access to the detailed workings that underpin the QCA's estimate of the \$41m, and we understand that these detailed calculations are not available publicly or to ENERGEX.

In the circumstances, it is difficult to escape the conclusion that the QCA calculation has ignored the effect of longer asset lives on the return on asset component of the AARR.

Had the QCA included the return on assets component in its calculation, and based it upon the starting DORC value at June 2001 that would have resulted from an application of the new standard asset lives from the date of asset acquisition, then the calculation would have reached similar results to those obtained by ENERGEX.

5. CONCLUSIONS

As a result of its review of asset valuations for the upcoming regulatory period, the QCA has amended the standard asset lives of a large proportion of the ENERGEX asset base. Generally, the new asset lives are longer.

If the correct asset lives had been known in June 2001, then the correct DORC valuation of assets would have been higher than the value permitted by the QCA at that time. In other words, the QCA pricing determinations for the previous regulatory period presumed an incorrect, low starting point for DORC.

The ENERGEX calculation proceeds on the basis that the June 2001 DORC valuation is to reflect the position that would have prevailed then had the new standard asset lives been known at that time. As noted elsewhere in this report, there is no evidence to suggest that this starting point would necessarily involve any over-recoveries prior to June 2001.

Given that starting point, ENERGEX calculated the depreciation and return on assets that would have applied for each year from 2002 – 2005, given the new standard asset lives.

The result of the ENERGEX calculation is that depreciation values are lower under the new standard asset lives, but the return on assets (on a higher initial DORC valuation) is greater. The net effect of the changing asset lives, as the calculation demonstrates, is that ENERGEX revenues were **\$10m lower** than they would have been had the longer asset lives been known in June 2001, not \$41m higher as the QCA claims.

While the details of the QCA calculation are not available, it is difficult to escape the conclusion that the QCA calculation has ignored the effect of longer asset lives on the return on asset component of the AARR.

Had the QCA included the return on assets component in its calculation, and based it upon the starting DORC value at June 2001 that would have resulted from an application of the new standard asset lives from the date of asset acquisition, then the calculation would have reached similar results to those obtained by ENERGEX.