The Allen Consulting Group

MEMORANDUM

To: The Essential Services Commission of South Australia

Date: 29 June 2006

Re: Working capital calculation and associated issues for Envestra

A. The brief

In its Brief, the Essential Services Commission of South Australia (ESCOSA) has requested the Allen Consulting Group to advise on the following matters:

- Report on the cash flow implications for Envestra in moving from a policy of requiring retailers to pay network charges two months in advance, to a policy of one month in arrears.
- Recommend the appropriate changes that should be built into the building block revenue calculation for Envestra if it were to continue its current invoicing policy.
- Discuss the issues of principle that the Commission must consider in taking Envestra's 'legitimate business interest' into consideration, as required under the Gas Code.

B. Cash flow impact

We estimate that, on the assumption that Envestra receives revenue at a rate of approximately $11 million per month, the change in invoicing policy proposed in the draft decision would imply a one-off negative cash flow impact of approximately $22 million. This is derived more rigorously below, but the result is intuitive – if the receipt of revenue is being deferred by two months, then the additional working capital requirement must be equal to two months of revenue.

While Envestra has estimated its cash flow impact as $40 million, this estimate was based upon the assumption that the Commission intended in its draft decision to only permit Envestra to bill in respect of customers after a meter had been read (which, for the majority of the customers, is at three month intervals), as reflected in the following statement:[1]

> Envestra understands that the Commission's proposal is that a retailer will be billed in respect of gas delivered to a meter only after that meter has been read. Most meters are currently read on a 3 monthly cycle.

We have confirmed with the Commission that its intention was to permit Envestra to bill monthly for all of the gas supplied in the previous month (and to continue to use estimates for the meters that had not been read), which we have assumed in the analysis in this section.

[1] Envestra (2006), Annexure 1 – Impact of Removal of prepayment Provision, p.14.

In more detail, if a new invoicing policy was adopted, there would be two possible outcomes for cash flow:

- Envestra could be permitted to retain the revenue it would already have received for July of the first year:
  - in which case, while Envestra's first invoice for the year could be sent in August, it could not charge anything in that month as the August invoice would relate to July, for which it would already have been paid; and
  - the implication of which is that, even if not required to repay any monies already received, it would not receive revenue in July or August, implying a $22 million cash flow reduction; or
- Envestra could be required to repay monies already collected for July:
  - in which case, Envestra would be able to issue its first invoice in August and charge for July; and
  - the implication of which is that its cash flow reduction would comprise the repayment of monies ($11 million) and the absence of revenue in July ($11 million), again implying a reduction of $22 million.

C. Adjustment required to be made to the revenue requirement

The Commission has requested our advice as to what adjustment should be made to the building block calculation for Envestra in the event that Envestra's proposed invoicing policy is accepted.

- Under Envestra's proposed invoicing policy, it receives revenue on the 18th of each month for services expected to be provided in the next month (with corrections for differences between forecasts and actuals for previous invoices).
- Under the invoicing policy the Commission proposed in its draft decision, Envestra would receive revenue on the 18th of each month for the services that were provided in the previous month.

The adjustment that the Commission would need to make to Envestra's revenue requirement depends upon the combination of revenue requirement and invoicing policy that the Commission would consider appropriate (the reference point). The adjustment to Envestra's revenue requirement should then be calculated as the net benefit that Envestra receives under its proposed invoicing policy compared to the reference point. We have evaluated the adjustment that the Commission would need to make for three different reference points.

- *Adjust Envestra's revenue so that it is in the same position as if it charged for the service as it was provided* – which is equivalent to placing Envestra in the same position as if it received revenue monthly at the midpoint of each month. Compared to this standard, Envestra would receive revenue approximately 27 days earlier under its proposed invoicing policy (i.e. the difference between receiving revenue on the 15th day of the month in which the service was provided

and receiving revenue on the 18th day of the month prior to the service being provided).

- *Adjust Envestra's revenue so that it is in the same position as if it charged for the service in arrears (as the Commission proposed in the draft decision)* – compared to this standard, Envestra will receive revenue approximately 60 days earlier under its proposed invoicing policy (i.e. the difference between receiving revenue on the 18th day of the month after the service was provided and receiving revenue on the 18th day of the month prior to the service being provided).

- *Adjust Envestra's revenue so that its revenue requirement is estimated to exactly recover its financing costs* – as we have previously advised the Commission, the simple revenue requirement formulae tend to overcompensate regulated businesses for their financing costs. This arises because the simple building block formulae assume that the majority of revenue is received at the end of the year,[2] whereas the businesses normally receive revenue over the course of the year (i.e. there is an overcompensation even if the firm bills in arrears for the services).[3]

Table 1 below sets out our estimate of the approximate adjustment that would need to be made to Envestra's annual revenue requirement to put Envestra in the position that is implied by the reference points noted above. This approximate adjustment for the first two reference points has been calculated using the following formula:

$$Adj = R\left(\left(1 + WACC\right)^{\frac{A}{365}} - 1\right)$$

where *Adj* is the adjustment, *R* is annual revenue, *WACC* is the pre tax nominal WACC and *A* is the number of days, on average, by which Envestra's proposed invoicing policy would advance the receipt of revenue compared to the reference case.[4]

The adjustment for the last reference point has been calculated as the amount by which Envestra's revenue requirement (calculated in the normal manner) would need to be reduced in order for its financing costs to be recovered exactly (at least given the assumptions in the modelling exercise). The formula that was used to calculate this exact revenue requirement is to find the revenue that solves:[5]

$$RAV_{t,open} = \sum_{i=1}^{365+} \frac{R_{i,t} - C_{i,t}}{\left(1+WACC\right)^{i}} + \frac{RAV_{t,close}}{\left(1+WACC\right)^{365}}$$

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2 This reflects the fact that the rate of return is an effective annual return, which is the rate of return required when all of the return comes at the end of the year.

3 The intuition behind this, as well as mathematical and empirical demonstrations, are contained in a report that we undertook for the ACCC a few years ago: Allen Consulting Group, 2002, Working Capital: Relevance for the Assessment of Reference Tariffs, Report to the ACCC, March.

4 The nominal WACC is the appropriate discount rate in this case given that prices are fixed in nominal terms during each year.

5 This approach is discussed in more detail in: Allen Consulting Group, 2002, Working Capital: Relevance for the Assessment of Reference Tariffs, Report to the ACCC, March.

where $R_{i,t}$ and $C_{i,t}$ denote forecasts of daily revenue and costs respectively for year t, $RAV_{t,open}$ and $R_{t,close}$ denote the regulatory asset value of the assets at the opening and closing of year t.

The other inputs that are required to use this formula are assumptions about the timing of revenue receipts and operating and capital expenses during each. The assumptions adopted are as follows:

- *Timing of revenue* – this depends upon the specific invoicing policy being assumed. For Envestra's proposed policy, revenue is assumed to be received in 12 equal instalments at monthly intervals, with the first instalment received 12 days prior to the start of the year.

- *Timing of expenditure* – assumptions consistent with those the Commission adopted in its draft decision when calculating the working capital requirement for operating expenditure are adopted, namely:

  — operating expenditure: half of the expenditure represents wages, which is paid at 14 day intervals in arrears and the other half is paid monthly in arrears on 30 day terms; and

  — capital expenditure: is assumed to be paid monthly in arrears on 30 day terms.

The same method has been used to estimate the windfall that Envestra would continue to receive under the first two reference points. That is, the windfall under reference points 1 and 2 is calculated as the difference between the exact revenue calculated using the above method and the revenue that would be received under reference points 1 and 2. The table also shows our estimate of the windfall gain that Envestra would receive if it continued to bill in advance and there was no adjustment made to its revenue requirement.

TABLE 1
ADJUSTMENTS TO REVENUE AND RESIDUAL WINDFALL GAIN (P.A

Reference Point	Adjustment Required ($m, p.a.)	Residual Windfall Gain ($m, p.a.)[6]
No Adjustment	0	$3.0m.
Ref Point 1: Bill as Go	-$0.9m	$2.2m
Ref Point 2: Bill in Arrears	-$1.9m	$1.1m
Ref Point 3: No Windfall	-$3.0m	0

Regarding the matter of which of the reference points is more appropriate, the following are some of the matters that the Commission may consider:

- *Section 8.1(a) of the Gas Code* – this objective arguably would be met by removing any systematic over- or under-compensation to the service provider, which we consider would imply using reference point 3 above (i.e. deducting

[6] These estimates assume that there is no further allowance for working capital required.

approximately \$3 million per annum from Envestra's revenue if it continues to bill in advance).

- *Existing practice* – that said, we are not aware of any other regulators seek to eliminate the residual windfall that regulated entities may receive as a consequence of the use of the simple building block formula. Given the conclusion in our previous advice that the norm for energy distributors is to invoice in arrears, reference point 2 would be most consistent with the treatment of other distributors.

  - We note that section 8.4 requires that the method used to calculate the revenue requirement from a given set of inputs 'should be in accordance with generally accepted industry practice'. While it is not completely clear what this clause actually requires, it is plausible that an approach to deriving the revenue requirement that is more in line with the practice of other regulators may be encouraged by this clause.

We understand from discussions with the Commission that it is mined to adopt reference case 2 as the basis for deriving an adjustment to Envestra's revenue requirement if Envestra is permitted to continue to bill in advance as it proposed. If this is to be adopted, we recommend that the benefit of the revenue advancement be calculated more precisely. On the assumption that revenue is received evenly over the year, and Envestra receives revenue on the 18th of each month (and it is not a leap year), the resulting formula is as follows:

$$Adj = \frac{R}{12}\left(\frac{1}{(1+WACC)^{\frac{-12}{365}}} + \frac{1}{(1+WACC)^{\frac{18}{365}}} - \frac{1}{(1+WACC)^{\frac{353}{365}}} - \frac{1}{(1+WACC)^{\frac{383}{365}}}\right)$$

D. Envestra's 'legitimate business interests'

Envestra has submitted that a requirement for it to fund the cash flow deficit associated with the shift in invoicing policy would constitute a negation of its 'legitimate business interest' as required under the Gas Code. We note that the term is not an economic concept, and that the existing judicial interpretation of this clause suggests that the field of interest that may be 'legitimate business interests' is very wide – including the ability to earn monopoly rents. Therefore, the legitimate interests likely to be adversely affected by a change in Envestra's invoicing policy will include the following:

- A reduction in value following from revenue being received later than had previously been the case.

- The requirement for Envestra to inject additional capital (which it argues will need to be through an equity raising as its debt raising capacity is limited).

Hence, where Envestra has argued that its legitimate business interests will be adversely affected by a change in invoicing policy are probably correct, and are therefore matters that the Commission is required to consider (although we would note that it is a legal matter as to precisely how wide the concept of 'legitimate business interests' actually is).

However, the Gas Code requires the regulator, when assessing the access arrangements of a Service Provider, to simultaneously take into account the interests of the Service Provider and Users and Prospective Users, and provide the Service Provider with an opportunity to earn a stream of revenues that recovers efficient costs. Current and prospective users can be expected to have an interest in lower prices, but they will also have an interest in prices being sufficiently high to continue to provide an incentive for investment in new capacity, and the delivery of service levels (including reliability and security of supply) that users seek.

Moreover, if the matter was between Envestra being paid in advance or arrears with no consequences for its revenue requirements, then the principles in section 8 of the Code would also become relevant, as discussed above.

Having said that, we believe that Envestra should be provided with adequate time in which to raise the debt and/or equity required to raise the working capital implied by the change in invoicing policy. We agree with the Commission that a period of twelve months should be provided to Envestra to raise the necessary funds and make the switch in policy.

E. Other Issues

A number of other matters were raised in the Envestra submission to ESCOSA in response to the Draft Decision on the revisions to Envestra's South Australian Access Arrangement. These issues include the following:

Competition vs windfall to Origin Energy

Envestra's submission makes contradictory statements with respect to the level of competition in the South Australian retail gas market. On the one hand, it is stated that the Commission's view that pre-payment acts as a barrier to entry cannot be sustained as there is a high state of competition in the South Australian retail gas market, as evidenced by a 46% churn rate.[7] On the other hand, Envestra submits that Origin Energy will be the dominant beneficiary of a change in invoicing policy, and will therefore earn a windfall gain.[8] However, if there is a high level of competition in the South Australian retail gas market this means that Origin Energy, as well as other competitors in the market will not be able to retain a windfall benefit from the change in invoicing policy. This is because the cost structure of all retailers in the market will be lowered, and competitive rivalry should ensure that the benefit of the current windfall enjoyed by Envestra's shareholders will be passed on to gas customers.

Credit issues

It has been submitted by Envestra that a policy of invoicing two months in advance is required in order to provide security to Envestra in the event of a default by a retailer. Envestra notes that the credit policy in the Access Arrangements allows Envestra to request credit support in the event that a retail counterparty does not have an acceptable credit rating (BBB). However, Envestra notes that simply because 'a User

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[7] Envestra (5 May, 2006), p.5.

[8] Envestra (5 May, 2006), p.12.

has an acceptable credit rating does not mean it may not become insolvent or otherwise default."[9] While this is true, the probability that a BBB rated issuer will default within 12 months has been calculated by Standard & Poor's to be 0.38%, or an event that may be expected once in every 263 years. Furthermore, as noted by Envestra, the dominant retail counterparty of Envestra is Origin Energy, which is rated BBB+.

Difficulty to debt finance the cash flow effect/working capital requirement

Envestra has submitted that its debt covenants do not allow the business to borrow for any purpose other than for capital expenditure. Therefore, Envestra would experience difficulty in raising debt finance in order to fund the cash deficit it would face as a result of the switch in invoicing policy.

The fact that Envestra has geared itself considerably in excess of the 60 per cent benchmark applied by the Commission may present a difficulty in raising debt capital, if, as submitted, its financial debt covenants do not allow this. However, we consider it an important principle in regulatory economics for the actual financing positions of regulated entities to be ignored to the extent practicable. This would imply that the effect of financial constraints due to Envestra's own financing policy should be ignored.

Had Envestra been geared at the benchmark level of 60% relative to the RAB, our investigations suggest that it would not have restrictive debt covenants that disallow the raising of debt for working capital purposes. We note, for example, that CitiPower, an energy distribution business located in Melbourne, also has a high gearing structure, yet its debt covenants have allowed for a working capital allowance.

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[9] Envestra (5 May, 2006), p.4.