Review of profitability measures for regulated energy networks

A report for Energy Consumers Australia

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Contents

Executive Summary

Newgrange Consulting has been contracted by Energy Consumers Australia to consider the issues raised in the Australian Energy Regulator's (AER's) Discussion paper on Profitability measures for regulated gas and electricity network businesses; and to propose an appropriate process for evaluating such businesses' profitability.

Profitability measures are an important tool for the regulator, consumer representatives and other stakeholders to evaluate the financial performance of regulated networks. Other industries subject to regulation or monitoring typically have profitability measures calculated and reported by the regulator, although these tend to be industry-specific and do not facilitate cross-industry comparison. Internationally, regulators who operate similar regulatory frameworks to the AER, for example Great Britain, New Zealand and Ontario, have developed profitability measures. These are often reported in conjunction with quality of service and other performance measures.

Where regulators do not produce such measures, other stakeholders will carry out their own analysis based on the data available to them. Given the public perception that energy networks in Australia may have been overcompensated by the regulatory framework, it is unsurprising that they have already done so. As there is limited publicly available information, the AER needs to define, collect and publish the data via the regulatory information (RIN) process. Ideally this process would result in a range of profitability measures (or the publication of underlying data that allows stakeholders to calculate different measures).

One key reason to understand the financial performance of regulated networks is to evaluate whether there has been systematic outperformance or underperformance against the assumptions contained in the regulatory revenue determination. This in turn may indicate whether the methodology for setting allowances *ex ante* is too generous or too harsh. This report recommends the systematic development of a comparison of actual outcomes against each of the building blocks that go to make up the calculation of maximum allowed revenue. It recognises that this entails the manipulation of the basic accounting data that the network companies provide to the AER in order to: isolate the costs and revenues associated with standard control activities; adjust for timing differences that do not affect the underlying profitability of the network and to adjust for the impact of the cost incentives. The trade-off of getting a more relevant comparison outweighs the loss of simplicity from using adjusted data.

1 Introduction

Newgrange Consulting has been contracted by Energy Consumers Australia to consider the issues raised in the AER's Discussion paper on Profitability measures for regulated gas and electricity network businesses; and to propose an appropriate process for evaluating such businesses' profitability. Further information about Newgrange Consulting can be found at the end of this paper.

The report considers the following:

- The purpose and interpretation of a profitability review.
- The availability of data
- Issues arising from the AER's issues paper and the paper provided by its consultants McGrath Nicol
- Other examples of profitability measures, including both for similar businesses in other jurisdictions and for other industries in Australia.

Finally, the report sets out a potential methodology for evaluating profitability that links closely into the building blocks approach used by the AER to set allowed revenue for the networks.

2 Purpose and interpretation of a profitability review

The purpose of conducting a review of network profitability is to inform the regulator and stakeholders of the financial performance of regulated networks. This information may be used to compare the profitability of regulated networks:

- against the *ex ante* expectations entailed in setting the allowed revenue;
- against similar businesses (especially other regulated infrastructure business) in other industries, and;
- against each other and over time.

These comparisons are examined further below.

2.1 Comparison against ex ante expectations

Network prices in much of Australia rose sharply in the years following the transfer of responsibility to the AER. Accordingly, network regulation in Australia has attracted a good deal of scrutiny for many years (Garnaut, 2011), (Senate Environment and Communications Reference Committee, 2015), (Independent Review Panel on Network Costs, 2013).

Price rises are not in themselves indicative of a problem with the regulatory framework, nonetheless it has been noted that "a consistent argument from consumer groups has been that the building block framework may overcompensate regulated businesses and enable them to earn super profits, or returns above what would be expected given the risk to the business" (McGrath Nicol, 2017). The obvious response to this concern is to systematically review whether this overcompensation has manifested, by comparing the networks' actual financial performance, with what was expected at the time of the revenue determination. Further, if a network has made more profit than expected, it is important to understand *how* it has done so. In the case of networks whose allowed revenues are determined using a building block approach, this can be done by breaking down the overperformance into the different components or building blocks of the revenue determination. Ofgem's Return on Regulatory equity metric is an example of this (discussed in 5.1.1 below) while the NZ Commerce commission uses a different analysis, reflecting its different approach to revenue determination (5.1.3 below).

2.2 Comparison against other industries

Comparative analysis requires consistent metrics, including definitions and allocation methodologies. Without consistency, it becomes harder to compare results. AS the AER is only the regulator for energy network businesses, it cannot control the ways other industries' profitability is reported. Nonetheless, where it is possible to facilitate comparisons with other, similar industries, the AER should take the opportunity. As noted in 5.3 below, various ACCC profitability reviews use a different range of metrics (and serve different purposes, depending on the type of regulation), so there may be limited scope for this.

2.3 Comparisons against each other and over time

The AER regulates several somewhat similar network businesses. Comparing their profitability with each other is useful to understand if there are any clear trends, or indeed any outliers, and then to evaluate what has led to the outlier (poor/excellent management, bad/good luck, government intervention, and regulatory issues). In practice, other regulators that carry out similar exercises do present the results of similar groups of businesses together. At the least, it would make sense for the AER to present electricity distribution business together, gas distribution together and so on.

Comparisons on a year by year basis may be challenging to interpret. Actual profits may fluctuate year by year for a range of reasons, including factors specific to the regulatory framework. For example, a regulator may choose to smooth revenue across a regulatory period, even if the

underlying costs fluctuated year to year. This can be somewhat addressed by the process set out in section 6 below, where profit variances that are purely due to timing differences are stripped out.

A clearer picture of profitability will generally emerge when considered over a full regulatory determination period (currently five years for the AER). This is a key premise behind Ofgem's RORE reporting (see 5.1.1 below), which reports each year but incorporates forecasts of outcomes for the remainder of the price control period.

2.4 Interpretation of data

Interpreting the data is best done with care. There may be numerous reasons for outperformance or underperformance, and these reasons may not always be obvious. The AER uses incentive-based regulation to encourage efficient decision making by networks, and so there needs to be scope for outperformance. A key question (which is not directly evident from a profitability assessment) is whether outperformance really delivers savings for consumers in the long run. That is certainly the premise of the cost incentive framework, but in a climate of upward pressure on network costs consumers may be sceptical.

In any case, consumers, their representatives and other stakeholders have the right to form their own judgments about the level of profitability

3 Availability of data

Existing sources of information do not facilitate an assessment of the profitability of regulated networks. Publicly available information in statutory reports is not sufficient information for a range of reasons.

The ownership structure of some businesses means that they do not need to publish accounts (as opposed to lodging accounts with the general corporate regulator). Networks held by a consortium such as Electranet fall into this category.

*Some companies own multiple network businesses and re*port at a consolidated level. These include Jemena or Power and Water Corporation. In some cases, some segmented information is presented, although as this is not in a statutory format, such presentation may not be consistent across companies.

Even when the corporate entity only includes a single network, it may contain multiple business lines from a regulatory point of view. Most networks provide standard control services (i.e. distribution or transmission services) for which the revenue determination is made, but also provide other related

services, whose prices are not regulated but are determined by negotiation with the customer. Examples include public lighting services, network connections and emergency recoverable works. These services are often not contestable or technically contestable but in practice the networks face limited competition.

Some networks also provide other services that are competitive in nature and so not regulated. These may include out-of-area connections and metering services, or telecommunications services, which some networks provide.

If the goal of a profitability review is to carry out an assessment of the profitability of owning and operating a network, then the revenues and costs associated with this activity will need to be disaggregated from the other business lines carried out by the corporate entity. In the case of electricity distribution networks, this exercise is already being carried out in table 8.1 of the Annual Reporting RIN Response spreadsheet that the networks submit to the AER annually. However, alternate control service profitability may also be of relevance as the networks' right/ability to carry out these services is as a result of their owning/operating the network.

4 The AER and its consultants

The AER notes that "the NER and NGR do not require profitability to be considered" (AER, 2017). This seems an unnecessarily reductive way to frame the issue. The AER's overarching goal is to further the National Gas and Electricity Objectives, both of which are to advance the long-term interests of consumers. Consumers clearly see value in being able to understand the profitability of the networks, and evidence of systematically high profits would be a sign that the objectives are not being met as well as they could be. So, the publication of profitability measures would seem to be consistent with the AER's overall objective regardless of whether or not it is specifically referenced in the Rules.

4.1 Evaluation of metrics

McGrath Nicol identify a broad range of standard metrics. Most of these use one or two common numerators: Earnings before interest and tax (EBIT) and net profit after tax (NPAT). These are then subject to some adjustment or divided by a potentially relevant denominator such as the regulated Asset Base (RAB), gross or net assets, customer numbers or revenue.

The metrics are assessed individually by McGrath Nicol against a range of objectives and criteria and they determined that the Return on assets (EBIT) was the most suitable. While McGrath Nicol provide a considered analysis, they overlook a couple of points.

This review is proceeding in response to feedback from stakeholders, including consumer groups. It is appropriate for the profitability review to be more demand driven – i.e. to generate a range of metrics that different stakeholders may value. Commercial evaluations of company profits such as ratings reports and investment analysis reports typically contain a broad range of metrics as discussed in 5.5.

As noted above most of the measures McGrath Nicol consider are derived from different combinations of a small group of other metrics. Instead of attempting to objectively identify the best metric, the same data can be used to produce a broad range of indicators. If a metric is regularly cited by stakeholders as being a relevant yardstick then it is worth the AER collating it (where not onerous on the companies). An example is RAB multipliers, which are not determinative of over generous allowances, but are worthy of some consideration. For listed companies, this can be done periodically, while for others it can only be done when a transaction takes place, but the AER may as well be the repository of such data. While the publication of a range of measures may be considered confusing, the AER can direct stakeholders' attention to the ones they consider most relevant in any case.

An objective identified by McGrath Nicol is to "allow the AER to compare the actual profitability of the regulated entity to, *inter alia*, the allowed return on equity from its regulated determination. An assessment criterion was also that the measure can be calculated without the need for manipulation of data or assumptions. As set out in section 6, these two principles are hard to reconcile.

Various factors including the way the regulatory framework operates are likely to drive fluctuations in profit from year to year that may not reflect the underlying performance of the network. So some data manipulation to separate the signal from the noise and identify real variances may be required. In doing so, the limitations of the simpler measures can be highlighted. These are likely to be calculated by stakeholders whether or not the AER does so. At least the AER can ensure they are calculated on a consistent basis.

5 Other Examples

5.1 International examples

5.1.1 Ofgem and Return on Regulatory Equity

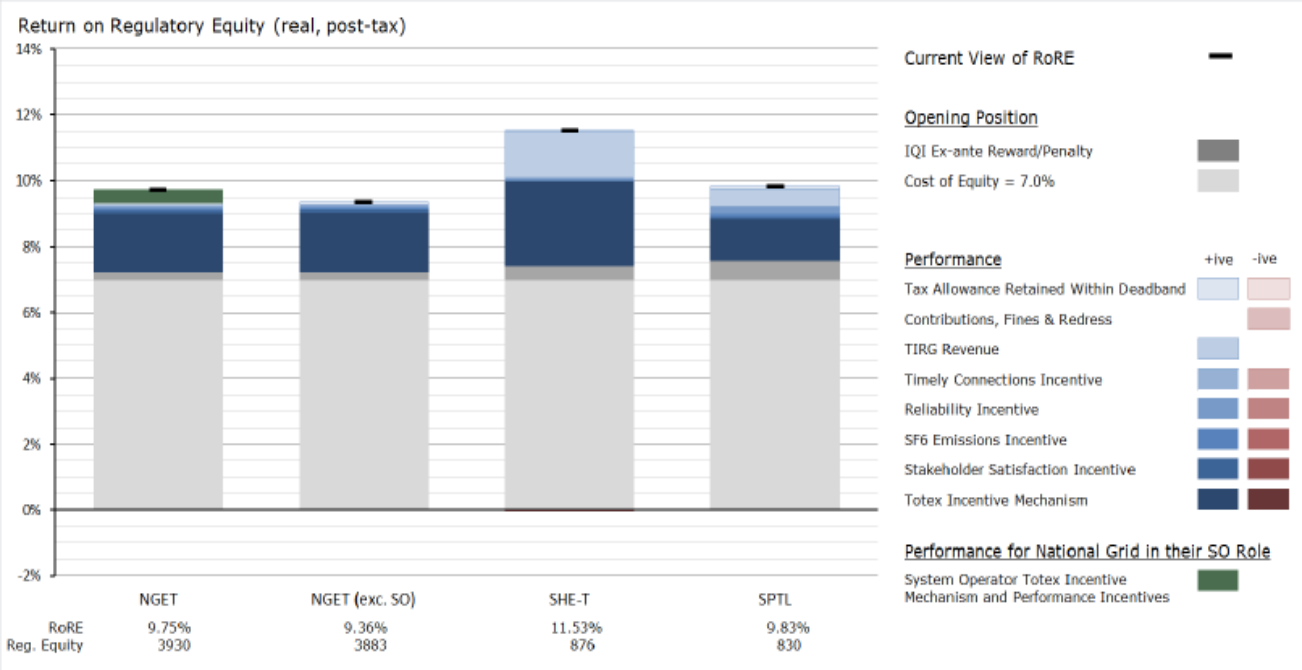
Ofgem is the regulator of British energy networks[1]. Ofgem and its predecessors pioneered many of the techniques of incentive-based regulation of natural monopolies including the building blocks approach. Nonetheless several price controls had passed before it developed a profitability review approach. Ofgem's preferred tool for reviewing profitability is the Return on Regulatory Equity (RORE). Ofgem defines the RORE as follows:

> *The financial return achieved by shareholders in a licensee during a price control period from its out-turn performance under the price control. The return is measured using income and cost definitions contained in the price control regime (as opposed to accounting conventions) and is expressed as a percentage of equity in the business. Importantly, in the calculation the gearing and cost of debt figures used are those given the 'assumed' level in the relevant price control final proposals. The aim of the RORE measure is to provide an n indication of the return achieved by the owners of a licence which can be compared to the cost of equity originally allowed in the price control settlement and to the return achieved by other licensees on an equivalent basis (Ofgem, 2012).*

An example is shown below:

[1] The Office of Gas and Electricity Markets (Ofgem), supporting the Gas and Electricity Markets Authority (GEMA), is the government regulator for the electricity and downstream natural gas markets in Great Britain. It was formed by the merger of the Office of Electricity Regulation (OFFER) and Office of Gas Supply (Ofgas)

Chart 1: Return on regulatory equity (electricity transmission, 2015/16)



Source: (Ofgem, 2017)

Ofgem's metric involves numerous adjustments to the actual costs and revenues of the networks in order to compare on a like for like basis with the building blocks of the allowed revenue. Timing differences are removed; "to eliminate phasing impacts over the course of the price control, we use a mix of actual and forecast performance to calculate eight-year average returns". (Ofgem, 2017). While this aids comparability, it can make it difficult for consumer groups and other stakeholders to understand how the metric was calculated. The RORE is also forward looking, albeit it moistly takes a neutral view of future variances.

It is notable that Ofgem excludes financing and tax variances from their key metric. The return on capital is one of the largest components of a building block revenue determination. A factor may be that Ofgem's indexation of the cost of debt is intended to rule out variance between the allowed and actual cost of debt. This would still leave scope for businesses to out (or under) perform their allowances through choosing a different gearing level. However, the gearing is a simple metric to monitor separately.

5.1.2 Ontario Electricity Board (OEB)

The OEB includes financial performance measures as part of an overall utility scorecard for the electric utility business it regulates. This includes a comparison of the allowed return on equity with

the achieved return on equity. The reported return is calculated on the same base as was used in establishing the distributor's base rates (OEB, 2017)

5.1.3 New Zealand Commerce Commission (NZCC)

The NZCC measures the profitability of the electricity distributors it regulates. The NZCC notes on its website that "amongst other things, we hope this work will go some way towards answering questions that are frequently asked of the Commission about whether the average level of distribution pricing is appropriate". The NZ metric is nominal return on equity, meaning that one of the major variances from the forecast was the difference between actual and forecast inflation. The NZCC also note that profit monitoring is not just about checking if profits are too high, but also that they are not too low, on the basis that low returns are a strong disincentive to investment.

5.2 Other Australian energy sector profitability reviews

The current ACCC Retail Electricity Pricing Inquiry includes a review of profitability of electricity retailers (in aggregate, not individually) (ACCC, 2017). It would seem perverse for one branch of the ACCC not to examine regulated monopoly profitability when another branch is doing so for the competitive retail sector.

Historically the Essential Services Commission of Victoria reviewed network profitability when it was responsible for regulating Victorian electricity distribution networks. It focussed on return on distribution assets.

5.3 Other Australian industries

The ACCC regularly monitors profitability of a range of other industries, many of which exhibit monopoly characteristics.

Table 1: Examples of other profitability reviews in Australian industry

Industry	Type of regulation	Profit metric
Airports (4 major)	Monitoring	Earnings before interest, tax and amortisation (EBITA)
Retail motor fuel	Monitoring	Gross indicative retail differences (GIRD)
Waterfront & shipping	Monitoring	Operating profit/Twenty-foot equivalent unit (TEU)
Postal services	Cross-subsidy review (now ceased)	Revenue less costs
Hunter Valley rail access	Access regulation	Revenue cap test

To this may be added a range of state regulator reviews. As can be seen from the table above, profitability reviews occur in the context of different types of regulation, and different metrics are chosen reflecting the purpose and the industry. This means that McGrath Nicol's criteria that the measure can be used to compare with other businesses in the broader economic may be impossible to achieve if other industries are valuated using inconsistent metrics.

5.4 Consumer representatives

Consumer groups and their representatives have attempted to evaluate networks profitability in order to illustrate their concerns that networks are allowed to earn more revenue than they truly require. A notable example is *Assets or Liabilities? The need to apply fair regulatory values to Australian electricity networks* (Grant, 2016). This paper draws the shocking conclusion that the Queensland electricity networks (Powerlink, Energex and Ergon) have made profits at a rate many multiples of typical ASX listed companies. The metric used is simply net profit after tax/equity, based on the accounts of the companies. The companies' equity over the period was very low as a proportion of the RAB, which is the underlying reason for the high profits rate.

It is not the purpose of this paper to evaluate Mr Grant's methodology, simply to observe that if the AER does not review profitability others will and they will do so on their own terms

5.5 Financial markets

The financial markets monitor network businesses' profitability, much as they do other businesses, in order to inform investment decisions. Credit ratings agencies such as Moody's, Standard and Poor's and Fitch Ratings monitor businesses for creditworthiness, while investment banking analysts monitor businesses to assist their clients in making equity investment decisions. In both cases, the entity monitored is the corporate entity, rather than the regulated network business. Equity analysts focus on the listed entity, while ratings agencies may analyse each company in a corporate group that is seeking external financing and thus needs a credit rating.

As their monitoring reports are client services (in both cases) the reports are not typically publicly available. Both are known to provide a range of metrics to assist evaluation. UK regulators carry out a series of financeability tests on their networks that are intended to replicate the metrics that credit ratings use (Joint Regulators Group, 2013). These include

- Net debt/RAB (i.e. the gearing ratio)
- Funds from operations (FFO) interest cover

- Post maintenance interest cover ratio (PMICR), known by Moody's as Adjusted interest cover ratio
- FFO/net debt
- Retained cash flow/capex

Typical indicators in an investment analysts' report are understood to include:

- Price/earnings
- Enterprise value/EBITDA
- Dividend yield and payout ratios
- Net debt/EBITDA
- Free cash flow yield ratio

Notably, in both cases, there are multiple ratios that measure very similar things, whether debt servicing ability or investor returns.

In other words, commercial information services do not attempt to distil company performance into a single metric. This may because different clients place emphasis on different metrics, or because clients generally prefer to have access to multiple metrics to evaluate a company.

6 Building blocks approach

The building blocks approach is a key element of the AER's regulatory determination

The regulatory decision can be broken down into several key components:

- The opex allowance
- The capex allowance
- Specific incentive schemes (such as STPIS, DMIS)
- Adjustments for out/underperformance in the previous period.
- The return of capital (depreciation)
- The return on capital (WACC)
- The tax allowance

While each of these (apart from the prior period adjustments) is a forward-looking decision, it can and should be informed by historical outcomes. This includes evaluating whether there has been

systematic outperformance or underperformance. This in turn may indicate whether the methodology for setting allowances *ex ante* is too generous or too harsh.

The evaluation entails comparing the regulated networks' profits to the *ex ante* expectation embodied in the allowed cost of equity. While expressed as a ratio, it can be converted into a profitability figure (in $m) - equally a $m actual profit figure can be converted into a return on equity. The comparison is not without its challenges however. An effective comparison is one that strips out extraneous factors to get at the true over/underperformance. Issues to consider with each component are set out in the sub-sections below.

6.1 Revenue

The items listed above go together to make up the allowed revenue. The actual revenue that a network collects during the period may differ from the allowed revenue figure for a range of reasons.

Some network determinations do not set s total revenue figure but instead set a price cap, usually expressed as a weighted average price cap of the different tariffs a network can charge. This is derived from a forecast of the demand associated with each class of customers. The network then has discretion to vary the actual prices across the different tariff types, which can lead to a different total revenue figure. It also bears the risk of higher or lower demand than forecast. this arrangement incentivises the network to use Ramsey pricing to the extent it is able to, – increasing prices to price inelastic customers and reducing those to price elastic customers – which encourages greater consumption overall.

In practice, the networks regulated by the AER are now choosing to be subject to revenue caps so their revenue is not subject to this type of variance.

Revenues are typically set using a "CPI-X" formula, where CPI represents the allowance for inflation and X is an efficiency factor. While X is predetermined, CPI will vary with actual inflation rates, noting that there is usually a lag. The NZCC commerce commission profitability review specifically isolates the difference between forecast and actual inflation is a variance. Ofgem presents its RORE calculation in real terms, so the inflation effect is disregarded.

Revenue may also vary due to specific mechanisms in the revenue determination including incentive schemes, pass-through costs and re-openers. The first of these is dealt with in 6.4. Pass-through costs are typically allowed where certain types of costs are uncontrollable and material. Since the network only recovers the actual cost it has no effect on profit, and such items can be excluded from both the revenue and the cost side. Re-openers are similar, but are mid-period adjustments by the

regulator for unforeseen highly material issues. They may still take the form of ex ante allowances, and so can be subject to outturn variances.

Revenue can also vary year by year as the networks have to set their prices based on estimated consumption by each customer class to get back to the total allowed revenue. Inevitably, the actual consumption will not quite match the estimates and the network will either over or under recover. The rules allow for adjustment in the subsequent year to correct this, with the time value of money taken account of. This is good example of variances that are merely timing differences. If a network over-recovers revenue one year it will make extra profit, but this will simply be clawed back the next year. Such timing differences are essentially noise and should be stripped out in any evaluation.

Any revenue variance will have a tax impact. Tax impacts are discussed further in 6.8.

6.2 The opex allowance

Operating costs (opex) are in general under the control of the network. Nonetheless they will tend to vary to some degree from the assumptions made in setting the allowed revenue. There are several reasons this could occur, including:

- price inflation (networks are typically allowed to vary their revenue by CPI, but actual cost inflation may differ as networks' expenditure is on a different basket of goods from households);
- quantitative variances (needing to purchase more or less of a particular good or service than expected);
- substitution (meeting operational requirements in a different way from expected – this can include capex/opex substitution), and;
- timing differences (incurring spending earlier or later than expected).

Attempting to understand which of these has contributed to the variance is useful, but is likely to be overly complex to formally disaggregate these drivers. If there are major timing differences from year to year that are easily identified they can be stripped out.

As is typical under incentive-based regulation, the AER allows networks to retain the benefits of opex outperformance for six years (and similarly penalises them for overspending). The combined effect of the AER's revealed cost forecasting approach and the EBSS is that the opex incentive rate is around 30 per cent, i.e. the business gets to keep 30 per cent of any savings it achieves (AER, 2013). These incentives entail an adjustment to future regulatory period's revenues. These are discussed in 6.5.

Any cost variance will have a tax impact (unless it is a cost that cannot be deducted for tax purposes). Tax impacts are discussed further in 6.8

6.3 The capex allowance

The capital expenditure (capex) allowance does not directly increase allowed revenue. Rather it increases the regulatory asset base (RAB), which in turn increases the return of capital (depreciation) and the return on capital (WACC). It is more challenging to reflect the impact of variances in capex on profits. The simplest way to do this is to ignore the timing of changes to revenues and instead consider the overall value of the capex incentive sharing scheme (CESS). This can then be recognised as a profit variance in the year the capex is incurred.

The AER incentivise efficient capex by allowing the networks to retain a portion of the benefit of any underspend. The value of this adjustment is matched to that of the EBSS at 30 per cent. So, the profit metric should include 30 per cent of the capex variance for the period.

Under certain circumstances, the AER may disallow inefficient capex. In this case the networks' profits are ultimately reduced by the full value of the disallowed capex, as its revenues are adjusted as if it never was added to the RAB, so no income can be earned as a result.

6.4 Specific incentive schemes

In addition to the cost incentives, the AER has a number of specific incentives that it uses to drive network behaviour these include the service target performance incentive (STPIS) and the Demand Management incentive scheme. These allow the businesses to earn additional revenue. While there may be costs to achieve the incentive revenue, these are already included in the overall costs (opex and capex) of the business. So, the additional revenue represents outperformance and should be recognised as a separate item.

6.5 Adjustments for out/underperformance in the previous period

As noted in 6.2 and 6.3 above the AER's incentive framework allows the benefits/costs of opex and capex variance to be maintained for five years. As each regulatory period is five years, some of this adjustment will take place in the subsequent period and result in additional (or reduced) revenue. This on the face of it will make that subsequent period more (or less) profitable accordingly. As explained above, it is preferable to adjust the profitability calculation at the time of the variance, and so to avoid double-counting the subsequent period adjustments should be disregarded. The

same applies for another inter-period adjustment, such as for revenue variances in the final year of the previous period or incentive payments from the previous period.

6.6 The return of capital (depreciation)

There is a complex interaction between the return on capital, the return of capital and capital expenditure. As argued in 6.3 above the outperformance on capex should be calculated in the year it occurs even though it may take several years to unwind. Depreciation is not a cash expense in any case. Further the return on capital compensates the network for the delay in recovering capital costs entailed in depreciating them over many years. Accordingly, depreciation can be disregarded for the purposes of assessing profitability, if a direct adjustment is made for capex variances instead.

Whether or not the timing adjustments described above are made, the sum of the impacts of the above items should be reflected in an EBIT metric. It will just tend to fluctuate more year to year. The items below will not be picked up, and they represent a material part of the overall revenue determination in a building blocks approach.

6.7 The return on capital (WACC)

The return on capital may be the largest single component of the building block approach, especially for transmission businesses that are even more capital intensive than distribution businesses. Accordingly, it would seem to be of relevance how the businesses are performing against the assumptions in their allowed revenue.

The criterion for calculating the WACC is that it should be the benchmark return for an efficient entity of the relevant network type. This appears to drive the debate to be highly theoretical, and there is a risk that real world evidence is given insufficient weight. The recent AER issues paper presents very little actual data to inform stakeholders' considerations or to explain its preliminary positions. Network businesses' revenue proposals can contain fifty pages of technical arguments without any reference to their own actual costs. To some extent it is important not to rely unduly on historical data to set a forward-looking allowance. On the other hand, it could help in identifying systematic issues. It is also the case that for any given review period much of the RAB is sunk and need not be refinanced at prevailing rates if a long-term perspective has been taken.

The challenge in evaluating the return on capital is that two main impacts must be disaggregated. A network may outperform its cost of equity by gearing more aggressively than the regulator assumed. This would not be relevant if the Modigliani-Miller theorem held, i.e. that the financing structure made no difference to the underlying value. In practice, because debt financing is tax-deductible and

equity-financing is not, a higher gearing level may be advantageous to a network business. A network can also outperform its cost of equity because it can finance more cheaply than assumed by the regulator. While there is always likely to be some variance between the assumption and the actual interest rate, this ought to be symmetric over time. This proposition is worth testing.

Accordingly, if EBIT or a similar metric is chosen, rather than NPAT or similar, the AER should separately collect and publish data on the networks' actual debt costs and gearing rate to assist stakeholders in understanding whether the WACC has been set appropriately.

6.8 The tax allowance

Comparing the actual tax costs of a business with the *ex ante* estimate is even more challenging. All the variances discussed above will have a tax impact because they all affect the profits. Ofgem adjusts all the components of its RORE calculation for tax. The regulator still needs to have some way of evaluating whether its approach to setting tax is appropriate. Like depreciation, tax can be subject to very long-term timing differences, either on the way capital allowances are calculated or if tax losses are unwinding. Large businesses such as networks are complex businesses and so can have complex tax affairs. It can take several years for material disagreements with the ATO over tax treatment to be resolved. Unlike depreciation, there is no built-in adjustment for the time value of money. So, a tax allowance that is in consumers' interest is one that appropriately estimates the actual cash tax a network business will pay. To the extent outperformance on tax can be measured independently (as opposed to being a function of variances in costs or revenues), it should be on a cash basis.

Moreover, tax is assessed on the corporate entity. If the profitability measures are focussed on the standard control activity of operating and investing in the network, then tax attributable to other business activities will need to be adjusted for. In principle, this should not be impossible, but it does add a level of complexity. as with the cost of capital, if the AER has reservations about incorporating this assessment directly into its profitability review, it is still an area worthy of examination.

7 Conclusion

The energy networks that the AER regulates are natural monopolies. This is why they are regulated and why it is important that the community is confident that they are not able to make excessive profits from their monopoly status. The centrality of electricity and gas services to households' and businesses' activity and the challenges pf substituting them for an alternative energy source, make them an even greater focus of interest. Accordingly, it is appropriate that stakeholders (users and

their representatives, governments and so on) are able to understand the profitability of these businesses.

As highlighted in 3 above, the publicly available information on the networks' financial performance is limited and does not facilitate a profitability review. This means that the AER needs to define, collect and publish the data via the regulatory information (RIN) process. Much of it on the revenue/cost side is collected for DNSPs at least. But balance sheet information is needed and data collection extended to TNSPs, gas businesses. An area of complexity to be carefully considered is how to allocate or attribute amounts relating to the corporate entity as a whole across the multiple business lines that most networks carry out, so that the profitability of the standard control service can be identified and evaluated.

AER can and should publish a range of metrics using the data collected rather than one single metric. The most important part of the process is to disaggregate profit to analyse variances in each of the building blocks, resulting in a cost of equity figure that can be compared to the ex ante assumption. It's recommended that timing differences are adjusted for. This has the downside of increasing complexity by requiring greater manipulation of accounting data, but produces a more relevant comparison. Given particular challenges in identifying true variances for the WACC and tax components, an alternative is to stop at EBITDA and then publish info separately on capital structure and financing costs, plus tax costs.

The profitability measures could further be contextualised by being published alongside a range of other metrics such as reliability and service standards. This helps evaluate whether the most profitable networks are doing so because they are delivering superior outputs or for other reasons.

The Author

Kieran Donoghue is the Director of Newgrange Consulting. His career includes over 7 years as the energy policy lead at three major industry associations , 4 years at the British energy regulator Ofgem and over 9 years as a chartered accountant in a range of corporate and advisory roles.

In his role as head of networks financial issues at Ofgem, he specialized in issues such as cost of capital, tax pensions and financial modelling as well as incentive design for gas and electricity networks. He developed the first Return on Regulatory Equity calculation and also the annual price control reporting process for gas distribution. This involved the introduction of standardised annual reporting of cost, revenue and quality of service information, including data that could be used to derive consistent profitability measures of the sort discussed in this report.

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