Consumer
Challenge
Panel

Submission to the Australian Energy Regulator (AER)

Consumer Challenge Panel

Submission to the AER on Review of Incentive Schemes Discussion Paper

Sub-Panel CCP29

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Executive summary

On 2 December 2021, the Australian Energy Regulator (AER) released a discussion paper on its proposed approach to reviewing the operation of incentive schemes that apply to regulated electricity and gas networks.

The AER is reviewing and refining its incentive schemes and guidelines that apply to regulated electricity and gas networks to ensure they remain relevant and fit-for-purpose. This forms part of the AER's strategic objectives over 2020-25 to improve the AER's approach to regulation by being more efficient and focusing on outcomes that matter most to consumers.

This submission responds to the AER's discussion paper that was published on 2 December 2021.

Key stakeholder issues

All aspects of running the National Energy Market (the NEM), including the regulatory regime, need to be undertaken in accordance with the National Energy Objectives.

A fundamental question that arises is that if the NEO and NGO intend that all parties act efficiently for the long term interests of consumers, why are additional incentive schemes required in order to promote efficiency?

Moreover, the NEO and NGO and the Revenue and Pricing Principles all suggest that such schemes should be delivered at the lowest cost to consumers and without distorting prices. Can consumers be confident that these conditions are being satisfied?

We question whether the incentives framework really does incentivise a service provider to reveal the efficient cost of providing services and the level of services valued by consumers, or whether it incentivises forecasts that are higher than efficient costs so that gains can then be realised through "financial incentives" in the incentives schemes.

Where a network business' outturn expenditure is lower than forecast expenditure in any given regulatory period, it could be for one of a variety of reasons, not all of which seem to merit incentive payments to benefit network businesses.

As set out in the AER's Discussion Paper, networks have consistently spent less than their allowances.

The AER examines two notable trends in capital expenditure that raise further questions as to whether the CESS is currently promoting outcomes that are commensurate with efficiency gains in capital expenditure:

- Networks appear to be spending more later in regulatory periods; and
- Observed patterns of underspending and over-forecasting of capital expenditure.

We concur with the AER that these are key concerns raised by consumer groups, and we raise them as a CCP sub-panel from the same consumer perspective.

Recommendation: Businesses should be required to provide a credible narrative to explain why their outturns differed from regulatory decisions. This would go some way towards giving stakeholders better information to support their understanding regarding whether and to what extent incentive payments are justified. We recommend that these narratives should be published as part of the networks' price submissions. They should be subject to public scrutiny, and should be used to judge the quality of the network's proposal for the next regulatory period.

A good narrative regarding what has happened in the current regulatory period and how that has informed what is being proposed for the upcoming regulatory period would confirm the network's commitment to customers, and its credibility as an efficient manager of network services.

Evidence of customer benefit from current schemes

Recommendation: To assess properly whether incentive schemes improve outcomes for customers, the excess burden of incentive schemes should be calculated on a state level basis and across key segments, and compared to estimated reductions in the running costs of NSPs that can be attributed to the operation of incentive schemes.

Recommendation: To estimate appropriately reductions in estimated costs of NSPs that can be attributed to NSPs, international benchmarking exercise should be undertaken using Data Envelopment Analysis and Stochastic Frontier analysis.

Recommendation : Conduct micro level studies to assess possible economies of scope between key outcome measures targeted by the incentive scheme in order to assess appropriately whether the balance of incentive schemes are correct.

Efficiency Benefits Sharing Scheme (EBSS)

The EBSS looks to be overly generous to networks and costly to consumers. Networks benefit from cash payments delivered in the short term (six years). These payments are funded by consumers who only receive the offsetting benefit over a delayed and far longer period. It appears the AER has persistently under-estimated opportunities for efficiency gains when forecasting the revenue allowance for operating expenditures – leading to overly generous payments under the EBSS. This section describes a 'menu approach' that seeks to encourage networks to propose more ambitious efficiency factors in their regulatory proposals.

Recommendation: The AER should explore opportunities for either imposing a higher efficiency factor when forecasting operating expenditure, or establishing a scheme that rewards networks for committing to higher efficiency factors in their regulatory proposals to the AER.

Capital Efficiency Sharing Scheme (CESS)

It might be possible to develop an incentive scheme that rewards both efficiency in expenditure and honesty in forecasting.

The CESS provides networks with little (or no) incentive to reveal *ex ante* their true expectation of capital expenditure in their regulatory proposals. This leads to wasteful gaming between networks and the regulator, all of which is underwritten by consumers. This is not an acceptable outcome.

A mechanism is described in this submission that attempts to reward honest forecasts and punish ambit claims by networks. It also rewards networks that genuinely pursue efficiencies in their capital expenditures once the regulatory allowance has been determined.

CCP29 would welcome the opportunity to work with the AER on further exploring potential improvements to the CESS to promote honest forecasts from, and efficient expenditure by, networks.

Recommendation: The AER should explore opportunities for amending the CESS to promote more accurate and reliable forecasts of capital expenditures from networks, for example, using a mechanism similar to the one described in this submission.

Service Target Performance Incentive Scheme (STPIS)

Recommendation: The AER should begin a rebalancing of STPIS so that it is less reliant on incentive payments (for example, by halving the dollar value of the payment mechanism), and more reliant on deterrents for failing to meet services standards (for example, by doubling the dollar value of the penalty mechanism).

1. Introduction

1.1. The role of the Consumer Challenge Panel (CCP)

The AER established the Consumer Challenge Panel (CCP) in July 2013 as part of its Better Regulation reforms. These reforms aimed to deliver an improved regulatory framework focused on the long-term interests of consumers.

The CCP assists the AER to make better regulatory determinations by providing input on issues of importance to consumers. The expert members of the CCP bring consumer perspectives to the AER to better balance the range of views considered as part of the AER's decisions.[1]

The author of this submission is CCP29, a sub-panel of the AER's Consumer Challenge Panel that the AER has established to focus specifically on the AER's review of incentive schemes.[2] The views expressed in this paper are the views of the members of CCP29: David Prins (chair), Ron Ben-David and Andreas Chai.

CCP29 wishes to thank the AER and the Energy Networks Association (ENA) for answering CCP questions to assist in this submission.

1.2. Structure of this submission

This submission covers our view of the key issues in the AER's discussion paper on its review of incentive schemes from a consumer perspective.

The submission forms a part of the opening of discussion of stakeholders with the AER. It enables further discussion as to how incentive schemes may work better for consumers in future.

The remainder of this submission is structured as follows:

- Section 2 provides an overview of the review.
- Section 3 sets out the underlying concerns of CCP29 in regard to whether the incentive schemes are in the best interests of consumers. These concerns have driven the content of this submission.
- Section 4 discusses the important issue for CCP29 regarding evidence of customer benefit from current schemes.
- Section 5 reflects on the efficacy of the EBSS, and contends that it is leading to unnecessarily high payments to networks at consumers' expense. CCP29 considers that the AER should either impose a higher efficiency factor when forecasting operating expenditure, or it should establish a mechanism that rewards networks for committing to higher efficiency factors in their regulatory proposals to the AER. The section describes how such a mechanism might operate.
- Section 6 discusses CCP29's concerns with the CESS, which provides little by way of sanction to networks that submit upwardly biased forecasts of their capital requirements. This leads to wasteful and costly gaming by networks. To the extent this gaming is successful, it potentially increases the payments networks can receive under the CESS. CCP29 suggests that the AER

[1] Detailed information on the CCP is available on the AER website at https://www.aer.gov.au/about-us/consumer-challenge-panel

[2] Full information on the AER's review of incentive schemes can be found on the AER website at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/review-of-incentive-schemes-for-regulated-networks

should explore mechanisms that promote more accurate and reliable forecasts of capital expenditures from networks. The CCP29 provides an example of one such mechanism.

- Section 7 discusses the Service Target Performance Incentive Scheme (STPIS).
- Section 8 provides CCP29's response to the review of the schemes conducted by HoustonKemp on behalf of the ENA. We find the analysis to be wanting in many regards.
- Section 9 provides CCP29's brief responses to the questions outlined on pages 5-6 of the AER's Discussion Paper.

2. Background to the AER's review

On 2 December 2021, the Australian Energy Regulator (AER) released a discussion paper on its proposed approach to reviewing the operation of incentive schemes that apply to regulated electricity and gas networks.

The AER is reviewing and refining its incentive schemes and guidelines that apply to regulated electricity and gas networks to ensure they remain relevant and fit-for-purpose. This forms part of the AER's strategic objectives over 2020-25 to improve the AER's approach to regulation by being more efficient and focusing on outcomes that matter most to consumers.

The National Electricity Rules (NER) establishes the following incentive schemes:

- Efficiency benefit sharing scheme (EBSS)
- Capital expenditure sharing scheme (CESS)
- Service target performance incentive scheme (STPIS)
- Demand management incentive scheme (and demand management innovation allowance)[3]
- Small scale incentive scheme

These schemes form an important part of the AER's approach to regulating national monopoly electricity and gas networks in Australia. The regulatory regime as a whole should seek to incentivise regulated network service providers to run an efficient business so that consumers pay no more than necessary for the services that they value the most.

As part of its review, the AER has stated that it will prioritise those incentive schemes (and components of incentive schemes) that matter most to stakeholders. The discussion paper that the AER published on 2 December 2021 outlines the AER's proposed priorities and key focus areas for review. For now, the AER is focusing its attention on the EBSS, CESS and STPIS.

This submission responds to the AER's discussion paper that was published on 2 December 2021.

The AER's indicative timetable for the review is shown in the table below:

Indicative timetable for the AER review of incentive schemes

Dates subject to change

Milestone	Date
AER publish discussion paper	2 December 2021
Stakeholder submissions to discussion paper close	11 March 2022

[3] The demand management innovation allowance is not strictly an incentive scheme. It is rather a mechanism that provides networks with funding for research and development into innovative demand management solutions.

Milestone	Date
AER publish draft decision	June 2022
AER publish final decision	September 2022

3. Key stakeholder issues

This section sets out the underlying concerns of CCP29 in regard to whether the incentive schemes are in the best interests of consumers. These concerns have driven the content of this submission.

3.1. The National Energy Objectives

All aspects of running the National Energy Market (the NEM), including the regulatory regime, need to be undertaken in accordance with the National Energy Objectives.[4]

The National Electricity Objective (the NEO) as stated in the National Electricity Law (NEL) is:

> "to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:
>
> - price, quality, safety and reliability and security of supply of electricity
> - the reliability, safety and security of the national electricity system."

The National Gas Objective (the NGO) as stated in the National Gas Law (NGL) is:

> "to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."

A fundamental question that arises is that if the NEO and NGO intend that all parties act efficiently for the long term interests of consumers, why are additional incentive schemes required in order to promote efficiency? The presumption of incentive schemes that promote efficiency is that efficiency will be greater when the incentive schemes are in place as against if they were not in place. As stated in the AER's Discussion paper:[5]

> *Incentive-based regulation provides network service providers with financial incentives to improve their efficiency and performance over time.*

In other words, network businesses need extra revenue as an incentive to be more efficient than they otherwise would be. Is the suggestion that without incentives businesses would act inefficiently against the long term interests of consumers, i.e. not as envisaged in the National Energy Objectives?

Moreover, the NEO and NGO and the Revenue and Pricing Principles all suggest that such schemes should be delivered at the lowest cost to consumers and without distorting prices. Can consumers be confident that these conditions are being satisfied?

[4] https://www.aemc.gov.au/regulation/regulation. We show here the National Electricity Objective (the NEO) and the National Gas Objective (the NGO). There is also a National Energy Retail Objective (NERO) that is not relevant to this submission

[5] AER Discussion Paper, section 2.1 page 18

3.2. Do incentive schemes incentivise more efficient business operation?

The AER's Discussion Paper notes that:[6]

> *Incentive regulation was introduced to encourage regulated monopolies to become more efficient and to innovate over time.*

The Discussion Paper also notes that the incentives framework:[7]

> *… includes financial rewards where a service provider improves their efficiency and financial penalties where they become less efficient. This is aimed at incentivising a service provider to reveal the efficient cost of providing services and the level of services valued by consumers.*

We question whether the incentives framework really does incentivise a service provider to reveal the efficient cost of providing services and the level of services valued by consumers, or whether it incentivises forecasts that are higher than efficient costs so that gains can then be realised through "financial incentives" in the incentives schemes.

Where a network business' outturn expenditure is lower than forecast expenditure in any given regulatory period, it could be for one of a variety of reasons:

- The business may have genuinely found efficiencies after the forecasts were finalised in the AER's final decision.
- There may have been efficiencies that eluded the AER at the time of its final decision.
- Unit costs of labour or of materials may have out-turned lower than anticipated due to external unforeseen market conditions outside the control of the network business.
- In the case of capex, a project may have been found to be unnecessary or may have been deferred to the next regulatory period.

Not all these cases seem to merit incentive payments to benefit network businesses.

The case of deferral is considered in the AER's Discussion Paper, which quotes from the AER's explanatory statement to its capital expenditure incentive guideline:[8]

> *Without any adjustment to the CESS payments, all capex underspends would be treated identically. A NSP [network service provider] would receive the same reward through the CESS for a permanent efficiency improvement as it would for a short-term deferral of capex. Where the deferred capex has no impact on a NSP's forecast of capex for the next regulatory control period, all else being equal, consumers will be better off from such deferral. However, if a NSP's capex forecast materially increases in the next regulatory control period because the capex was deferred, a NSP's reward from deferring capex is likely to exceed the benefit to consumers from the short-term deferral. If this is the case, consumers will, perversely, face higher prices after short-term deferral of capex.*

In this context, short term deferrals will be detrimental to consumers where a network service provider is able to defer a material amount of expenditure, and this leads to higher capital

[6] AER Discussion Paper, section 2.1 page 19
[7] AER Discussion Paper, section 2.1 page 18
[8] AER Discussion Paper, section 5.1 page 53

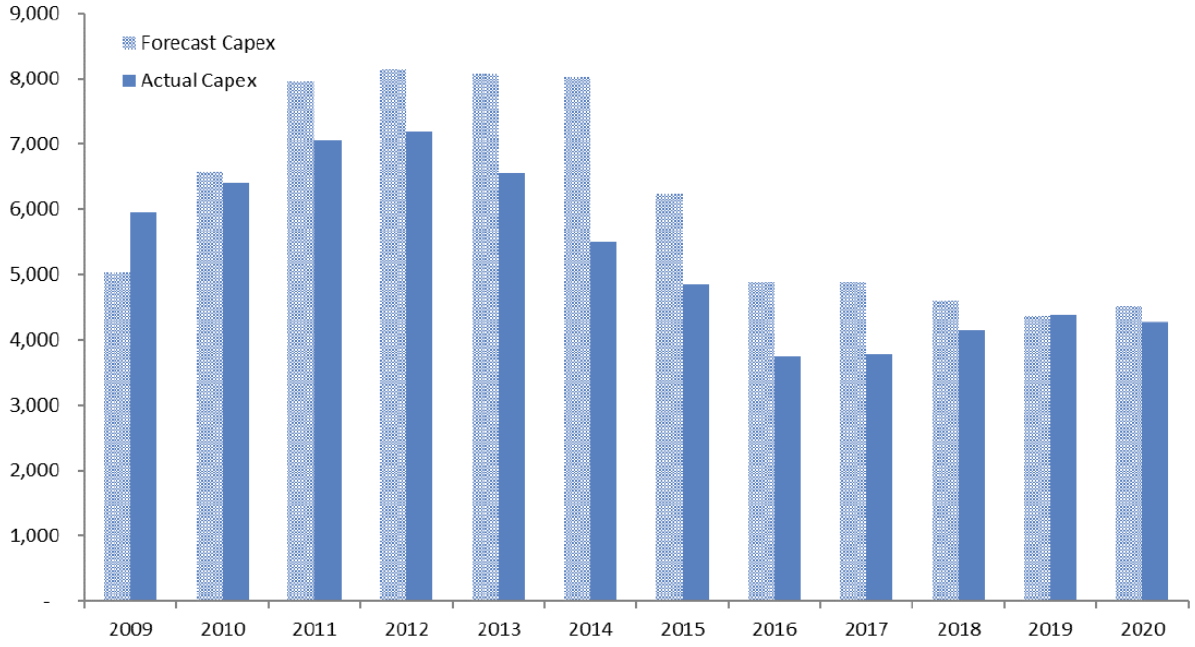
expenditure forecasts in the next regulatory control period. This leads to consumers not sharing in the benefit of such a deferral and potentially paying for more than efficient costs.

The Discussion Paper further sets out that the AER has some flexibility to adjust the CESS payments where it identifies a material amount of capital expenditure that is deferred between regulatory control periods. However, while capital and operating expenditure forecasts are built up in the AER's decision-making using a building block approach, the AER's regulatory decisions do not mandate specific projects or spending projects. Network businesses are not required to account for their expenditure on the same basis on which the expenditure forecast were built up. Therefore it may be difficult for the AER to identify deferral in practice.

As set out in the AER's Discussion Paper, networks have consistently spent less than their allowances.[9]

Figure 18 in the AER's Discussion paper, which is reproduced below, shows the total actual and forecast capital expenditure across the electricity distribution networks in the NEM.

Figure 18 Forecast and actual capital expenditure – all electricity distribution



Source: AER network performance report

As further stated by the AER:[10]

> *There are likely many reasons for the overall decline in capital expenditure, including changes in the external environment (e.g. reductions in demand, and changes in regulatory obligations), as well as networks making more efficient investments. … The pattern of underspending against allowances continued after the introduction of the CESS in 2015. This contributed to the positive CESS carryover rewards that networks will be entitled to in the upcoming regulatory period … We recognise that it is not straightforward to identify whether expenditure underspending is due solely to efficiency gains, or changes in circumstances or*

[9] AER Discussion Paper, section 5.2 pages 53-54
[10] AER Discussion Paper, section 5.2 pages 54-55

happenstance. This is a key concern raised by consumer groups. … This means that examining in detail the drivers of underspends may be necessary to identify whether underspending is due to efficiencies.

The AER then examines two notable trends in capital expenditure that raise further questions as to whether the CESS is currently promoting outcomes that are commensurate with efficiency gains in capital expenditure:

- Networks appear to be spending more later in regulatory periods; and
- Observed patterns of underspending and over-forecasting of capital expenditure.

We concur with the AER that these are key concerns raised by consumer groups, and we raise them as a CCP sub-panel from the same consumer perspective.

Recommendation: Businesses should be required to provide a credible narrative to explain why their outturns differed from regulatory decisions. This would go some way towards giving stakeholders better information to support their understanding regarding whether and to what extent incentive payments are justified. We recommend that these narratives should be published as part of the networks' price submissions. They should be subject to public scrutiny, and should be used to judge the quality of the network's proposal for the next regulatory period.

A good narrative regarding what has happened in the current regulatory period and how that has informed what is being proposed for the upcoming regulatory period would confirm the network's commitment to customers, and its credibility as an efficient manager of network services.

3.3. Ways to incentivise performance in consumers' long term interests

We have heard in the past from some network businesses in Australia and internationally that incentive schemes (in this case in particular aspects , service level agreements, guaranteed service level payments and their like) work because network businesses are not large amorphous entities but are comprised of individual managers and operatives. The way these organisations work is that the performance requirements under these schemes find their way to individual managers' Key Performance Indicators (KPIs). This proposition suggests that what matters is not the quantum of the dollars at stake in these schemes but rather the key is to make sure that the performance standards are aligned to what consumers are really seeking.

We have not seen any study into how regulatory incentive schemes alter organisational arrangements, systems or cultures in practice.

3.4. Substitution between operating and capital expenditure

The AER's Discussion Paper refers to circumstances where networks have options available to substitute between capital and operating expenditure to meet service levels.[11]

Providing balance between the schemes was seen as particularly important where networks have options available to substitute between capital and operating expenditure to meet service levels, such as choosing to invest in a new asset or incur operating expenditure (e.g.

[11] AER Discussion Paper, section 3.3 page 36

maintain existing assets), or where there are abilities to capitalise or expense specific costs within a cost allocation framework (e.g. overheads, leases).

We suggest that the opportunities to increase efficiency extend beyond those classical examples. For example, a network business may invest in robotics / Artificial Intelligence (AI) (capex) to save opex. Incentive schemes should actively encourage that kind of trade-off.

4. Evidence of customer benefit from current schemes

A key focus of the AER's discussion paper is on how to evaluate and monitor the incentive schemes costs and outcomes for customers. Since the 1980s, incentive-based regulatory regimes have been used around to world to mimic competitive market pressures in natural monopoly network schemes. This was a response to criticisms of the traditional rate-of-return regulation that could lead to inefficient cost increases (Averch and Johnson, 1962). From this perspective, any evaluation of regulatory incentive schemes should consider what changes these have induced in NSP operations relative to a scenario in which NSPs operate under traditional rate-of-return regulation.

Here more needs to be done to assess empirically the outcomes for customer from incentive regulation. The current regulatory approach features an extensive portfolio of incentive schemes that have multiple objectives, including: improve service quality in a cost effective way (STPIS), incentivise efficient capital expenditure (CESS) and achieve efficiencies in operating expenditure (EBSS).

Ultimately the performance of such incentive schemes is an empirical issue. In this evaluation exercise, clear thought should be given to the counterfactual scenario of what levels of capital expenditure, operational expenditure and service quality the NSPs would have delivered in the scenario where these incentive schemes did not exist and only traditional rate of return regulation applied to NSPs.

For example, this could be done by comparing the productivity and quality of services of NSP in other countries that operate under traditional rate-of-return regulation. These estimated benefits of these schemes should be weighed up against the increase in customer electricity bill that are caused by the incentive scheme. As noted on page 29 of the discussion paper, the payments to NSPs from incentive scheme increase the revenues that they are entitled to earn from customers, such that incentive payments likely have a small yet noticeable increase in customer bills.

From first principles of cost benefit analysis, to assess whether incentives schemes have improved outcomes for customers, a starting point would be to calculate the excess burden (deadweight loss) incurred from the associated increases in customer bills (Auerbach and Hines 2002).[12] This would require collecting information about the price elasticity of electricity customers, which are likely to be heterogeneous across different regions and states.

Such an exercise could also provide the AER with an understanding about the extent to which the costs of the incentive schemes vary across different location, segments and states. Information about the price elasticity of location-specific customers would provide the AER with location-specific information about the size of the deadweight loss associated with incentive schemes. As noted by a recent study, across the population of Australian electricity consumers, there exists state-specific heterogeneity in both the speed and magnitude that electricity consumption adjusts in response to prices (Doojav and Kalijaran 2019).[13] This evidence suggests that the deadweight loss (and estimated dollar value of benefits) associated with incentive schemes may vary across key states and segments. It can provide information relating to answering the AER's Question 9: "Should the relative rewards

[12] Auerbach, A. J., & Hines Jr, J. R. (2002). Taxation and economic efficiency. In Handbook of public economics (Vol. 3, pp. 1347-1421). Elsevier.

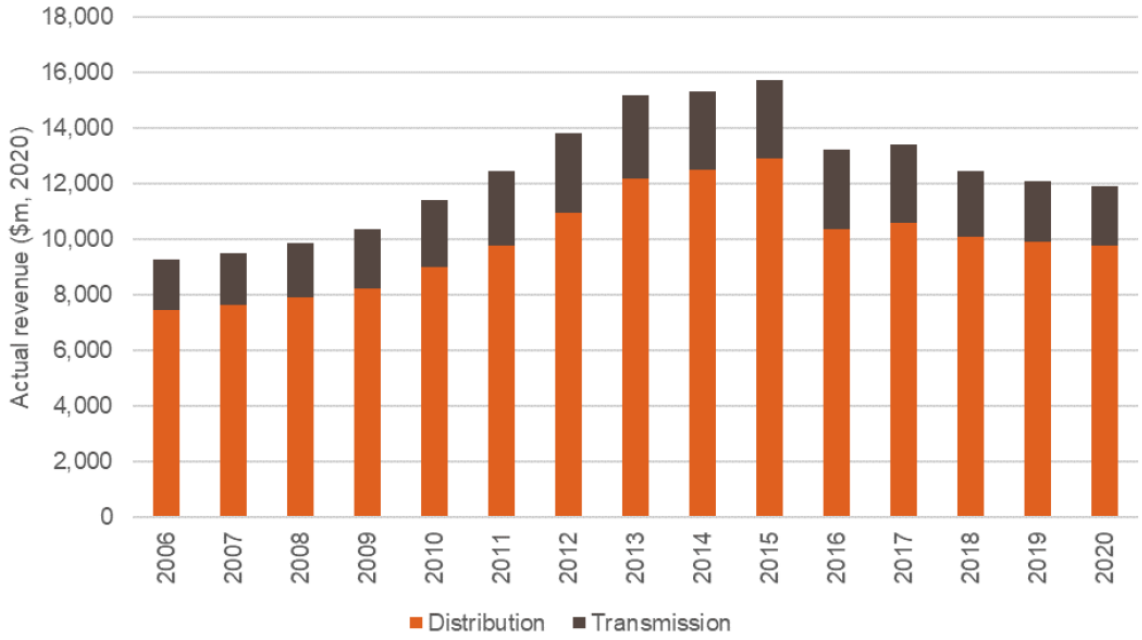
[13] Doojav, G. O., & Kalirajan, K. (2019). Income and price elasticities of electricity demand in Australia: Evidence of state-specific heterogeneity. Australian Economic Papers, 58(2), 194-206.

and penalties be lower or higher / vary with the time value of money." It is likely that the time value of money will vary significantly across key electricity user segments. Similarly, willingness to pay (WTP) studies on the value of network reliability suggest that households are willing to pay more to avoid outages during certain seasons, at peak times and at the weekend.[14] Gaining a more comprehensive picture of customer demand elasticity and WTP across regions and segments will also help the AER assess whether the STPIS is fit for purpose, as mentioned on page 65 of the AER's discussion paper.

Recommendation: To assess properly whether incentive schemes improve outcomes for customers, the excess burden of incentive schemes should be calculated on a state level basis and across key segments, and compared to estimated reductions in the running costs of NSPs that can be attributed to the operation of incentive schemes.

In identifying what impact the incentive schemes have on reducing the NSP cost and productivity trends, the discussion paper notes that costs of running NSP has been in decline since 2014 (as shown in Figure 3 in the AER's discussion paper which is reproduced here).

Figure 3 Total electricity network revenues



Source: AER electricity network performance report 2021

However, the paper also mentions that a significant driver of this has been a reduction in the regulated cost of capital. In this regard, Data Envelopment Analysis (DEA) and Stochastic Frontier analysis as featured in the Annual benchmarking reports can be used to assess more accurately how incentive regimes have impacted productivity growth and cost savings for end users (e.g. Hattori et al 2005). These techniques can shed light on the effectiveness of incentive schemes by comparing the performance of NSPs operating across different incentive schemes and regulatory schemes. For example (Hattori et al 2005) found that UK NSPs outperformed Japanese NSPs in terms of

[14] Morrissey, K., Plater, A., & Dean, M. (2018). The cost of electric power outages in the residential sector: A willingness to pay approach. Applied energy, 212, 141-150.

productivity growth between 1985 and 1998. No incentive schemes existed in Japan during this period. Countries with similar incentive schemes include Netherlands, Norway and the UK. Such cross country comparison exercise could provide robust evidence of the effectiveness of the CESS and EBSS.

Recommendation: To estimate appropriately reductions in estimated costs of NSPs that can be attributed to NSPs, international benchmarking exercise should be undertaken using Data Envelopment Analysis and Stochastic Frontier analysis.

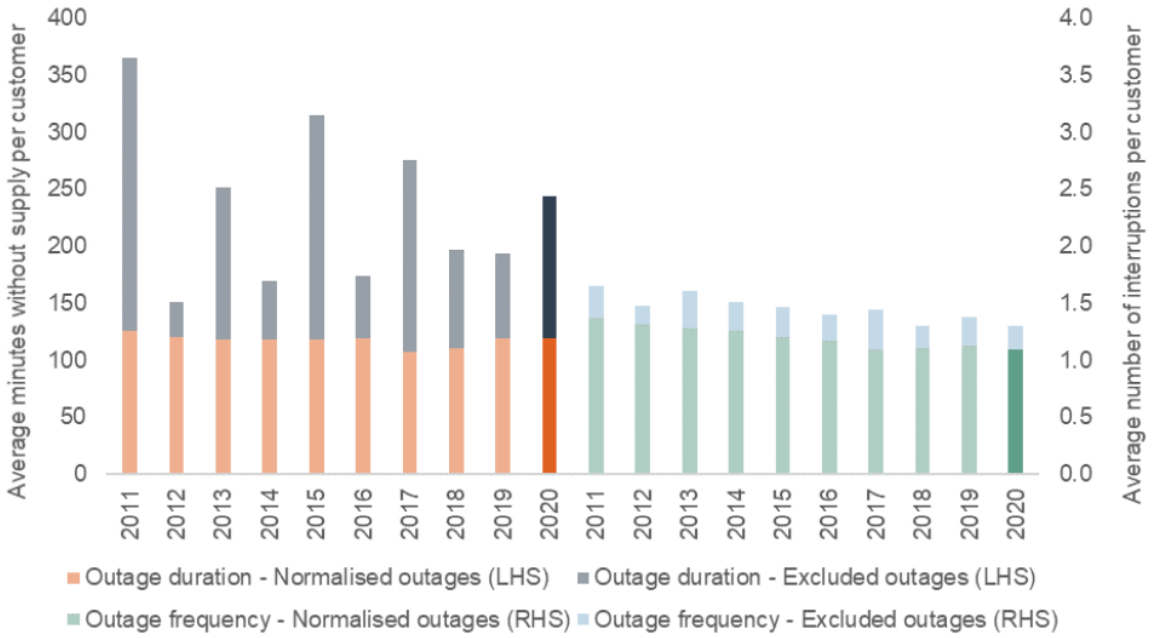
It is worth noting that the efficiency scores produced by such analysis tend to be sensitive to the choice of input and output variables. In some circumstances, inappropriate choices may lead to relatively inefficient firms defining the frontier. The AER's Annual Benchmarking report for DNSPs uses multilateral total factor productivity to compare productivity across networks. Productivity is measured as the ratio of the quantity of total outputs produced to the quantity of inputs used. Outputs are measured using customer numbers, circuit length, ratcheted maximum demand, energy delivered, reliability, and share of undergrounding. However, the number of customers and the level of peak demand are likely strongly driven by factors that are beyond the control of the distributors. It is arguable whether distributors have control over the number of customers, as this is co-determined by the decisions of retailers, transmission businesses, and generators, as well as changes in customer location and their preferences.[15] It is also likely influenced by regional growth drivers and urbanisation patterns. These exogenous factors need to be taken into account in the benchmarking exercise. The current configuration exercises effectively positively bias NSPs in high customer growth regions, and negatively biases small regions. As noted by Lawrence and Diewert (2004)[16] the 'output' of distributors should not be independent of the size of the customer base, and instead should focus on the availability of infrastructure, and the condition in which it has been maintained. Aggregate productivity as mentioned in "key observations about changes in productivity" is likely biased to some degree by population growth dynamics across different DNSP regions.

The AER's discussion paper also raises questions about the balance of incentive schemes (Question 4 – page 14), and whether the financial incentives are correctly balanced. A robust answer to this issue should study the extent to which there are economies of scope for NSPs in meeting the different outcomes that the incentive schemes are targeting. If there are significant economies of scope, having separate incentive schemes for efficiency and reliability may be redundant. To measure the outcomes of the incentive scheme, the AER paper discusses outcomes for customers in terms of reducing network costs (Figure 3 – which was reproduced above), and service reliability (Figure 5 – reproduced below). This is in line with the National Electricity Objective which defines the long-term interest of consumers in terms of price, quality, safety, security and reliability.

[15] This is reflected in the AusNet Services (AusNet) (2016), AusNet Services' Submission on the 2016 distribution and transmission benchmarking reports, Melbourne, 14 October 2016.

[16] Lawrence, Denis, and W. E. Diewert. "Regulating electricity networks: The ABC of setting X in New Zealand." Performance measurement and regulation of network utilities (2006): 207-241.

Figure 5 Service reliability, frequency and duration of outages, electricity distribution



Source: AER electricity network performance report

Here it is worth noting that integrated benchmarking models can be used which integrate NSP output across different outcome dimensions (Jamasb and Politt 2006)[17]. Data Envelopment Analysis also enables the analysis of multiple different outputs. In analysing Australian NSP performance, Lee et al (2021) note that "reliability promotes efficiency", suggesting that economies of scope exist between different outcomes targeted by the incentive schemes. Specifically, this would suggest that reliability outcomes targeted by the STPIS and the efficiency outcomes targeted by EBSS tend to overlap. Ultimately, more analysis needs to be done at the micro level to assess the extent to which economies of scope between network reliability and efficiency. This would help ensure that the AER has the appropriate information needed to balance the incentive schemes appropriately.

Recommendation : Conduct micro level studies to assess possible economies of scope between key outcome measures targeted by the incentive scheme in order to assess appropriately whether the balance of incentive schemes are correct.

[17] Jamasb, T., & Pollitt, M. (2007). Incentive regulation of electricity distribution networks: Lessons of experience from Britain. Energy Policy, 35(12), 6163-6187.

5. Efficiency Benefits Sharing Scheme (EBSS)

This section reflects on a range of concerns CCP29 has identified with the Efficiency Benefits Sharing Scheme (EBSS). It explores the claims around the benefits generated by the EBSS, questions whether the scheme produces fair and reasonable outcomes for consumers, and identifies further analysis that could enhance consumer confidence in the scheme.

5.1. The claimed benefits of the EBSS

The following discussion reflects on the claimed benefits of the Efficiency Benefits Sharing Scheme (EBSS), questions whether the scheme produces fair and reasonable outcomes for consumers, and identifies further analysis that could enhance consumer confidence in the scheme.

The purpose of the EBSS is to provide networks with an incentive to pursue efficiencies in their operations which, all things being equal, benefit consumers through lower prices. In order to encourage networks to reveal these efficiencies, the EBSS rewards the networks by allowing them to keep the quantum of the saving for six years from the time they are revealed.

In a mechanical sense, the EBSS operates by the AER providing networks additional revenue over-and-above their revealed efficient costs. This increment is known as an efficiency payment. It is set equal to the difference between the networks forecast operating costs and its revealed efficient costs. The scheme can also work in reverse whereby if actual costs exceed forecast costs, the network is penalised for six years by an amount equivalent to the difference between forecast and actual costs.

A mathematical example is instructive.

Let's assume through the regulatory reset process the AER forecasts a network's efficient operating costs sum to $1000 per year. This amount is subsequently approved in the network's regulated revenue allowance for the term of the regulatory control period (typically, five years). If during the course of the regulatory period the network reveals it can deliver the same performance outcomes for $900 per year, the EBSS rewards the network by allowing the network to collect an additional $100 per year in revenue for six years.

Under these arrangements, the AER and networks have claimed the scheme provides an infinite stream of benefits of $100 per year from the time the efficiency savings are revealed. Based on a 6 per cent discount rate, this claimed saving sums to a total net present value of $1,667. The AER and networks[18] have argued these total benefits have been divided between networks and consumers – with networks keeping the benefits for the first six years and consumers retaining the benefits thereafter. In NPV terms, this implies networks benefit by $492 while consumers retain the remaining $1,175 of the revealed efficiency gains. That is, 30 per cent of the efficiency gain is retained by networks ($492/$1667 = 0.295) and 70 per cent accruing to consumers.

Given the scheme has been repeatedly endorsed by the AER, we can conclude that the AER has judged this 30:70 split in benefits to be fair and reasonable. Indeed, this ratio was subsequently adopted, and fixed exogenously, in the AER's Capital Efficiency Saving Scheme (CESS), see section 6.

[18] See section 8 for discussion on a report commissioned by Energy Networks Australia.

5.2. An alternative view of the EBSS

The AER's approach to calculating the sharing ratios allows network businesses to realise the benefits of efficiencies for the first 6 years, and consumers can benefit thereafter. We question whether this best achieves the objectives of the NEO.

CCP29 suggests it is equally possible to describe the EBSS as a scheme that has been implemented, at consumers' cost, in recognition of the AER's limitations. Consumers pay for the EBSS because the regulator is unable to guarantee consumers that it is able to deliver on the regulatory promise that they will face prices that only reflect efficient costs. This inability to guarantee inefficient prices may be due to some combination of information asymmetries, regulatory risk aversion, and other limitations.

In the absence of such barriers, economic regulators would only allow revenues that reflected efficient costs. This bargain with the community might be called the 'regulatory promise'. In fact, this is effectively how the AER's regulatory framework operates.[19] Once lower efficient costs become known to the regulator (whether revealed by networks or imposed by, say, regulatory benchmarking), future revenue allowances assume those lower costs and no more.

The EBSS delivers on this 'regulatory promise' but at a cost to consumers.

Using the above numerical example, consumers only pay $900 to compensate operating expenditures – however, the EBSS then extracts an additional $100 from consumers for the next six years. In other words, the regulatory framework clearly distinguishes between compensating efficient costs and the additional impost created by the EBSS. The EBSS payment is not an efficient cost *per se*. It is a transfer that produces an additional benefit for networks.

When viewed in this way, the EBSS represents the cost of the AER upholding the regulatory promise – that is, the net cost of the scheme for consumers is $492 (NPV).

5.3. Keeping the scheme fair and reasonable

Networks may argue that in the absence of the EBSS, they would have no incentive to drive toward efficient costs, and consumers would be paying inefficiently high prices in perpetuity. CCP29 contends that the 'regulatory promise' mentioned above fundamentally underpins community support for economic regulation. If the promise comes with strings and costs attached, then it risks eroding consumer confidence in the scheme and the regulatory framework.

Even under the AER's conceptualisation of the EBSS, it takes about 16 years for consumers to 'break even' with networks in terms of gaining an equal share of the scheme's claimed benefits – that is, while it takes six years for networks to gain $492 (NPV) in the numerical example above, it takes almost another decade before consumers gain $492 (NPV) in benefits. Alternatively stated, the scheme only begins tipping in favour of consumers in the fourth regulatory periods after the efficiency saving has been identified. This is a very long time for consumers to wait, and much can happen during that time. The waiting time increases with higher discount rate.

Even if consumers accept the AER's representation of the EBSS, many of them will see the scheme's deferred benefits as a regulatory promise about savings to be made in the distant future (as opposed to the cash payments they see networks receiving immediately). Consumers can typically be

[19] Setting aside timing issues for now

expected to have higher discount rates than the WACC, particularly low income and financially vulnerable consumers. Deferred benefits are of much less value to consumers than to entities such as networks, yet under the EBSS networks gain the immediate benefit and consumers are left waiting for six years.

When a consumer's discount rate is higher than the one assumed by the regulator, then from the consumer's perspective the scheme appears to be far more favourable to networks and far less favourable to consumers. That is, the sharing ratio appears to consumers to be significantly higher than it appears to the AER or the networks. For example, if a consumer's discount rate is, say 12 per cent, the scheme appears to provide 49.3 per cent of total claimed benefits to the network. Perhaps even more significantly, it takes over 38 years before consumers see themselves getting the same benefit out of the scheme as networks. In effect, consumers see themselves as having to wait their entire adult life-time to get an equal share of the scheme's benefits.

A fairer alternative might see networks and consumers sharing the claimed efficiency gains from the scheme on an equal basis from the outset. In the above mathematical example, this would involve the network receiving an annual payment of $50 (rather than $100). We note, however, that under such an arrangement the scheme would need to be extended to 15 years if it were to remain NPV-neutral with the current EBSS (based on a discount rate of 6 per cent). This could present administrative challenges, and it may test the community's trust in the regulatory framework if networks are seen to be rewarded for efficiencies made up to 15 years earlier.

As currently designed, the EBSS produces a claimed 30:70 sharing arrangement between networks and consumers (assuming a six per cent discount rate). Is that a reasonable outcome? And, should a different outcome be targeted as the scheme matures?

For example, as the scheme matures it would seem reasonable to increase consumers' share of the claimed benefits by, say, targeting a 25:75 sharing of the claimed benefits. Our initial analysis suggests that this could be achieved by reducing the term of the scheme to five years, or keeping the current six-year scheme but only allowing networks to keep 80-85 per cent of the efficiency saving in each of the six years (as opposed to the current arrangement in which they keep 100 per cent for six years). A 20:80 sharing arrangement could be achieved reducing the term of the scheme to four years, or keeping the current six years scheme but allowing networks to keep only 70 per cent of the efficiency saving in each of the six years.[20]

5.4. Areas for further analysis including a menu-based approach to the EBSS

CCP29 considers there is merit in the alternative view described in section 5.2 above. Consumers would be right to ask why they are required to fund additional gains for networks, when the objective of the regulatory framework is precisely to avoid such additional gains. In any event, given the impost on consumers created by the scheme, we consider that the onus ought to lie with the regulator to demonstrate that the scheme is not overly generous. Put simply, how does the AER assure consumers that its objective of encouraging networks to reveal their efficient costs cannot be achieved with a less generous scheme? The AER's discussion paper does not attend to this question.

Moreover, the EBSS entails a series of untested and implicit assumptions about consumers, namely, their preferences and the time value of their money.

[20] All these estimates assume a 6 per cent discount rate.

CCP29 also recognises that payments might be expected to be high in the early days of a scheme such as the EBSS. However, we would expect these to decline over time. That is, if the scheme is working, firms should be constantly moving towards the efficiency frontier with fewer remaining opportunities for large efficiency gains.

It is not clear whether such a decline is evident from the material presented in the AER's discussion paper. Persistently high payments may be due to one or more of the following causes:

- A selection bias by the AER when providing networks with access to the EBSS;
- The AER's forecasting methodology is over-estimating operating costs;
- Networks have identified how they can game the scheme;
- The ongoing emergence of new technologies and improved business practices.

Only the last of these possibilities should be acceptable to the AER. CCP29 considers that further work is required to assess whether there is an upward bias in the operation of the EBSS.

Over time, we would expect that if the scheme was designed and operating successfully, consumers would observe both the quantum of payments under the scheme declining, and the distribution of outcomes becoming less one-sided (i.e. in favour of payments rather than penalties). CCP29 contends that it would assist consumer confidence in the scheme if the AER committed to pursuing these two outcomes over a nominated timeframe.

Finally, as things stand, the EBSS is a one-size-fits-all scheme with all networks facing exactly the same incentive structure. CCP29 would welcome the opportunity to work with the AER and other stakeholders on exploring a menu approach to the EBSS. Some preliminary thoughts are included in the box below.

A MENU APPROACH TO THE EBSS

There are opportunities to promote and reward greater levels of ambition by networks in pursuing efficiency gains that benefit consumers. Importantly, networks should gain the greatest reward for pursuing the most difficult efficiencies. Conversely, they should not be rewarded too much for 'low hanging' efficiencies that are easily concealed ex ante from the regulator.

Whereas the scheme currently provides the same 30:70 sharing arrangements to all networks, this need not be the case. CCP29 contends the sharing ratio provided to a network should be commensurate with its commitment to pursuing efficiencies. Further, we consider that the balance between payments and penalties should also be commensurate with a network's commitment to pursuing efficiencies.

Under such a menu approach, networks would 'bid' the efficiency factor the AER should apply when forecasting operating expenditures in the upcoming regulatory period. The network's bid would also determine the sharing ratios for any payments and rewards to be imposed in the subsequent period. Payments and rewards would not be shared symmetrically. Under such a scheme the sharing ratios would be set exogenously (as in the CESS) for a fixed number of years.

The examples below should only be viewed as a demonstration of how a menu-based mechanism might be designed and added to the EBSS. The first number in each of the ratios below refers to the network's share.

- If a network 'bid' 0.5 per cent per annum efficiency factor, then it would earn EBSS payments for exceeding its bid based on a 10:90 sharing ratio. If it failed to meet its bid, it would incur a penalty based on a 90:10 sharing ratio.
- If a network 'bid' 1.0 per cent per annum efficiency factor, then it would earn EBSS payments for exceeding its bid based on a 20:80 sharing ratio. If it failed to meet its bid, it would incur a penalty based on an 80:20 sharing ratio.
- If a network 'bid' 2.0 per cent per annum efficiency factor, then it would earn EBSS payments for exceeding its bid based on a 40:60 sharing ratio. If it failed to meet its bid, it would incur a penalty based on a 60:40 sharing ratio.

5.5. Conclusion

The EBSS looks to be overly generous to networks and costly to consumers. Networks benefit from cash payments delivered in the short term (six years). These payments are funded by consumers who only receive the offsetting benefit over a delayed and far longer period. It appears the AER has persistently under-estimated opportunities for efficiency gains when forecasting the revenue allowance for operating expenditures – leading to overly generous payments under the EBSS. This section describes a 'menu approach' that seeks to encourage networks to propose more ambitious efficiency factors in their regulatory proposals.

Recommendation: The AER should explore opportunities for either imposing a higher efficiency factor when forecasting operating expenditure, or establishing a scheme that rewards networks for committing to higher efficiency factors in their regulatory proposals to the AER.

6. Capital Efficiency Sharing Scheme (CESS)

This section reflects on concerns that CCP29 has identified with the Capital Efficiency Sharing Scheme (CESS). It notes that the CESS is designed to promote efficiency in capital expenditure but provides no sanction against networks that seek to game the scheme. Using a highly stylised model, the discussion explores mechanisms for promoting honesty by networks when forecasting their capital expenditure in their regulatory proposals, as well as promoting efficiency in their expenditures during the ensuing regulatory period.

6.1. Better focusing the CESS

This section reflects on the *inter*-period incentive properties of the CESS – as opposed to the incentives for the intra-period phasing of capital expenditure by networks following a regulatory determination. CCP29 suggests that the scheme's exclusive focus on promoting efficient capital expenditure (capex) could invite gaming by networks that could be avoided if the scheme was amended to reward "honesty" in the capital forecasts submitted by networks in their regulatory proposals. A simple, stylised model is used to demonstrate how such a scheme might work.

6.2. A simple representation of the CESS

In its simplest form, the CESS can be represented as a scheme consisting of three variables (and one parameter). The three variables are:

- At the start of the reset process, the network submits its expected or forecast capex **(*F*)** for the upcoming regulatory period.
- At the end of the reset process, the regulator sets a capex allowance **(*R*)** for the upcoming regulatory period.
- At the end of the regulatory period, out-turn or actual capital expenditure (capex) during the regulatory period **(*A*)** can be observed.[21]

Under the CESS, networks receive an incentive payment (penalty) for underspending (exceeding) the regulator's forecast of efficient capex. The general form of this arrangement can be represented as:

$$Y = \alpha\,(R - A) \qquad (1)$$

where ***Y*** represents the value of the incentive payment or penalty received by the network. Under the CESS, the parameter α is currently set at 30 per cent (ie. $\alpha = 0.3$).

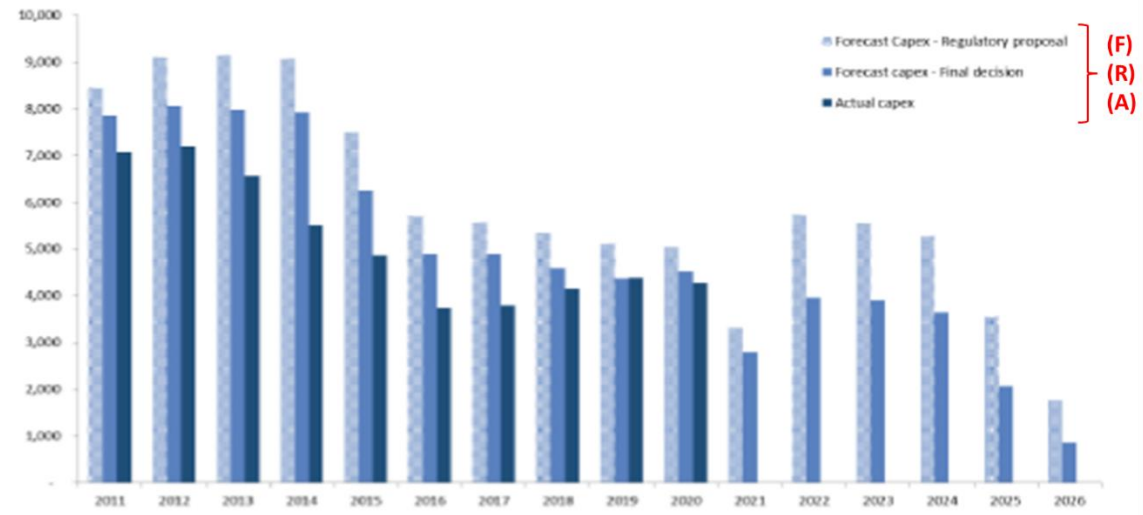
It is worth noting that networks' forecast capex (***F***) plays no direct role in determining the incentive payment / penalty (***Y***) that they eventually receive. The role these forecasts (***F***) play in the CESS is limited to providing information to the regulator, who must then determine the regulatory allowance (***R***) after taking into account the forecasts provided by the network and any other relevant considerations.

6.3. Some historical trends for forecast, regulatory allowance & actual capex

Figure 21 (p.57, reproduced below) of the AER's discussion paper neatly demonstrates the disparities between ***F, R*** and ***A*** (2011- 20), and ***F*** and ***R*** (2021-26).

[21] For now, we ignore timing issues – for instance, the reset occurs before the end of the preceding regulatory period so final capex is not known. For now, that level of detail is not necessary for the main proposition being presented in this section.

Figure 21 Difference between proposed capital expenditure and AER final decision



The discussion paper notes (p.56-57):

> "[I]nitial proposals from electricity distribution networks are typically higher than our final decisions. This has been a consistent trend over several regulatory periods."

and importantly:

> "[T]his difference has been more pronounced in recent capital expenditure allowances for the regulatory periods covering 2021 to 2026."

If other words:

- ***F*** has always exceeded ***R***, and this gap has increased between 2021 and 2026, and
- ***A*** consistently lies below ***R*** (except in 2019)

That is, there has been a consistent pattern over many years of: ***A*** < ***R*** < ***F***

The AER's discussion paper questions whether this consistent pattern of "underspending and over-forecasting" has any implications for the CESS. The discussion paper also suggests (on p.52) the narrowing of the gap between the AER's regulatory allowances (***R***) and out-turn expenditure (***A***) may be due to improvements in its forecasting methodologies since 2013.

6.4. Capex outcomes should not be surprising

The persistence of ***F*** exceeding ***R*** (i.e. networks "over-forecasting" their capex requirements) is hardly surprising – after all, there is no material sanction imposed on networks for doing so. Stated more bluntly, networks have no reason *not* to overstate their capex requirements if they believe doing so might upwardly influence the revenue allowance (***R***) by the regulator.

The discussion paper contends that networks are currently in a pattern of underspending in one period and then over-forecasting in the next period. At the same time, the AER is also highlighting how improvements in its forecasting have resulted in more accurate forecasts of networks' capex requirements.

If the AER is correct that its improved forecasting methodologies are responsible for the accuracy of its forecasts (i.e. the gap between ***R*** and ***A*** has significantly narrowed in recent years), it may explain why the gap between ***F*** and ***R*** has increased in the outlook period (2021-26). The widening gap between ***F*** and ***R*** would appear to reflect that the networks are trying even harder to influence the regulatory allowance upwards in order to maximise the incentive payment they receive – *inter alia* because a higher ***R*** increases the incentive payments they expect under the CESS, as per equation (1).

6.5. Why the CESS has not eliminated unproductive gaming

As it is currently configured, the CESS has created the conditions under which it is rational for networks to over-forecast their capex requirements. This arrangement represents an unproductive and costly game between networks and the regulator as they invest resources in order to second guess each other's actions. And of course, the entire game is underwritten by consumers, even though they effectively have very limited capacity to influence any of the key variables (***F***, ***R*** or ***A***).

Mechanisms that encourage (or just permit) gaming are contrary to the interests of consumers. It undermines their confidence and trust in the parties as well as the regulatory framework.

CCP29 contends that while the CESS pursues more efficient capital expenditure, it provides little incentive for honesty in forecasting by networks.

Barring exceptional and unforeseeable circumstances, networks can be assumed to have more accurate internal forecasts than their submitted forecasts **(*F*)** suggest. That is:

$$F > E_N\{A\} \qquad (2)$$

where $E_N\{A\}$ represents a network's internal expectation of its capital expenditure in an upcoming regulatory period.

To make the CESS an efficient and worthwhile scheme, it is necessary to remove the incentive for unproductive gaming between the network and the regulator. This requires a scheme that encourages networks to reveal their true expectations of their capex requirements such that.

$$F = E_N\{A\} \qquad (3)$$

The regulator cannot observe $E_N\{A\}$. This means that in order to promote honesty in network forecasts, it needs to consider mechanisms that do not rely on the regulator having access to a network's true expectations of capital expenditure.

6.6. A pure 'honesty in forecasting' scheme

Ignoring the CESS for a moment, it is possible to conceive of a pure 'honesty in forecasting' scheme which rewards accurate forecasts and penalises inaccurate forecasts. Such a scheme would penalise forecast irrespective of whether they eventually prove to have been too high or too low. Equation (4) represents one such scheme.

$$Y = \beta_0 - \beta_1(F - A)^2 \qquad (4)$$

Under this arrangement, the maximum reward a network would earn is equal to β_0 when ***F*** = ***A***, that is, when its out-turn expenditure (***A***) equals the forecast expenditure (***F***) it submitted to the

regulator. Any deviation in actual expenditure from the earlier forecast, would see the incentive payment (***Y***) reduced – and become a penalty if the discrepancy between ***F*** and ***A*** were large enough.

While this scheme promotes 'honesty' in the sense that it provides the network with an incentive to reveal its internal expectation of the capex required (i.e. $F = E_N\{A\}$), it imposes no incentive on the network to pursue efficient capital expenditure.

6.7. Combining two schemes in pursuit of efficient and honest forecasts

The above discussion invites a question about whether the two incentive schemes shown by equations (1) and (4) can be combined. If so, let us consider whether it might be possible to cut the regulator out of the picture altogether. That is, if the scheme can achieve honest forecasts from, and efficient expenditures by, networks then there would be no need for the regulator to produce its own estimates of a network's capex requirements (***R***). The role of the regulator would be limited to ensuring payments and penalties are administered accurately by the networks. Under these conditions, the regulator could simply adopt the network's forecast (***F***) when determining the regulatory allowance, that is:

$$R = F \qquad (5)$$

Combining the two schemes – equations (1) and (4) – and applying condition (5) gives:

$$Y = \beta_0 + \alpha(F - A) - \beta_1(F - A)^2 \qquad (6)$$

Does this combined scheme achieve its twin objectives of efficiency and honesty in network forecasting (***F***)? Unfortunately, not.

The combined scheme (6) limits, but does not eliminate, the incentive on networks to overstate their forecast capital expenditures (***F***). While this outcome can be overcome by increasing the value β_1 relative to the value of α, doing so also reduces the relative incentive for the network to provide a forecast reflecting its efficient capital expenditure requirements.

It is also worth noting that whereas each scheme, (1) and (4), is symmetric when applied on its own, the combined scheme (6) is asymmetric. The penalty incurred when ***A*** > ***F*** is greater in absolute value than the reward earned when ***A*** < ***F*** by the same amount. This does not mean the combined scheme is undesirable per se, but it may make it harder to win network support for such a scheme.

In any event, the scheme represented by equation (6) fails on the grounds that it will not prevent the incentive on networks to overstate their forecast capital expenditures (***F***). In other words, it does not appear possible to create a scheme that does not rely on a regulatory forecast. The next section outlines an alternative incentive scheme for promoting efficient and honest forecasts from networks.

6.8. An alternative approach

An alternative approach would take advantage of the "flexible approach to incentives" entertained, but not explored, by the AER in its discussion paper (p.59-60). This could be achieved by adjusting the value of the sharing ratio in proportion to the honesty of a network's forecast – and in doing so, increasing or decreasing the incentive payment or penalty it receives.

The following stylised mechanism operates by moderating the efficiency sharing ratio, which until now has been fixed exogenously (at value of 0.3) by the AER. It does so by multiplying the fixed

sharing ratio (***α***) by a factor determined by the 'honesty' of the network. It uses *ex post* observable outcomes – namely, the relationship between the network's *ex ante* forecast capex **(*F*)** and its out-turn capex during the regulatory period **(*A*)**. This relationship is reflected by the insertion of the fraction $^{A}/_{F}$ into equation (1) so that the proposed scheme is described by:

$$Y = \alpha\,(\,{}^{A}/_{F}\,)(\,R - A\,) \qquad \text{when } A < F \qquad (7.1)$$

$$Y = \alpha\,(\,R - A\,) \qquad \text{when } A \geq F \qquad (7.2)$$

This mechanism operates as follows:

- The core of the scheme remains the CESS, as per equation (1).
- If a network's forecast exceeds its out-turn capital expenditure (***F*** > ***A***), the sharing ratio is lowered. This lowers the payment the network will receive, even if it outperforms the regulators estimate (***A*** < ***R***) compared to what it would receive under the current CESS. The mechanism also lowers the penalty if the network's final expenditure exceeds the regulator's estimate (***A*** > ***R***). While this is not a particularly desirable feature of the mechanism, for now at least, such over-expenditure rarely occurs in practice (see section 6.2 above).
- If a network's out-turn capex exceeds its forecast expenditure (***A*** > ***F***), the mechanism reverts to the current CESS. This ensures networks do not have an incentive to game the scheme by:
    - submitting unrealistically low forecasts (ie. ***F*** < $E_N\{\boldsymbol{A}\}$) in order to artificially raise the sharing ratio and maximise their expected payment under the scheme, when they anticipate they can outperform the regulator's expected forecast – that is, when $E_N\{\boldsymbol{A}\} < \{\boldsymbol{R}\}$, and
    - submitting unrealistically high forecasts (ie. ***F*** > $E_N\{\boldsymbol{A}\}$) in order to artificially lower the sharing ratio, and the penalty they expect to incur, when they anticipate they will under-perform the regulator's forecast – that is, when $E_N\{\boldsymbol{A}\} > E_N\{\boldsymbol{R}\}$.

Under these arrangements, the network's lowest risk strategy is to submit honest forecasts, ***F*** = $E_N\{\boldsymbol{A}\}$, and then do its best during the regulatory period to outperform the regulator's regulatory allowance (***A*** < ***R***).

While it is true that a network may still try to game the proposed scheme by submitting a high forecast in the hope that it can upwardly influence the regulator's allowance (in the expectation that the network would then easily outperform that allowance), this would be a high risk strategy that could quickly backfire if the regulator's allowance was not influenced by the network's ambit forecast. In a nutshell, this is how the proposed scheme differs from the current CESS which imposes no sanctions on networks for submitting ambit forecasts.

6.9. Greater investment is needed in regulatory forecasting

Whether under the current CESS or the alternative approach discussed in this section, it still remains incumbent upon the AER to forecast capital expenditures (***R***) as accurately as possible.

An important point to consider when producing these forecasts is whether the observed decline in overall expenditure is due to excess capacity (Simshauser and Akimov 2019).[22] Between 2004 and 2018, the Regulatory Asset Base (RAB) of electricity networks across Australia's National Electricity

[22] Simshauser, P., & Akimov, A. (2019). Regulated electricity networks, investment mistakes in retrospect and stranded assets under uncertainty. Energy Economics, 81, 117-133.

Market (NEM) tripled in value, from $32 billion to $93 billion. At the same time, final electricity demand remained roughly constant since 2010 and has fallen from 2016 onward.

In the presence of excess capacity, this would suggest that the effort NSPs would need to undertake to achieve efficiencies in capital expenditure is relatively low. It is therefore worth considering how capital forecasts and CESS payment could be adjusted to take into account quantum of excess capacity present across different NSPs. Ultimately, CESS payments seek to provide NSPs with incentives to put more 'managerial effort' to achieve genuine cost savings (Joskow 2006).

6.10. Conclusion

As noted above, this section focuses on the *inter*-period incentive properties of the CESS, rather than its intra-period incentives. It uses a highly stylised model of the CESS. The discussion simply seeks to suggest it might be possible to develop an incentive scheme that rewards both efficiency in expenditure and honesty in forecasting.

The CESS provides networks with little (or no) incentive to reveal *ex ante* their true expectation of capital expenditure in their regulatory proposals. This leads to wasteful gaming between networks and the regulator, all of which is underwritten by consumers. This is not an acceptable outcome.

The purpose of this section is not to propose a particular solution to this shortcoming in the CESS, but to suggest solutions may be possible. The mechanism described in this section attempts to reward honest forecasts and punish ambit claims by networks. It also rewards networks that genuinely pursue efficiencies in their capital expenditures once the regulatory allowance has been determined.

Of course, this is how the CESS is meant to work, but doesn't. The mechanism described above, while highly simplified, seeks to achieve the scheme's intended outcome by ensuring networks have 'skin in the game' when providing their forecasts.

CCP29 would welcome the opportunity to work with the AER on further exploring potential improvements to the CESS to promote honest forecasts from, and efficient expenditure by, networks.

Recommendation: The AER should explore opportunities for amending the CESS to promote more accurate and reliable forecasts of capital expenditures from networks, for example, using a mechanism similar to the one described in this submission.

7. Service Target Performance Incentive Scheme (STPIS)

As set put by the AER in its Discussion Paper, the STPIS provides electricity network service providers with incentives for maintaining and improving network performance, to the extent that consumers are willing to pay for such improvements. It does this by rewarding networks that outperform service performance targets and penalising networks that underperform service performance targets.[23]

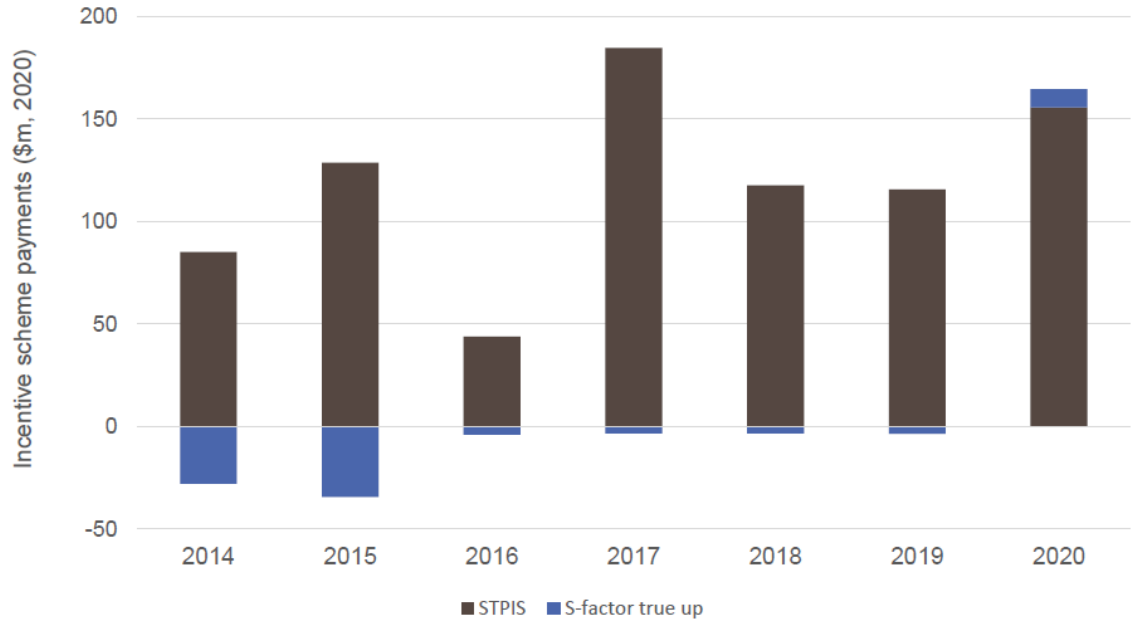
7.1. Service performance for electricity distribution

The AER states:[24]

> *Figure 24 shows that incentive rewards from the STPIS have provided electricity distribution networks with $830 million in incentive revenues between 2014 and 2020. While significant, these incentive rewards are due to network service providers improving their service reliability and outperforming against targets set under the STPIS. They also provide evidence that the scheme is continuing to achieve its objective of delivering improved service reliability over time that is valued by customers.*

Figure 24 is reproduced below.

Figure 24 Service performance incentive scheme revenues – electricity distribution



Note: The s-factor true-up scheme is the superseded service performance scheme previously applied to Victorian electricity distribution networks by Essential Services Commission Victoria.

Source: AER electricity network performance report

We note that incentive payments under STPIS correlate with improved service reliability, but this does not prove that the incentive schemes are working at least cost or most efficiently for consumers. There may be less costly mechanisms for ensuring improved service reliability.

[23] AER Discussion Paper, section 6 page 61
[24] AER Discussion Paper, section 6.1 page 64

We suggest that the nature of the STPIS should evolve as the scheme matures so that it is more evenly balanced between payments and penalties – eventually shifting to a largely penalty based scheme reflecting a consumer-centric focus on providing high quality services (i.e. in accordance with service standards).

Recommendation: The AER should begin a rebalancing of STPIS so that it is less reliant on incentive payments (for example, by halving the dollar value of the payment mechanism), and more reliant on deterrents for failing to meet services standards (for example, by doubling the dollar value of the penalty mechanism).

7.2. Service performance for electricity transmission

This scheme has 3 components — the service component, market impact component, and network capability component.[25]

The AER is not currently proposing to review the service component of the STPIS.

The AER is not currently proposing to review the design of the network capacity component of the STPIS. The AER will continue to monitor the applicability of the network capability component over time as the market and transmission system evolves, as well as the accuracy and reliability of the information included in administering the scheme.

The AER proposes to address transmission network service provider concerns about the market impact component of the STPIS within revenue determinations.

[25] AER, *Final – Service Target Performance Incentive Scheme,* October 2015, cl. 2.2(a)

8. CCP29 review of HoustonKemp report for Energy Networks Australia (ENA)

Energy Networks Australia (ENA) engaged HoustonKemp to provide an independent estimate of the consumer benefits arising from networks responding to the AER's incentive schemes. The report was published by the ENA on 10 March 2022, along with a media release heralding the report's findings.[26]

This section briefly reviews the analysis by HoustonKemp. We understand that HoustonKemp produced its report based on a scope of work received from the ENA. When we discuss what is omitted from the HoustonKemp report it is on the basis of an expectation that the omission was in accord with the scope of work that HoustonKemp received. We are not suggesting that HoustonKemp failed to deliver its agreed scope of work.

8.1. What the HoustonKemp report claims to show

HoustonKemp claims to have identified "at least $13.4 billion" of benefits accruing to consumers (NPV using a 6 per cent discount rate) as a result of the AER's EBCC, CESS and STPIS incentive schemes, over the period 2006 to 2020. Around half of these claimed benefits derive from the EBSS, while about one fifth of the claimed benefits arise from the CESS. The remainder is attributed to the STPIS. HoustonKemp claims that the total consumer benefit is valued at $22.3 billion when a lower discount rate is used, that is, one more closely aligned with recent WACC determinations from the AER.

These suggested benefits to consumers sit alongside **$5.2 billion** (NPV) that these schemes have delivered to networks, as shown in the table below which is reproduced here from the HoustonKemp report.[27] This gain rises to **$8.7 billion** (NPV) using the lower WACC suggested by HoustonKemp (on the third page of its 'Key findings' section).

Table 2-1 Total benefits attributable to the incentive schemes (PV, 30 June 2020) – 6% discount rate

	Total ($, billions)	Per connection with electricity and gas service ($)
Total	$18.6	$2,032
Networks	$5.2	$565
Consumer	$13.4	$1,466

The report also outlines various other features of the regulatory framework designed to promote efficient expenditures and operations, that is, other features of the AER's incentive-based regulatory framework beyond the three incentive schemes.

8.2. What the HoustonKemp report really shows

The HoustonKemp report does not provide an independent estimate of the consumer benefits achieved by these schemes, for the following reasons.

First, the report has simply taken the payments made under the schemes and backed out claimed consumer benefits using the pre-existing ratios calculated or applied by the AER. In this sense, the

[26] https://www.energynetworks.com.au/news/media-releases/2022-media-releases/incentives-deliver-real-savings-for-energy-customers

[27] Table 2-1 (p.6) in the HoustonKemp report

calculations provided by HoustonKemp are simply describing how the schemes are assumed to operate, rather than providing independent verification of the out-turn benefits they produce for consumers. Clearly, this sheds no new light on the efficacy of the schemes.

Second, despite rightly acknowledging and describing the multiple layers of incentives for efficient expenditure under the AER's incentive based regulatory framework, HoustonKemp makes no effort to identify the proportion of cost reductions that can be attributed to the different layers of incentives. Instead, it simply attributes every efficiency gain made by the networks to the three incentive schemes. Self-evidently, this overstates the impact of the incentive schemes.

Third, the analysis by HoustonKemp makes no effort to question, let alone assess, whether the AER's expenditure forecasts are overly conservative in favour of the networks. That is, no attempt is made to identify whether, and to what extent, claimed efficiency savings maybe illusions arising from unnecessarily generous revenue allowance. (For example, and as noted on p.14 of the report, the AER has only recently started applying a productivity factor to forecast operating expenditures.) Simply ignoring the potential for over-estimated regulatory allowances is plainly going to inflate the claimed value of the incentive schemes. The HoustonKemp report is silent about the potential for over-inflated estimates of the schemes' benefits.

Fourth, the scale of the claimed consumer benefits is above a range that we would expect. The report claims to have identified consumer benefits of at least $13.4 billion and up to $22.3 billion (depending on the discount rate applied). This compares to annual network revenues of $12.7 billion and an industry-wide regulatory asset base (RAB) valued at $110 billon.[28] In other words, the HoustonKemp report is suggesting that just these three schemes had produced consumer benefits worth up to double the combined annual revenues of all the networks in the national electricity and gas markets. CCP29 is surprised that the HoustonKemp report did not see fit to question the plausibility of such a finding.

Fifth, as discussed briefly in section 5 of this submission, NPV is a concept that has meaning for financial entities such as network-owning corporations who can readily monetise future cashflows. It has far less meaning for consumers, many of whom are likely to have significantly higher discount rates in any event – meaning promises of future savings are far less valued than assumed in the analysis by HoustonKemp. A consumer-focused assessment of consumer benefits would have taken a consumer perspective.

In addition to these five observations, we draw attention to the concerns raised elsewhere in this submission about the claimed benefits of these schemes for consumers.

[28] See p.1 of the HoustonKemp report, which cites the AER's *State of the Energy Market 2021*.

9. CCP29 responses to discussion paper questions

The AER's discussion paper poses a series of questions to stakeholders on pages 5-6. In this section, CCP29 directly responds to the questions in the discussion paper.

KEY PRIORITIES

1. Have we captured the key stakeholder issues?

CCP29	CCP29 encourages the AER to approach this review with ambitious objectives to include more fundamental re-design of its incentive schemes, rather than just 'fine tuning' some of the existing features of the schemes. We have explored mechanisms that we consider could make the schemes align better with the National Energy Objectives.

2. Do you agree with our intention to prioritise a review of the expenditure incentive schemes and customer outcomes?

CCP29	We agree with the prioritisation, provided other schemes are also reviewed.

3. What deliverables should we prioritise as part of this review?

CCP29	Under current arrangements, consumers cannot be confident that they are not paying too much for the claimed benefits being delivered by the incentive schemes. The AER should now prioritise identifying mechanisms that will achieve the claimed efficiency benefits at the lowest cost to consumers.

PROPOSED FOCUS AREAS

4. Do you agree with our key areas of focus? Our proposed key focus areas are:

    - Better information and monitoring of incentive schemes costs and outcomes over time.
    - The interaction between incentive schemes and forecasting.
    - The balance of incentive scheme rewards and penalties.
    - Linking incentive schemes to network service provider performance.

CCP29	These are necessary but not sufficient improvements to the schemes. This review of incentive scheme must adopt the objective of delivering the schemes' claimed efficiency benefits at the lowest possible cost to consumers.

5. Are there other key issues we should consider as part of this review?

CCP29	The AER places substantial weight on what it calls "the NPV=0 principle". This principle seeks to ensure that networks earn only an efficient return on their capital investments – that is, the regulatory framework seeks to avoid networks earning rents. In its current review of the rate or return instrument, the AER has signalled that it favours applying a stricter definition of the NPV=0 principle. It is proposing to enforce the NPV=0 principles in each and every regulatory period, as opposed to its previous approach of applying it over the life of long-lived assets (proxied at 10 years). The AER should explain how the additional returns on investment provided by the CESS fit within its unequivocal commitment to the NPV=0 principle (particularly if it strictly applies this principle in each regulatory period).

OVERVIEW OF INCENTIVE REGULATION

6. Do stakeholders agree that the incentive framework is improving outcomes for customers of electricity services?

CCP29	Whatever benefits are being achieved are at considerable cost to consumers. According to HoustonKemp, network businesses had received $5.2 billion (NPV) in incentive payments by 2020. Consumers fund these incentive payments in their entirety. These payments are realised by network businesses over a relatively short period (6 years), while benefits to consumers are realised over multiple regulatory periods.

7. Is the size of incentive payments appropriate and commensurate with the outcomes being provided to customers?

CCP29	The more relevant question for the AER is whether the same efficiencies can be achieved at lower cost to consumers. CCP29 contends there are sufficient opportunities for the AER to explore how it might lower the cost of these schemes for consumers, without surrendering the efficiencies that they deliver.

KEY COMPONENTS OF INCENTIVE SCHEMES

8. Does the current approach to financial incentives remain appropriate?

CCP29	See other answers. This review should be focused on identifying mechanisms (within the existing schemes) that will achieve the claimed efficiency benefits at the lowest cost to consumers.

9. Are the current levels of financial rewards and penalties appropriate?

CCP29	See other answers.

- Should the rewards and penalty rates be lower or higher?

CCP29	The 'rewards' should be no higher and the penalties should be no lower than required to achieve the schemes' efficiency objectives.

- Should the relative rewards and penalties under the EBSS and CESS be fixed, or should it vary with the time value of money?

CCP29	Two prior questions must be answered before this matter can be addressed: first, is there evidence to suggest businesses see capital versus operating expenditure as a strategic decision; and if so, is there evidence to suggest that incentive schemes play any role in influencing that decision? • If there is no evidence that the incentive schemes influence networks' opex versus capex decisions, then each scheme can be *independently* calibrated to deliver efficiency savings at the lowest cost to consumers. • Where it can be positively shown that incentive schemes influence networks' opex versus capex decisions, then the two schemes should be *jointly* calibrated to deliver efficiency savings at the lowest cost to consumers.

10. Is the balance of incentives between the schemes important?

- Are there circumstances where different rewards and penalties between operating and capital expenditure appropriate?

CCP29	See previous answer.

- How should financial incentives be considered taking into account potential non-financial incentives on network service providers?

CCP29	This is a critical question if the AER intends continuing with the incentive schemes. The AER has provided no evidence about the contribution incentive schemes play in driving network efficiencies – that is, it is not clear what role these schemes play relative to other elements in the AER incentive based regulatory framework or non-financial incentives (such as service standards, reliability standards). CCP29 contends that consumers are likely to be paying for efficiencies, under current arrangements, which may have been achievable through less costly means.

11. To what extent is expenditure forecasting a concern for stakeholders?

CCP29	It is absolutely central to assessing the efficacy of the efficiency schemes. There is an obvious bias in each of the schemes towards large and ongoing payments to networks. While there are numerous possible explanations, upwardly biased expenditure forecasts by the AER cannot be ruled out at this stage (see section 5). These upward biases impose significant costs on consumers.

12. To what extent would providing greater flexibility in the approach to applying incentive schemes address stakeholder concerns about the incentives on network service providers to over-forecast?

CCP29	This must be a central feature of how these schemes are improved following this review. Our submission discusses opportunities for improvement in each of the EBSS and CESS. Many other opportunities will exist. This review should pursue innovative improvements to ensure the schemes are more closely aligned with the National Energy Objectives.

OPERATING EXPENDITURE OUTCOMES AND INCENTIVES

13. Has the EBSS provided the right incentives in terms of promoting continuous efficiency gains in operating expenditure?

CCP29	The AER has provided insufficient information for stakeholders to answer this question. Without evidence, it is not possible to judge the contribution of the EBSS plays in driving networks efficiencies – that is, it is not clear what role the EBSS plays relative to other elements in the AER incentive based regulatory framework or non-financial incentives (such as service standards, reliability standards). CCP29 contends consumers are likely to paying for efficiencies, under current arrangements, which may have been achievable through less costly means.

14. Is the current level of rewards and penalties under the EBSS appropriate? What considerations should be given when determining the EBSS carryovers, including the length of carryover period?

CCP29	It appears the scheme is unnecessarily generous to the networks who gain all the benefit for six years as cash payments over-and-above their efficient operating costs, while consumers must wait seven years before seeing any claimed savings. The AER should consider alternative sharing arrangements that return more and earlier benefits to consumers. There is no evidence suggesting that a fairer sharing arrangement would place the EBSS's claimed benefits in jeopardy.

15. The EBSS assumes that only base year operating expenditure is used to inform forecast operating expenditure. How does our use of economic benchmarking to assess the efficiency of base year operating expenditure affect the incentive to reduce operating expenditure? Should the EBSS be amended to reflect this?

CCP29	It seems that the choice of base year is less important than the projection of these costs into the new regulatory period. That is, the ongoing efficiency payments being earned by networks, despite the age of the scheme, suggests the AER is significantly under-estimating the efficiency factor that it should be assuming in its forecast operating expenditures.

16. Should there be any other adjustments to the EBSS?

CCP29	There should be a significant increase in the efficiency factor applied by the AER when forecasting operating expenditures. Alternatively, the AER could introduce a menu approach to the EBSS whereby networks 'bid' higher efficiency factors in return for higher sharing arrangements. We describe such a scheme in section 5 of this submission.

CAPITAL EXPENDITURE OUTCOMES AND INCENTIVES

17. Has the CESS provided the right balance of incentives in terms of promoting continuous efficiency gains, efficient timing of investments (including efficient deferrals) and good capital expenditure forecasts?

CCP29	The size and ongoing nature of payments being made under the CESS, suggests there is an inbuilt bias in the scheme favouring networks. Urgent consideration needs to be given to: • lowering the sharing ratio, and • the AER taking a more aggressive approach in its capex forecasts, and • revising the CESS so that it rewards 'honesty' in forecasting by networks (see section 6).

18. Is the current level of rewards and penalties under the CESS appropriate? Is a fixed level of 30 per cent still appropriate, or should be it changed? What considerations should be made to the appropriate level?

CCP29	See previous answer. Moreover, as discussed in section 6, it appears the CESS has failed to provide an incentive that prevents networks from seeking to game the regulator (by seeking to upwardly influence the regulator's forecasts by submitting upwardly biased capex forecasts). It appears opportunities exist to amend the CESS to promote efficiency in capital expenditure, as well as 'honesty' in the forecasts it submits to the AER.

19. Should the application of the CESS, and its rewards and penalties, change for individual networks where there are concerns about expenditure over-forecasting?

CCP29	Yes. See opportunities discussed in section 6 for promoting 'honesty' in networks' forecasts of capex. A mechanism of this nature would be applied on the basis of each network's performance against its forecast capital expenditure.

20. Should there be any other adjustments to the CESS and capital expenditure incentive guideline?

CCP29	The mechanism discussed in section 6 is discussed in the context of inter-period capital expenditures. CCP29 has not had the opportunity to consider how such a mechanism might be extended to a network's intra-period capex spending profile. We would welcome the opportunity to do further work in this area with the AER.

SERVICE PERFORMANCE OUTCOMES AND INCENTIVES

21. Do you agree with our proposal not to review the service performance component of the STPIS at this time?

CCP29	Subject to our review of submissions from other stakeholders, we agree this is not a priority for AER review

22. Do you agree that there is appropriate flexibility across the STPIS and the customer service incentive scheme to ensure that customer preferences can be reflected in service performance incentives over time?

CCP29	Yes and we note that the customer service incentive scheme is a flexible 'principles based' scheme that can be tailored to the specific preferences and priorities of a network's customers. However, we also consider it appropriate that the STPIS be reviewed in light of the scheme's maturation. The AER should begin a rebalancing of the scheme so that it is less reliant on incentive payments (for example, by halving the dollar value of the payment mechanism), and more reliant on deterrents for failing to meet services standards (for example, by doubling the dollar value of the penalty mechanism).

23. Do you agree with our proposal to address transmission network service provider concerns about the market impact component of the STPIS within revenue determinations?

CCP29	In the first instance, these concerns should be addressed within revenue determinations, with scope for further review of the market impact component in the future.