# FINAL DECISION
# AusNet Services
# Gas access arrangement
# 2018 to 2022

# Attachment 14 – Capital expenditure sharing scheme

November 2017

AUSTRALIAN ENERGY REGULATOR

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# Shortened forms

| Shortened form | Extended form |
|---|---|
| AEMC | Australian Energy Market Commission |
| AER | Australian Energy Regulator |
| API | Asset performance index |
| capex | capital expenditure |
| CCP11 | Consumer Challenge Panel, sub-panel 11 |
| CESS | Capital Expenditure Sharing Scheme |
| CPF | contingent payment factor |
| NPV | net present value |
| NSP | Network service provider |
| WACC | weighted average cost of capital |

# 14 Other incentive schemes

## 14.1 Final decision

Our final decision approves the application of a Capital Expenditure Sharing Scheme (CESS) in the 2018–22 access arrangement period.

AusNet initially proposed two incentive schemes to apply for the 2018–22 access arrangement period: a CESS and a Network Innovation Scheme (NIS). In our draft decision we accepted the introduction of a CESS, but did not accept the introduction of a NIS.[1] We also required AusNet to revise its access arrangement by inserting a clause giving effect to the deferral mechanism described in our Capital Expenditure Incentive Guideline for Electricity Network Service Providers.[2]

We have revised the Contingent Payment Factor (CPF) calculation in AusNet's access arrangement to reflect the calculation detailed in Appendix A. We have also refined our methodology for calculating the net financing benefit, which ensures that there is consistent treatment of cash flows in the regulatory framework.

In this attachment we detail the operation of CESS to apply in the 2018–22 access arrangement period. In response to the concerns of our Consumer Challenge Panel (CCP11), this attachment also explains the contingent payment and inefficient deferral mechanisms used to ensure that network businesses are not inappropriately rewarded under the CESS.

## 14.2 AusNet's revised proposal

AusNet's revised proposal accepted our draft decision.

## 14.3 Assessment approach

A full access arrangement may include (or we may require it to include) one or more incentive mechanisms to encourage efficiency in the provision of services by the service provider.[3] Incentive mechanisms may provide for carrying over increments for efficiency gains, or decrements for efficiency losses, from one access arrangement period into the next.[4] An incentive mechanism must be consistent with the revenue and pricing principles.[5]

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1 AER, *Draft Decision AusNet Services Gas Access Arrangement 2018 to 2022, Attachment 14 - Other incentive schemes*, July 2017, p. 14-5.

2 AER, *Draft Decision AusNet Services Gas Access Arrangement 2018 to 2022, Attachment 14 - Other incentive schemes*, July 2017, p. 14-16.

3 NGR, r. 98(1).

4 NGR, r. 98(2).

5 NGR, r. 98(3).

We consider the following revenue and pricing principle is most relevant for assessing AusNet's proposed incentives:

> A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides.
>
> The economic efficiency that should be promoted includes—
>
> (a) efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and
>
> (b) the efficient provision of pipeline services; and
>
> (c) the efficient use of the pipeline.[6]

Under the NGR we have full discretion in our decision as to whether to approve the introduction of an incentive scheme.

### 14.3.1 Interrelationships

The incentive scheme AusNet proposed relates to various areas of the business covered by the 2018–22 access arrangement.[7] For example, introduction of a CESS would affect the size of the capital base and may alter the balance of investment signals between capital expenditure (capex) and operating expenditure (opex). We aim to incentivise service providers such as AusNet to make efficient decisions on when and what type of expenditure to incur, and to balance expenditure efficiencies with service standards.

## 14.4 Reasons for final decision

As we previously noted in our draft decision, in deciding to implement a CESS we had regard to:

- the potential benefits and risks of the CESS, and
- how AusNet's proposed CESS mitigates these risks.

### 14.4.1 Benefits of a CESS

The benefits of a CESS are that a business would only incur efficient capex by:

- smoothing capex incentives throughout the access arrangement period,
- reducing capital base growth, and
- addressing the imbalance in the incentives applicable to decisions about whether to undertake capex or opex, particularly toward the end of the access arrangement period.

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6 NGL, s. 24(3).

7 The efficiency carryover mechanism for opex is a related scheme.

These benefits are described in further detail in our draft decision.[8]

### 14.4.2 Mitigating risks

While a CESS will increase the incentives for service providers to seek capex savings, they could achieve these savings through reductions in service standards rather than through efficiency gains.

The AEMC noted one potential problem with capex sharing schemes is that it can be difficult to identify whether reductions in capex are from efficiency gains or inefficient deferral.[9] As we noted in our draft decision, capex deferrals have been observed during the operation of past incentive schemes.[10]

We have managed the risk that a CESS may lead to a reduction in service standards with a two-fold approach, by including:

- a contingency for any material reduction in the health of the network, and
- a deferral mechanism in the calculation of the CESS payment.

In its final advice CCP11 noted it had concerns regarding the effectiveness of these provisions. It noted that the capability of the inefficient deferral mechanism is largely untested, and it was not aware of any situations where this process had been applied without the full cooperation of the business concerned. CCP11 further noted that it was particularly concerned that network businesses that fail to deliver approved mains replacement volumes may qualify for CESS benefits. CCP11 advised considering additional safeguards such as a 'volumetric hurdle', whereby CESS benefits would not be achieved if a business failed to reasonably deliver the approved mains replacement volume.[11]

We consider that the contingent payment mechanism (described further below) and inefficient deferral mechanism (described further in Appendix A) will effectively mitigate the risk of a reduction in service standards.

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8 AER, *Draft Decision AusNet Services Gas Access Arrangement 2018 to 2022, Attachment 14 - Other incentive schemes*, July 2017, p. 14-10.

9 AEMC, *Final position paper – National electricity amendment (economic regulation of network service providers) Rule 2012 and National gas amendment (price and revenue regulation of gas services) Rule 2012*, 15 November 2012, p. 121.

10 AER, *Draft Decision AusNet Services Gas Access Arrangement 2018 to 2022, Attachment 14 - Other incentive schemes*, July 2017, p. 14-12.

11 CCP11, *Response to the AER's Draft Decisions and the Revised Proposals from AGN, AusNet and Multinet for a revenue reset/access arrangement for the period 2018 to 2022*, 12 September 2017.

### *Contingent payment mechanism*

As noted in our draft decision, AusNet revised its network health measures and proposed to no longer receive a full CESS reward if network health declines.[12]

The contingent payment mechanism is asymmetric—it is designed to offset CESS rewards only where performance reduces from historical outcomes (and not increase the CESS reward if performance improves).

AusNet's asset performance is measured using the Asset Performance Index (API). The API score accounts for customer service outcomes and the number of gas leaks on the network (specific to mains, services and meters). Scores are weighted according to the asset classes represented in AusNet's capital base and investment in the forecast access arrangement period. The API measures are outlined in Table 14.1.[13]

## Table 14.1 How API measures link to capex forecast and RAB assets

| Measure | Capex link | RAB link |
|---|---|---|
| Reliability - Unplanned SAIDI | Mains replacement - effects mains condition which influences repair times<br>Augmentation - effects capacity availability and ability to backfeed which influences outage duration<br>Telemetry - effects SCADA which influences response times<br>IT - effects call centre performance and the ability to access customer and network data, which influences timeliness of outage notification and therefore repair times | All assets |
| Reliability - Unplanned SAIFI | Mains replacement - effects mains condition which influences frequency of failure<br>Augmentation - effects capacity availability and ability to backfeed which influences outage frequency<br>Growth capex - effects the physical size of the network | All assets, particularly mains, services and meters |
| Leaks - mains | Mains replacement - effects mains condition which influences number of leaks<br>Telemetry - effects SCADA which influences response times<br>Growth capex - effects the physical size of the network | Mains |
| Leaks - services | Mains replacement - effects mains condition which influences number of leaks<br>Growth capex - increases the physical size of the network<br>Meter replacement - influences number of meter leaks | Services |

[12] AER, *Draft Decision AusNet Services Gas Access Arrangement 2018 to 2022, Attachment 14 - Other incentive schemes*, July 2017, p. 14-13.

[13] Full calculation details of the API are provided in Annexure A of AusNet's Access Arrangement.

| Measure | Capex link | RAB link |
|---|---|---|
| Leaks - meters | Meter replacement - influences number of meter leaks | Meters |

Source: AGN, AusNet, *Joint submission on a revised Contingent Capital Expenditure Sharing Scheme for Australian Gas Networks and AusNet Services gas distribution networks for the 2018-22 Access Arrangement period*, 31 March 2017.

# A Operation of the CESS

The CESS provides ex ante incentives for businesses to undertake efficient capex during an access arrangement period. The following sets out how the CESS operates.

### *General application of the scheme*

This section describes how we calculate efficiency gains or efficiency losses, and the method by which efficiency gains or losses are shared between network service providers (NSPs) and network users. This involves four steps:

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

We discuss these steps in more detail below. The CESS penalty or reward forms a separate building block for the NSP's revenue allowance in the following access arrangement period.

### *Calculating efficiency gains and losses*

A NSP's allowance is our best estimate of efficient capex. In this way, if the NSP spends less than its capex allowance, we consider this is an efficiency gain for the purpose of applying the CESS. Conversely, if a NSP spends more than its allowance, this counts as an efficiency loss when applying the CESS.

To calculate the annual efficiency gain/loss, we subtract the NSP's actual capex from its capex allowance in each year of the regulatory control period (both net of contributions).

The capex allowance is calculated as our approved allowance (as determined prior to the start of the access arrangement period), plus any adjustments we allow from pass-throughs or reopening of capex.

When calculating the annual efficiency gain/loss we may make further adjustments for deferrals of capex, or where we exclude capex from the capital base after an ex post review.

For the final year (and potentially the penultimate year) of the regulatory control period, we will use an estimate of actual capex.

We will calculate the efficiency gain for year one as:

*Year 1 efficiency gain = capex allowance for year 1 – actual capex in year 1*

We will discount the efficiency gain from each year into its NPV at the end of the regulatory control period. In doing so we will assume capex occurred in the middle of the year. To calculate the total efficiency gain, we add the annual efficiency gains in NPV terms.

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

The above calculations are represented by the following equation:

$$Total\ efficiency\ gain = \sum_{n=1}^{p} \frac{1}{(1+WACC)^{n-p-0.5}} \times (F_n - A_n)$$

Where:

$n$ is the Access Arrangement year;

$WACC$ is the average of the nominal weighted average cost of capital that are applied during each year of the Access Arrangement period;

$p$ is the length of the Access Arrangement period;

$F_n$ is the capex allowance for year $n$;

$A_n$ is the actual capex for year $n$.

### *Applying the sharing factor*

We will apply a sharing factor of 30 per cent to the total efficiency gain/loss. This means that the NSP will bear 30 per cent of any loss and will retain 30 per cent of any gain. The remaining 70 per cent will go to network users.

*NSP sharing factor = 30%*

*NSP share = total efficiency gain x 30%*

### *Accounting for benefits and costs already accrued*

To ensure that the power of the incentive is the same in each year of the access arrangement period, the CESS takes into account any benefits or costs that have already accrued to the NSP during the access arrangement period. This is the financing benefit of the underspend or the financing cost of the overspend.

In order to account for any financing benefit, we will apply the following methodology:

- Capital expenditure is assumed to be incurred in the middle of each year. In order to calculate the underspend in NPV terms we will adjust capex to end of year terms.

- The financing benefit will be calculated by multiplying the underspend in NPV terms in a given year by the WACC in the following year. This means the NSP will recover the full benefit of an underspend, or incur a cost of an overspend, in the year that follows that underspend or overspend respectively.[14] This is in contrast with our previous methodology[15], which assumed that a network business will immediately receive a financing benefits of any capex underspend or cost of overspend in the same year in which the capex is incurred.
- Finally, to put the financing benefits from each year into constant terms, we will apply a discount factor to the benefits from each year. We calculate this discount rate on the basis that financing benefits accrue at the end of each year. We will sum the discounted financing benefits from each year to get a net financing benefit for the regulatory control period. We will calculate this using the following equation:

$$Net\ financing\ benefit = \sum_{n=1}^{p} \frac{1}{(1+WACC)^{n-p}} \times year\ n\ financing\ benefit$$

### *CESS reward or penalty*

To calculate the CESS reward or penalty payable to the NSP, we then subtract the net financing benefit from the NSP's share of the cumulative efficiency gain.

*CESS reward = (NSP share – net financing benefit) x CPF*

Where:

CPF is the Contingent Payment Factor calculated as:

If NSP share > net financing benefit, and

- if the asset performance index (API) > 100, = 1

- if 80 < API < 100, CPF = (API – 80) / (100 – 80), and

- if API < 80, CPF = 0, or

If NSP share is ≤ net financing benefit, CPF = 1.

API is the Asset Performance Index calculated in accordance with the NSP's access arrangement.

We will apply this CESS reward (penalty) as an additional building block adjustment to the NSP's revenue over the upcoming access arrangement period.

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[14] We have reviewed our methodology for calculating financing benefit and have revised our approach. See AER, *Framework and approach - Ausgrid, Endeavour Energy and Essential Energy Regulatory Control Period commencing 1 July 2019*, July 2017, p. 71.

[15] AER, *Capital Expenditure Incentive Guideline for Electricity Network Service Providers*, November 2013, p. 8.

### *Final year adjustment*

Because access arrangements are finalised prior to the end of the current access arrangement period, actual capex for the final year of the access arrangement period will not be available when we calculate the CESS rewards or penalties. Instead, we will use an estimate of capex to calculate the efficiency gains or losses for the final regulatory year.

At the next access arrangement actual capex data will be available for that year. Where a NSP's actual capex differs from the capex estimate used to calculate the CESS, we will make an adjustment to take account for the difference. The adjustment for the final year of the regulatory control period will be:

$$Final\ year\ adjustment = \left(A_p^* - A_p\right) \times \left[\frac{NSP\ sharing\ factor - 1}{(1 + WACC)^{-0.5}}\right] + 1$$

Where:

$A_p^*$ is the estimate of actual capex in the final year of the Access Arrangement Period that has been used to initially calculate the CESS rewards or penalties

$A_p$ is actual capex in the final year of the Access Arrangement Period

We will apply a discount rate to account for the time value of money. This adjustment may also be required for the penultimate year of the access arrangement period where finalised actual capex figures for that year are not available before our access arrangement final decision.

### *Adjusting for deferral of capex*

In some circumstances, without an adjustment to the CESS, consumers may not share in the benefits where capex is deferred from one access arrangement period to the next access arrangement period. For instance, if a NSP's capex forecast for the next access arrangement period materially increases because capex was deferred in the current access arrangement period, a NSP's reward from deferring capex through the CESS, will likely exceed the benefit to consumers from the deferral.

To help consumers share in the benefits from deferred capex, we will make an adjustment to the CESS payments where a NSP has deferred capex in the current access arrangement period and:

(a) the amount of the deferred capex in the current access arrangement period is material, and

(b) the amount of the estimated underspend in capex in the current access arrangement period is material, and

(c) total approved forecast capex in the next access arrangement period is materially higher than it is likely to have been if a material amount of capex was not deferred in the current access arrangement period.

Where we determine an adjustment will be made, we will reduce the CESS payments an NSP would have otherwise received in the next access arrangement period for capex underspends in the current access arrangement period.

The adjustment is the present value of the estimated marginal increase in forecast capex in the next access arrangement period attributable to capex deferred in the current access arrangement period. We will subtract this estimate from the total efficiency gain which is otherwise calculated in accordance with this appendix.