



**Rate of return**

**Assessing the long term  
interests of consumers**

**Position paper**

May 2021

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## Shortened forms

Shortened form	Extended form
2018 Instrument	The rate of return instrument published on 17 December 2018
2022 Instrument	The rate of return instrument to be published on 16 December 2022
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
CRG	Consumer Reference Group
ENA	Energy Networks Australia
Instrument	Rate of return instrument
NEL	National electricity law
NEO	National electricity objective
NER	National electricity rules
NGL	National gas law
NGO	National gas objective
NGR	National gas rules
WACC	Weighted average cost of capital

# 1 Overview

The National Electricity Objective (NEO) and National Gas Objective (NGO) establish the ultimate objective of the AER's decision-making.<sup>1</sup> In each case, the objective is to promote efficient investment in, and efficient operation and use of, the relevant electricity or gas services, for the long term interests of consumers with respect to the price, quality, safety, reliability and security of supply<sup>2</sup>

We are required to make a Rate of Return Instrument under the NEL and the NGL. We may make an instrument only if satisfied the instrument will, or is most likely to, contribute to the achievement of the national electricity and gas objectives to the greatest degree.<sup>3</sup>

We think it is useful early on in the process to set our views around what the NEO and the NGO mean in the context of setting the expected rate of return. And how the concept of the long term interests of consumers, mentioned in the NEO and NGO, features in setting the expected rate of return.

This is especially the case because slightly different perspectives have been put to us by our Consumer Reference Group (CRG) and Energy Networks Australia (ENA). It is helpful to address these differences in perspectives to lay a foundation for our subsequent considerations.

Having considered these different perspectives and our previous considerations, we have come up with a formulation of a guiding principle we will use to develop the 2022 Instrument.

In our view, the guiding principle is: an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services. We consider that the NEO, NGO and the long term interests of consumers are best served through this guiding principle.

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<sup>1</sup> NEL, s. 7; NGL, s. 23.

<sup>2</sup> The NEO contains an additional objective of the reliability, safety and security of network system: see NEL s.7.

<sup>3</sup> NEL, s. 18I—AER to make rate of return instrument; NGL, s. 30D—AER to make rate of return instrument.

## 1.1 Why does the expected rate of return matter?

Investors in any business expect to receive an additional return above their initial investment (or capital). We use the phrase 'expected rate of return on capital'—or just 'expected rate of return'—to refer to this additional amount when expressed as a percentage of the initial investment.

We estimate the expected rate of return for regulated energy businesses by combining the returns of two sources of funds for investment: equity and debt. The expected rate of return provides the business funds to service the interest on its loans and give a return to shareholders.

Setting the expected rate of return is not a precise science and involves uncertainty and judgement. Due to inevitable uncertainty, there is a risk that the estimated expected rate of return will be higher or lower than the actual market cost of capital. If the expected rate of return deviates from the market cost of capital then it may not promote efficient investment in, and use of, the service provider's energy network in the long term interests of consumers.

Therefore, the best possible estimate of the expected rate of return, will promote efficient investment in, and efficient operation and use of, energy network services for the long term interests of consumers. While the capital market transaction is between investors and networks/pipelines, the ultimate effects will flow through to the prices the consumers pay and the services they receive (see Chapter 5 for more details).

## 2 Our legislative objectives

The legislation governing our regulation of energy network services sets out the objectives and considerations for our decision on the rate of return instrument. These are found in the:

- National electricity and gas objectives<sup>4</sup>
- Revenue and pricing principles<sup>5</sup>.

In 2018, the national electricity and national gas legislation were amended to introduce a binding rate of return instrument in setting the revenue of regulated electricity and gas businesses. Those legislative amendments have been passed into law and were proclaimed on 13 December 2018.<sup>6</sup>

As part of this legislative overhaul, the new framework for the 2018 instrument was established, guided by the National Electricity Law (NEL), National Gas Law (NGL) and the revenue and pricing principles. This legislation simplified the framework for the rate of return including removing the Allowed rate of return objective and the specification of the Benchmark efficient entity.

### 2.1 How we interpret the energy objectives

The focus of the NEO and NGO is on efficient investment in, and operation and use of, electricity and gas services for the long term interests of consumers.

The objective is an economic efficiency concept and should be interpreted as such.<sup>7</sup> For example, investment in and use of electricity services will be efficient when services are supplied in the long run at least cost, resources - including infrastructure - are used to deliver the greatest possible benefit and there is innovation and investment in response to changes in consumer needs and productive opportunities. If resources are used efficiently, consumers will benefit in the long run, because resources are allocated to the delivery of goods and services in accordance with consumer preferences, and at least cost.

The long term interests of consumers of electricity requires the economic welfare of consumers, over the long term, to be maximised. If the National Electricity Market is efficient in an economic sense the long term economic interests of consumers, in respect of price, quality, reliability, safety and security of electricity services, will be maximised.

We now unpack various components of the energy objectives. In large part, we have drawn from the Australian Energy Market Commission's (AEMC's) considerations on this topic which have set a foundation for its rule making considerations.<sup>8</sup>

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<sup>4</sup> Refer Appendix A.2 for the National Electricity and National Gas Objectives.

<sup>5</sup> Refer Appendix A.2.

<sup>6</sup> See: [Statutes Amendment \(National Energy Laws\) \(Binding Rate of Return Instrument\) Act 2018](#).

<sup>7</sup> Refer Appendix A.1 for more details on how we arrived at this conclusion.

<sup>8</sup> AEMC, *Applying the energy market objectives*, July 2019.

## Consumers

The NEO and the NGO are focussed on a consideration of consumers and the promotion of their interests in the long term.

Consumers in the context of these objectives are consumers in general, or all consumers, rather than a particular type or group. This includes residential consumers of energy and small businesses, but also large industrial users such as aluminium smelters or liquefied natural gas (LNG) plants.

The energy objectives have been constructed in this way, because it is considered that an institution with delegated powers like the AER, should balance the interests of all consumer groups rather than one.

## Services

The NEO and NGO refer to services, not assets. In other words, the scope of the objectives includes how energy is used, rather than what it is or how it is delivered. Energy consumers care about what they use their energy for, from heating water in residential homes to helping to run a small business to powering large-scale manufacturing processes.

The focus on services and the way people use their energy means that we must also consider what happens on the customer side of the electricity or gas meter.

## Long term

The NEO and NGO refer to the timeframe of the 'long term'. In this context, the long term does not refer to a particular period of time but rather to when the capital or fixed components used in the provision of energy services can be changed.<sup>9</sup>

Depending on the type of capital equipment in question, this time period can be relatively short or many decades. For instance IT equipment has relatively short economic lifespan, as opposed to energy infrastructure which can have an economic lifespan of 20-25 years or more.

The concept of the 'long term' recognises that there is an inherent trade-off between consumers today, and consumers in the future. Changes that may be in consumers' short-term interests may not be in their long term interests if those changes undermine incentives to make efficient investments and operational decisions over time.

For instance, providing customers with short-term price decreases at the expense of enabling investors to recover a return on efficient investment will not be in the long term interests of consumers if it results in power outages that are more costly than the short term price savings. It is for this reason that we take dynamic efficiency into account.<sup>10</sup>

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<sup>9</sup> That is, the period of time over which all costs are variable. Therefore, in practical terms, "long term" can be considered to be the economic lifespan of energy infrastructure i.e. 20-25 years.

<sup>10</sup> Refer Appendix A.3 for more details.



### 3 Key concepts in the legislative objective and principles

There are certain common repeated concepts within these legislative objectives and principles that are particularly relevant to setting the expected rate of return. We adopt standard, well established regulatory economic approaches to our understanding of each these concepts.<sup>11</sup>

#### Economic efficiency

Efficiency is the first of these concepts. For example, the legislative objectives provide that we must have regard to:

- efficient investment in, and efficient operation and use of, the relevant electricity or gas services
- a reasonable opportunity to recover at least the efficient costs
- effective incentives in order to promote economic efficiency.

To assess the efficiency of prices, and consequently the efficient use of network services, there are three aspects of economic efficiency to consider: productive, allocative and dynamic. Table 3 in Appendix A sets out how this applies in the context of the expected rate of return.

In economic theory allocative efficiency is achieved when prices are set to reflect costs.<sup>12</sup> Productive efficiency is achieved if those costs are the lowest possible costs. Dynamic efficiency is achieved if productive and allocative efficiency are maximised over time.<sup>13</sup>

Productive efficiency is promoted through benchmarking and incentive regulation and through setting the expected rate of return as a market cost of capital reflective of the risks involved in providing regulated services. Allocative efficiency is promoted through estimating the expected rate of return as a market cost of capital commensurate with the risk involved in providing regulated services. Dynamic efficiency is promoted through benchmarking and incentive regulation, and through adherence to the net present value (NPV) = 0 condition.<sup>14</sup>

The CRG in a recent submission stated that that we have not adequately addressed our obligation to equally consider efficient investment and efficient consumption.<sup>15</sup>

We agree with the CRG that achieving the legislative objectives requires more than just efficient investment in energy networks, but also requires efficient use of energy network

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<sup>11</sup> See AER, *Risk and judgement Discussion paper*, February 2018.

<sup>12</sup> Under a single-price model allocative efficiency is achieved when price is set to marginal cost. For energy network services that involve large fixed costs, the recovery of these fixed costs from consumers may cause prices to differ from marginal cost. This may mean that prices need to be set above marginal cost (in a single price model), that multi-part prices are used (for example, a fixed access charge and a variable usage charge), or that price discrimination is used to set higher prices for consumers with a higher reservation price.

<sup>13</sup> Including resource allocations designed to improve economic efficiency and to generate more resources.

<sup>14</sup> AER, *Rate of Return Instrument: Explanatory statement*, December 2018, pp.74-78.

<sup>15</sup> CRG, *Submission to AER, Return on equity*, 9 October 2020, p. 14.

services. We are open to improvements in how we assess consumption efficiency, but note we have considered consumption efficiency in a number of respects.

Firstly, we consider the efficient use of energy services and consumption efficiency to be similar concepts.<sup>16</sup> If the price of electricity and natural gas services is too high, it would discourage use that would have otherwise taken place and it would not promote consumption efficiency. Equally, if the price of electricity and natural gas services is too low, it may lead to excessive use of these services and therefore it would also not promote consumption efficiency.

Therefore, we consider that an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services — will promote consumption efficiency.

Secondly, consumption efficiency is linked to the structure of prices in addition to their level. The level of prices is necessary for economic efficiency, but it is not sufficient. Prices also need to reflect the underlying costs of providing the service. We have therefore been at the forefront of promoting pricing reforms (such as solar sponge tariffs) in order to achieve a more efficient pricing structure which will promote consumption efficiency. We do not set an expected rate of return with reference to price structures, but it is important for it to be set at the right level to encourage consumption efficiency.

Thirdly, consumers will invest, as they please and we do not control individual choices, nor do we want to. However if we set an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services, it will encourage correct pricing which supports good decisions by consumers.

### **Compensation for risk**

The second common repeated concept is compensation for risk and the relationship between risk and return. Appropriate risk compensation is an important part of the rate of return regulatory framework and is integral to achieving the legislative objectives. The legislative principles provide that we must have regard to prices that allow for a return commensurate with the regulatory and commercial risks involved in providing the service.<sup>17</sup> We consider the degree of risk involved in providing regulated services when estimating our expected rate of return.

When considering an efficient return for risk, it is important to differentiate between risks that are efficiently compensated through the expected rate of return and those that are not.

In finance, there are two distinct types of risk: systematic risk (market risk or non-diversifiable risk) and non-systematic risk (firm-specific risk or diversifiable risk).

Systematic risk affects the entire market and cannot be avoided, while non-systematic risk is unique to the individual investment, and can be reduced by holding a diversified portfolio. Since investors can diversify to offset non-systematic risk, it is unlikely that investors require compensation for these risks and it would be inefficient to compensate for non-systematic risk in the expected rate of return. Therefore, under the assumption that investors hold fully

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<sup>16</sup> Not identical, but similar concepts. It is in the NEO and NGO in some shape or form.

<sup>17</sup> Refer appendix A.2 for revenue and pricing principles in the NEO and NGO.

diversified 'efficient' market portfolios, only an investment's systematic risk is relevant to the expected rate of return.

## Conclusion

In our view, for the expected rate of return to contribute to the achievement of the legislative objectives it should reflect an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services. If it does, then it will (all else being equal) promote both efficient investment in, and efficient use of, energy network services.

While the explicit term 'Benchmark Efficient Entity' has been removed from the rules, we think the underlying principles of benchmarking and efficiency are central to the NEO and NGO. Further, the legislation requires the same methodology to apply in relation to all regulated network and covered pipeline service providers.<sup>18</sup>

Therefore, we think the NEO and NGO are best advanced by determining an expected rate of return that is both efficient and benchmarked across electricity and gas network service providers. We refer to this as the expected efficient return (or expected efficient rate of return).

We estimate an expected efficient return which is applied to a specific service provider, rather than determining the returns of a specific service provider based on all of its specific circumstances.<sup>19</sup>

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<sup>18</sup> Statutes Amendment (National Energy Laws) (Binding Rate of Return Instrument) Act 2018, s. 18J & s. 30E—Content of rate of return instrument.

<sup>19</sup> See AER, *Rate of Return Instrument: Explanatory statement*, December 2018, p.34.

## 4 The risks and costs of a biased estimate

In our view, an expected rate of return that reflects the market cost of capital is likely to achieve the legislative objectives. However, setting the expected rate of return is not an exact science. The market cost of capital for providers of regulated energy network services cannot be directly observed and must instead be estimated. Due to inevitable uncertainty, there is a risk that the estimated, expected rate of return will be higher or lower than the market cost of capital.

If the expected rate of return deviates from the market cost of capital then the expected rate of return may not achieve the legislative objectives - it may not promote efficient investment in and use of the service provider's energy network for the long term interests of consumers. That is, there may be costs associated with the expected rate of return being higher or lower than the market cost of capital.

This concept is reflected in the revenue and pricing principles. In particular, principle 6 requires us to have regard to the economic costs and risks of the potential for under and over investment by a regulated network service provider. Similarly, principle 7 requires us to have regard to the economic costs and risks of the potential for under and over utilisation of a distribution system or transmission system. Consideration of these two principles are closely related, as a higher expected rate of return results in higher revenues for networks and investors and higher prices for consumers (and vice versa).

The uncertainty in the estimation of the expected rate of return therefore introduces two concepts that need to be considered:

- the risk that our expected rate of return is above or below the market cost of capital, and
- the costs that may result from an expected rate of return above or below the market cost of capital.

We now explore a range of potential risks and costs that have come to our attention.

### **Downstream economic activity and consumer behaviour**

A biased expected rate of return is likely to have a broader effect across the economy. Energy supply is an essential service, supporting the broadest range of economic activity. If this essential activity is incorrectly priced it is likely to distort decisions throughout the economy.

This may result in efficiency losses where consumers use more or less energy network services than otherwise. It may also lead to consumers making incorrect downstream investment decisions. The impacts are likely extended beyond monetary effects, such as the consequences for vulnerable consumers that may be disconnected.

### **Effects in capital market**

If our expected rate of return is biased upwards, it may cause investors to bid up the price of regulated assets and create distortion to capital allocation decisions. There will be a willingness to invest as they are over compensated for the risk involved in supplying capital to the networks.

Similarly, if the expected rate of return is biased downwards it may result in service providers being unable to raise necessary capital or capital costs being higher than necessary. Investors may decide to take up opportunities in other countries rather than invest in Australia.

### **Reliability and risk of outages**

While the link between the expected rate of return and levels of investment is indirect, the overall direction is clear. All other things being equal, a higher expected rate of return is likely to encourage higher levels of investment. More investments is likely to improve reliability and reduce the risk of outages.

The CRG stated that the risk is now with consumers who face paying higher prices for many years to fund the period of overinvestment. In reaching this view, the CRG cites flat demand, excess capacity and good current levels of performance by networks.<sup>20</sup>

This would mean that consumers are willing to accept the risk of a lower expected rate of return, because they consider the consequential risk to network performance is low.

By contrast, the ENA in a recent submission stated that significant investment in network infrastructure is required to support the transition in Australia's energy sector.<sup>21</sup> They stated that the rate of return will need to be sufficient, to ensure that the required new investments are economically viable for networks and their investors.<sup>22</sup>

The Network Shareholder Group in 2018 submitted analysis showing the price reduction for customers would be offset if our expected rate of return leads to outages.<sup>23</sup> This submission highlights the material consequences that can arise through service interruptions.

We note that material costs can arise to the community in the event of service interruptions. These costs tend to be relatively immediate and direct.

### **Conclusion**

Overall, we exercise judgement by placing our emphasis on market data and avoiding choices that are influenced by any material bias in either promoting or discouraging investments. We do not consider the evidence available supports the application of a bias towards a higher or lower expected rate of return.

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<sup>20</sup> CRG, *Submission to AER, Return on equity*, 9 October 2020, p. 15.

<sup>21</sup> ENA, *Best practice framework for setting the allowed return on equity*, 9 October 2020, p. 6.

<sup>22</sup> ENA, *Best practice framework for setting the allowed return on equity*, 9 October 2020, p. 50.

<sup>23</sup> Network Shareholder Group, *Letter on the Australian Energy Regulator's draft rate of return guideline*, 25 September 2018, p.23-25.

## 5 AER consideration

Setting the expected rate of return is a complex decision. In most instances, the National Electricity Rules (NER) and National Gas Rules (NGR) do not point to a single answer, either for our decision as a whole or in respect of particular components. This requires us to exercise our regulatory judgement under uncertainty. As such, in this space of uncertainty, we need to inform ourselves of consumer's interests.

Making choices to reflect consumer interests in our regulatory judgement is partly about the analysis, models and data we review and also about ensuring that we hear consumer perspectives. Consumers have consistently provided views that they are interested in the prices they pay, the quality of services they receive and also the risks they bear or otherwise pay for.

We also note that in some jurisdictions, other regulators have deliberately targeted a higher rather than lower number in estimating the expected rate of return, to make sure they get the right level of investment.<sup>24</sup> We do not consider this approach would be in the long term interests of consumers in our context.

It is our judgement that we should not make a decision with a conscious bias toward a higher or lower expected rate of return. This means aiming for the best possible estimate in an environment of uncertainty, based on the best available information.

If the expected rate of return is biased upwards (or set too high):

- Investors will be over compensated for the risk involved in supplying capital to networks, so will show increased willingness to invest in regulatory assets in comparison with other investments in the economy.
- Networks will have an incentive to over-invest in regulated assets over the longer term, increasing the regulatory asset base above the efficient level.
- Energy consumers will pay inefficiently higher prices, which may distort energy consumption decisions, and downstream investment decisions. This may result in efficiency losses where consumers use less energy network services than otherwise and non-monetary impacts such as disconnection of vulnerable consumers.

If the expected rate of return is biased downwards (or set too low):

- Investors will be under compensated for the risk involved in supplying capital to networks, so will show reduced willingness to invest in regulatory assets in comparison with other investments in the economy.
- Networks will not be able to attract sufficient funds to be able to make the required investments in the network. Over the longer term there will be declines in quality, reliability, safety and/or security of supply of electricity or gas.
- Consumers of energy will pay lower prices, at least in the short term; but will wear the risk of adverse outcomes for quality, reliability, safety and/or security of supply of energy services. Lower prices will also distort energy consumption and downstream investment

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<sup>24</sup> See for example: New Zealand Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) - Reasons Paper*, December 2010, paragraphs H11.1–H11.67 and H13.44.

decisions (though in the opposite direction to the previous case). This new level of downstream investment will be inefficient for the Australian economy.

We recently consulted with the CRG and ENA, and explored their views around what the NEO and the NGO mean and the concept of the long term interests of consumers in the context of setting the expected rate of return. In our view there is a good degree of commonality between the key themes discussed and we have summarised these views in Table 1.

**Table 1 Key themes discussed with the CRG and ENA**

CRG	ENA	AER consideration
Welcomed the AER's efforts to develop a guiding principle linking the rate of return with the objective of efficiency for the long term interest of consumers, as articulated in the NEO and NGO. <sup>25</sup>	The long term interests of consumers are best served by an economic efficiency focus. <sup>26</sup>	The NEO and the NGO is an economic efficiency concept and should be interpreted as such.
The term efficient refers to the operation of a benchmark entity rather than individual networks. <sup>27</sup>	The rate of return should reflect costs of financing a benchmark efficient entity.  Benchmark financing practices should be clearly defined and compensated. <sup>28</sup>	We estimate a benchmark, expected rate of return which is applied to a specific service provider, rather than determining the returns of a specific service provider based on all of its specific circumstances.
The AER needs to understand the consequences of changes in any approach which gives rise to higher network prices, including the possible consumer actions that could undermine the efficient use of the network and investments by end-users of energy. <sup>29</sup>	There should be careful consideration of risks and costs of under and over investment. <sup>30</sup>	We agree that achieving the legislative objectives requires more than just efficient investment in energy networks, but also requires efficient use of energy network services.
Individual determinations should not be captive to contemporary business,	Best estimate or net present value (NPV) =0 ex ante	We consider a rate of return that meets the objectives must provide ex-ante compensation

<sup>25</sup> CRG, *Letter to the AER chair and Network Committee, Re: The long term interests of consumers and the regulated Rate of Return*, April 2021, p.1.

<sup>26</sup> ENA, *Rate of Return Instrument and Long term Interests of Consumers*, March 2021, p.2.

<sup>27</sup> CRG, *Letter to the AER chair and Network Committee, Re: The long term interests of consumers and the regulated Rate of Return*, April 2021, p.2.

<sup>28</sup> ENA, *Rate of Return Instrument and Long term Interests of Consumers*, March 2021, p.16.

<sup>29</sup> CRG, *Submission to AER, Return on equity*, 9 October 2020, p. 31.

<sup>30</sup> ENA, *Rate of Return Instrument and Long term Interests of Consumers*, March 2021, p.11.



<p>regulatory or investment cycles.<sup>31</sup></p>	<p>approaches sustain regulatory confidence.</p> <p>Concepts of swings and roundabouts can validly apply to the presence of estimation errors, but should not form part of the estimation process itself.<sup>32</sup></p>	<p>for efficient financing costs. This is a zero net present value (NPV) investment condition.</p>
<p>The AER has not adequately addressed its obligation to equally consider efficient investment and efficient consumption.<sup>33</sup></p>	<p>Supports the framework and approach set out in the 2018 Explanatory Statement in relation to consumption efficiency.<sup>34</sup></p> <p>The 2018 Explanatory Statement states that:</p> <p><i>"An allowed rate of return that reflects the efficient market cost of capital will promote both investment and consumption efficiency".<sup>35</sup></i></p>	<p>If we set an unbiased estimate of the expected efficient return,, it will encourage correct pricing which supports good decisions by consumers.</p>
<p>The long term interests of consumers are served by seeking an unbiased and efficient estimate of the minimum long term cost of capital required to attract and maintain investment in a benchmark efficient network service provider.<sup>36</sup></p>	<p>An efficient market-based estimate of cost of financing will deliver the outcome of a rate of return which is neither too high nor too low.<sup>37</sup></p>	<p>The long term interests of consumers are best served by estimating an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services.</p> <p>We consider that the efficient cost of capital is reflected in market rates.</p>

In our view, for the 2022 Instrument to advance the NEO and NGO to the greatest degree, the expected rate of return should be an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services.

If it does, then it will (all else being equal) promote both efficient investment in, and efficient use of, energy network services for the long term interests of consumers.

<sup>31</sup> CRG, *Letter to the AER chair and Network Committee on The long term interests of consumers and the regulated Rate of Return*, April 2021, p.2.

<sup>32</sup> ENA, *Rate of Return Instrument and Long term Interests of Consumers*, March 2021, p.16

<sup>33</sup> CRG, *Submission to AER, Return on equity*, 9 October 2020, p. 13.

<sup>34</sup> ENA, *Rate of Return Instrument and Long term Interests of Consumers*, March 2021, p.14.

<sup>35</sup> See AER, *Rate of Return Instrument: Explanatory statement*, December 2018, p.40.

<sup>36</sup> CRG, *Letter to the AER chair and Network Committee on The long term interests of consumers and the regulated Rate of Return*, April 2021, p.5.

<sup>37</sup> ENA, *Rate of Return Instrument and Long term Interests of Consumers*, March 2021, p.15.



# Appendix A

## A.1 Requirements of the law

### A.1.1 National Electricity (South Australia) Amendment Bill 2005

The Hon. J.D. Hill, for the Hon. P.F. CONLON (Minister for Energy), obtained leave and introduced a bill for an act to amend the National Electricity (South Australia) Act 1996. Read a first time. Below is an extract from the second reading speech.<sup>38</sup>

The national electricity market objective in the new National Electricity Law is to promote efficient investment in, and efficient use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity, and the safety, reliability and security of the national electricity system.

The market objective is an economic concept and should be interpreted as such. For example, investment in and use of electricity services will be efficient when services are supplied in the long run at least cost, resources including infrastructure are used to deliver the greatest possible benefit and there is innovation and investment in response to changes in consumer needs and productive opportunities.

The long term interests of consumers of electricity requires the economic welfare of consumers, over the long term, to be maximised. If the National Electricity Market is efficient in an economic sense the long term economic interests of consumers in respect of price, quality, reliability, safety and security of electricity services will be maximised.

... Applying an objective of economic efficiency recognises that, in a general sense, the national electricity market should be competitive, that any person wishing to enter the market should not be treated more nor less favourably than persons already participating in the market, and that particular energy sources or technologies should not be treated more nor less favourably than other energy sources or technologies.

### A.1.2 National Electricity (South Australia) Amendment Bill 2007

The Hon. P. HOLLOWAY (Minister for Police, Minister for Mineral Resources Development, Minister for Urban Development and Planning), obtained leave and introduced a bill for an act to amend the National Electricity (South Australia) Act 1996. Read a first time. Below is an extract from the second reading speech.<sup>39</sup>

It is important to note that the National Electricity Objective does not extend to broader social and environmental objectives. The purpose of the National Electricity Law is to establish a framework to ensure the efficient operation of the National Electricity Market, efficient investment, and the effective regulation of electricity networks. As previously noted, the National Electricity Objective also guides the Australian Energy Market Commission and the Australian Energy Regulator in performing their functions.

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<sup>38</sup> Hansard, SA House of Assembly 9 February 2005, p.1452.

<sup>39</sup> Hansard, SA House of Assembly 16 October 2007, p. 883.

This should be guided by an objective of efficiency that is in the long term interest of consumers. Environmental and social objectives are better dealt with in other legislative instruments and policies which sit outside the National Electricity Law.

### **A.1.3 AER vs Australian Competition Tribunal (24 May 2017)**

The meaning of the long term interests of consumers was discussed in the 2017 Full Federal Court decision.

The Court stated:

Insofar as the Minister's proposed submissions went beyond the statements made by the Tribunal in Ausgrid at [90], [93] and [94] and contended that the sole criterion for determining a materially preferable NEO (or designated NGO) decision was the long term interests of consumers, independently of the requirement to promote economic efficiency (if they do go that far), the Minister was incorrect.<sup>40</sup> [110]

In addition to this, the focus on economic efficiency are highlighted at paras 491 to 496. Below is an extract from the Full Federal Court decision.<sup>41</sup>

The ultimate objective reflected in the NEO and NGO is to direct the manner in which the national electricity market and the national natural gas market are regulated, that is, in the long term interests of consumers of electricity and natural gas respectively with respect to the matters specified. The provisions proceed on the legislative premise that their long term interests are served through the promotion of efficient investments in, and efficient operation and use of, electricity and natural gas services. This promotion is to be done "for" the long term interests of consumers. It does not involve a balance as between efficient investment, operation and use on the one hand and the long term interest of consumers on the other. Rather, the necessary legislative premise is that the long term interest will be served by regulation that advances economic efficiency. [492]

The national electricity objective provides the overarching economic objective for regulation under the Law: the promotion of efficient investment in the long term interests of consumers. Consumers will benefit in the long run if resources are used efficiently, i.e. resources are allocated to the delivery of goods and services in accordance with consumer preferences at least cost. As reflected in the revenue and pricing principles, this in turn requires prices to reflect the long run cost of supply and to support efficient investment, providing investors with a return which covers the opportunity cost of capital required to deliver the services. [493]

... The parties did not challenge these statements of general principle or criticise the Tribunal's understanding of them. Indeed, all parties appeared to embrace them. [496]

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<sup>40</sup> Australian Energy Regulator v Australian Competition Tribunal (No 2) [2017] FCAFC 79 (24 May 2017), Paragraph 110

<sup>41</sup> Australian Energy Regulator v Australian Competition Tribunal (No 2) [2017] FCAFC 79 (24 May 2017), Paragraphs 491-496.

## A.2 Legislative objectives

### A.2.1 National Electricity and National Gas objectives

#### National Electricity Objective<sup>42</sup>

The objective of this Law 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—

- (a) price, quality, safety, reliability and security of supply of electricity; and
- (b) the reliability, safety and security of the national electricity system

#### National Gas Objective<sup>43</sup>

The objective of this Law 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.2.2 Revenue and pricing principles

**Table 2 Revenue and pricing principles in the NEL and NGL<sup>44</sup>**

Revenue and pricing principle	AER consideration
<p>A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in:</p> <ul style="list-style-type: none"> <li>• providing regulated services; and</li> <li>• complying with a regulatory obligation or requirement or making a regulatory payment</li> </ul>	<p>We consider that a reasonable opportunity to recover efficient costs of providing regulated services is achieved when the rate of return satisfies the 'NPV=0' condition. The NPV=0 condition means that the ex-ante expectation is that over the life of an investment the expected cash flow from the investment meets all the operating expenditure and corporate taxes, repays the capital invested and there is just enough cash flow left over to cover investors' required return on the capital invested.</p> <p>We consider that the efficient cost of capital is reflected in market rates.</p> <p>We consider that benchmarking and incentive regulation provides appropriate incentives for efficient costs.</p> <p>We note that this principle refers to the efficient costs of providing regulated services, and that an efficient cost of capital must be commensurate with the risk of providing regulated services.</p>
<p>A service provider should be provided with effective incentives in order to promote economic efficiency with respect</p>	<p>Effective incentives for efficiency are provided through the use of benchmarking and incentive regulation, and the use of market data as benchmarks.</p>

<sup>42</sup> NEL, s. 7.

<sup>43</sup> NGL, s. 7.

<sup>44</sup> NEL, s. 7A; NGL, s. 3.

<p>to the regulated services the operator provides. The economic efficiency that should be promoted includes</p> <ul style="list-style-type: none"> <li>• efficient investment the network with which the operator provides regulated services; and</li> <li>• the efficient provision of regulated services; and</li> <li>• the efficient use of the system with which the operator provides regulated services</li> </ul>	<p>An efficient cost of capital must be commensurate with the risk of providing regulated services.</p>
<p>Regard should be had to the regulatory asset base adopted</p> <ul style="list-style-type: none"> <li>• in any previous determination or arrangement, or</li> <li>• in the Rules</li> </ul>	<p>We have regard to the regulatory asset base when determining a rate of return through consideration of the NPV=0 condition. This means that the rate of return should contribute to an ex-ante expectation that over the life of an investment the expected cash flow from the investment repays the capital invested.</p>
<p>A price or charge for the provision of a regulated service should allow for a return commensurate with the regulatory and commercial risks involved in providing the service</p>	<p>An efficient cost of capital must be commensurate with the risk of providing regulated services.<sup>45</sup></p>
<p>Regard should be had to the economic costs and risks of the potential for under and over investment by a regulated network service provider in the relevant system</p>	<p>A rate of return that is too high may encourage over investment, while a rate of return that is too low may encourage under investment. Over-investment may not be in the long term interests of consumers with respect to price. Under-investment may not be in the long term interests of consumers with respect to quality of service.</p>
<p>Regard should be had to the economic costs and risks of the potential for under and over utilisation of the relevant system</p>	<p>Under-utilisation may be a result of over-investment and over-utilisation may be a result of under-investment. A rate of return that is too high may encourage over investment and a rate of return that is too low may encourage under investment.</p>

<sup>45</sup> Our consideration of the risk of providing regulated services is set out in greater detail in the 2018 Draft Rate of return guidelines, Explanatory Statement, pp.85-113.

### A.3 Dimensions of efficiency

**Table 3 Application of efficiency concepts to the expected rate of return**

Dimensions of efficiency	Economic meaning	Application to the expected rate of return estimation
Allocative efficiency	Achieved when the community gets the greatest return (or utility) from its scarce resources.	Allocative efficiency can be achieved by setting a rate of return consistent with the expected return in the competitive capital market (determined by demand and supply) for an investment of similar degree of risk as a service provider supplying regulated services.
Productive efficiency	Achieved when output is produced at minimum cost. This occurs where no more output can be produced given the resources available, that is, the economy is on its production possibility frontier. Productive efficiency incorporates technical efficiency. This refers to the extent that it is technically feasible to reduce any input without decreasing the output or increasing any other input.	Refers to least cost financing (that is, the lowest required return on debt and equity) subject to any constraints, such as risk. For our determinations to be productively efficient we need to incentivise service providers to seek the lowest cost financing (all else being equal).
Dynamic efficiency	Refers to the allocation of resources over time, including allocations designed to improve economic efficiency and to generate more resources. This can mean finding better products and better ways of producing goods and services.	Refers to the existence of appropriate investment incentives. We can encourage dynamic efficiency by setting an allowance that does not distort investment decisions. Dynamic efficiency is advanced through incentive regulation rather than cost of service regulation that compensates a service provider for its actual costs no matter how inefficient.

Source: AER analysis; Productivity Commission, On efficiency and effectiveness: Some definitions, May 2013; AER, Better regulation: Rate of return guidelines consultation paper, May 2013.