Explanatory statement

Demand management innovation allowance mechanism

Electricity distribution network service providers

December 2017

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: (03) 9290 1444
Fax: (03) 9290 1457

Email: AERInquiry@aer.gov.au
AER reference: 58882

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Shortened forms and glossary

Shortened form or term	Extended form or definition
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Allowance Objective	the demand management innovation allowance objective, as defined in the NER
ARENA	Australian Renewable Energy Agency
ARR	the distributor's unsmoothed annual revenue requirement, calculated in accordance with the AER's distribution determination for the distributor, excluding annual adjustments for changes in the cost of debt and other factors. Annual revenue requirement has the meaning given in the NER.
CPI	the headline Consumer Price Index, calculated as the weighted average of eight capital cities
current DMIA	the Demand Management Innovation Allowance currently applied as part of the current Demand Management Incentive Scheme under a historical version of NER 6.6.3
demand management	for the purpose of this Mechanism, this relates to network demand management. This is the act of modifying the drivers of network demand.
distributor	Distribution Network Service Provider
EBSS	Efficiency Benefit Sharing Scheme
eligible project	defined in accordance with subclause 2.2.1 of the Mechanism
Mechanism	Demand Management Innovation Allowance Mechanism
NEM	National Electricity Market
NEO	National Electricity Objective, as defined in the National Electricity Law
NER	National Electricity Rules
non-network option	has the meaning given in chapter 10 of the NER
NPV	net present value
project criteria	the criteria set out under subclause 2.2.1 of this Mechanism
R&D	research and development
relevant market	the National Electricity Market, where the distributor is a part of that market. Otherwise, the relevant electricity market in which the distributor transports electricity.

Shortened form or term	Extended form or definition
Scheme	Demand Management Incentive Scheme
up-front consideration	AER staff-level consideration of whether a proposed project or program would be an eligible project (eligible project is defined in this glossary)

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1 Summary

The demand management innovation allowance mechanism (the Mechanism) provides an allowance to distribution network service providers (distributors) to undertake innovative projects related to demand management. Under clause 6.6.3A of the National Electricity Rules (NER), the Mechanism must meet the objective of funding distributors for research and development (R&D) in demand management projects that have the potential to reduce long-term network costs (Allowance Objective).[1] We have developed this Mechanism in tandem with the demand management incentive scheme (Scheme).

This explanatory statement accompanies the Mechanism. It aims to assist distributors and other stakeholders in understanding the Mechanism. It also explains our considerations in designing the Mechanism, including our consideration of views that stakeholders expressed to us in submissions and other forums.

The Mechanism consists of three elements:

- The allowance itself: This includes a fixed amount, common amongst all distributors, with an additional percentage of the distributor's annual revenue requirement (ARR). It is calculated annually as $200,000[2] + 0.075% of the relevant distributor's ARR, as defined in the Mechanism and glossary. Distributors will recover this amount from customers throughout the regulatory control period. We will calculate a carryover amount to be recovered from distributors, as a negative pass-through, if the allowance is not spent at the end of the regulatory control period. The distributor will bear any overspend of the allowance.
- Project eligibility requirements: These encourage distributors to direct their R&D funding towards projects that will help achieve the Allowance Objective. These require projects be innovative and have the potential to reduce long-term network costs. Innovation means, in this context, that a project either:
    - is based on new or original concepts. For clarity, we consider this could include new or original ways of building or developing capability and capacity to undertake, facilitate or utilise demand management;[3] or
    - involves technology or a technique not previously implemented in the relevant market; or
    - is focussed on customers in a market segment that has not been exposed to the technology.

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1 The Australian Energy Market Commission made rule 6.6.3A of the NER following rule change proposals put forward by the Total Environment Centre and the Council of Australian Governments Energy Council.

2 For the 2017 regulatory year-end, escalated annually by the consumer price index (CPI).

3 Energy Queensland sought clarification on this point in at the Feedback Forum, as well as in *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 17 October 2017.

- Compliance reporting requirements: These assist us in assessing compliance with the Mechanism and allow industry and consumers to understand the research outcomes and knowledge gained from projects. To facilitate this, each distributor must submit an annual report to us that sets out the amount of allowance claimed, along with specifics of each project funded by the allowance. The Mechanism does not prevent the distributor from meeting its compliance reporting requirements through or with another party, where collaboration is a more effective and efficient way of meeting those requirements. Each project must have a project-specific report capable of being published separately. These reports must outline the outcomes and methodology applied for each project. We intend to publish these reports on our website, increasing the ease of access for stakeholders, including demand management service providers, distributors and electricity customers.

Overall, the quantum of the allowance in the Mechanism represents a modest increase on the allowance available to distributors under the current Demand Management Innovation Allowance (the current DMIA). The increase is greatest for smaller distributors, who benefit the most from the fixed base available in the new Mechanism. The $200,000 annual fixed base of the allowance should allow all distributors to undertake useful projects. The scaling component of the allowance (0.075% AAR) means that larger distributors will have the opportunity to undertake innovative projects across their larger networks.

2 About the Mechanism

The Allowance Objective is to provide an allowance to distributors to undertake innovative projects related to demand management.

This section sets out the rationale for such a Mechanism in the context of contributing to the National Electricity Objective (NEO) and the rule requirements.

2.1 Background to the Mechanism

The Australian Energy Market Commission's (AEMC's) Power of Choice report supported encouraging distributors to have an increased focus on managing demand.[4] In 2012, Frontier Economics estimated the savings from reductions to peak demand alone between $4.4 and $11.7 billion dollars by 2022.[5] The value of innovation by network businesses more broadly has since become a greater focus of industry discussion and research.[6] Also, consumer associations have recognised the link between innovation and dynamic efficiency.[7]

We currently operate a demand management incentive scheme that essentially operates as an ex-ante innovation allowance called the DMIA.[8] The current DMIA is very similar in its operation to the Mechanism.

Following rule change requests from Total Environment Centre and the Council of Australian Governments Energy Council, in 2015 the AEMC recognised the value in encouraging innovation in the demand management market. While it directed us to introduce a 'true' incentive scheme (the new Scheme) to encourage wider usage of demand management in efficiently operating electricity distribution networks, it also maintained a dedicated innovation allowance (the Mechanism).[9]

To that end, the AEMC amended rule 6.6.3 and inserted rule 6.6.3A, which directs us to develop and implement the Mechanism in addition to the Scheme. Our development of the Mechanism is subject to rule requirements, set out in section 2.3 of this explanatory statement.

For the purpose of this Mechanism, demand management means modifying the drivers of network demand. We consider that this broad definition will best aid distributors to explore a wide range of relevant R&D projects.

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4 AEMC, *Final report: Power of choice review*, 30 November 2012, p. 198.

5 AEMC, *Power of Choice – Stage 3 demand side participation review*, 2012, p. vi.

6 Energy Networks Australia (ENA), *Network Innovations Discussion Paper*, July 2017, p. 1; ENA and CSIRO, *Electricity network transformation roadmap: Final report*, April 2017.

7 Energy Consumers Australia, *Short Submission following Demand Management Options Day*, June 2017, p. 3.

8 For example, see AER, *Demand management incentive scheme: Jemena, CitiPower, Powercor, SP AusNet and United Energy, 2011–2015*, April 2009.

9 AEMC, *Rule determination: National Electricity Amendment (Demand Management Incentive Scheme) Rule 2015*, August 2015, pp. ii, 4.

2.2 Our rationale for the Mechanism

The Mechanism will operate alongside the new Scheme. The new Scheme and Mechanism will work alongside our incentive regulation framework, which rewards distributors for delivering value to electricity consumers by operating and building their networks efficiently.

While incentive regulation is important for giving effect to the NEO, we also recognise that R&D can deliver value to consumers in the long term, but produce higher costs in the short term. Bearing this in mind, it is worthwhile acknowledging that regulated monopolies, like distributors, naturally have less of an incentive to conduct R&D than competitive businesses. This is because, all else being equal, they:

- Face lower 'up-side risk'. Competitive businesses may be more likely to profit from R&D than monopolies, as R&D can provide them with a 'competitive advantage'. Moreover, to the extent that R&D results in future cost reductions, distributors will pass a material portion of these gains onto electricity consumers under our regulatory regime.
- Still face 'down-side risk'. If R&D costs occur significantly before the benefits, distributors risk being financially penalised from making these decisions under the regulatory regime.

The Scheme and Mechanism are designed to work together to provide incentives for innovation. The Scheme exposes distributors to 'up-side risk' by rewarding demand management when it is used in efficient non-network projects. The Mechanism provides innovation incentives by reducing distributors' 'down-side risk' via an allowance for R&D costs. We consider that the Scheme and Mechanism will increase distributors 'capacity to explore, trial and deploy new technologies, systems and business processes in a timely manner'. This is something that Energy Networks Australia has identified as key to delivering customer benefits from R&D.[10]

Along with reducing the risks associated with R&D, the Mechanism also incentivises distributors to share their knowledge and understanding of innovative demand management projects. This is because, in order to access funding under the Mechanism, distributors must share the outcomes of funded R&D projects. This should increase the potential for R&D under the Mechanism to improve consumer outcomes across the relevant electricity market.

We do not intend for distributors to be the main driver of demand management R&D. Many of the innovative technologies and business models that enable effective demand management come from the contestable market. However, distributor-initiated R&D is still important. Increases in intermittent generation, distributed energy resources, and bi-directional electricity flows are creating challenges for electricity networks that demand management can help address. Distributors can be well-placed

[10] ENA, *Network Innovation Discussion Paper*, July 2017, p. 2.

to address such challenges. They are in unique positions to understand the challenges facing their networks and to formulate the research objective to address these challenges, even if the R&D itself is done in partnership with third parties.

2.3 Giving effect to rule requirements

The Mechanism should contribute to the achievement of the NEO, which is:[11]

> 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, reliability, and security of supply of electricity; and
> - the reliability, safety and security of the national electricity system

The Mechanism will contribute to the achievement of the NEO by being consistent with the Allowance Objective to provide distributors with funding for R&D in demand management projects that have the potential to reduce long-term network costs.

In achieving the Allowance Objective, the NER require we develop and apply the Mechanism to take into account the following principles:

(a) the Mechanism should be applied in a manner that contributes to the achievement of the Allowance Objective;

(b) demand management projects funded under the Mechanism should have the potential to deliver ongoing reductions in demand or peak demand. These projects should be innovative and not otherwise efficient and prudent non-network options that a distributor should have provided in its regulatory proposal;[12]

(c) the level of allowance;

  i. should be reasonable, considering the long term benefits to retail customers;

  ii. should provide funding that is not available from another source, including under a relevant distribution determination; and

  iii. may vary by distributor and over time;

(d) the allowance may fund demand management projects which occur over a period longer than a regulatory control period;

Any Mechanism we develop and apply must require distributors to publish and report on the nature and results of demand management projects that are the subject of this allowance. We cover this in section 6 of this explanatory statement.

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[11] *National Electricity (South Australia) Act 1996*, Clause 7 of part 1.

[12] See NER, cl 6.6.3A(c)(2).

We must develop and publish the Mechanism and may, from time to time, amend or replace it in accordance with the distribution consultation procedures.

2.4 Demand management R&D in networks

The Allowance Objective is to fund distributors to undertake R&D in demand management projects that have the potential to reduce long-term network costs.

Given this, we consider 'demand management' under this Mechanism should relate to managing demand on electricity networks. For the purposes of the Mechanism, we define electricity network demand management as the act of modifying the drivers of network demand. In the Scheme, we specified that this should be with the purpose of removing a network constraint as the Scheme is targeting efficient non-network options relating to demand management.

However, since this Mechanism relates to R&D with the potential to reduce long-term network costs, it is possible that projects under the Mechanism will not directly remove a specific network constraint. Rather, these may develop a distributor's capabilities to remove a network constraint in the future—thereby having the potential to reduce long term network costs.

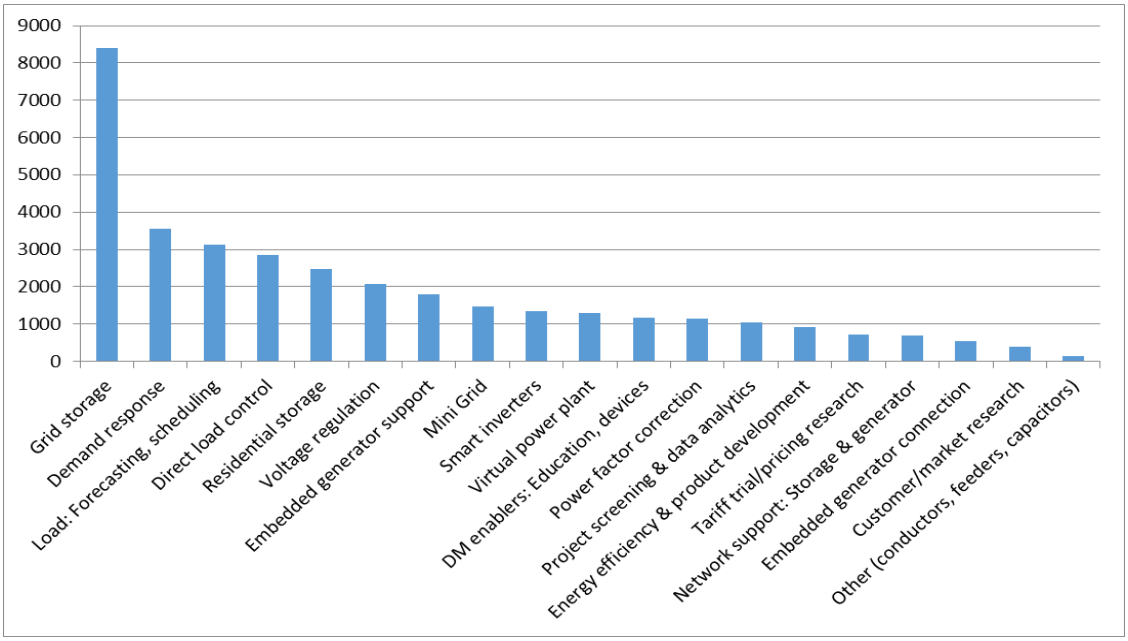
A distributor might modify the drivers of network demand by reducing peak demand or changing the demand profile. This is in contrast to a supply-side action, which entails investment to increase the network capacity to satisfy demand.

Some demand management R&D that distributors have undertaken previously includes:

- Using embedded generators and/or storage to provide network support;
- Trialling mini grids and virtual power plants;
- Trialling different ways to deploy demand response/voluntary load curtailment;
- Conducting tariff trials;
- Applying different methods to screen for demand management solutions, including through stakeholder engagement activities;
- Using network solutions to manage demand on the network, including by installing network assets like smart feeders, conductors and inverters.

Figure 1 below illustrates the diverse range of projects undertaken, but emphasises that grid storage projects made up the largest portion of expenditure by a significant margin.

Figure 1: DMIA spent July 2010 to December 2016 ($'000, real 2015-16)



Source: AER, Decisions on applications for the demand management innovation allowance, published July 2017, April 2016, April 2015, July 2013 and November 2012. See https://www.aer.gov.au/networks-pipelines/compliance-reporting?page=1&f[0]=field_accc_aer_report_type%3A1203.

3 Insights from stakeholders

There has been substantial stakeholder interest and engagement in this project. A variety of stakeholders have shared their valuable insights throughout the Mechanism development process. For instance:

- Prior to the Issues Day, 57 stakeholders responded to a pre-workshop survey by submitting to us their top three issues concerning network demand management and the development of the Scheme and Mechanism.
- 68 stakeholders attended our demand management Issues Day on 20 September 2016. Eight key stakeholders gave presentations and all participants actively brainstormed views and solutions around key issues during 'breakout sessions'.
- 28 stakeholders lodged detailed submissions on a Consultation Paper we published on 4 January 2017.
- 42 stakeholders actively participated in a round table discussion at our demand management Options Day on 6 April 2017.
- 12 stakeholders that attended the Options Day lodged supplementary submissions following the Options Day.
- 51 stakeholders attended a Directions Forum videoconference on 29 June 2017.
- 23 stakeholders provided submissions on the draft Scheme and Mechanism published on 28 August 2017.
- 38 stakeholders attended a Feedback Forum videoconference on 8 November 2017.

Where possible, we have made the material that stakeholders have provided to us publicly available on our website.[13]

Submissions on the Consultation Paper showed that stakeholders generally supported the introduction of a Mechanism.[14] This sentiment was also clear from the Options Day and Directions Forum. However, while the majority of stakeholders supported the Mechanism as having value, they generally saw the Scheme as the ‘main game’ for driving efficient demand management in electricity networks.

Table 1 summarises the different Mechanism design options we discussed in the Consultation Paper. It also summarises our decision on whether or how to apply these options.

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[13] More information is available at :<https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/demand-management-incentive-scheme-and-innovation-allowance-mechanism/initiation>.

[14] For a high-level summary of stakeholder views on the Mechanism in response to the January 2017 consultation paper, see the presentation, AER, *Options day: Demand management incentive scheme & innovation allowance mechanism*, 6 April 2017, slide 18.

Table 1: Different Mechanism designs considered

Mechanism design consulted upon	Decision on whether or how to incorporate into the Mechanism
Minor extension to the status quo	Incorporated into the Mechanism.
High cap ex-ante allowance	Not directly incorporated in the Mechanism. However, the indicative approval process and increase to the quantum of the allowance under the Mechanism is consistent with elements of this option.
Bidding to encourage ground-breaking R&D	Not incorporated into the Mechanism.
Bidding to encourage market-facilitated R&D	Not incorporated into the Mechanism.

Source: AER, *Consultation Paper: Demand management inventive scheme and innovation allowance mechanism*, January 2017.

Figure 2 highlights the level of stakeholder support we received on the options listed in table 1. In their submissions, stakeholders did not appear to have a clear, single preference towards a particular Mechanism design option we presented in the Consultation Paper. Rather, there were diverse and often opposing views.

Figure 2: Level of support for Mechanism options in Consultation Paper

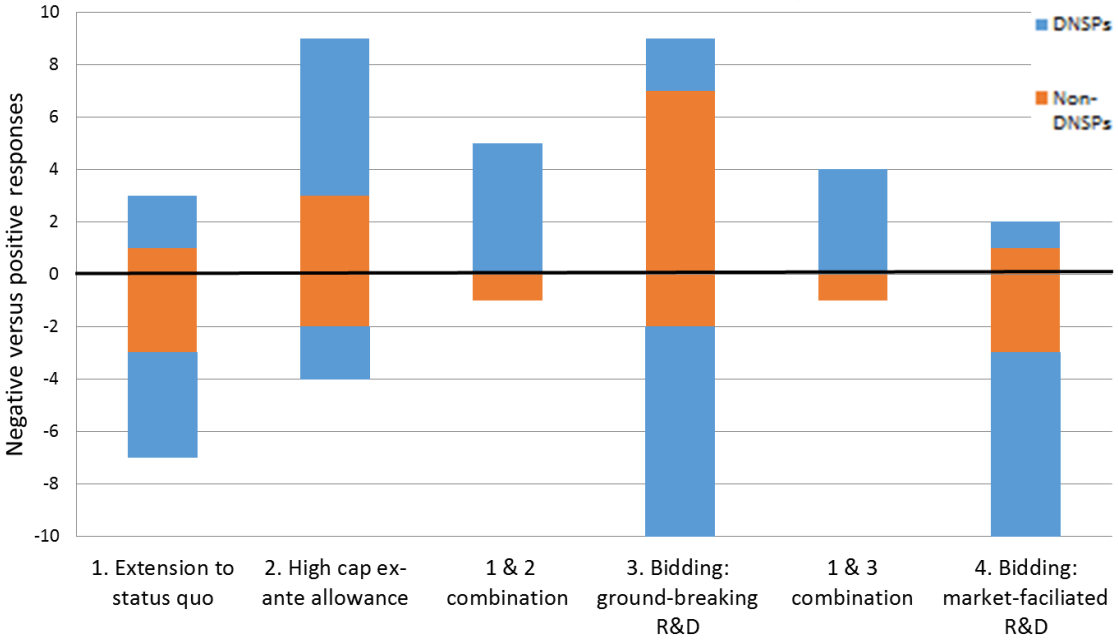

Figure 2 demonstrates that stakeholders had a diverse range of preferences. For instance, overall:

- The extension to the status quo received a net-negative response.
- The high-cap ex-ante allowance received a net-positive response, with positive responses particularly coming from distributors.
- Some distributors proposed combining an extension to the status quo with either a high cap allowance or a bidding option. While we received limited views on these,

this is most likely because we did not explicitly request stakeholder views on hybrid options.

- The bidding option that centred on 'ground-breaking R&D' received a strong, divisive response, with non-distributors typically favouring it and distributors typically providing a negative response.
- The competitive bidding option that centred on 'market-facilitated R&D' received a strong, negative response, particularly from distributors.

Despite the diverse range of preferences, there were points of agreement amongst stakeholders. For instance:

- Most stakeholders considered that an increase in the funds available under the Mechanism would help achieve the Allowance Objective.
- Many stakeholders considered that the demand management market was developing at a fast pace and saw value in us implementing a Mechanism (as well as the Scheme) as soon as possible.
- Distributors and demand management providers particularly valued certainty and a low administrative burden, but also saw the benefit of having strong project reporting requirements.[15]

Where possible, we have incorporated these broad themes arising from our consultation with stakeholders into our Mechanism so that it achieves the following:

- Provides a modest increase to the allowance on average, particularly for smaller distributors, (see section 4).
- Has a low administrative burden (see sections 4 and 5).
- Has a high level of certainty for distributors (see sections 4 and 5).
- Is transparent (see sections 5 and 6).
- Reduces project duplication and increases the socialisation of knowledge (see section 6).

At the Options Day, stakeholders emphasised that the 'main game' in encouraging efficient demand management outcomes was the Scheme. Imposing an administrative burden that is disproportionate to the role of the Mechanism or the size of its allowance would harm its effectiveness. The Mechanism is similar in design to the current DMIA. This approach has the benefit of simplicity, in terms of both implementation and the ongoing procedure. We consider that this low administrative burden meaningfully increases the certainty gained from this approach, as well as the likelihood of it being effectively utilised.

We prefer this approach to the alternative approaches we explored in the Consultation Paper (figure 2). For instance:

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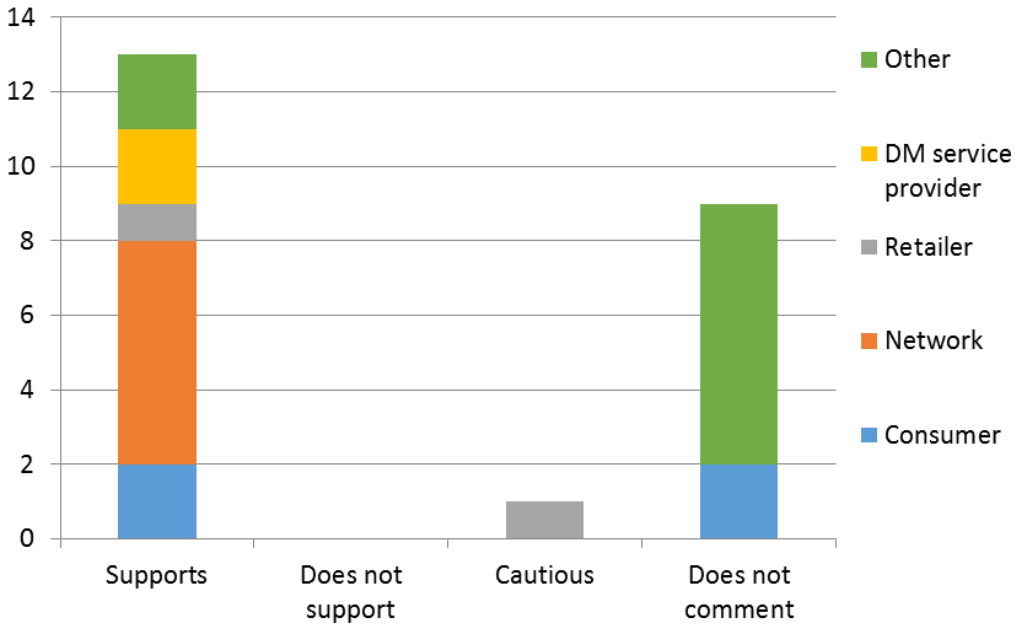
[15] ENA, *Submission to the AER's Demand Management Consultation Paper*, 27 February 2017, p. 11.

- While there was some stakeholder support for a high cap ex-ante allowance, this would necessitate a potentially significant ex-ante assessment process. This, in itself, would require significant investments of time and effort from distributors and us. Additionally, it would take more time to establish a relevant guideline that delivered both procedural fairness and value for consumers. Out of practical necessity, this would result in us assessing distributors' R&D proposals once every reset, which would limit the timeliness and the flexibility of the Mechanism.
- While some non-network stakeholders supported bidding to promote ground breaking R&D, this would require a high degree of development and ongoing monitoring to deliver a favourable outcome. We consider that keeping administrative burden low will ultimately encourage distributors to invest more in demand management R&D. We consider that our chosen approach encourages certainty, providing a stable base for innovative projects and ultimately building a stronger demand management market.

Submissions received on the draft Mechanism (summarised in figure 3) indicated overall support for the implementation and design of the Mechanism.

Figure 3: Support for Mechanism in submissions on draft Mechanism



While submissions on the draft Mechanism were largely supportive, several also suggested some minor amendments. These submissions were largely representative of the discussions that took place during the Feedback Forum, where some stakeholders also questioned specific features of the draft Mechanism. For instance:

- At the Forum, some stakeholders reiterated their submissions in requesting we raise the allowance cap to encourage more innovative projects, by increasing

either the base or scaling component.[16] However, some submissions had suggested that limiting the allowance to a more modest increase.[17] For instance, Business SA considered there were various incentives already in the market, including the R&D tax incentive.[18]

- In its submission and at the Feedback Forum, Ausgrid questioned whether total revenue used in calculating the cap would include dual function assets.[19] We confirm that it would include dual function assets.
- At the Feedback Forum, some stakeholders reiterated their submissions in questioning the project eligibility criteria. For instance, Energy Queensland felt the eligibility requirements should better allow for iterative technological innovations and innovative ways to build organisational capabilities.[20] SA Power Networks felt the project criteria could better capture circumstances specific to each distributor's network infrastructure, in determining innovation to focus on specific geo/demographical changes.[21] We are satisfied that the project eligibility criteria in the draft Mechanism were sufficiently broad to support the types of projects discussed in these submissions.
- Some submissions emphasised that the Mechanism should enable cross-collaboration on eligible projects.[22] At the Feedback Forum, stakeholders were generally satisfied with our proposed changes to better enable this within the Mechanism.
- In submissions, some stakeholders expressed a preference to have up-front project approval.[23] At the Feedback Forum, most stakeholders seemed comfortable with our proposal to provide up-front consideration as a staff-level letter of comfort if the views of the AER Board and staff would align.

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16 Ausnet Services, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017; SAPN, *Submission on draft demand management incentive scheme, innovation allowance mechanism and proposed early application rule change*, 12 October 2017.

17 Business SA, *Submission on the draft demand management incentive scheme and innovation allowance mechanism*, 10 October 2017; Red Energy and Lumo Energy, *Re: Demand management incentive allowance*, 12 October 2017.

18 Business SA, *Submission on the draft demand management incentive scheme and innovation allowance mechanism*, 10 October 2017.

19 Ausgrid, *Submission on draft demand management incentive scheme and innovation allowance mechanism*, 12 October 2017.

20 Energy Queensland, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 17 October 2017.

21 SAPN, *Submission on draft demand management incentive scheme, innovation allowance mechanism and proposed early application rule change*, 12 October 2017.

22 CarbonTRACK, *Submission on draft demand management incentive scheme and innovation allowance mechanism*, 12 October 2017; ENA, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017; The Institute for Sustainable Futures (ISF), *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017.

23 Major Energy Users (MEU), *Submission on draft demand management incentive scheme and innovation allowance mechanism*, 9 October 2017.

4 Design of the Mechanism

Subclause 2.1.2(a) of the Mechanism specifies that our distribution determination will set out how the Mechanism will apply to a distributor in the relevant regulatory control period. We will set the allowance cap for a distributor by applying the formula in equation 1, where ARR is the distributor's annual revenue requirement for that regulatory year, as set out in that distributor's distribution determination.

Equation 1: Allowance cap for a regulatory year

$$Allowance\ cap = \$200\,000 + 0.075\% \times ARR$$

4.1 Allowance cap

Table 2 compares the allowance caps under the current DMIA with those under the Mechanism, given the same revenue levels.

Table 2: Indicative comparison of allowances, using regulatory year 2019

Distributor	Mechanism allowance ($'000, nom)	Previous DMIA allowance ($'000, nom)*	CPI-adjusted change on previous DMIA (%)
ActewAGL	321.0	108.9	195%
Ausgrid	1,422.4	1,089.5	31%
AusNet Services	693.3	639.8	8%
CitiPower	440.0	213.3	106%
Endeavour Energy	799.2	653.7	22%
Energex	1,272.4	1,073.4	19%
Ergon Energy	1,211.3	1,073.4	13%
Essential Energy	964.2	653.7	48%
Jemena	411.7	213.3	93%
Powercor	693.2	639.8	8%
SA Power Networks	810.0	644.0	26%
TasNetworks	389.8	417.2	-7%
United Energy	545.5	426.6	28%
NT Power and Water**	TBD	N/A	N/A
Average increase	9,974.1	7,846.7	27%

* Historically, we have escalated the DMIA by CPI during, but not between regulatory control periods. This table assumes that we would have also escalated the current DMIA between regulatory control periods.

** We are yet to regulated NT Power and Water, so we do not have data for a comparison.

Table 2 shows that, on average, the new Mechanism will provide, on average, about a 30% higher allowance cap relative to what we have provided under the current DMIA, assuming we would have otherwise escalated the current DMIA by inflation. This represents a modest increase, which we consider reasonable given that:

- The new Scheme provides greater upside risk for demand management solutions. This means that if a solution works efficiently, then there is a significant incentive available for deploying it. It is therefore prudent to design the Mechanism specifically to mitigate the downside risk that distributors might face when trialling new solutions on their networks and making the incentive available proportionate to the risk faced.
- There is significant stakeholder support for making more money available for innovative projects.[24] This includes both rule change proponents (who want to see more innovation in the demand management market) and distributors (who want to undertake larger scale projects). This indicates, as we have previously found, that the current allowance is not sufficiently mitigating the downside risk of investing in innovative R&D projects.
- Most consumer groups have expressed a willingness to pay for both increased demand management activity and innovation more broadly.[25] The Public Interest Advocacy Centre submitted that the current DMIA has been too modest to promote investment in innovative demand management and indicated that a greater investment may be required to get value for consumers.[26] Energy Consumers Australia submitted that there was need for more 'dramatic innovation' by networks to achieve price decreases.[27]
- There is also some stakeholder support for a modest increase in the available allowance, such as via indexation to the Consumer Price Index (CPI).[28] This indicates that some market participants see more limited benefits stemming from this allowance.
- We expect there will often be cases where R&D into network-based demand management will be funded outside of the Mechanism. Due to a number of factors, such as the Ring-Fencing Guideline,[29] many demand management projects involve distributors partnering with a third party (for instance, a start-up or academic

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[24] AER, *Directions Forum*, June 2017, summary available at: < https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/demand-management-incentive-scheme-and-innovation-allowance-mechanism/initiation>.

[25] Energy Consumers Australia, *Short Submission following Demand Management Options Day*, June 2017, p. 1.

[26] Public interest advocacy Centre, *Submission in response to AER Demand Management Incentive Scheme design*, 24 February 2017, p. 3.

[27] Energy Consumers Australia, *Short Submission following Demand Management Options Day*, June 2017, 3.

[28] Red and Lumo, *Submission to the AER's Demand Management Consultation Paper*, 24 February 2017, p. 1.

[29] For instance, the Ring-Fencing Guideline provides for accounting and functional separation of the regulated (or 'direct control') services that distributors provide, from other services provided by them or their affiliated entities. See AER, *Ring-fencing guideline: Electricity distribution*, November 2016, p. 6.

institution) to test the feasibility of a solution developed by the third party.[30] This favours a smaller allowance, because the downside risk or required funding faced by the distributor is mitigated by or shared due to the involvement of other parties. Therefore, while our increase is modest, it can be used in conjunction with other funding options to widen the scope of the R&D and promote distributor involvement to achieve the Allowance Objective. It is also worth noting, as Business SA pointed out, there are also other R&D incentives in the market, including the R&D tax incentive.[31]

- There have been increases to other sources of funding available for demand management R&D which is being accessed by distributors.[32] The Australian Renewable Energy Agency (ARENA) is active in R&D and distributors have participated in projects with ARENA. Recently, the Australian Energy Market Operator (AEMO) has partnered with ARENA to expand R&D in the demand response space.[33]

Having evaluated these factors and views, along with the impact on customers and the influence of the new Scheme, we consider that a modest increase to the allowance will best achieve the Allowance Objective. We consider that this solution:

- Provides an incentive that is proportionate to the Allowance Objective;
- Takes account of stakeholder views that the allowance needs to be larger; and
- Has regard to the Mechanism's interaction with the new Scheme.

This involves a change to the methodology of calculating the allowance cap, which has the effect of modestly increasing the quantum of the allowance. We consider that this is appropriate and reasonable having had regard to the considerations laid out under subsection s6.6.3A(c) of the NER.

4.2 Components of the allowance cap

There are two parts of the allowance cap under the Mechanism:

- A base allowance level of $200,000 (in 2017 regulatory year-end dollars), escalated annually by the CPI; and
- A scaling factor of 0.075% of the distributor's ARR, as set out in its distribution determination.

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30 For example, see the Bruny Island Battery Trial involving TasNetworks, http://brunybatterytrial.org/. This trial is discussed in more detail in section 8 of this explanatory statement.

31 Business SA, *Submission on the draft demand management incentive scheme and innovation allowance mechanism*, 10 October 2017.

32 For example, TasNetworks has been involved in a Bruny Island Battery Trial, which CONSORT is undertaking (which comprises of TasNetworks, Reposit Power, the Australian National University, the University of Sydney and University of Tasmania). See https://www.tasnetworks.com.au/customer-engagement/tariff-reform/consort-bruny-island-battery-trial/.

33 ARENA, *Demand Response Competitive Round*, July 2017. More information available at: < https://arena.gov.au/funding/programs/advancing-renewables-program/demandresponse/>.

4.2.1 The base allowance level

The base amount serves as a floor on the allowance. This responds to comments, particularly from smaller distributors that their relatively small allowances prevented them from undertaking some projects.[34] While all distributors requested a higher allowance, this was particularly a problem for small distributors. For instance, Jemena Electricity Networks submitted that fixed costs (such as employee salaries) would consume a large portion of their total allowance, leaving little room for other project costs.[35] We consider that this had the effect of limiting the potential for innovation in the areas serviced by these smaller distributors. Therefore, having a reasonable fixed (in real terms) base for the allowance cap serves to achieve the Allowance Objective and gives smaller distributors certainty that they can proceed with innovative projects.

4.2.2 The scaling factor

The scaling factor reflects that larger distributors may have more opportunities to trial technology, given the size of their networks. Given that customers have demonstrated a willingness to pay for valuable innovation on the network,[36] we see value in providing a sizable allowance. We consider that distributing the impact fairly across consumers will best serve this aim. Making the allowance proportional to ARR should keep the Mechanism's cost impact reasonably distributed across customers.[37]

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[34] AER, *Directions Forum*, June 2017, summary available at: < https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/demand-management-incentive-scheme-and-innovation-allowance-mechanism/initiation>.

[35] Jemena Electricity Networks, *Submission on AER Demand Management Consultation Paper*, February 2017, p. 6.

[36] Energy Consumers Australia, *Short Submission following Demand Management Options Day*, June 2017, p. 3.

[37] SAPN, *Submission to AER's Demand Management Consultation Paper*, February 2017, p. 4.

5 Identifying eligible projects

Clause 2.2 of the Mechanism defines the type of projects it will apply to ('eligible projects') by setting out project criteria. It allows distributors to seek up-front consideration of projects against these project criteria.

5.1 Project criteria

Table 3 summarises the criteria that a project must meet to be eligible. Table 3 also explains how each element will give effect to the NER, and/or how it incorporates stakeholder views. These criteria aim to fulfil our obligations under s6.6.3A of the NER and reflect our consideration of the factors contained within those provisions.

Table 3: Project criteria for eligibility under the Mechanism

Project criterion	Rationale for criterion	Consideration to stakeholder views
Be a demand management project or program	The Allowance Objective requires that projects funded under the Mechanism relate to demand management. We have chosen to define demand management as modifying the drivers of network demand.	Through the consultation process, stakeholders advised that the definition of demand management should be sufficiently broad to encompass a range of applications to incorporate cutting edge technology in a fast moving space. We consider this definition sufficiently broad so that it does not limit innovation under the Mechanism.
Be innovative, in that the project or program is: • based on new or original concepts; • involving technology or techniques that differ from those previously implemented or used in the relevant market; or • focused on customers in a market segment that significantly differs, from those previously targeted by implementations of the relevant technology, in relevant geographic or demographic characteristics that	The Allowance Objective requires that projects which receive funding under the Mechanism should be innovative. The goal of this definition is to fund projects that materially add to our understanding of demand management and its potential for technical and/or commercial viability in supporting the operation of the distribution network. We chose to define innovation because under the current DMIA, some funds went to projects that were very similar to previous projects funded under the DMIA. This duplication meant that potentially redundant projects were receiving funding, limiting the effectiveness of R&D under the DMIA. We consider the definition in the Mechanism strikes the right balance. This is not overly prescriptive, but directs distributors to use the allowance in ways that will build market/industry	Some stakeholders noted that a prescriptive definition of innovation would hamper the ability of distributors to be genuinely experimental.[38] Energy Queensland suggested we should change the wording to better allow for iterative technological innovations and innovative ways to build organisational capabilities.[39] We agree with the principle, but do not think the Mechanism wording would hinder this. For instance, new or original concepts can include new or original ways of building or developing capability and capacity to undertake, facilitate or utilise demand management. Moreover, we understand that there can be multiple stages of an innovative R&D project, and this is consistent with iterative technology innovations. We have not adopted Energy Queensland's suggested wording as this does not appear to be conducive to meeting the Allowance Objective, for the reasons set out in Appendix A. AEMO rose that too narrower a definition might prevent distributors from testing

[38] For example, Endeavour Energy, *Submission on Demand Management Consultation Paper*, February 2017, p. 12.

[39] Energy Queensland, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 17 October 2017.

are likely to affect demand.	understanding of demand management.	previously verified technology in different geographic areas, to understand how a diverse range of consumers respond to that implementation.[40] SAPN suggested amending the project criteria in the draft Mechanism to also include circumstances specific to each distributor's network infrastructure, in determining innovation to focus on specific geo/demographical changes.[41] We consider clause 2.2.1(1) (b) iii) of the Mechanism, which was also included in the draft, sufficiently allows for consideration of geographic and demographic characteristics.
Have the potential, if proved viable, to reduce long term network costs.	The Allowance Objective requires that projects funded under the Mechanism have the potential to reduce long-term network costs for consumers. In the context of innovation, we see reducing costs in the context of that project's overall ability to contribute to developing the demand management and industry knowledge, rather than a strict adherence to project benefits. This allows distributors to spend the allowance experimentally, while still directing them to implement potentially efficient solutions. Exploring this potential is vital to building market/industry understanding and commercialising solutions.	Some stakeholders suggested that projects be required to demonstrate customer benefits.[42] However, distributors and other stakeholders considered that doing so would dramatically narrow the range of projects they would be able to undertake, undermining the goal to promote innovation in the demand management sector. It is our view that while projects under the Scheme must directly deliver net benefits, this is not a reasonable expectation for R&D, which has uncertain results by nature.
The costs of a project or program are not eligible for recovery under the Mechanism if those costs are: • recoverable under any other jurisdictional incentive scheme, • recoverable under any state or Australian Government scheme, or • included in forecast capital expenditure	The Mechanism is intended to provide funding for innovative solutions that would not otherwise be available. This aims to fund innovation, rather than allowing distributors to recover extra for simply undertaking actions that are otherwise prudent and should be included in their revenue allowances. This clause aims to prevent 'double-dipping' of R&D revenue, thereby increasing the Mechanism's value to electricity consumers. This is consistent with 6.6.3A(c))(3)(ii) of the NER, which states that the level of the allowance should provide funding that is not available from any other	We had a similar, but more restrictive requirement in the draft Mechanism. The ISF submitted that the draft wording would appear to restrict jointly-funded innovative research projects, which are valuable for spreading risks and costs, whilst involving a wider range of stakeholders, expertise and insights in the research.[43] The intent of this requirement was to avoid double-dipping (that is, to ensure that funding obtained from other sources is not also recovered under the Mechanism). Given this, we have revised clause 2.2.1(2) of the Mechanism since the draft to maintain this intention without restricting jointly-funded R&D projects.

[40] AER, *Directions Forum*, June 2017, summary available at: < https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/demand-management-incentive-scheme-and-innovation-allowance-mechanism/initiation>.

[41] SAPN, *Submission on draft demand management incentive scheme, innovation allowance mechanism and proposed early application rule change*, 12 October 2017.

[42] For example, MEU suggested having a payback period in *Submission on draft demand management incentive scheme and innovation allowance mechanism*, 9 October 2017.

[43] ISF, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017.

or operating expenditure approved in the distribution determination.	source, including a distribution determination.	
For avoidance of doubt, the Mechanism does not require a distributor's eligible project to be geographically constrained to its distribution network.	The Mechanism can be spent on cross-collaboration projects with distributors. This addition aims to clarify how the Mechanism treats projects that are not on the distributor's own distribution network.	Some stakeholders suggested that the allowance should be available to be spent on cross-collaborative projects with other distributors.[44] While the draft Mechanism did not restrict this, we consider it valuable to make our position on this flexibility clear for avoidance of doubt, as we now have in clause 2.2.1(3) of the Mechanism.

5.2 Option for up-front consideration

Clause 2.2.2 of the Mechanism sets out that a distributor may seek up-front consideration of planned expenditure under the Mechanism.

During our consultation process, some distributors saw value in implementing a simple Mechanism with a feature that gave distributors certainty when committing projects.[45] We consider that an up-front consideration process will assist distributors in adapting to the new compliance procedure. This will build on the understanding we have built with distributors over the life of the current DMIA.[46]

We have a similar feature to up-front consideration under the current DMIA that no distributor utilised, called 'indicated approval'.[47] The underutilisation of this feature may reflect a limited clarity behind what it meant or how it worked. The feature's underutilisation may have also reflected that we never denied projects under the current DMIA. Given the strengthening of the eligibility criteria and the reporting requirements, we consider there is benefit in retaining this feature, but better clarifying what it means. As such, we have re-named this as 'up-font consideration' and have clarified that it is akin to a staff-level letter of comfort, specifying that staff will recommend the AER Board approve the proposed project.

To receive up-front consideration, a distributor must provide us details of the proposed projects in the first month in the relevant regulatory year. We will then assess the proposed projects against the project eligibility criteria. We will then provide a letter of comfort to the distributor, specifying that AER staff will recommend the AER Board approve the proposed project on the basis that it would satisfy the project criteria. This

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44 ENA, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017.

45 SAPN, *Submission following AER's Options Day*, April 2017, p. 5.

46 AER, *Directions Forum*, June 2017, summary available at: < https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/demand-management-incentive-scheme-and-innovation-allowance-mechanism/initiation>.

47 AER, *Final Decision: Demand Management Incentive Scheme*, clause 5.7.2.

letter will provide greater certainty of what costs distributors are likely to recover under the Mechanism.

This is not an ex-ante assessment process. The Mechanism's approval process remains an ex-post assessment of the projects' adherence to the project and compliance procedures. This is neither an alternative nor a substitute to the actual ex-post assessment that we will subsequently conduct for that particular regulatory year. However, if the distributor's proposed expenditure is considered eligible, and its actual expenditure does not differ in substance and/or form from that envisaged at the beginning of the regulatory year, we would expect to approve that expenditure as part of our ex-post assessment.

6 Assessment and compliance reporting

Clause 2.4 of the Mechanism specifies that each regulatory year, a distributor will submit a compliance report to us. This report serves two purposes; to allow us to assess compliance with the Mechanism's requirements, as well as to assist in socialising the knowledge gained from the research projects funded under the Mechanism. By using the report in this way, we consider that the burden on distributors will be reasonable.

The compliance report is composed of two carefully designed elements, the overall report and the project specific reports. The reports will be submitted together, but must be capable of being published separately. We have chosen to publish the reports separately to increase the usefulness and accessibility of each project report. We consider that if each report is published separately, then third parties can more easily compare and contrast options, while having a complete overall report will enable us to assess the usage of the allowance on a broader scale.

We consider that the burden imposed by these requirements is proportionate and necessary to achieve the Allowance Objective. The requirements for information have increased under the Mechanism, relative to the requirements under the current DMIA. While some may see the new reporting requirements as misaligned with the level of allowance available, we consider that the aim is to provide value beyond the initial monetary investment by a given distributor. Innovation has the potential to provide significant value across the market, as discussed throughout this explanatory statement. For innovation to have an optimal impact in the electricity market, its leanings and benefits should be shared with all participants. By providing a clear means by which this knowledge can be socialised, the Mechanism can help deliver this outcome.

We observed that reporting by distributors under the current DMIA had wide variations in quality.[48] This reporting was insufficiently standardised to disperse the knowledge gained from projects and thereby socialise the knowledge gained from many projects. Stakeholders also emphasised that clear, transparent, and consistent measurement of the performance of projects funded under the allowance was crucial.[49] The new reporting requirements aim to improve the ability of project reports to deliver information to the broader market in line with the Allowance Objective.

We have also considered distributors' submissions that our reporting requirements should not require duplication of their efforts, which would otherwise make non-network solutions less cost competitive.[50] Considering this, we have designed the reporting requirements to target the areas that will provide most benefit to those hoping to

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48 AER, *Demand Management Incentive Scheme and Innovation Allowance Mechanism Consultation Paper*, January 2017, p. 63.

49 Institute for Sustainable Futures, *Submission to AER's DM Consultation Paper*, February 2017, p. 28.

50 Endeavour Energy, *Submission on Demand Management Consultation Paper*, February 2017, p. 2.

understand the knowledge gained from projects funded by the Mechanism. Any repetition of data is necessary to properly socialise the gains of projects, and provide reports in a style that is accessible to interested parties. We consider that the reporting requirements laid out in the Mechanism will not impose an unreasonable administrative burden, given that the Mechanism is designed to provide information to the broader market and industry.

6.1 The overall report

Clause 2.3(3) of the Mechanism sets out the requirements for compliance reporting. These include project or program specific reports, each capable of being published separately, that detail the projects or programs for each project claimed under the Mechanism. Compliance reporting requirements also require that the distributor submit an overall report containing:

- The total amount of the allowance spent;
- A list and description of each eligible project on which the allowance was spent;
- A summarised explanation of each demand management project which the distributor funded under the Mechanism, demonstrating and justifying the project's compliance against the project criteria.
- Where demand management projects or programs extend across more than one regulatory year of the regulatory control period, information on the actual expenditure on each such project or program in each regulatory year of the regulatory control period; and
- A statutory declaration signed by an officer of the distributor delegated by the chief executive officer, certifying that the costs being claimed of each demand management project:[51]
    - are not recoverable under any other jurisdictional incentive scheme;
    - are not be recoverable under any state or Australian Government scheme; and
    - are not included in forecast capital expenditure or operating expenditure approved in our distribution determination for the regulatory control period under which the Mechanism applies, or under any other incentive scheme in that distribution determination.

These requirements allow us to assess individual project eligibility, as well as the overall spending pattern of the allowance. This information will assist us in determining how much of the allowance has been spent, what projects it has been spent on, and how distributors justify that expense with regard to the Allowance Objective. The

[51] The draft Scheme specified that a director of the distributor should sign the statement. However, following from SAPN's input, we have amended this to be consistent with the Scheme and our regulatory information notices. See SAPN, *Submission on draft demand management incentive scheme, innovation allowance mechanism and proposed early application rule change*, 12 October 2017.

expenditure information is required to be provided on a number of levels. The expenditure information must be given for each project on an annual basis. A breakdown of the cumulative expenditure on the project should also form part of the report. This information, considered together, will allow us to track the amount of the allowance distributors are spending. We can then quickly gain a broad outline of the projects a distributor is undertaking.

The statutory declaration aims to give effect to clause 6.6.3A(c)(2)(ii) of the NER, which aims to prevent distributors from 'double dipping' and receiving payment for the project costs twice. These requirements also aim to reserve the allowance for projects that are innovative, and not simply otherwise efficient projects for which the distributor should have made provision in their expenditure forecasts.

In addition, to the extent that the distributors' compliance reporting requirements can be met more effectively and economically with or through other parties, distributors can do so through another party. This will prevent the Mechanism from restricting distributors from creating their compliance reports with another party. This will further clarify that distributors can cross-collaborate on projects, which is a goal that various stakeholders have supported.[52]

6.2 Project specific reports

Included in the overall report must be project specific reports. The subordinate clauses to subclause 2.3(3)(d) of the Mechanism set out the requirements for these project specific reports.

Distributors will provide us with an overview of the project, setting out:

- The project's nature and scope.
- The project's aims and expectations.
- How the project meets the project criteria.
- The distributor's implementation approach for the project.
- The distributor's outcome measurement and evaluation approach for the project.
- The project costs incurred that year, as well as to date. This should also include costs the distributor expects to incur over the project duration.
- For ongoing eligible projects, a summary of project activity to date, an update of any material changes to the project in that regulatory year, and reporting of collected results (where available).
- For eligible projects completed that regulatory year, the quantitative results and an analysis of the results. The report should also describe how the results of the

[52] For example, see CarbonTRACK, *Submission on draft demand management incentive scheme and innovation allowance mechanism*, 12 October 2017; ENA, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017.

eligible project will inform future demand management projects. At the Feedback Forum, several stakeholders discussed the importance of sharing project 'failures' as well as 'successes'. We agree that innovative R&D projects will not always produce desired outcomes, and knowledge of what did not work is highly valuable for designing successful projects in the future. We have amended the draft Mechanism to better encourage distributors to share project 'failures'. We have done this by requiring distributors to report on what demand management projects or techniques, and/or under what circumstances such projects or techniques, are unlikely to form technically or economically viable non-network options.

- Any other information that an informed observer would require to understand, evaluate and potentially reproduce the approach used. This catchall requirement cements the Mechanism's focus on third party consideration.

As well as helping us assess individual project compliance, these reporting requirements should provide specific benefits by increasing distributors' and other market participants' understanding of the potential applications for demand management. We have chosen to require individual reports for each project to help standardise the quality and presentation of these reports. These requirements should shift the focus of reporting towards the socialisation of knowledge gained from projects to better serve the Allowance Objective.

6.3 Treatment of confidential information

Information requested under the compliance reporting requirements may include confidential third party information.

If a distributor wishes to redact such information from their report, they must provide two copies of the report to us, one un-redacted and one suitable for publication. The un-redacted version is required for us to assess compliance and the merits of the confidentiality claim. A statement setting out the reasoning for the confidentiality claim must accompany the report. Distributors must provide versions of the overall report and the project specific reports that are suitable for both compliance assessment and publication.

The distributor cannot fully redact the project's aim, methods, implementation, results, analysis and implications. These must be available via the report in a form that provides a reasonable level of information to the industry to further develop and innovate.

These procedures will encourage distributors to be candid where they can be in reports, while protecting information of third parties where appropriate, so that stakeholders can easily access information regarding projects funded under the Mechanism.

6.4 AER use of compliance report

In the first instance, the information provided in a distributor's annual overall report will form the basis, together with associated individual project or program reports, for our assessment of the distributor's compliance with the project criteria, and its entitlement

to recover expenditure under the Mechanism. Under both the current DMIA and the new Mechanism, we will conduct ex-post reviews of projects to determine their compliance with the project criteria. These compliance-based uses for the report are vital to the ongoing integrity of the Mechanism.

Beyond these compliance uses, this information will assist us in making informed improvements in potential revision/s of the Mechanism.

Further, we will compile a report, comparing the performance of all distributors, both in terms of compliance and efficacy. We consider that this report will serve as a helpful resource for the market to understand the development of innovative demand management practices. It will also allow the market to understand which distributors are performing well and are active in this space. Over the long term, we hope that this will encourage a culture of innovation in the market. We will also use this report to gain an understanding of the overall direction of demand management in electricity networks.

Finally, we will publish project specific reports separately on our website or on an online portal. These publications will allow detailed technical information to be easily accessed by businesses and other interested parties so they can fully understand the testing procedure for a given project.

7 Application of carryover

Clause 2.5 of the Mechanism describes the process for passing any underspend of the allowance. Under the Mechanism, distributors will bear any overspends of the allowance. So that there is no double-dipping in respect of jointly funded projects, the final version of the Mechanism includes a provision for calculating underspends. It states that we will not treat as a cost to the consumer, any amount provided to the distributor by another distributor, or by a third party for the purposes of implementing a jointly funded project.

The carryover process aims to make distributors neutral towards the expenditure profile they take under the Mechanism over the regulatory control period. It entails a revenue adjustment, which is calculated so that the distributor is indifferent in net present value (NPV) terms to the expenditure profile it selects over the regulatory control period. This removes any incentive for the distributor to defer or advance expenditure.

We have simplified the formula for calculating the carryover to what we include in the current DMIA. We have also updated this formula to account for the annual updating of the allowed rate of return. However, the purpose and function of the formula has not changed. This formula involves calculating the total allowance spent in a regulatory control period in the last year of that period, and returning any underspend of the allowance to consumers via a negative pass through in the second year of the next regulatory control period. This formula, as presented in equation 2, aims to capture the time value of money in this calculation.

Equation 2: Carryover amount, C for subsequent regulatory control period

$$C = -\left[\sum_{t=1}^{N} \frac{R_t - A_t}{(1+r_t)^t}\right] \times \prod_{t=1}^{N+2} (1+r_t)^t$$

Where:

- *C* is the total carry over amount.
- *t* is a regulatory year, which can take the value of integers between 1 and N+2, where N is the number of regulatory years in the distributor's regulatory control period for which the carryover is being calculated.
- R_t is the ex-ante allowance under the Mechanism for regulatory year, *t*.
- A_t is the expenditure approved ex-post under the Mechanism for regulatory year, *t*.
- r_t is the allowed rate of return in regulatory year, t. In equation 1, t can take the value of 1 to N+2, with 1 referring to the first regulatory year of the regulatory control period in which the expenditure was incurred, and N+2 referring to the second regulatory year of the subsequent regulatory control period.

In equation 2, $R_t - A_t$ represents the difference between the allowance approved and the allowance spent (the underspend) in regulatory year t. Dividing this by $(1 + r_t)^t$ adjusts this underspend for the time value of money, using the distributor's allowed rate of return for regulatory year t. The sigma notation prompts us to do this for each of the five years of a regulatory control period, and to sum these amounts.

This sum total, shown equation 3, is then presented as a negative amount to be carried over. Since we provide a distributor with its allowance ex-ante, we must subtract its allowance underspends from its total revenue as a negative pass through.

Equation 3: Part 1 of the carryover amount calculation

$$-\left[\sum_{t=1}^{N} \frac{R_t - A_t}{(1 + r_t)^t}\right]$$

The ultimate outcome of this step is an expression of the differential between the amount spent and the approved allowance. This is presented as a present value at $t = 0$, using the distributor's allowed rate of return as the discount factor.

Table 4 and table 5 provide two worked examples of how we would apply part 1 of the carryover amount calculation, shown in equation 3. In these examples, we have:

- For simplicity, assumed a constant annual allowance of $1.4 million in nominal terms, which could reflect an allowance for a large distributor under the Mechanism;
- Assumed an allowed rate of return of 6.5% for each year of the regulatory control period. We consider this could reflect a nominal allowed rate of return that a distributor might receive. Since the cash flows in this example are in nominal terms, we are applying a nominal rate of return as the discount factor. If cash flows were in real terms, a distributor would apply a real rate of return as a discount factor; and
- Rounded figures to increase the readability of the table.

Table 4 shows the first worked example. In year one of this worked example, the distributor underspends the allowance by $400,000. The present value of these costs in year one is $376,000. As there is no further under or overspending of the allowance, the total spend differential is $376,000.

Table 4: Example 1 —First year underspend ($'000)

Year	1	2	3	4	5	Total
Nominal allowance approved (Rt)	1,400	1,400	1,400	1,400	1,400	7,000
Nominal allowance Spent (At)	1,000	1,400	1,400	1,400	1,400	6,000
Nominal Differential	400	$0	$0	$0	$0	400
PV of underspend (t=0 end)	376	0	0	0	0	376
Cumulative NPV of underspend (t=0 end)	376	376	376	376	376	376

Table 5 shows a second worked example. In this example, the distributor again underspends the allowance in year one, but also overspends in year three. Both times the distributor deviates from the allowance by $400,000. However, as we adjust for the time value of money, the earlier underspend had a higher present value. Given this, the distributor would have still underspent overall. We would therefore subtract this underspend from the distributor's total revenue as a negative pass through.

Table 5: Example 2 — First year underspend, third year overspend ($'000)

Year	1	2	3	4	5	Total
Nominal allowance approved (Rt)	1,400	1,400	1,400	1,400	1,400	7,000
Nominal allowance Spent (At)	1,000	1,400	1,800	1,400	1,400	7,000
Nominal Differential	400	0	- 400	0	0	0
PV of over/ underspend (t=0 end)	376	0	- 331	0	0	45
Cumulative NPV of over/underspend (t=0 end)	376	376	45	45	45	45

The total cumulative underspends in table 4 and table 5 represent the value inside the bracket of equation 3. To calculate the total carryover amount, we would also need to apply the second part of equation 2, as replicated in equation 4 below.

Equation 4: Part 2 of the carryover amount calculation

$$\times \prod_{t=1}^{N+2} (1 + r_t)^t$$

The step in equation 4 entails taking the overall adjusted underspend (which is a present value at $t = 0$), and converting it to present value as $t = N + 2$. This reflects the year the underspend is passed through — which is the second year of the subsequent regulatory control period. This means the carryover reflects the true value of the underspent money to the distributor, as we have now accounted for the entire time that the underspend has been retained.

The aim of this step is to pass through an amount that reflects the benefits of underspending the allowance in the previous regulatory control period. We consider this is an equitable means of reflecting the value gained from underspending the allowance in each year of the regulatory control period.

The calculation below shows the complete application of equation 2 to the previous example 1. We have used the same assumptions as previously, but have also added the assumption that the allowed rate of return for the first two years of the second regulatory control period is 7.0%. We have taken the figure, -376,000 from the calculation in table 4.

$$C = -\left[\sum_{t=1}^{N+2} \frac{R_t - A_t}{(1+r_t)^t}\right] \times \prod_{t=1}^{N+2}(1+r_t)^t$$

$$C = -376{,}000 \times [1.065 \times 1.065 \times 1.065 \times 1.065 \times 1.065 \times 1.07 \times 1.07]$$

$$C = -376{,}000 \times [(1.065)^5 (1.07)^2]$$

$$C = -589{,}798$$

Using the same assumptions, we apply equation 2 to the previous example 2. In this application, we have taken the figure, -45,000 from the calculation in table 5.

$$C = -45{,}000 \times [1.065 \times 1.065 \times 1.065 \times 1.065 \times 1.065 \times 1.07 \times 1.07]$$

$$C = -45{,}000 \times [(1.065)^5 (1.07)^2]$$

$$C = -70{,}588$$

Under each of these applications of equation 2, the distributor returns the full value of its underspend to consumers and the NPV of the total underspend becomes zero. This is because we have specifically designed equation 2 to be revenue-neutral.

Table 6 shows a third worked example. In this example, the distributor has underspent its first year allowance, before overspending its third year allowance by $700,000. This results in an overspend of the total allowance allotted in the regulatory control period by $300,000 in nominal terms and $196,000 when adjusted for the time value of money.

Table 6: Example 3 — Allowance overspend ($'000)

Year	1	2	3	4	5	Total
Nominal allowance approved (Rt)	1,400	1,400	1,400	1,400	1,400	7,000
Nominal allowance Spent (At)	1,000	1,400	2,100	1,400	1,400	7,300
Nominal Differential	400	0	- 700	0	0	- 300
PV of over/ underspend (t=0 end)	376	0	- 571	0	0	- 196
Cumulative NPV of over/underspend (t=0 end)	376	376	- 196	- 196	- 196	- 196

Unlike in the first two examples, this overspend will not result in a pass through to customers. This is because, under the Mechanism, distributors have to return allowance underspends to consumers, but have to bear the cost of overspends.

8 Bruny Island worked example

This worked example is based on information provided to us by TasNetworks, and was also included in the explanatory statement to the draft Mechanism. This information comes from a project they are undertaking on Bruny Island, in partnership with ARENA and other organisations. The trial involves the installation of up to 40 battery systems on Bruny Island, which will service rooftop solar installations on certain homes. These batteries will be equipped with software that allows them to be coordinated to alleviate congestion, stabilise network voltage, and otherwise allow for optimal use of the installed solar panels. More information about the trial can be found at http://brunybatterytrial.org/.

In this example, TasNetworks' has a three year regulatory control period of 2017–2019. The trial runs from March 2017 until mid-2019. While it estimates that overall project expenditure will be $8 million, parties other than TasNetworks fund much of this project. We have assumed TasNetworks' actual financial contribution to this is less, as shown in the 'allowance spent' row.

For simplicity, we have assumed an allowance for TasNetworks under the Mechanism as $400,000 per year in $2017. We have also assumed a 6.0% and a 6.5% allowed rate of return for each year of the first and second regulatory control periods respectively. In this example, the Bruny Island trial is the only expenditure funded by the Mechanism for TasNetworks in this regulatory control period.

Table 7: Bruny Island expenditure breakdowns (2016/17 $'000)

Regulatory year-end	2017	2018	2019	Totals at Year 3
Nominal allowance approved (Rt)	400	400	400	1,200
Nominal allowance Spent (At)	125	125	150	400
Nominal Differential	275	275	250	800
PV of underspend (t=0 end)	259	245	210	714
Cumulative NPV of underspend (2016/17 year-end)	259	504	714	714

Our application of equation 2 below shows a carryover amount of $1.06 million (nominal) in 2021, which is year two of TasNetworks' subsequent regulatory control period.

$$C = -\left[\sum_{t=1}^{N} \frac{R_t - A_t}{(1+r_t)^t}\right] \times \prod_{t=1}^{N+2} (1+r_t)^t$$

Taking the cumulative NPV of the underspend from table 7,

$$C = -[714{,}000] \times \prod_{t=1}^{N+2}(1 + r_t)^t$$

And, taking the allowed rate of return assumptions of 6.0% and a 6.5% for the first and second regulatory control periods respectively,

$$C = -714{,}000 \times [1.06 \times 1.06 \times 1.06 \times 1.065 \times 1.065]$$

$$C = -714{,}000 \times [(1.06)^3(1.065)^2]$$

$$C = -964{,}528$$

If after the conclusion of the trial, TasNetworks wished to continue the project under the Mechanism, then it would need to meet the requirements of being an eligible project under the Mechanism. This would require it to pass an efficiency assessment among other criteria.

A Submission summary — Draft Mechanism

Submission	Summary	Response
AGL, *Submission on the draft demand incentive scheme and innovation allowance mechanism*, 13 October 2017.	Agrees the Mechanism (and the Scheme) can provide some useful incentives to distributors in the short term, but should not impede more significant reform to enable more natural incentives for distributors to operate efficiently.	We do not foresee the Mechanism impeding reforms. We intend to approach regulatory incentives holistically, and will review the Mechanism, along with the Scheme, as regulatory and market changes occur.
Ausgrid, *Submission on draft demand management incentive scheme and innovation allowance mechanism*, 12 October 2017.	Welcomes the draft Mechanism, which it considers will deliver value to consumers. Together with the Scheme, this will kick start investments to deliver greater use of non-network solutions to meet network needs. This will benefit consumers by reducing the longer-term costs of operating the network. The draft Mechanism will allow distributors to explore a wide range of new demand management (DM) solutions and encourage a greater sharing of lessons learned. Proposes the AER amend the formula to calculate the Mechanism so that it uses the AAR rather than maximum allowed revenue, which refers to the revenue calculated for the transmission network revenue. Also, this approach will provide an innovation allowance based on revenue that includes dual function assets. This will ensure that the innovation allowance is not affected by whether some assets are priced under the transmission or distribution pricing rules.	We have considered Ausgrid's support in developing a final Mechanism that is similar to the draft. We have incorporated this suggestion into the final Mechanism, under clause 2.1(2)(a)ii).
Ausnet Services, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017.	1. Supports many aspects of the Mechanism. 2. AusNet believes the new allowance would represent an overall real decline from the annual allowance received in 2011. The additional reporting requirements will impose an additional cost that erodes the value of the allowance further. AusNet ultimately proposes an increase to the allowance to fund further DM projects.	1. The final Mechanism is substantively similar to the draft Mechanism. 2. The allowance the Mechanism will provide AusNet Services is higher in real terms that the allowance we are currently providing it over the regulatory control period commencing 2016 (which was a lower allowance, in real terms, than what we provided it in 2011). When considered alongside the upside potential that the Scheme will provide to successful DM initiatives, we consider the proposed size of the DM allowance under the Mechanism to be reasonable.
Business SA, *Submission on the draft demand management incentive scheme and innovation allowance mechanism*, 10 October 2017.	The reality for all businesses is that innovation is necessary just to survive and there are various incentives already in the market, including the R&D tax incentive.	Regulated monopolies, like distributors, naturally have less of an incentive to conduct R&D than competitive businesses. We agree that there are other innovation incentives, including R&D tax incentives. Some innovation funding can also be available from organisations, like ARENA. We are satisfied with having a Mechanism that only provides a modest innovation allowance.

CarbonTRACK, *Submission on draft demand management incentive scheme and innovation allowance mechanism*, 12 October 2017.	1. Supports encouraging cross-collaboration between distributors' stakeholders to spread the cost of the R&D. 2. The Scheme should consider an allowance for trials of potential solutions and a performance improvement period. 3. The involvement of third party providers should be actively supported and facilitated. This will enable a broader pool of innovations and solutions 4. Supports expanding the current allowance and developing a model for larger research and development funding.	1. The Mechanism clarifies that we will not restrict distributors from collaborating with other distributors when developing innovative projects. 2. Innovative trials are not excluded from receiving funding under the Mechanism. 3. The Scheme incorporates this by requiring distributors follow a competitive tendering process. We have also made some amendments since the draft Scheme to support the joint-funding of projects. 4. The Mechanism generally provides a larger allowance than under the current DMIA, particularly for many of the smaller distributors.
CitiPower, Powercor and United Energy, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 11 October 2017.	Supports the draft Mechanism, which will encourage research and innovation in non-network options.	We have considered the support of CitiPower, Powercor and United Energy in developing a final Mechanism that is substantively similar to the draft.
Energy Efficiency Council (EEC), *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, October 2017.	Supports the development of an effective Mechanism and does not have substantive comments on the draft Mechanism.	We have designed the Mechanism to be effective in achieving the Allowance Objective in the NER.
ENA, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017.	1. The modest increase in the allowance is not high enough to encourage levels of expenditure found internationally. Given this, the Mechanism should not constrain the AER from determining a higher cap as part of its distribution determination if the AER is satisfied that this serves long term customer interests. 2. The Mechanism should have flexibility to allow funding to go toward initiatives that promote collaboration between distributors and stakeholders, including transparent reporting mechanisms.	1. This would, in effect, invite debate over the appropriate cap for the allowance for every distribution determination, creating regulatory costs. Such costs would be unnecessary when this can be determined within the Mechanism itself, to then be applied straightforwardly to all distributors. 2. We have added clauses 2.2.1(3) and 2.3(5) to the final Mechanism for avoidance of doubt. We expect that these should promote the benefits of flexibility that the ENA is requesting.
Energy Queensland (EQ), *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 17 October 2017.	1. Supports the draft Mechanism, including the allowance cap calculation, the ability for projects to extend across multiple years, and the emphasis on knowledge sharing and reporting outputs. 2. The eligible projects section is not going to sufficiently recognise incremental technological innovations. Suggests using a clause from the explanatory	1. The final Mechanism maintains these aspects of the draft. 2. We consider EQ's suggested change would weaken the project criteria's ability to achieve the intent of 6.6.3A of the NER, which states that the R&D projects under the Mechanism should be innovative. While we agree that the Mechanism should support projects that build DM capability and capacity, we

	statement in the Mechanism, 'DM projects or programs may be innovative, and designed to build DM capability and capacity and explore potentially efficient DM mechanisms, including but not limited to new or original concepts' so it could use Mechanism funding for integration projects. Otherwise, as one eligible project progresses through laboratory evaluation to limited field trials, broad field trials and implementation, it will no longer be a new or original project.	consider the wording in the draft Mechanism sufficiently allowed for this. We have further emphasised our intention to support these projects in this explanatory statement.
GreenSync, *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 13 October 2017.	The Mechanism should encourage simple, efficient, and easily replicable projects. The Mechanism should allow networks to prequalify projects. Projects should be auditable and easily reported on. The AER should provide a framework for the types of projects that would pre-quality and the requirements for contracting and publication. This could include projects for network support.	Clause 2(5) of the Mechanism allows distributors to apply for up-front consideration of planned expenditure under the Mechanism. The Scheme includes requirements for contracting and publishing information, and the Mechanism includes requirements for publication.
The Institute for Sustainable Futures (ISF), *Submission on draft demand management incentive scheme, innovation allowance mechanism and rule change consultation paper*, 12 October 2017.	Section 2.2.1 appears to restrict jointly-funded innovative research projects, which are valuable for spreading risks and costs, whilst involving a wider range of stakeholders, expertise and insights in the research.	The intent of this requirement was to avoid double-dipping (that is, to ensure that funding obtained from other sources is not also recovered under the Mechanism). We have revised clauses 2.2.1(2) of the Mechanism to maintain this intention, without restricting jointly-funded DM R&D projects.
Major Energy Users (MEU), *Submission on draft demand management incentive scheme and innovation allowance mechanism*, 9 October 2017.	1. Except where it expresses concerns, it supports the draft Mechanism. Its main concern is that project decisions will sit entirely with networks (subject to a possible AER ex-post assessment). Provides suggestion to implement a payback period for projects upon implementation. 2. Suggests, to prevent different networks form initiating similar projects at the same time, the requiring distributors to detail projects they expect to undertake in their revenue reset proposals. The AER could pre-approve projects that do not replicate an earlier project.	1. We do not consider it appropriate for R&D projects to have a payback period as a reasonable outcome of R&D might be discovering that a type of project is unsuccessful or commercially unviable. Such projects still have value and will contribute to the Allowance Objective, as long as the tested concept had the prospect of reducing long term network costs 2. The project eligibility requirements in the draft Mechanism prevent duplicative projects. Also, since the draft Mechanism, we have redrafted sections to provide greater flexibility for collaboration. We consider this will reduce the likelihood of duplicative projects.
Red Energy and Lumo Energy, *Re: Demand management incentive allowance*, 12 October 2017.	Support the draft Mechanism as the proposed changes to the current DMIA represent a proportionate policy response to the matters raised in the consultation. The changes facilitate and encourage the achievement of the Mechanism objective. Support the eligibility criteria as innovation, in regards to the Mechanism, means that a	We have considered this view in developing a final Mechanism that is similar to the draft. It is worth highlighting that we changed the reference to 'NEM' in the draft Mechanism to 'relevant market', which we define as, 'the National Electricity Market, where the distributor is a part of that market. Otherwise, the relevant electricity market in which the

	project is based on new and original concepts, or involves technology or techniques not previously implemented in the National Electricity Market (NEM). Support the compliance reporting requirements as these are sufficient for compliance assessment, and to allow industry and consumers to understand the research outcomes, and knowledge gained from the projects.	distributor transports electricity'. The purpose of this change was to accommodate our regulation of Power and Water Corporation, which technically falls outside of the NEM.
South Australian Council of Social Service (SACOSS), *Submission on draft demand management incentive scheme, innovation allowance mechanism and proposed early application rule change*, 28 September 2017.	SACOSS supports the draft Mechanism, with modest changes to the current DMIA. It supports tightening the project eligibility criteria to encourage more innovative projects. It supports clarifying project reporting requirements to place greater emphasis on sharing project proposals across the industry and with consumers.	We have considered this view in developing a final Mechanism that is similar to the draft.
SA Power Networks (SAPN), *Submission on draft demand management incentive scheme, innovation allowance mechanism and proposed early application rule change*, 12 October 2017.	1. Supports decision to maintain the innovation allowance for DM as the need for R&D and trials continues to be relevant. 2. Suggests slightly amending the project criteria to also include circumstances specific to each distributor's network infrastructure, in determining innovation to focus on specific geo/demographical changes. 3. Wants confirmation that the total allowance over a five year regulatory period is 0.075% of MAR plus $1 million. 4. Suggests increasing the total allowance to 0.075 % of MAR plus $3 million. SAPN believes higher allowances would be appropriate as the industry is changing rapidly. 5. Suggests removing the requirement for a distributor's director to sign off on the annual compliance reports and make it either a CEO or suitably qualified officer, consistent with other regulatory documents, such as RINs.	1. The Mechanism maintains the innovation allowance for DM. 2. Clause 2.2.1(1) (b) iii) of the Mechanism, which allows for consideration of geographic and demographic characteristics, should sufficiently accommodate consideration of these characteristics. 3. We confirm that this interpretation of the draft Mechanism's structure is correct. We corrected the typo in 'Example 1' of the draft Mechanism. We have also made additional amendments to the formula setting the maximum allowance available — for instance, we have now tied the scaling component to 0.075% of AAR annually. 4. When considered alongside the upside potential that the Scheme will provide to successful DM initiatives, we consider the proposed size of the DM allowance under the Mechanism is reasonable. It is worthwhile noting that other sources, like ARENA, can also provide a source of R&D funding. We have included this suggestion in the final Mechanism as it is reasonable and also promotes consistency with the requirements for DM proposals under the Scheme. 5. We have incorporated this suggestion in clause 2.3(3)(f).