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31 May 2012

Mr Steven Graham
Chief Executive
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Mr Graham,

RE: AEMC Consultation Paper – National Electricity Amendment (Distribution Losses in Expenditure Forecasts) Rule 2012

Ausgrid welcomes the opportunity to provide comments to the Rule change request (Rule request) to include distribution losses in expenditure forecasts.

We understand that the Rule request has been prompted due to concerns that the current regulatory framework provides an incentive to minimise operating and capital costs at the expense of increasing network losses. The proponent appears to be concerned that as there is no express Rule requirement for Distribution Network Service Providers (DNSPs) to consider the cost of network losses in their expenditure forecasts, DNSPs will select the least cost solution when making investment decisions, which may lead to higher losses.

Ausgrid supports the principle that DNSP's should take into account broader market benefits when making investment decisions (which would include considerations such as network losses). However, it is our opinion that the Rule request is fundamentally misdirected and should not be made, as the proposed Rule (in its current form) does not demonstrate that it will contribute to the achievement of the National Electricity Objective.

Whilst it is true that there is no specific requirement in the Rules for DNSP's to consider network losses as part of their expenditure forecasts, the absence of such a clause does not mean that one is necessary or appropriate as part of the regulatory determination process. As noted by the Energy Networks Association (ENA) submission, losses are considered by DNSPs in considering a range of other factors involved in planning, designing and operating a distribution network efficiently and prudently.

Given DNSP's limited ability to influence network losses on any cost effective basis, and the materiality of any loss reduction in light of expenditure, we believe that the intent of the proposed Rule request is better addressed through other market reforms already underway, such as the Distribution Network Planning and Expansion rule change proposal; the Energy Efficiency Opportunities (EEO) Program; and the Power of Choice – DSP 3 review.

Consequently, Ausgrid does not support the proposed Rule change request. It is our opinion that the proposed Rule is unclear, too narrow and may lead to confusion and/or duplication of obligations. Further, we do not believe that the proposed Rule satisfies the test for rule making. The proponent's consideration of losses in isolation to the costs required to minimise losses overstates the materiality of the issue and the perceived benefits.

If the AEMC deems that some form of Rule change is appropriate to address the issue of losses, we would argue that it is more appropriately placed in Chapter 5 of the Rules to focus on investment decisions rather than Chapter 6. Further, we would strongly advocate that the AEMC delay determining the proposed Rule request given the significant overlap of the subject of the present Rule change and other market reforms. This would help ensure that DNSP's are not subject to duplicative obligations and that there is consistency with other provisions.

Details on our position are provided in the attached submission and in our response to the AEMC's questions. If you have any queries or wish to discuss this matter in further detail please contact Keith Yates on (02) 9269 4171.

Yours sincerely,

Peter Birk
Executive General Manager System Planning and Regulation

Submission on AEMC Consultation Paper - National Electricity Amendment (Distribution Losses in Expenditure Forecasts) Rule 2012

May 2012

Key messages

Ausgrid is supportive of the general principle that DNSPs should consider market benefits when making investment decisions. We do not however support the inclusion of a specific requirement in the National Electricity Rules (NER or Rules) to have regard to network losses as part of the expenditure forecast process. There are many elements which must be considered when assessing whether a forecast is efficient. To the extent that the consideration of losses is relevant to the assessment of an efficient forecast it will need to be addressed by the DNSP and the AER. It is not appropriate or necessary to refer to any specific elements of an efficient forecast as proposed. In addition, such an approach is not consistent with other competing planning and market benefit considerations.

We note that the proposed Regulatory Investment Test for Distribution (RIT-D), being developed as part of the Distribution Network Planning and Expansion Rule change, already contemplates a mechanism for considering network losses for large investments. In addition, it is anticipated that the Energy Efficiency Opportunities Program (EEO) will be extended to place an obligation on DNSPs to investigate and publicly report cost effective energy efficiency opportunities. This is significant to the proposed Rule request as improving energy efficiency is one of the most cost effective means of reducing network losses - it reduces both the consumed energy and the network losses associated with transporting the energy.

We do not believe that network losses should be considered on an individual project basis for smaller investments, as the time taken to attempt to calculate both the distribution loss and their theoretical value over time would not be cost effective and would be unlikely to change the investment decision. The most appropriate way for DNSPs to consider network losses for smaller investments would be to include this as a consideration in its planning policies, network standards, designs and equipment procurement contracts to consider market benefits. This would be consistent with the proposed RIT-D and would reflect the trade-offs involved in reducing network losses.

In summary, Ausgrid does not support the proposed Rule change request and does not consider that the proposed Rule will contribute to the achievement of the National Electricity Objective for the following reasons:

- it is not appropriate or necessary to refer to any specific elements of an efficient forecast as proposed by the amendment to clause 6.5.7
- the proponent has overstated the materiality of the issue by looking at network losses in isolation and without regard to the expenditure required to reduce losses;
- it is questionable as to whether the proposed Rule will have any material benefit that is not already captured by current network planning practices, market reforms (such as the Distribution Network Planning and Expansion Rule change request) and the development of energy efficiency programs;
- it is not appropriate for DNSPs to explicitly consider network losses for small investments on a project specific basis;
- the proposed Rule may duplicate existing obligations (if foreshadowed mechanisms are approved) and may cause confusion;

These reasons are discussed in greater detail in our submission.

Understanding a network operator's influence over losses

Network losses generally refer to technical losses[1] and occur naturally as a result of transporting energy to end users. They are an inherent part of electricity distribution that can never be entirely eliminated but can be optimised to an economically efficient level.

Typically losses tend to increase the greater the distance from generation sources and are generally higher in areas of low load density. One of the most effective ways for a DNSP to reduce losses is to either reduce the load or reduce the resistance of the network asset (generally by increasing the capacity of the assets). Both of these actions result in a decrease in utilisation.

A network operator's influence over network losses is largely confined to system design and operation. As noted by the ENA submission, there are many factors which are outside the control of DNSPs that affect distribution losses. These include energy volumes, the "peakiness" of network demand (and therefore load factors), customer load profiles and customer requested network supply of infrastructure.

It is important to note that one of the most effective and least costly options to reduce losses is for the end user to reduce their energy consumption. Adoption of energy efficiency practices has a dual benefit, as it reduces both the consumed energy and the network losses associated with transporting the energy. However, network operators have little to no direct control over end user energy usage. It is recognized that DNSPs may have a future role in improving energy usage efficiency by facilitating the development and uptake of smart technology to enable consumers to more efficiently manage their energy usage. We note that the Australian Government is currently undertaking further analysis of this through its Smart Grid Smart City (SGSC) Project and that improving the efficiency of energy usage is a priority area identified in the Draft Energy White Paper.

DNSP's influence over network losses is also to an extent largely defined by regulatory requirements, such as Design Planning Licence Conditions and the Regulatory Test for Investments, as well as Australian Standards for equipment. Existing and proposed[2] mechanisms within these instruments provides for consideration of network losses and importantly allows for potential loss reductions to be evaluated in the context of meeting other network objectives. This is important, as reducing network losses often involves trade-offs with other factors. Outlined below are some examples of the kind of trade-offs that occur:

- Many possible mechanisms for reducing network losses involve a reduction in system utilisation, and so represent a trade-off between improving reliability and reducing network losses on the one hand, and building more infrastructure on the other hand.
- Installing a peak lopping generator to decrease the energy generated at peak times will produce a flatter demand curve and increase the average utilisation of the network in the long term. The increase in losses due to the higher average utilisation will offset (and may even exceed) the reduction in network losses resulting from the reduced load at peak times.
- Switching off standby transformers during low load periods will produce a reduction in shunt losses, however, this will typically be offset by an increase in series losses (in addition to a decrease in system reliability, and increased operational costs involved with returning transformers to service).
- More efficient transformers than those prescribed by the Minimum Energy Performance Standards (MEPS) are generally larger and more expensive. Their greater size makes installing these transformers more difficult, which can result in

[1] Technical losses can be categorised as either: 1) series losses – also commonly called "load" or "I^2R" losses, these occur when load is supplied through the network and account for the majority of losses on a distribution network; 2) shunt losses - also known as "no load" losses occur when the network is energized and are independent of load.

[2] Existing mechanisms include the direct influence of equipment losses via minimum energy performance standards (MEPS); indirect limits on equipment losses through noise limits; and indirect limits placed on network losses through meeting licensed reliability standards. In addition, expected changes to the Regulatory Test for Distribution will require consideration of market benefits such as losses in DNSP investment decisions.

significant costs and inconvenience to DNSP's and their customers. For example, when installing a pole-mounted transformer, a larger pole (or multiple poles) may be required to support the larger and heavier distribution transformer.

It is also important to note that there are a number of constraints which limit DNSP's ability to influence losses. Historically, DNSPs are constrained by the planning decisions made decades earlier, due to the long asset lives of its infrastructure. For instance, Ausgrid is largely constrained in the extent it can change the voltage level of its assets above its low voltage level network due to planning decisions made in the past.

Another constraint upon DNSP's ability to influence losses is its requirement to build and design its network to achieve reliability outcomes. Reliability outcomes are determined on a jurisdictional basis and determine the inherent utilisation level and redundancy on a network, which influences the level of network losses.

Materiality of losses

Australia's national electricity transmission and distribution losses are estimated between 6.8% and 9% and are comparable with global best practice. [3] The losses on Ausgrid's network are typically around 5% of the energy purchased or approximately 1,400 GWh of energy per annum.[4]

Given that the level of network losses in Australia are comparable with global best practice and that Ausgrid's network losses are better than the optimal range, we believe that the proponent has overstated the materiality of network losses. The proponent may have erroneously reached the conclusion that network losses are a pertinent issue which require some form of address due to its consideration of losses in isolation to the expenditure required to achieve lower loss levels and the optimal level of loss reduction which can be achieved by a DNSP.

For instance, Ausgrid roughly estimates that the cost to reduce losses on our network by 10%, or about 140GWh, through investments in increased network capacity is approximately $3 billion, representing a unit cost of over $2,500 per MWh. The reduction in losses is worth approximately $13 million, or $170 million present value if we assume that this level of utilisation is persistent and not absorbed by load growth.[5]

Generally, network investments purely for the purposes of loss reduction are not economically justifiable as the value of the loss reduction is immaterial in light of the cost of the infrastructure. Investing for such purposes would also likely be contrary to the principles of building and operating the network in an efficient and prudent manner. Loss reductions are generally only cost effective where they leverage off other works. Therefore, whilst network losses are not an appropriate investment driver they may influence the choice of possible investment options that are being implemented to meet other network requirements.

It is important to note that there are also technical limits to the loss reduction that can be achieved. Some moderate opportunity exists for reducing losses on Ausgrid's network, however, in many cases these are captured by our current capital program, existing mechanisms and Ausgrid's planning policies. For instance:

- the reduction in losses likely to be achieved through implementation of our current capital program is approximately 10% and reducing network losses by more than 30% is probably not technically feasible;
- as part of its network planning strategy Ausgrid is transitioning towards higher voltage levels where possible, which over time will lead to a reduction in losses;

[3] Ramesh, L, Chowdhury, S.P, Atarajan, A.A, Gaunt, C.T, 'Minimization of Power Loss in Distiribution Networks by Different Techniques', International Journal of Electrical Power and Energy Systems Engineering 2:1 2009

[4] Ausgrid's losses being approximately 4.82% for the five year period FY2006/07 to FY2010/11

[5] Calculation assumes a value for losses of $86/MWh, and includes a $23/MWh allowance for a carbon price.

- Ausgrid takes into account distribution losses in procurement evaluations of transformers. Ausgrid uses a formula to calculate total life time costs which both capitalises and optimises guaranteed losses to enable economic comparison.[6]

Further examples of how losses are considered via existing mechanisms and planning policies are provided in Attachment 2.

Whilst Ausgrid does not take network losses into account explicitly, consideration tends to occur through other aspects of the planning process, and by designing and operating a distribution network efficiently and prudently. Given the trade-offs and relationships that exist with network losses and other planning considerations, we do not think that it is appropriate to specifically consider distribution losses in investment decisions.

Further, we believe that DNSP planning policies and standards, in conjunction with current and foreshadowed mechanisms, provide the most cost effective means of optimising losses.

Overlap with other market reforms

Ausgrid notes that the intent of the proposed Rule change request would be better achieved through existing market reforms currently underway rather than as a separate Rule change proposal.

We believe that the most appropriate way for considering network losses in investment decisions is through broader consideration of market benefits. We note that under the proposed RIT-D, DNSPs will be able to consider the market benefits that could be delivered in investments valued at five million or greater. This would involve consideration of a range of factors, including changes in network losses.

We note that a driving factor behind the Rule request is the concern that a significant portion of DNSP investment falls outside the scope of the proposed RIT-D. It appears that by making this Rule request, the proponent is seeking to impose a requirement for DNSP's to consider network losses at all levels of investment, as opposed to being limited to large investments which meet the materiality threshold proposed by the RIT-D.

We are unclear from reading the Rule request as to whether it is intended that the proposed Rule imposes a broad overarching requirement or whether it is intended to apply on an individual project level basis.

Ausgrid strongly opposes the inclusion of a requirement to consider network losses for smaller investments on an individual project basis. The considerable time required to attempt to calculate losses and assign a theoretical value would not be cost effective for smaller investments and would be unlikely to significantly influence the investment decision. Further, it is likely that such a requirement would result in undue project delays.

As mentioned above, the value of network losses is generally immaterial to the cost of the investment- particularly for smaller projects. Consequently, we believe that the most appropriate way for DNSPs to consider network losses for smaller investments would be to include a consideration in its planning policies and network standards to consider market benefits. This would be consistent with the proposed RIT-D and would reflect the trade-offs involved in reducing network losses.

We also note that there are a range of energy efficiency reforms currently taking place, such as the National Energy Savings Initiative (ESI) and the extension of the Energy Efficiency Opportunities (EEO) Program. Although Ausgrid does not support the extension of Type 2 obligations under the EEO, we note that this will impose an obligation on DNSPs to investigate and publicly report cost effective energy efficiency opportunities. Therefore, if

[6] The formula takes into account the load factor, environmental and utilisation factors, energy and demand charges and interest charges on capital.

extended, the EEO should address some of the proponent's concerns given that improving energy efficiency is one of the most cost effective means of reducing network losses.

Ausgrid notes that proposed and existing mechanisms already address the primary concern of the proponent - the need to consider network losses in investment decisions. We argue that the intent of the Rule request is better addressed via these mechanisms, as they have a much broader focus which allows for a more balanced consideration of competing market benefits and planning considerations.

Issues concerning the proposed Rule

Given the existing and proposed mechanism for considering network losses, we find it difficult to see how the proposed Rule satisfies the required rule making test. As noted above, the intent of the proposed Rule is already captured by existing and proposed mechanisms. Consequently, the imposition of the proposed Rule is likely to duplicate obligations and may lead to confusion, or even inconsistency with other obligations.

It is our observation that the Rule request appears to be aimed at requiring DNSPs to consider losses when making investment decisions. However, we note the proposed solution focuses on the expenditure forecast process. Whilst there is an obvious connection, we question whether this would provide an incentive that does not already exist when forecasting the most efficient and prudent costs. The AER currently is required to assess the efficiency of the forecasts of proposed expenditure which could include an assessment of whether the likely loss impact on the efficiency of the proposed investment is reflected in those forecasts.

It is not appropriate or desirable to explicitly reference one aspect of an efficient forecast. The AER is well placed to determine whether a proposed forecast is efficient and otherwise satisfies the requirements of the capital expenditure criteria. To emphasis one element of this process is likely to create uncertainty or confusion regarding the weight to be given to losses as part of this assessment process.

As noted in the ENA submission, project options will likely change from the time that DNSP prepares its forecasts due to the information available at the time of the forecast and detailed planning analysis. Therefore, considering losses at the time of preparing forecasts is likely to be unrealistic and impractical.

Further, given the limitations placed on DNSPs to influence the level of losses on its network; the inherent trade-offs involved in minimising losses; and the materiality of any loss reduction in light of the expenditure required to reduce the loss, we would argue that imposing a specific requirement in the Rules for a DNSP to consider losses in expenditure forecast is not appropriate.

From a drafting perspective, we are concerned by the wording of the proposed Rule. It is unclear from the proposed Rule as to what DNSPs are required to do in order to be compliant. We note that in the Rule change proposal that the proponent argues that the proposed Rule will not impose a significant burden/cost for DNSP's to implement as it is intended to only apply to investments in which distribution losses are material to the investment decision. If the proposed Rule is to sit outside the scope of the proposed RIT-D, we question how this materiality is to be determined.

In addition, from a regulatory design perspective the proposed amendment to 6.5.6(b) and 6.5.7(b) is not the appropriate place to address investment incentives. These clauses specify the requirements of a compliant forecast rather than investment decisions and efficiency.

Conclusion

Whilst Ausgrid is supportive of the principle that DNSPs should consider broader market benefits when making investment decisions, we are not supportive of the proposed Rule request in its current form. For the reasons set out above we do not support the proposed rule change. Further, it would appear that the intent of the proposed Rule will likely be addressed by other market reforms currently being considered.

By considering losses in isolation, the proponent has overstated the materiality of network losses and has failed to take into account the trade-offs involved in reducing losses and the limitations on DNSPs to influence the level of losses. When considered in light of these factors and other planning and market benefit considerations, it is evident that the proposed Rule does not satisfy the required rule making test.

If the AEMC determines that some form of Rule change is appropriate to address the issue of losses, we would argue that it is more appropriately placed in Chapter 5 of the Rules to focus on investment decisions rather than Chapter 6. Further, we would strongly advocate that the AEMC delay determining the proposed Rule request given the significant overlap of the subject of the present Rule change and other market reforms. This would help ensure that DNSPs are not subject to duplicative obligations and that there is consistency with other provisions.

Attachment 1 – Ausgrid Response to AEMC Consultation Paper Questions

AER Question	Ausgrid Response
Question 1	
(a) Is there evidence that DNSPs do not consider the cost of electrical energy losses when making capital and operating expenditure forecasts?	As noted in our submission, whilst there is no specific requirement in the Rules which requires DNSP's to have regard to distribution losses in preparing capital and operating expenditure forecasts this does not mean: a) that it is appropriate to include such a requirement; b) that DNSP's ignore the issue of distribution losses. Losses are already accommodated in DNSP investment decisions through planning, design and operating considerations and as a result are already optimised and reflected in operating and capital expenditure. Therefore, there is no need for a separate requirement for considering losses. Given the trade-offs and relationships that exist with network losses and other planning and market benefits considerations, we do not think that it is appropriate to specifically consider distribution losses in investment decisions. For further information on how losses are currently considered by Ausgrid and the associated drivers for this consideration, refer to attachment 2. As mentioned in the ENA submission, DNSP's do not explicitly consider network losses when making operating expenditure forecasts due to the immateriality of these losses.
(b) Do the rules provide effective incentives for DNSPs to make efficient capital and operating expenditure decisions? If so, what are these incentives?	We believe that the current framework provides an incentive to take into account distribution losses as forecasts are required to reflect efficient and prudent costs. The AER is required to assess the efficiency of the forecasts of proposed expenditure which could include an assessment of whether likely loss impact on the efficiency of the proposed investment reflected in those forecasts. Further, we note that the Power of Choice – DSP 3 review contemplates a new incentive mechanism which would allow DNSPs to deem value from market benefits. We would argue that once finalised that this would provide and appropriate and effective incentive mechanism for DNSP's to consider broader market benefits when making investment decisions. Ausgrid would also encourage further investigation of market structures such as the 'loss incentive' for distribution networks adopted in the United Kingdom (UK). This has reportedly met with some success in the UK and as such, Ausgrid would encourage investigation into similar processes.
(c) To what extent does the EBSS impact on a DNSP's consideration of the cost of losses?	Under the NSW framework, currently there is no EBSS impact on the cost of losses. It is not appropriate to have an incentive scheme aimed at reducing distribution losses as DNSPs are constrained by the level of loss reduction which is achievable on the network. Further, loss reduction occurs over a period of decades as opposed to years meaning that any incentive scheme is likely to be ineffective as the opportunity for loss reduction are miniscule and are likely outweighed by measurement error.
(d) Do distribution losses significantly contribute to the price of electricity to consumers? If so, how much do they contribute and does this materiality vary between networks?	Retail businesses are best placed to determine the increase in customer tariffs as a result of distribution losses.

Attachment 1 – Ausgrid Response to AEMC Consultation Paper Questions

AER Question	Ausgrid Response
Question 2	
(a) How might the extension of the EEO program to distribution networks address the concerns raised in the rule change request by CDC?	We note that the proposed extension of the EEO program is yet to be finalised making it difficult to assess whether the proposed program addresses the concerns raised by the CDC rule change. However, our preliminary view is that whilst we do not support the extension of the EEO to DNSPs (Type 2 obligation), we note that if such an extension were to occur it would address some of the concerns raised by the proposal - as it would require a DNSP to investigate opportunities to reduce losses and to publicly report these outcomes. This is significant to the proposed Rule request as improving energy efficiency is one of the most cost effective means of reducing network losses - it reduces both the consumed energy and the network losses associated with transporting the energy.
(b) To what extent do the requirements on distribution transformers under the MEPS program encourage DNSPs to minimise distribution losses?	Ausgrid supports the ENA response in relation to this question. Ausgrid uses a formula to calculate total life time costs which both capitalises and optimises guaranteed losses to enable economic comparison. The formula takes into account the load factor, environmental and utilisation factors, energy and demand charges and interest charges on capital. We note that MEPS set the minimum efficiency of small transformers. All distribution transformers supplied to Ausgrid will have to comply with this standard. As a result of the introduction of the MEPS it is no longer possible for any DNSP to purchase a high loss transformer to reduce the capital cost of the transformer. It should be noted that transformers more efficient than those prescribed by the MEPS would generally be more expensive. Further, as more efficient transformers are generally larger this can result in additional problems that may result in significant costs and inconvenience to DNSP's and their customers. For example, larger and heavier transformers for pole mounting may need to be installed on a larger pole. When a transformer is being replaced it may necessary to replace the existing hardwood pole with a larger pole that is able to support the larger and heavier distribution transformer.
(c) Do the requirements on distribution transformers under the MEPS program influence the broader network equipment decisions of DNSPs?	Generally the efficiency of the transformer would not influence the broader network equipment decisions. As mentioned above, MEPS set the minimum efficiency of transformers which are available for a DNSP to purchase. Whether a DNSP chooses equipment which is above this requirement will depend on a range of other factors such as the DNSP's planning requirements, cost and construction constraints.

Attachment 1 – Ausgrid Response to AEMC Consultation Paper Questions

AER Question	Ausgrid Response
Question 3	
(a) Will the proposed rule result in DNSPs considering the cost of network losses in preparing their capital and operating expenditure forecasts?	Ausgrid supports the ENA response in relation to this question. As we have indicated in our submission, from a regulatory design perspective the imposition of this obligation through clause 6.5.6(b) and 6.5.7(b) is not appropriate. Those provisions are directed at the more mechanical aspects of a compliant forecast. The inclusion of an express requirement to consider the cost of network losses when preparing capital and operating expenditure forecasts only serves to emphasis one aspect of efficient and prudent forecast which is unnecessary. However giving emphasis to losses in this way may lead to an expectation that losses be considered on a project by project basis. This is not warranted or appropriate for the reasons set out in our submission. In addition it is too late to impose a project by project obligation upon NSW DNSPs for inclusion in the proposals currently being prepared for May 2013.
(b) Are there any alternatives to the proposed rule that may better address the issues raised in the rule change request?	Ausgrid generally supports the ENA response. Ausgrid notes that the intent of the proposed Rule request would be better achieved through existing market reforms currently underway rather than as a separate Rule change proposal. We believe that the most appropriate way for considering network losses in investment decisions is through broader consideration of market benefits. We note that under the proposed RIT-D, DNSPs will be able to consider the market benefits that could be delivered in investments valued at five million or greater. This would involve consideration of a range of factors, including changes in network losses. We believe that DNSP planning policies and standards, in conjunction with current and foreshadowed mechanisms, provide the most cost effective means of optimising losses. We do not agree with the ENA's statement that further investigation of the EBSS as a possible incentive mechanism is warranted. As noted above, Ausgrid believes that it is not appropriate to have a specific incentive scheme to reduce distribution losses.
(c) Should a similar requirement to the proposed rule be considered for transmission networks?	Ausgrid supports ENA's response in relation to this question.

Attachment 1 – Ausgrid Response to AEMC Consultation Paper Questions

AER Question	Ausgrid Response
Question 4	
(a) What are the likely implementation and ongoing costs associated with the proposed rule for DNSPs and the AER?	Without clarification as to whether the proposed rule change is to apply on an overarching basis or a project by project basis it is difficult to assess the cost implications arising from this rule change. If the rule is intended to apply on a project by project basis then we anticipate that it will impose a significant burden upon DNSP's. This is because it would require a simulation of every option considered for a project (as opposed to the preferred option) to determine the level of losses for each option to then assess the materiality of those losses in relation to the project. This would require a significant increase in resources to conduct option studies and could potentially lead to lengthy project delays. Ausgrid believes that the costs involved would far outweigh any benefits achieved from the proposed Rule given the materiality of losses in light of the inherent trade-offs and expenditure required to reduce losses.
(b) Is the proposed rule likely to result in more efficient expenditure which could lead to lower electricity prices for consumers over the long term?	Ausgrid does not believe that the proposed Rule will lead to more efficient expenditure and prices to the consumers in the long term. We think that current and foreshadowed mechanisms provide a more appropriate framework for DNSP's to optimise network losses as they allow for a broader focus which allows a DNSP to weigh up and balance competing considerations (such as planning and market benefits) in the most cost effective manner. Given the materiality of the cost of network losses in light of the infrastructure necessary to achieve loss reductions we would argue that the proposed Rule would lead to the occurrence of significant price shocks to consumers and is therefore undesirable.
Question 5	
(a) How material is the cost of losses to the expenditure by DNSPs that would not be captured under the requirements of the proposed RIT-D?	Ausgrid agrees with the ENA's response in relation to this question.
(b) To what extent would the guidance and worked examples proposed to be provided by the AER in the RIT-D application guidelines help determine the value ascribed by DNSPs under this proposed rule if implemented?	Ausgrid agrees with the ENA response in relation to this question.

Attachment 2 – Examples of how network losses are considered by existing and proposed mechanisms

Action to reduce losses	Description and relationship to other considerations	Mechanism
Increase reliability	Provided that supply to load is maintained, a failure will usually result in an increase in losses. This is because load is less evenly shared between assets	Captured by reliability drivers
Change network configuration	Measures may range from a change of open points on the network to the adoption of alterative configuration standards e.g. substation arrangements. This option may involve trade-offs with system reliability	Captured by reliability drivers and the inclusion of market benefits in the anticipated RIT-D
De-rating conductors/reducing conductor utilization	There are physical limitations to reducing conductor utilization by increasing the size of the conductors. In many cases Ausgrid already uses larger conductor sizes. We also tend to use copper over aluminium conductors, despite it being more expensive, as it provides reduced resistance and hence lower losses. When installing larger conductors is not an option, an alternative approach is to de-rate conductors. This will reduce the time between investments and will increase the requirement for busbars to which feeders can be connected. Given the current level of investment on Ausgrid's network, this option is unlikely to be practical in the near future, although there may be some scope to consider losses as a factor in prioritising Ausgrid's capital works program.	Captured by reliability drivers and the inclusion of market benefits in the anticipated RIT-D
Shorter or more direct lines	Line construction is typically limited by environmental or other construction constraints.	Captured via inclusion of market benefits in the anticipated RIT-D
Eliminating transformation levels	This is a likely consequence of moving to higher distribution voltages. Ausgrid's current planning policy is tending towards fewer transformation levels, however, this is being driven for reasons other than loss reduction	Captured via inclusion of market benefits in the anticipated RIT-D
Power factor correction (displacement)	A large number of capacitor projects have been completed by Ausgrid in recent years to improve the power factor at BSP and provide increased system capability	Driven by capital expenditure (capex) deferral and NER requirements. It is important to note that this is not cost effective as a stand alone driver given Ausgrid's current system's power factors.
Increasing the distribution voltage	Ausgrid's current planning policy is tending towards fewer transformation levels, however, this is being driven for reasons other than loss reduction	Impact via inclusion of market benefits in the anticipated RIT-D
Low loss transformers and quality of transformer core material	Ausgrid bases its choice of low voltage transformers on consideration of both capital and operating costs, including a factor which accounts for losses.	Mechanism in place Australian Standards
Reduced need for voltage regulators	This might involve augmentation of the 11kV network, or may be a result of moving to higher distribution voltages	Capex reduction provides incentives for reducing the need for regulators. This is also impacted by inclusion of market benefits in the anticipated RIT-D