

Asset Replacement Planning Application Note

Workshop, Melbourne, 26 February 2019

Overview

- ▶ Welcome and Introductions
- ▶ Session 1 – The submissions received
- ▶ Session 2 – Clarifying the ‘base case’ or counterfactual
- ▶ Session 3 – The RIT Guidelines
- ▶ Session 4 – Some RIT Examples
- ▶ Session 5 – APRs and Asset Retirement Planning
- ▶ Review and close

Welcome and Introductions

Objectives of the workshop are to:

- ▶ Provide an overview of the submissions received
- ▶ Facilitate dialogue and a greater understanding of the replacement expenditure planning rules
- ▶ Continue the discussion with a focus on asset replacement planning practice, specifically:
 - ▶ the “counterfactual”
 - ▶ RITs
 - ▶ APRs

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Session 1 – The submissions we received

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Session 1 – The submissions we received

- ▶ In September 2018 we published the draft Asset Replacement Planning Application Note (Application Note)
- ▶ We held a workshop in late September 2018 to consider key aspects of the Application Note
- ▶ Seven submissions were received on the draft
- ▶ Key themes of these submissions included:
 - ▶ Greater clarity needed on relevant costs in the counterfactual (i.e. the base case, or business-as-usual case)
 - ▶ Consistency with the final RIT application guidelines
 - ▶ Greater clarity around compliance, legal and safety risks – distinction between capital planning and operations
 - ▶ Improve consideration of the value of consumer reliability (VCR)
 - ▶ Expanding on ‘Least Regrets’ and High Impact Low Probability
 - ▶ Dealing with fleets of assets and high volume low value assets
- ▶ The final Application Note is broadly consistent with the draft but addresses these key themes

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Session 1 – The submissions we received

Counterfactual or base case:

- ▶ Submissions focused on:
 - ▶ Clarifying the type and extent of relevant costs
 - ▶ Treatment of compliance obligations
 - ▶ Alignment with the RIT guidelines
- ▶ The Application Note has been amended to address these issues, for example:
 - ▶ Relevant costs are referenced to costs materially different to BAU costs
 - ▶ Recognition of “hard compliance” obligations versus “best endeavours”

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Session 1 – The submissions we received

Compliance Risk:

- ▶ Submissions focused on:
 - ▶ Greater clarity and recognition of compliance obligations, e.g. environmental, health and safety
 - ▶ Implications of compliance obligations on the base case, available options
 - ▶ The different nature of compliance requirements (i.e. specific obligations verses best endeavours)
 - ▶ The distinction between operational practices and asset planning and implications for assessing associated risks
- ▶ The Application Note has been amended to address these issues, for example:
 - ▶ It now clarifies how compliance obligations are understood within the context of the methods outlined
 - ▶ A greater distinction been drawn between “hard” compliance obligations that are specific and binding verses those that involve best endeavours approaches
 - ▶ The context of the Application Note in demonstration of efficient investment in asset planning (capital planning) has been stressed
 - ▶ The Application Note now highlights that its methodologies are not intended for asset operational purposes

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Session 1 – The submissions we received

Value of Consumer Reliability (VCR):

- ▶ Submissions focused on:
 - ▶ How the current AEMO VCR values apply
 - ▶ How the AER’s VCR values and guidance to be issued in December 2019 will apply
 - ▶ Appropriate use and application of VCR to suit the investment circumstances
- ▶ The Application Note has been amended to address these issues, for example:
 - ▶ Wording has been amended to clarify the need to adjust the AMEO values (e.g. escalation)
 - ▶ Recognition is included that VCR values are relevant to longer term outages but not necessarily sustained outages (i.e. over multiple days).

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Session 1 – The submissions we received

Least Regrets Investment and High Impact Low Probability Events:

- ▶ Submissions focused on:
 - ▶ Improving how the concept of least regrets is defined and how it relates the Application Note methodologies
 - ▶ Providing more clarity on High Impact Low Probability Events could be considered and alignment with community expectations
- ▶ The Application Note has been amended to address these issues, for example:
 - ▶ Wording has been improved to better define the Least Regrets concept and relate it to methods outlined in the Application Note
 - ▶ Further clarification of how HILP scenarios could be accommodated within the methodologies has been added
 - ▶ Wording has been refined to reinforce that NSP's need to use relevant and evidenced evaluations of any parameters used in their analysis

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Session 1 – The submissions we received

Application to Asset Fleets:

- ▶ Submissions focused on:
 - ▶ Improving the coverage of asset fleets and high volume low value assets
 - ▶ Providing further definition and clarification.
 - ▶ Reducing the weighting on transmission examples and improving distribution examples
- ▶ The Application Note has been amended to partially address these issues, for example:
 - ▶ Wording has been refined to clarify the explanation of how asset fleets and high volume low value assets can be treated using the Application Note methodology

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Session 1 – The submissions we received

Options involving non-network alternatives:

- ▶ Submissions noted:
 - ▶ That examples of options involving non-network supply alternatives were impractical and should be removed due to regulatory restrictions
- ▶ The Application Note has not been amended to address these points:
 - ▶ The AER considers that NSPs are required to consider non-network options including stand-alone supply arrangements
 - ▶ This obligation to consider non-network options is not limited by cost recovery considerations
 - ▶ While NSP's may not be able to include the capital costs of such supply arrangements within the RAB, other arrangements are possible (e.g. third party arrangements)

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Session 1 – The submissions we received

Reputational Risk:

- ▶ Submissions suggested that:
 - ▶ The Application Note should recognise and include loss of 'reputation' or stakeholder confidence as a relevant financial risk
- ▶ The Application Note has not been amended to address this suggestion:
 - ▶ Reputational risk has not been explicitly included in the Application Note
 - ▶ The AER does not include reputation value as part of the regulatory asset base or within the determination of WACC
 - ▶ The AER has not previously included reputational value in its determinations
 - ▶ Reputation is manageable by the NSP through operational practices and opex is allowed for all normal operational practices undertaken by NSP in providing network services
 - ▶ There is nothing within the Application Note that precludes consideration of reputational risk however the NSP would need to justify why such a risk is relevant to the specific analysis and that its evaluation is reasonable.

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Session 2 – Clarifying the counterfactual or ‘base case’

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Session 2 – Clarifying the counterfactual or ‘base case’

Clarification of some terms

- ▶ Base case
- ▶ Do nothing case
- ▶ Do nothing different case
- ▶ Business as usual case
- ▶ Counterfactual (case)



ALL MEAN THE SAME THING

Essentially these are just different terms that are used to describe the same case:

- ▶ if we do nothing (materially) different to what we are currently doing then what will the future look like?

The world as we currently see it →



Counterfactual analysis (or *Impact Evaluation*) is a comparison between what would happen in the absence of an intervention and what would happen under a particular intervention (option)

Our counterfactual or base case →

If we don't do anything different then this is our future ...



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Session 2 – Clarifying the counterfactual or ‘base case’

In developing the counterfactual a well defined NEED is critical:

- ▶ Network investment *must achieve an ‘identified need’*
- ▶ In an asset retirement context, *the ‘identified need’ must relate to the asset’s ability to efficiently maintain the service level outcomes* (the NER capex objectives or a jurisdictional instrument requirement(s))
- ▶ *Without a well defined need,* identifying the counterfactual or base case will be difficult or impossible, *and we won’t be able to define what lays ahead in terms of expected service levels and service cost outcomes (what is the future that the consumer is expected to experience?)*
- ▶ Consider which “needs statement” tells us about what to expect in the future:
 - ▶ “The asset is at the end of its technical life and **needs** to be replaced”
 - ▶ *Compared with:* “Interruptions to customer supply are expected to increase at 2% per annum over the forecast period due to the increasing unreliability of the substation’s two power transformers”
 - ▶ *Or:* “In the next 5 years the circuit breaker’s condition is expected to pose an escalating safety risk estimated at \$25,000 p.a. over the period of the analysis.”

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Session 2 – Clarifying the counterfactual or ‘base case’

Asset retirement planning is conducted within an economic framework defined by the NER:

- ▶ Within its economic framework the NER inherently embodies a consumer service focus (NEO) – reliable, safe, quality power. Service cost is also a primary NER focus.
- ▶ *Remaining technical life is not the focus* and is not of itself sufficient reason to retire an asset
- ▶ Within the NER framework consideration of the economic end-of-life is needed and requires assessment of the economic end-of-life
- ▶ *To reflect the NER requirements we need to consider how service levels vary into the future and the total costs incurred by the consumer under the current service arrangements. This is the counterfactual or base case - the ‘business as usual’ case – no material changes to how the service is provided or the costs of providing the service.*
- ▶ The counterfactual is “reference point” for comparing proposed changes in the service level or the cost of the service (i.e. for *comparing* with the options)

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Session 2 – Clarifying the counterfactual or ‘base case’

The Application Note makes some important observations:

- ▶ NOTE: If *how* the service is provided is maintained – that is, we make no material changes that impact on the assets involved and hence the service cost – then service levels will progressively degrade and consumers will incur additional costs e.g. unreliability costs.
- ▶ Economic end-of-life occurs where the expected total cost of the service in the counterfactual case with no material change to *how* the service is provided (i.e. ‘business as usual’) exceeds the expected service cost of any other available option(s) to provide the service (including possibly at the same or altered service levels or service costs)
- ▶ Where there exists at least one other option (or combination of options) that provides the required service at a lower long run cost than the counterfactual then the asset providing the service is at the end of its economic life and retirement is indicated.
- ▶ Assuming there is an ongoing need for the service, then options to efficiently maintain the required service levels following asset retirement/de-rating need to be considered.

Session 2 – Clarifying the counterfactual or ‘base case’

Identified needs statements from two recent RIT process documents:

“The ____ is approaching the end of its design life and it is recommended for replacement on the basis of its age and reliability in 20XX. The ____ performs the function of maintaining voltages under varying load conditions. If the ____ fails, there will be a need for manual switching which will create transients on the network that are difficult to manage and relies on plant that is also approaching its end of life. At peak load times, without the ____, some loads may also need to be shed ...”

There was no counterfactual analysis provided in this example – why?

Session 2 – Clarifying the counterfactual or ‘base case’

“... the area is supplied from the ____ substation which is supplied by a network that includes substantial lengths of __ kV cables that are an obsolete technology. The ____ substation contains 11kV switchboards and XX kV feeders that are in poor condition and are near the end of their service life. There are approximately __ km of __ kV cables that suffer from frequent problems that have led to poor availability and involuntary load shedding in the area and are forecast to continue to do so, with increasing frequency and magnitude, going forward, unless action is taken.

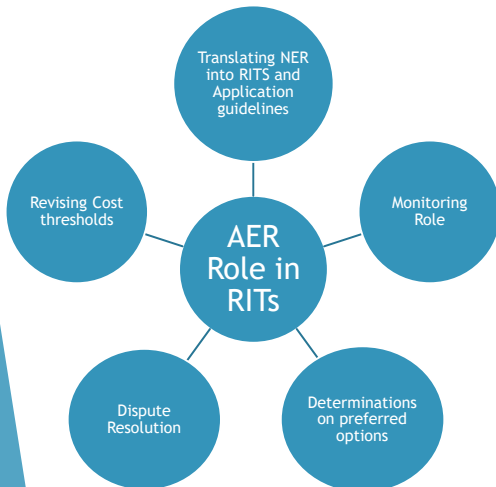
*Originally installed in the early ____’s, these substations are experiencing a heightened level of failure and poor availability, which exposes customers to a level of involuntary load shedding that exceeds allowable levels under the applicable reliability standards. Consequently, there is a need to undertake reliability corrective action to address issues at the substation in order to maintain reliable network services to customers in this network area.
...”*

A better statement – but the focus is still on the asset with limited consideration of the customer’s service levels and service cost.

What does the future look like for these customers? What is the counterfactual case and why was it limited?

Session 3 – Regulatory Investment Tests (RITs)

Session 3 – Regulatory Investment Tests (RITs)

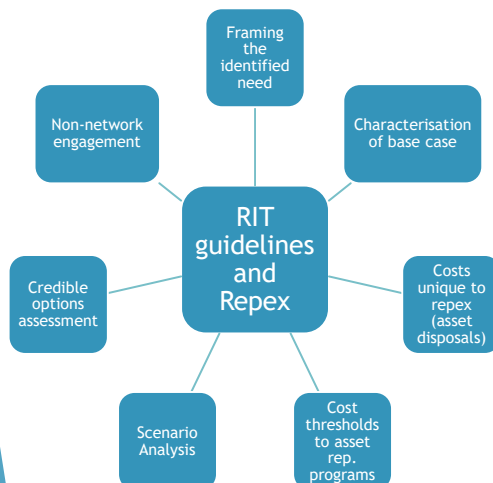


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- ▶ Form part of the planning framework in Chapter 5
- ▶ The RIT-T (transmission) and RIT-D (distribution) are used to assess network investment efficiency
- ▶ They apply an economic cost-benefit framework to assessing proposed investments
- ▶ Purpose is to identify options that maximise the present value of net economic benefit
- ▶ Options should reflect the principles of economic efficiency and competitive neutrality
- ▶ Projects can pass the RIT-D or RIT-T with negative net economic benefit where reliability corrective action is needed – that is, to meet the required service standards Schedule 5.1 or applicable regulatory instruments.

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Session 3 – RIT guidelines and Repex



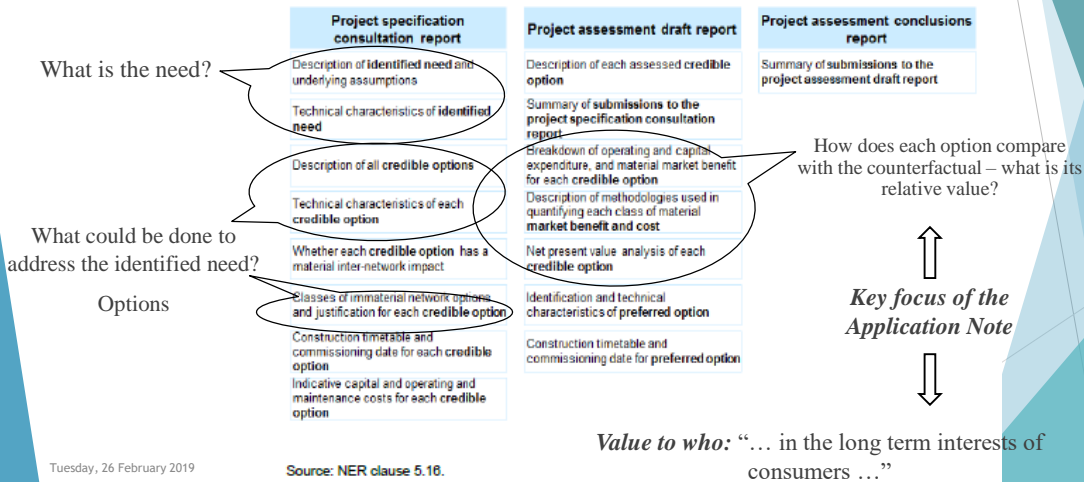
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- ▶ AER's 2018 review of the RIT guidelines provides updated high-level guidance to assist NSPs in applying RITs to repex projects and programmes.
- ▶ The Application Note complements the RIT guidelines exploring in more detail approaches and methods to support application of the limbs of RIT process to relevant to repex.

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Session 3 – RIT-T and RIT-D consultation processes

Figure 1.3 RIT-T process milestones



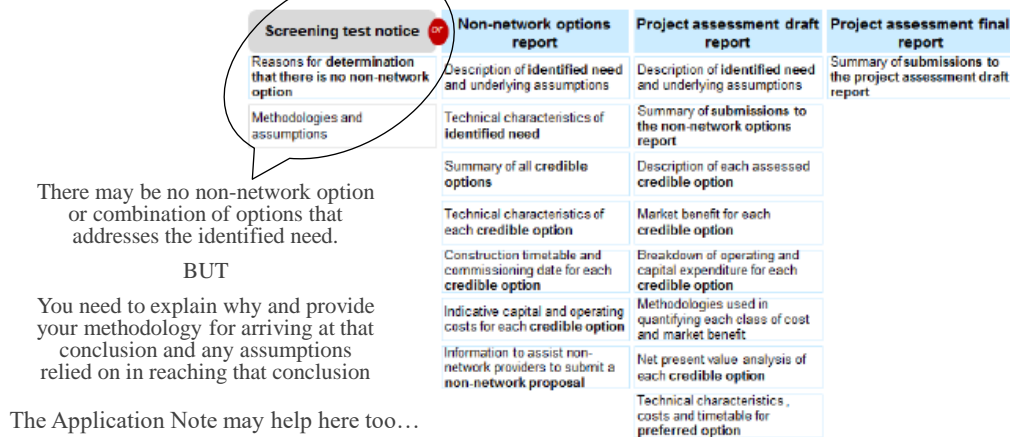
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Source: NER clause 5.16.

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Session 3 – RIT-T and RIT-D consultation processes

Figure 1.2 RIT-D process milestones



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Source: NER clause 5.17.

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Session 4 –RIT Examples: Issues identified in RITs

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Session 4 –RIT Examples: Issues identified in RITs

Incorrect framing of the identified need and characterisation of the base case in Repex RITs:

- ▶ We have observed some NNORs are characterising the identified need as ‘assets at the end of life that need replacing.’ So the need and related counterfactual (base case) is defined as replacing the asset as opposed to defining **the objective of the replacement decision**, such as maintaining customer supply reliability due to the asset’s poor condition.
- ▶ The risk costs associated with the base case are not justified or quantified in the RIT reports. So the counterfactual has no costs which justify taking action.
- ▶ Incorrect identification and description of the identified need and associated base case restricts the possibility for NNOs to defer or eliminate the need for asset retirement.
- ▶ The Updated RIT guidelines emphasise the value in framing the identified need as a proposal to consumers – what will the future service look like for the consumer?

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Session 4 –RIT Examples: Issues identified in RITs

Lack of non-network consideration:

- ▶ Lack of non-network engagement in the RIT process specifically in Repex projects/programmes
- ▶ NSPs are skipping the non-network options report and opting for screening reports with minimal transparency or information on non-network options or effective engagement – the screening test notice requires disclosure of reasons, methodologies used to arrive at the conclusions and the assumptions relied on in drawing those conclusions
- ▶ Defining stringent specifications and conditions in the NNOR and SNNORs that limit consideration of non-network options.
- ▶ Lack of consideration of credible options involving combinations of solutions (network and non-network). We have seen cases where NSPs assess non-network options on the basis that a single non-network option must provide exactly the same services as the network options.

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Session 4 –RIT Examples

AREA 51 Substation Replacement RIT-D:

- ▶ The Area 51 30MW Substation and its assets were identified as nearing the end of their technical life – this was the identified need
- ▶ The NSP published a screening notice of non-network options concluding with minimal reasoning that no non-network options including demand management were viable. No engagement with any non-network proponents or assessment of demand management was evident.
- ▶ The screening notice does not meet the requirements the NER (cl. 5.17.4 (d)) requires that:

A RIT-D proponent is not required to comply with paragraph (b) if it determines on reasonable grounds that there will not be a non-network option that is a potential credible option, or that forms a significant part of a potential credible option ... to address the identified need.
- ▶ No “reasonable grounds” were provided for discounting non-network solutions nor was there any attempt to consider if DM could “form a significant part of a potential credible option”. For example, DM supporting deferral, or being used to reduce the substation capacity
- ▶ This is a systemic issue with many of the current repex RITs being undertaken by NSPs. Minimal effective screening for non-network options either fully or partially addressing the identified need.

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Session 4 – RIT Examples

A substation renewal RIT-D

- ▶ A RIT-D for a substation renewal was undertaken as the substation was nearing the end of its technical life.
- ▶ The identified need was defined in terms of the asset with no substantive consideration of the service levels provided to the customer or the service cost.
- ▶ The published non-network options report sought to replace the current assets at the substation and supplement with non-network options
- ▶ Non-network options were sought, but only options that could fully substitute for the network assets function and service levels. No options were sought to manage risks to the service levels.
- ▶ Correctly identifying and describing the identified need is the fundamental starting point for a RIT analysis, as it is the reason for any investment proposal and it also defines the counterfactual.
- ▶ In this case the NSP failed to define the identify need or characterise the counterfactual correctly and no analysis of the counterfactual was apparent.

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Session 5 – APRs and Asset Retirement Planning

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Session 5 – APRs and Asset Retirement Planning

The role of APRs:

- ▶ The AEMC has expressed the view that APRs and RITs have an important role in supporting network planning and investment decisions by:
 - ▶ creating incentives for NSPs to consider potential non-network solutions to network constraints or limitations (asset retirement, de-rating, and asset augmentation related)
 - ▶ establishing clearly defined planning and decision-making processes
 - ▶ providing transparency on network planning activities to enable stakeholder engagement
 - ▶ supporting efficient investment in the network
- ▶ APRs assist the industry (in particular non-network proponents) in effectively planning for solutions (network/non-network) ahead of planned asset investments (augmentations and asset retirements)

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Session 5 – APRs and Asset Retirement Planning

The role of APRs:

- ▶ APRs also assist the AER in remaining aware of upcoming network issues and in considering capital requirements – informing revenue resets and the RIT processes
- ▶ Good quality APRs that relate well to regulatory proposals supported by sound economic justification help make the regulatory processes more efficient

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Session 5 – APRs and Asset Retirement Planning

APRs and asset retirement planning:

- ▶ the NER now aligns APR reporting requirements for augmentation and retirement / de-rating so that APRs must consider all capex investment needs regardless of the driver.
- ▶ APRs are required to identify:
 - ▶ network asset retirements and planned de-ratings that result in constraints or limitations
 - ▶ asset and its location
 - ▶ the reasons, supporting methodologies and assumptions used in deciding that a network asset is to be retired or de-rated
 - ▶ the date of asset retirement or de-rating and if this has changed from previous APR an explanation of why
 - ▶ information on the asset management practices used, including the asset management strategy employed.

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Session 5 – APRs and Asset Retirement Planning

What is the AER seeing in asset capital planning documents (APRs, RITs, etc.)?

- ▶ Insufficient definition of the identified need in terms of the objective to be achieved by the investment
- ▶ Ill-defined and/or unassessed credible counterfactuals
- ▶ Limited analysis of operating environment changes that impact on risks and potential options
- ▶ Poor specification of credible options or combination of options relative to the need and counterfactual
- ▶ Failure to choose options that represent the lowest service cost – including by demonstrating the timing of retirement and hence any subsequent investment (capex and/or opex)
- ▶ Generally we see that the decision-making process followed by many NSPs remains asset centric and orientated towards asset replacement. This contrasts with a focus on consumer service level outcomes and an orientation towards the lowest long run cost required to meet those service levels (i.e. the NEO).

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Session 5 – APRs and Asset Retirement Planning

- ▶ When the AER undertook a review of the APR compliance in 2014 we found that 46% of the requirements weren't met in the APRs. So we worked with NSPs and saw improvements.
- ▶ Now the rules require asset retirement and replacement to be addressed in APR's. There is also the new DMIS and demand side engagement responsibilities including the potential T-DMIS rule change.
- ▶ With these recent changes it may be prudent for NSPs to consider undertaking their own review of their APRs particularly in light of the NER's asset retirement planning requirements.
- ▶ NSPs could also consider further developing their asset and risk management practices to enhance economic assessment of investment proposed in APRs, RITs and revenue proposals.
- ▶ With this in mind the AER has taken the view that dialog with the industry is needed while asset retirement planning practices are developing. We have published new RIT guidelines, the Application Note, and we have held workshops with the industry to help NSPs meet these new obligations.

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Review and close

- ▶ Review of key messages
- ▶ Moving forward
- ▶ Close

Thank you.

Have a safe trip home.

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