Better Regulation

Regulatory investment test for distribution Application Guidelines

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Shortened forms

Shortened form	Full form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
DAPR	Distribution Annual Planning Report
DNSP	distribution network service provider
DPAR	draft project assessment report
FPAR	final project assessment report
MW	megawatt
MWh	megawatt hour
NEM	National Electricity Market
NER	National Electricity Rules
NSP	network service providers
RIT-D	regulatory investment test for distribution
RIT-T	regulatory investment test for transmission
TAPR	Transmission Annual Planning Report
TNSP	transmission network service provider
VCR	value of customer reliability

Nature and Authority

Introduction

Consistent with the requirements of cl. 5.17.2(a) of the National Electricity Rules (NER), this document (the application guidelines) sets out guidance for the operation and application of the regulatory investment test for distribution (the RIT-D).

Authority

Clause 5.17.2(a) of the NER requires the Australian Energy Regulator (AER) to develop and publish, in accordance with the distribution consultation procedures, guidelines for the operation and application of the RIT-D. The application guidelines must:

- give effect and be consistent with the relevant provisions of the NER[1]
- provide guidance on:
  - the operation and application of the RIT-D
  - the process to be followed in applying the RIT-D
  - what will be considered to be a material and adverse National Electricity Market (NEM) impact for the purpose of the definition of interested parties
  - how disputes raised in relation to the RIT-D and its application will be addressed and resolved.[2]
- provide guidance and worked examples as to:
  - how to make a determination when a RIT-D proponent is not required to prepare and publish a non-network options report[3]
  - what constitutes a credible option
  - the suitable modelling periods and approaches to scenario development
  - the classes of market benefits to be considered
  - the acceptable methodologies for valuing the market benefits of a credible option
  - acceptable methodologies for valuing the costs of a credible option
  - the appropriate approach to undertaking a sensitivity analysis
  - the appropriate approaches to assessing uncertainty and risks
  - what may constitute an externality under the RIT-D.[4]

1 NER, cll. 5.15.2; 5.17.2–5.
2 NER, cl. 5.17.2(b)(2).
3 NER, cll. 5.17.2(c); 5.17.4(c).
4 NER, cl. 5.17.2(c).

Role of the application guidelines

RIT-D proponents must apply the RIT-D to all proposed distribution investments, except in the circumstances described in cl. 5.17.3(a) of the NER. The application guidelines provide guidance on the operation and application of the RIT-D, the process for RIT-D proponents to follow in applying the RIT-D, and how we will address and resolve disputes regarding the RIT-D.

RIT-D proponents should read the application guidelines in conjunction with the requirements in the RIT-D and the relevant clauses of the NER.

Definitions and interpretation

In the application guidelines, words and phrases have the meaning given in the RIT-D or otherwise in:

- the glossary or
- the NER.

Process of revision

The AER may, amend or replace the application guidelines from time to time in accordance with the distribution consultation procedures under cl. 6.16 of the NER.[5]

Version history and effective date

A version number and an effective date of issue will identify every version of the application guidelines.

[5] NER, cl. 5.17.2(e).

1 Overview of the RIT-D

Under cl. 5.17.2(d) of the NER, the AER must publish the RIT-D and application guidelines by 31 August 2013. The RIT-D is a cost benefit test for RIT-D proponents to use for assessing and ranking different electricity investment options.

The RIT-D commences on 1 January 2014. From the RIT-D commencement date, RIT-D proponents must apply the RIT-D in accordance with cl. 5.17 of the NER to assess the economic efficiency of proposed investment options.

The RIT-D aims to promote efficient investment in distribution networks in the NEM by ensuring there is greater consistency, transparency and predictability in distribution investment decision making. The RIT-D replaces the Regulatory Test for distribution investments (Regulatory Test).[6]

1.1 Purpose of the RIT-D

The purpose of the RIT-D is to:

> ...identify the *credible option* that maximises the present value of the net economic benefit to all those who produce, consume and transport electricity in the *National Electricity Market* (the *preferred option*). For the avoidance of doubt, a *preferred option* may, in the relevant circumstances, have a negative net economic benefit (that is, a net economic cost) where the *identified* need is for reliability corrective action.[7]

1.2 Projects subject to the RIT-D

Clause 5.17.3 of the NER provides that a RIT-D proponent must apply the RIT-D to a RIT-D project unless the project falls under defined circumstances.

A RIT-D project is defined in cl. 5.10.2 of the NER as a:

> (a) project the purpose of which is to address an identified need identified by a Distribution Network Service Provider, or
>
> (b) joint planning project that is not a regulatory investment test for transmission (RIT-T) project.

The circumstances where a RIT-D proponent does not need to apply the RIT-D include where the:

- RIT-D project is required to address an urgent and unforseen network issue that would otherwise put at risk the reliability of the distribution network or a significant part of that network
- estimated cost to the Network Service Providers (NSPs) affected by the RIT-D project of the most expensive potential credible option to address the identified need is less than $5 million (as varied in accordance with a cost threshold determination)
- cost of addressing identified need is to be fully recovered through charges other than charges in respect of standard control services or prescribed transmission services
- identified need can only be addressed by expenditure on a connection asset which provides services other than standard control services or prescribed transmission services

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6 AER, Final decision: *Regulatory Test version 3 and application guidelines*, November 2007.
7 NER, cl. 5.17.1(b).

- RIT-D project is related to the refurbishment or replacement of existing assets and is not intended to augment a network or

- refurbishment or replacement expenditure also results in an augmentation to the network, and the estimated capital cost of the most expensive credible option to address the identified need in respect of the augmentation component is under $5 million (as varied in accordance with a cost threshold determination).

A RIT-D proponent must not treat different parts of an integrated solution to an identified need as distinct and separate options for the purposes of determining whether the RIT-D applies to each of those parts.[8]

With the exception of negotiated distribution services and negotiated transmission services, the NSP affected by the RIT-D project must ensure, acting reasonably, that the investment required to address the identified need is planned and developed at the lowest cost over the life of the investment.[9]

Example 1.1: Incidental augmentation associated with an asset replacement project

A RIT-D proponent has identified a 40 year old, 10 megavolt amperes (MVA) zone substation transformer to be at the end of its serviceable life. There are no emerging capacity constraints at the substation. The lowest available standard transformer size of sufficient capacity is 15MVA. 'Like-for-like' replacement through the procurement of 10MVA transformer is likely to be more costly as it is a non-standard size.

Replacement with the 15MVA transformer results in an incidental increase in substation capacity. However, as the identified need is an asset condition and not an augmentation to the network; the RIT-D proponent is not required to apply the RIT-D.

Example 1.2: Calculating the augmentation component of a credible option addressing asset condition and capacity needs

A RIT-D proponent identified aged assets and an emerging capacity constraint at a 33/11kV zone substation. A credible option to address these identified needs is to rebuild the zone substation (with an additional transformer) and decommission the existing zone substation. This will cost the RIT-D proponent $20 million.

The cost of addressing the asset condition will be to rebuild the zone substation without the additional transformer. This will cost the RIT-D proponent $16 million. The augmentation component of the initial credible option is its incremental cost above the 'like-for-like' replacement, in this case, $4 million ($20 million - $16 million). Since this is below the $5 million threshold, the RIT-D proponent is not required to apply the RIT-D.

1.2.1 Urgent and unforseen investments

As outlined in cl. 5.17.3(a)(1) of the NER, a RIT-D proponent does not need to apply the RIT-D to a proposed RIT-D project to address an urgent and unforseen network issue that would otherwise put at risk the reliability of the distribution network. Under cl. 5.17.3(c) of the NER, a proposed RIT-D investment is only subject to this exemption if:

8 NER, cl. 5.17.3(e).
9 NER, cl. 5.17.3(d).

- it is necessary that the assets or services to address the issue be operational within six months of the RIT-D proponent identifying the issue
- the event or circumstances causing the identified need was not reasonably foreseeable by, and was beyond the reasonable control of, the NSP/s that identified the need
- a failure to address the identified need is likely to materially adversely affect the reliability and secure operating state of the distribution network or a significant part of that network.

1.2.2 Commencement of the RIT-D:

Clause of the NER 11.50.5(b) sets out that:

> After the RIT-D commencement date:
>
> (1) new rules 5.15 and 5.17 have no effect in relation to RIT-D projects that are regulatory test projects;
>
> (2) old clause 5.6.5A continues to apply to regulatory test projects; and
>
> 3) *Registered Participants* must comply with old clauses 5.6.2(e1) to (k) to the extent those provisions are relevant to the application of the regulatory test.

Clause 11.50.2 of the NER defines the RIT-D commencement date as the date that is one year from the commencement date. The commencement date is the amendment date of the relevant rule in the NER. Therefore, the commencement date is 1 January 2013, and the RIT-D commencement date is 1 January 2014.

After 1 January 2014, projects will be assessed under the RIT-D instead of the Regulatory Test, unless by 31 December 2013:

- a NSP has commenced assessing the projects under the Regulatory Test; and
- the NSP has submitted a list of those projects to the AER.[10]

Under cl. 11.50.5(e) of the NER, we may determine that project/s have not commenced assessment under the Regulatory Test. We consider that an NSP has commenced assessing a project under the Regulatory Test if, before 1 January 2014, it has:

- published a project evaluation under the former regulations; or
- identified the project in a published Distribution Annual Planning Report (DAPR); or
- released a Request for Information; or
- commenced an option analysis for the project under the Regulatory Test.

[10] NER, cl. 11.50.5(c).

2 Operation and application of the RIT-D

The application guidelines provide guidance on the operation and application of the RIT-D.

The broad steps for applying the RIT-D can be summarised as:

(1) Identify:

   (i) a need for the investment

   (ii) a set of credible options to address the identified need (refer to section 8 of the application guidelines).

(2) Identify a set of reasonable scenarios appropriate to the credible options under consideration (refer to section 13 of the application guidelines).

(3) Quantify the expected costs of each credible option with consideration of the how expected costs will vary across different reasonable scenarios (refer to section 11 of the application guidelines).

(4) Estimate the magnitude of expected market benefits of each credible option with consideration of how expected market benefits will vary across different reasonable scenarios. Where the RIT-D proponent quantifies market benefits, quantification should occur over a probability weighted range of reasonable scenarios (refer to section 13 and appendix A of the application guidelines).

(5) Rank each credible option by its expected net economic benefit to identify the credible option with the highest expected net economic benefit as the preferred option. In the relevant circumstances, this will require quantifying the expected net economic benefit of each credible option.

This section provides guidance on how to identify an identified need and reasonable scenarios.

2.1 Identified need

Clause 5.10.2 of the NER defines an identified need as the objective a NSP seeks to achieve by investing in the network. An identified need may be addressed by either a network or a non-network option.

An identified need may consist of:

- meeting any of the service standards linked to the technical requirements of schedule 5.1 of the NER, or in applicable regulatory instruments (reliability corrective action) and/or
- an increase in the sum of consumer and producer surplus in the NEM.

RIT-D proponents should express an identified need as the achievement of an objective or end, and not simply the means to achieve the objective or end. A description of an identified need should not mention or explain a particular method, mechanism or approach to achieve a desired outcome.

For example, where a RIT-D proponent is concerned about network constraints under increased load, the RIT-D proponent could express the identified need as an increase in the ability of the network to ‘take up load'. This would not be an identified need to 'install a capacitor to address a voltage stability issue’.

In describing an identified need, a RIT-D proponent may find it useful to explain what will or may happen if the RIT-D proponent fails to take any action.

2.2 What are reasonable scenarios?

The NER does not define reasonable scenarios. In the application guidelines, we consider a reasonable scenario as a set of variables or parameters that the RIT-D proponent does not expect to change across each of the relevant credible options.

For example, the following variables should be independent of the credible options and considered as components of each reasonable scenario:

- levels of economic growth and the associated level of base electricity demand
- level of population growth and the associated level of base electricity demand
- unit capital and operating costs of generation plant
- value of any environmental penalties
- value of unserved energy.

In a particular analysis, it may be appropriate to assess the benefits of a credible option across high, medium and low demand reasonable scenarios.

To the extent that a demand side option leads to lower peak demand under each of these reasonable scenarios, RIT-D proponents should account for this in the states of the world associated with that option under each of those reasonable scenarios. This ensures that RIT-D proponents transparently calculate the benefits of the demand side option separately in high, medium and low demand scenarios.

Guidance on how RIT-D proponents should apply reasonable scenarios in the RIT-D is included in section 12 of the application guidelines.

2.3 Preferred option

Under the RIT-D, the preferred option is the credible option that maximises the net economic benefit to all those who produce, consume and transport electricity in the NEM. Where an identified need is for reliability corrective action, the preferred option may have a net economic cost.[11] The net economic benefit of a credible option is the market benefit less the costs of the credible option.

A credible option is a project, or set of projects, established to meet an identified need. A set of projects may constitute one credible option in the form of an integrated solution to meet an identified need.

Example 2: Selecting a preferred option

A RIT-D proponent has identified five credible options. For each credible option, the RIT-D proponent quantified the costs and market benefits. The RIT-D proponent then deducted the costs from the market benefits to derive the net economic benefit.

[11] NER, cl. 5.17.1(b).

The credible option with the highest net economic benefit receives the highest ranking. The RIT-D proponent therefore identifies this credible option as the preferred option. The preferred option in this example is the demand side option combined with a network option.

Table 1: Calculating expected net economic benefit ($ m)

Credible option	Market benefits	Costs	Net economic benefit	Ranking
Network option 1	11.3	11.9	-0.6	5
Network option 2	18	17	1	3
Embedded generation option	13.5	12.4	1.1	2
Demand side option	0.9	0.5	0.4	4
Demand side option, combined with a network option	14	12	2	1

3 Process to follow in applying the RIT-D

This section of the application guidelines summarises the process that a RIT-D proponent must follow when applying the RIT-D. It sets out each stage of the process for applying the RIT-D.

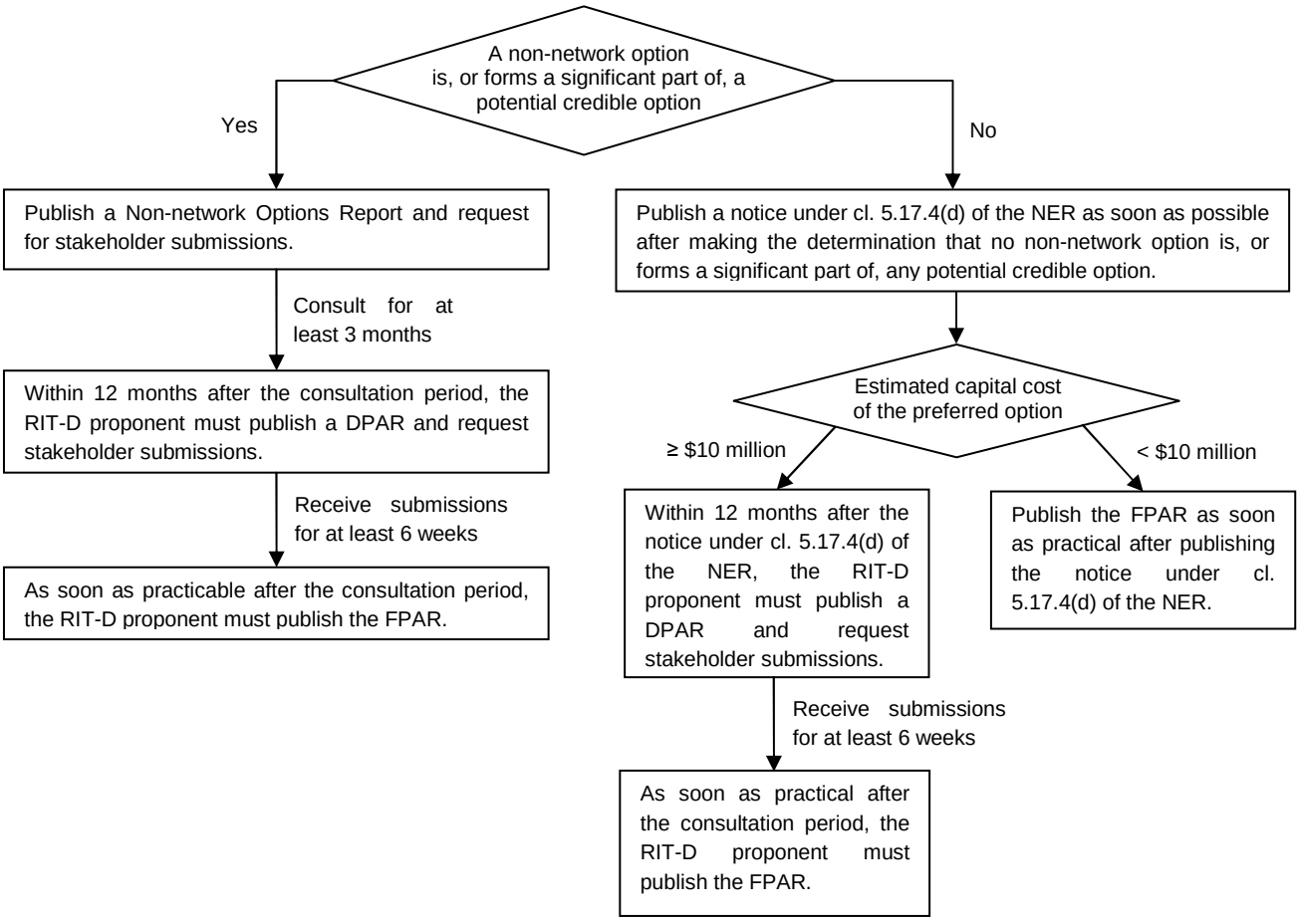
Clause 5.17.4 of the NER sets out the procedures that RIT-D proponents must follow in applying the RIT-D.

The RIT-D procedures outline a multi-stage process:

- screening for non-network options
- non-network options report
- draft Project Assessment report (DPAR)
- final Project Assessment report (FPAR).

The RIT-D process also specifies that stakeholder consultation on the RIT-D project should occur. The RIT-D process is summarised in Figure A below.

Figure A: The RIT-D process



3.1 Stakeholder consultation

Clause 5.17.4(a)(1) of the NER requires RIT-D proponents to consult with specified stakeholders on the RIT-D project:

- Registered Participants[12]
- Australian Energy Market Operator (AEMO)
- Interested parties
- Non-network providers

If the RIT-D proponent is a distribution network service provider (DNSP), the RIT-D proponent must consult with persons registered on its demand side engagement register (DSER).[13]

RIT-D proponents should consult with stakeholders throughout all stages of the RIT-D process. RIT-D proponents are to identify the parties they must consult with and invite them to register on the RIT-D proponent's DSER. RIT-D proponents must maintain the contact details of these parties. We expect that RIT-D proponents have, or are able to develop, sufficient internal capabilities and processes to maintain its DSER.

3.1.1 Non-network options report

A RIT-D proponent must provide the stakeholders specified in cl. 5.17.4(a) of the NER with not less than three months from the date that it publishes the non-network options report to make submissions.[14]

When calling for submissions, RIT-D proponents should clarify that the identification of additional options should predominately occur at that stage of the consultation process. RIT-D proponents should request stakeholders to support any potential credible options they propose and provide it with sufficient information to enable the RIT-D proponent to assess the option's technical feasibility.

3.1.2 Consultation on the draft project assessment report:

The consultation period on the DPAR must not be less than six weeks from the publication of the report.[15] The RIT-D proponent must undertake the following when conducting stakeholder consultation on the DPAR:

- publish a request for submissions on the matters set out in its DPAR, including the proposed preferred option.
- consult directly with potentially affected customers if the proposed preferred option in the DPAR has the potential to have an adverse impact on the quality of service experienced by electricity consumers. This includes anticipated changes in voluntary load curtailment by

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12 NER, chapter 10. The NER defines Registered Participants as a person who is registered by AEMO in any one or more of the categories listed in r. 2.2 to 2.7 of the NER (in the case of a person who is registered by AEMO as a Trader, such a person is only a Registered Participant for the purposes referred to in r. 2.5A of the NER). However, as set out in cl. 8.2.1(a1) of the NER, for the purposes of some provisions of r. 8.2 of the NER only, AEMO, Connection Applicants, Metering Providers and Metering Data Providers who are not otherwise Registered Participants are also deemed to be Registered Participants.

13 NER, cl. 5.17.4(a)(2).

14 NER, cl. 5.17.4(h).

15 NER, cl. 5.17.4(m).

electricity consumers and anticipated changes in involuntary load shedding and customer interruptions caused by network outages.[16]

If the RIT-D proponent requires an extension of time to publish the DPAR, it must apply to the AER at least six weeks from the publication date. The application for extension must include sufficient information to allow the AER to consider the request. This information may include, but is not be limited to:

- details of the project subject to the DPAR
- reasons for the delay in publishing
- measures taken by the RIT-D proponent to prevent future late publication.

3.1.3 The final project assessment report

If a RIT-D proponent is a DNSP, it must notify persons on its DSER when it publishes its FPAR.

If the RIT-D proponent is eligible under cl. 5.17.4(n) of the NER, it may only need to publish its FPAR in its Transmission (TAPR) or DAPR.

3.2 Non-network options report

Clauses 5.17.4(b)-(h) of the NER outline the process that RIT-D proponents must follow in screening for non-network options and drafting a non-network options report.

All RIT-D proponents are required to prepare and publish a non-network options report. The only exception is if the RIT-D proponent 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. Section 6 of the application guidelines provides guidance and worked examples on how RIT-D proponents can determine whether this exemption applies.

The non-network options report must a include:

- a description of the identified need
- the assumptions used in identifying the identified need. In cases of proposed reliability corrective action, this must also include reasons the RIT-D proponent considered reliability corrective action necessary
- if available, the relevant annual deferred augmentation charge associated with the identified need
- The technical characteristics of the identified need that a non-network option would be required deliver. For instance, this should include:
  - the size of load reduction or additional supply
  - location
  - contributions to power system security or reliability

[16] NER, cl. 5.17.4(l).

    - contribution to power system fault levels as determined under cl. 4.6.1 of the NER
    - the operation profile.
- a summary of potential credible options to address the identified need, including both network and non-network options.
- to the extent practicable, the following information for each credible option:
    - a technical definition or characteristics of the credible option
    - the estimated construction timetable and commissioning date (where relevant)
    - the total indicative cost (include capital and operating costs).
- information to assist NSPs to present an alternative potential credible option. This should include details on how to submit a non-network proposal for consideration by the RIT-D proponent.

The RIT-D proponent must publish the non-network options report in a timely manner. The non-network options must have regard to the ability of parties to identify the scope for, and develop, alternative potential credible options or variants to the potential credible options.

If the RIT-D proponent is a DNSP, it must notify persons registered on its DSER when it publishes its non-network options report.

3.3 Draft project assessment report

If a RIT-D proponent decides to proceed with the proposed distribution investment, it must prepare a DPAR:

- within 12 months of
    - the end of the consultation period on a non-network options report; or
    - where a non-network options report is not required, the publication of the RIT-D proponent's notice setting out its reasons for not preparing a non-network options report; or
    - a longer period agreed to by us in writing.

3.3.1 Information required for draft project assessment report

The DPAR must include the following information:

- a description of the identified need for the investment
- the assumptions used in identifying the identified need. In the case of proposed reliability corrective action, this should include reasons why the RIT-D proponent considers the reliability corrective action is necessary
- if applicable, a summary of, and commentary on, the submissions on the non-network options report
- a description of each credible option assessed

- where a DNSP had quantified market benefits, a quantification of each applicable market benefit of each credible option
- a detailed description of the methodologies used in quantifying each class of cost or market benefit
- where relevant, the reasons why the RIT-D proponent has determined that a class or classes of market benefits or costs do not apply to a credible option
- the results of a net present value analysis of each credible option and accompanying explanatory statements regarding the results
- the proposed preferred option and details on its:
  - technical characteristics
    - estimated construction timetable and commissioning date (where relevant)
    - Indicative capital and operating costs (where relevant)
  - a statement and accompanying analysis that the proposed preferred option satisfied the RIT-D
  - if the proposed preferred option is for reliability corrective action and that option has a proponent, the name of the proponent.
- contact details for a suitably qualified staff member of the RIT-D proponent that can receive queries on the DPAR.

The AER considers that, where a RIT-D proponent has undertaken modelling, the DPAR should also include a description of the assumptions used with summarised results.

3.3.2 Exemption from preparing a draft project assessment report

Under certain circumstances, distribution investments do not require a DPAR. Under cl. 5.17.4(n) of the NER, RIT-D proponents are exempt from providing a DPAR if all of the following conditions are met:

- the RIT-D proponent made a determination under cl. 5.17.4(c) of the NER that no non-network option is a credible option or forms a significant part of a credible option;
- the RIT-D proponent published a notice under cl. 5.17.4(d) of the NER setting out the reasons for its determination, including any methodologies and assumptions it used; and
- the estimated capital cost to the NSPs affected by the RIT-D project of the proposed preferred option is under $10 million (varied in accordance with a cost threshold determination).

3.4 Final project assessment report

As soon as practicable after the consultation period for the DPAR, the RIT-D proponent must consider all submissions received and publish a FPAR.

Where a RIT-D proponent is exempt from preparing a DPAR, the RIT-D proponent must publish the FPAR as soon as practical after publishing a notice setting out reasons for no credible non-network options.

While not explicitly required by the NER, we consider it best practice for a RIT-D proponent to also publish the FPAR on its website. The RIT-D proponent may also note on its website that a process exists for resolving RIT-D disputes and the timeframes for lodging a dispute notice with the AER.

3.4.1 Information required for final project assessment report

If a DPAR was prepared, the FPAR must set out:

- the matters as required under cl. 5.17.4(j) of the NER.
- a summary of any submissions received on the DPAR and the RIT-D proponent's response to each submission.[17]

If the RIT-D proponent did not publish a DPAR, it only needs to set out the matters required under cl. 5.17.4(j) of the NER.[18]

3.4.2 Publishing a final project assessment report

Clause 5.17.4(s) of the NER can discharge a RIT-D proponent from its obligation to publish its FPAR under cll. 5.17.4(o)-(p) of the NER, if:

- the preferred option has an estimated capital cost to the NSPs affected by the RIT-D project of less than $20 million (varied in accordance with a cost threshold determination) and
- the RIT-D proponent includes its FPAR as a part of its DAPR (where the RIT-D proponent is a DNSP) or as a part of its TAPR (where it is a transmission network service provider (TNSP)).

3.5 Reapplication of the RIT-D

Clause 5.17.4(t) of the NER sets out that if a material change in circumstances means that, in the reasonable opinion of the RIT-D proponent, the preferred option identified in the FPAR is no longer the preferred option, the RIT-D proponent must re-apply the RIT-D to the RIT-D project.

A material change in circumstances may include, but is not limited to, a change in the key assumptions used in identifying:

- the identified need described in the FPAR; or
- the credible options assessed in the FPAR.

The AER can make a determination to exclude RIT-D proponents from this clause, where it considers appropriate. In making a determination under cl. 5.17.4(t) of the NER, the AER must have regard to:

- the credible options (other than the preferred option) identified in the FPAR
- the change in circumstances identified by the RIT-D proponent

[17] NER, cl. 5.17.4(r)(1)
[18] NER, cl. 5.17.4(r)(2)

- whether a failure to promptly undertake the RIT-D project is likely to materially affect the reliability and secure operating state of the distribution network, or a significant part of that network.[19]

We expect that situations that require a re-application of the RIT-D under cl. 5.17.4(t) of the NER will be exceptional. Similarly, circumstances where we make a determination to exclude RIT-D proponents from this clause are also likely to be exceptional. For this reason, we will consider these situations on a case-by-case basis on whether such a determination would be appropriate.

Example 3.1: Material change in circumstances

In the current year 0, a RIT-D proponent identifies the following needs at a 33/11kV zone substation:

- assets with limited remaining life requiring replacement by year 2
- firm capacity (limited by the 33kV supply feeders) forecast to be exceeded in year 2.

Before commencing work, the RIT-D proponent carries out a RIT-D and publishes a FPAR with the preferred option being to replace the aged substation assets and install an additional 33kV supply feeder.

After publishing the FPAR, the RIT-D proponent issues a higher demand forecast in year 2 than the initially forecast. In the absence of demand management or additional transformer capacity at the zone, the installation of an additional 33kV supply feeder (as per the preferred option) does not address the new forecast capacity constraint.

This is a material change in circumstances. Therefore, the RIT-D proponent is required to reapply the RIT-D.

Example 3.2: Material change in circumstances

A RIT-D proponent has completed the RIT-D process by publishing a FPAR. Its preferred option is the construction of a 132kV overhead line. In the process of obtaining jurisdictional approvals, significant community opposition emerges in the area. Approval will be granted only if sections of the original route of construction are underground. This will increase the cost of the preferred option.

This is a material change in circumstances. Therefore, the RIT-D proponent is required to reapply the RIT-D.

[19] NER, cl. 5.17.49u)-(v).

4 Material and adverse market impacts

Clause 5.15.1 of the NER defines an interested party as a:

> ...a person including an end user or its representative who, in the AER's opinion, has the potential to suffer a material and adverse National Electricity Market impact from the investment identified as the *preferred option*...

Material and adverse NEM impacts do not relate to personal detriment or personal property rights.

For the purpose of this clause, we must provide guidance on our consideration of materiality and adverse NEM impacts.[20] The following examples demonstrate impacts relating to personal detriment and property rights.

Example 4.1 Impacts relating to personal detriment

The RIT-D proponent has identified a demand management program as its credible option. Part of this program will entail installing smart meters with time of use (ToU) pricing. The RIT-D proponent expects this will defer its need for network augmentation and reduce the costs of electricity to end-users overall.

The RIT-D proponent also expects that some of its consumers will not want to change their electricity consumption by choosing to consume the majority of their electricity during hours of peak demand. These consumers may claim that the preferred option would cause detriment.

To the extent that the RIT-D proponent proposes a ToU charging structure that is cost-reflective, the negative impacts of the demand management program on some consumers would constitute an impact relating to personal detriment. Therefore, we would not consider these consumers as interested parties on this basis.

However, if a consumer contends that the structure of ToU charges under the demand management program is demonstrably not cost-reflective, this would imply that the demand management program could lead to inefficiency and therefore constitute a wider market detriment.

Example 4.2: Impacts relating to personal property rights

The RIT-D proponent has identified a network option as its credible option. Under this option, the RIT-D proponent will build poles and wires. This network infrastructure will run through several different properties. Some of the property owners consider that this action will devalue their property.

This would constitute an impact relating to personal property rights. Therefore, we would not consider these property owners as interested parties.

If a stakeholder has the potential to suffer material and adverse NEM impact from an externality, the AER cannot consider that stakeholder to be an interested party for the purposes of cl. 5.15.1 of the

[20] NER, cl. 5.17.2(b)(iii).

NER. This is because material and adverse NEM impacts do not result in personal detriment and personal property rights.

Section 15 of the application guidelines discusses externalities in more detail.

Material and adverse NEM impacts for the purposes of defining interested parties should include an impact on:

- a network operator or other stakeholders such as aggregators or energy service companies in the NEM that:
  - constrains the network operator's ability to fulfil functions mandated under the NER; or
  - undermines the stakeholder's ability to perform its operations to the extent that it can no longer operate or perform a particular function. This may result from physical obstruction or a substantial reduction in profitability; or
- an electricity consumer, in their role as a consumer of electricity that reduces the quality or reliability of their electricity supply below what is required under the NER or reduces the sum of consumer and producer surplus.

Example 4.3 demonstrates material and adverse impacts to network operators.

Example 4.3: Material and adverse impacts to network operators

The RIT-D proponent identified a demand management project or program as a credible option to meet an increase in forecast demand. As a part of its demand management project or program, the RIT-D proponent plans to roll-out smart meters through two network operators operating in the distribution network.

There is a third network operator in the distribution network that the RIT-D proponent has not planned to partner with to roll-out its smart meters. The third network operator is concerned that the demand management project or program is giving its competitors an unfair advantage in the distribution region. The third network operator has forecast that the demand management project or program will have a material and adverse impact on the profitability of its operation, such that it would no longer be able to operate in the distribution region.

In this example, the third network operator would be an interested party for the purposes of cl. 5.15.1 of the NER.

5 Discount rates

The RIT-D must specify the appropriate method and value for specific inputs, where relevant, for determining the discount rate or rates to be applied.[21]

For purposes of regulatory consistency, the method for determining the discount rate is the same as that used for the RIT-T. That is, the discount rate must be appropriate for the analysis of a private enterprise investment in the electricity sector and must be consistent with the cash flows that the RIT-D proponent is discounting. The lower boundary should be the regulated cost of capital.

Different types of RIT-D projects will carry different level of risks, and RIT-D proponents need the flexibility to account for this when determining the discount rate. The RIT-T methodology for determining the discount rate is flexible to allow for adjustment between projects.

[21] NER, cl. 5.17.1 (c)(9)(iii).

6 Dispute resolution

Clause 5.17.5 of the NER sets out the process that must be followed in resolving RIT-D disputes.

6.1 Who can make a RIT-D dispute

A dispute can only be lodged by the following parties:

- Registered Participants
- Australian Energy Market Commission (AEMC)
- Connection Applicants
- Intending Participants
- AEMO
- interested parties
- Non-network providers.[22]

The NER and the application guidelines refer to a person/party disputing a conclusion in the FPAR as a disputing party.

6.2 What can be disputed

The disputing party may only dispute conclusions made by the RIT-D proponent in the FPAR on the grounds that:

- the RIT-D proponent has not applied the RIT-D in accordance with the NER or
- there was a manifest error in the calculations performed by the RIT-D proponent in applying the RIT-D.[23]

A dispute may not be raised about any issues in the FPAR which:

- the RIT-D treats as externalities or
- relate to an individual's personal detriment or property rights.[24]

Section 15 of the application guidelines discusses externalities in more detail.

6.3 Lodging a dispute and information required

Within 30 days of the RIT-D proponent publishing the FPAR, the disputing party must:

- give notice of the dispute in writing setting out the grounds for the dispute (the dispute notice) to the AER
- provide a copy of the dispute notice to the relevant RIT-D proponent.[25]

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22 NER, cl. 5.17.5(a).
23 NER, cl. 5.17.5(a)(1) and (2)
24 NER, cl. 5.17.5(b)(1) and (2).

The dispute notice should include the following information:

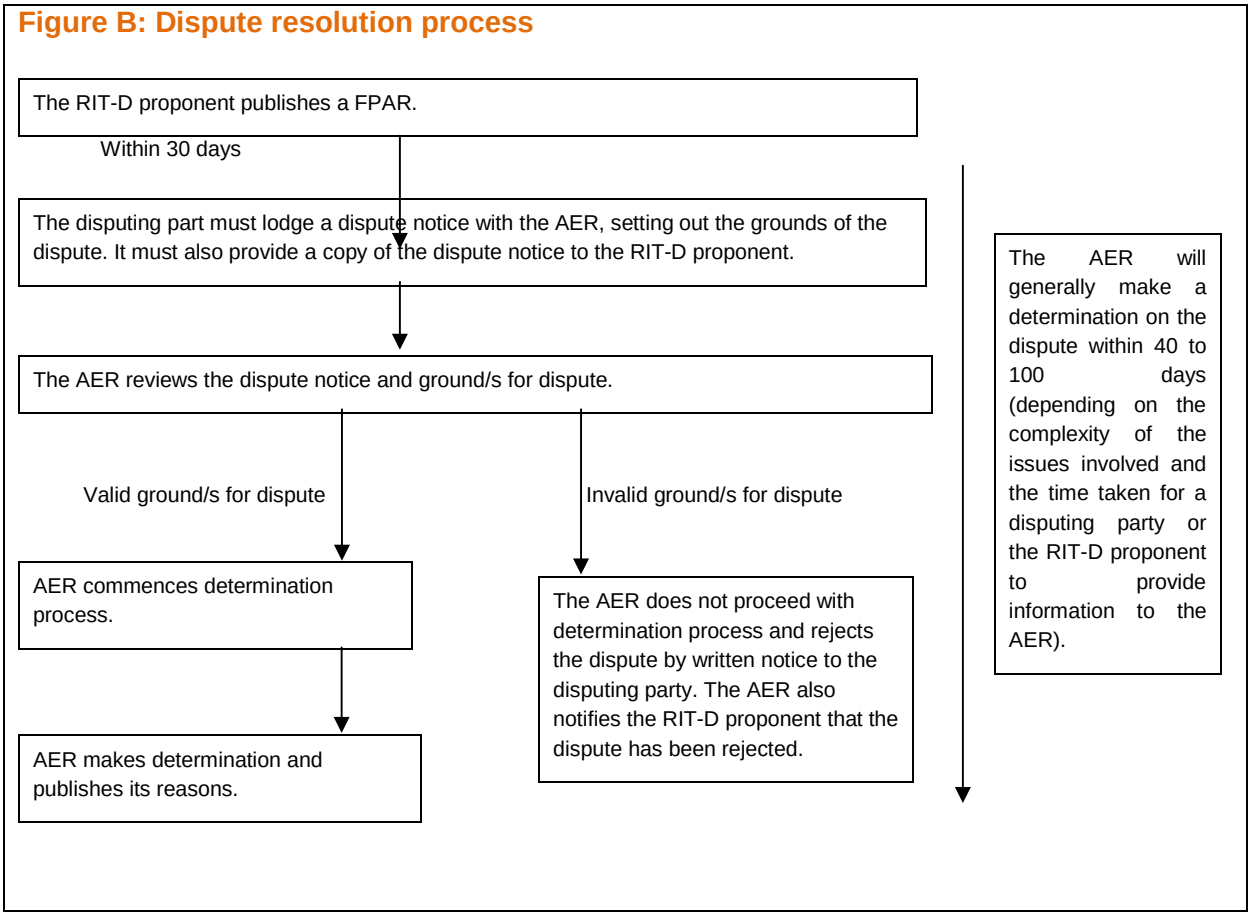
- the disputing party's name, a contact officer, address, email and telephone number
- the ground/s for the dispute
- any submissions the disputing party made regarding the RIT-D proponent's non-network option report, the DPAR and the FPAR (if applicable)
- the RIT-D proponent's response to any submissions made by the disputing party regarding the DPAR (if applicable)
- details of any meetings held by the RIT-D proponent with the disputing party (if applicable)
- the details of any other known parties involved in the matter.

6.4 Procedure for a dispute

All parties have different obligations under cl. 5.17.5 of the NER to ensure the timely resolution of disputes. Figure B summarises the process for resolving RIT-D disputes.

[25] NER, cl. 5.17.5(c).

Figure B: Dispute resolution process



6.5 Timeframe for resolving disputes

We must decide whether a dispute is valid within:

- 40 days of receiving the dispute notice or
- an additional period of up to 60 days where we notify a relevant party that additional time is required to make a determination because of the complexity or difficulty of the issues involved.[26]

6.6 AER determination

After considering the dispute notice and any other relevant information, we must either reject the dispute or make and publish a determination. We only require the RIT-D proponent to amend its FPAR if we determine that it applied the RIT-D incorrectly or there was a manifest error in its calculations when applying the RIT-D.

If we decide to reject the dispute, we must do the following:

- reject the dispute by written notice to the disputing party if we consider that the grounds for the dispute were misconceived or lacking in substance and
- notify the RIT-D proponent that the dispute has been rejected.[27]

[26] NER, cl. 5.17.5(d).

If we do not reject the dispute, we must make and publish a determination that:

- directs the RIT-D proponent to amend the matters set out in the FPAR or
- states that, based on the grounds of the dispute, the RIT-D proponent will not need to amend the FPAR.[28]

6.7 Experts

We may engage an expert to provide advice on specific matters. The experts may include engineers, economists or other experts in the electricity industry.

It is likely that an engineering expert would be needed to advise us on the engineering/planning aspects where the identified need is for reliability corrective action. Given the complex economic modelling and analysis required, we may also require an economic expert to assist in resolving disputes regarding the quantification of market benefits.

6.8 Material the AER may consider

In making a determination on the dispute, we:

- must only take into account information and analysis that the RIT-D proponent could reasonably be expected to have considered or undertaken at the time it performed the RIT-D
- must publish our reasons for making the determination
- may disregard any matter raised by the disputing party or the RIT-D proponent that is misconceived or lacking in substance and
- must specify a reasonable timeframe for the RIT-D proponent to comply with the AER's direction to amend the matters set out in the FPAR.[29]

We are likely to consider the following material:

- the dispute notice
- the non-network options report, the DPAR and the FPAR (as applicable)
- any expert advice or reports on the proposed preferred option
- the RIT-D proponent's annual planning reports and any other relevant planning publications
- relevant planning criteria, reliability requirements or jurisdictional licensing requirements and
- relevant regulatory decisions relating to the proposed preferred option.

6.8.1 Requests for further information

Under cl. 5.17.5(h) of the NER, we may request additional information regarding the dispute from the disputing party and/or the RIT-D proponent. The disputing party or the RIT-D proponent (as the case may be) must provide any additional information as soon as reasonably practicable.

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27 NER, cl. 5.17.5(d)(1) and (2).
28 NER, cl. 5.17.5(d)(3).
29 NER, cl. 5.17.5(f).

A request for additional information will be in writing. The notice will explain that the:

- request is being made under cl. 5.17.5(h) of the NER
- period of time for making a determination is automatically extended by the amount of time it takes the relevant party to provide the requested information, provided that:
- we make the request for additional information at least seven days prior to the expiry of the relevant period
- the RIT-D proponent or disputing party provides the information within 14 days of receipt of the request.

While the NER expressly provides for us to request information from the RIT-D proponent or the disputing party, we can request information from a party that is external to a dispute.

We may ask third parties to provide information voluntarily. We can also issue a notice under s. 28 of the National Electricity Law.

7 Clause 5.17.4(c) determinations

The application guidelines must provide guidance on how to make a determination under cl. 5.17.4(c) of the NER. Clause 5.17.4(c) of the NER states that a RIT-D proponent is not required to prepare a non-network options report 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.

7.1 Screening for non-network options

Before RIT-D proponents can make a determination under cl. 5.17.4(c) of the NER, they must screen for non-network options. We consider screening to mean that RIT-D proponents must consider all feasible non-network options, such as:

- any measure or program targeted at reducing peak demand, including:
  - improvements to or additions of automatic control schemes such as direct load control
  - energy efficiency programs or a demand management awareness program for consumers
  - installing smart meters with measures to facilitate cost-reflective pricing.
- increased local or distributed generation/supply options, including:
  - capacity for standby power from existing or new embedded generators
  - using energy storage systems, load transfer capacity and more.

7.2 Assessing non-network options as potential credible options

Once a RIT-D proponent screens for non-network options, it can determine whether or not any of these non-network options could individually or jointly, with other option/s constitute a credible option.

RIT-D proponents must consider that credible options may be a variety of different measures combined to form one integrated solution to an identified need. Therefore, a RIT-D proponent must consider treating a package of different non-network options as one credible option when determining whether a non-network option could constitutes part of a credible option. A RIT-D proponent must also determine whether or not any non-network options could combine with a network or generation option to form a significant part of a credible option. Non-network options could form a significant part of a credible option to address the identified need where:

- adding a non-network option to a network option or a generation option could be used as an integrated solution for addressing an identified need such as increasing the net economic benefits in the NEM.
- the network option is not a feasible credible option, unless the RIT-D proponent combines it with a non-network option.

When making this determination, a RIT-D proponent should assess whether the option (or group of options) would potentially:

- address the identified need

- is or are commercially and technically feasible. An option is commercially and technically feasible where its estimated costs are comparable to (or less than) other credible options that address the identified need. One exception includes where the credible option/s is/are likely to deliver materially higher market benefits. In such circumstances, the option may be commercially feasible despite the higher expected cost.

- can be implemented in a sufficient time to meet the identified need.

A RIT-D proponent must state its reasoning if it determines that no non-network options satisfy these criteria.

Example 5: A non-network option as a significant part of a credible option

The identified need is to increase the capacity in the distribution network by 20 per cent. The RIT-D proponent has identified two credible options:

1. install larger capacity feeders that will increase capacity in the distribution network by 40 per cent or

2. introduce a demand management program to reduce peak load, increasing available network capacity by 10 per cent. The RIT-D proponent will then install smaller, less-costly feeders so that total capacity will increase by 20 per cent.

Both options 1 and 2 are credible in that they can address the identified need, and are commercially and technically feasible. Both can be implemented in sufficient time to meet the identified need.

Consequently, the RIT-D proponent cannot make a determination under cl. 5.17.4(c) of the NER.

7.3 Publishing a clause 5.17.4(d) notice

If a RIT-D proponent makes a determination under clause 5.17.4(c) of the NER, it must publish a notice under cl. 5.17.4(d) of the NER (Notice).Clause 5.17.4(c) of the NER states:

> If a RIT-D proponent makes a determination under paragraph (c), then as soon as possible after making the determination it must *publish* a notice setting out the reasons for its determination, including any methodologies and assumptions it used in making its determination.

The Notice must include reasons why non-network options:

- could not address the identified need and

- are not commercially feasible or

- are not technically feasible or

- could not be implemented in a sufficient time to meet the identified need and

- does not satisfy all of the above requirements, when forming a significant part of a credible option and

The Notice should also include the methodologies and assumptions used.

We require RIT-D proponents to apply this level of consideration to every non-network option available.

A RIT-D proponent only needs to describe the reasons that a non-network option is not a credible option. For instance, if a non-network option does not address the identified need and is not technically feasible, the RIT-D proponent is only required to show that it does not address the identified need or that it is technically not feasible. This does not preclude a RIT-D proponent from showing the reasons the option fails to satisfy both these requirements. In order to minimise the chance of potential disputes, a RIT-D proponent may find it prudent to explain the reasons the option fails both requirements.

8 Credible options

Clause 5.15.2(a) of the NER provides that a credible option is an option, or group of options that:

- addresses the identified need
- is (or are) commercially and technically feasible and
- can be implemented in sufficient time to meet the identified need.

An identified need is defined as

> the objective a Network Service Provider (or in the case of a need identified through joint planning under clause 5.14.1(d)(3) or clause 5.14.2(a), a group of Network Service Providers) seeks to achieve by investing in the network.

A set of projects may constitute one credible option, if the projects form one integrated solution to meet a given identified need. To the extent possible, RIT-D proponents should construct credible options using individual options that meet identified needs over broadly similar timeframes. This facilitates the use of similar modelling periods (see section 9 of the application guidelines) and increases the transparency and robustness of the analysis.

Where there is a material degree of uncertainty regarding future scenarios, and the option/s considered involve a sunk or irreversible action by the RIT-D proponent, the RIT-D proponent could be flexible in responding to changing market developments or scenarios as they emerge. One approach is to consider credible options formed by a group of options that include:

- an initial option that allows the RIT-D proponent to defer expenditure of a more costly option until more information becomes available and
- a subsequent option that would only be implemented under certain future conditions or states of the world.

When a RIT-D proponent accounts for this value, it is effectively incorporating option value into its RIT-D assessment.

Example 6: Identifying credible options when there is uncertainty

A RIT-D proponent is considering augmenting a section of its distribution network.

The RIT-D proponent has forecast future demand, and found that there is a material degree of uncertainty. There is a possibility that a major property developer planning to build a large residential estate in the area. Consequently, the RIT-D proponent has forecast the following future scenarios:

- low demand–demand is forecast to decrease by 1 per cent over the next 6 years with 50 per cent probability
- high demand–demand is forecast to increase by 20 per cent over the next 6 years with 50 per cent probability

In light of the high demand scenario, the RIT-D proponent is considering a network augmentation option by investing in a large substation and additional poles and wires. This investment would be costly and only beneficial in the forecast high demand scenario. There is a 50 per cent chance that

this scenario would not eventuate.

However, it may be prudent for the RIT-D proponent to retain the flexibility to respond to the high demand scenario as it emerges. This could enable the large substation investment to be delayed until the RIT-D proponent is certain that the major property development will go ahead.

If the identified need is sub-optimal for the RIT-D proponent to do nothing while it waits for information, it could be prudent for it to make a smaller or more reversible investment in the interim. This could entail implementing a direct load control project, or giving electricity consumers incentive payments to reduce their levels of peak demand.

In this example, the RIT-D proponent identifies the following credible options:

- augment the network in year 2.
- implement a voluntary load curtailment program in year 1 and wait for more information before deciding whether to augment its network. Subject to the information, which the RIT-D proponent expects to receive in year 3, the RIT-D proponent could augment the network in year 4.

After the RIT-D proponent quantifies the market benefits in both reasonable scenarios, it finds that the market benefits are highest in the second option.

8.1.1 Number and range of credible options

Clause 5.15.2(c) of the NER states that in applying the RIT-D, the RIT-D proponent must consider all options that it could reasonably classify as credible options, without bias to energy source, technology, ownership and whether it is a network or non-network option.

It is possible that in the presence of integrated solutions, RIT-D proponents may consider a large magnitude of credible options that comprise a number of similar 'sub-options' which are, different variations of integrated solutions. It is important that RIT-D proponents consider all credible options and 'sub-options' so they can adequately take option value into account as illustrated in example 6 above.

Further, cl. 5.15.2(d) of the NER clarifies that RIT-D proponents should not exclude options without proponents as potentially constituting credible options.

9 Suitable modelling periods

The duration of modelling periods should take into account the size, complexity and expected life of the relevant credible option. The modelling period should provide a reasonable indication of the market benefits and costs of the credible option. This means that by the end of the modelling period, the network is in a 'similar state' in relation to meeting a similar identified need to where it is at the time of the investment. The suitable modelling period could vary according to the credible option under consideration. However, to the extent possible, the RIT-D proponent should construct credible options (using individual options) that require assessment under similar modelling periods.

It is difficult to provide definitive guidance on how RIT-D proponents should implement this principle. However, it is unlikely that a period of less than 5 years would adequately reflect the market benefits of any credible option. In the case of high-cost investments that provide a return over a longer period, it may be necessary to adopt a modelling period of 20 years or more.

When considering longer modelling periods, a RIT-D proponent may find that costs and market benefits may eventually become immaterial due to discounting future costs. Under such circumstances, a RIT-D proponent may exercise discretion when selecting a suitable modelling period so that the RIT-D does not require a level of analysis that is disproportionate to the scale and likely impact of the credible options being considered.

Example 7: Suitable modelling periods

The identified need is to maintain reliability under conditions of rising peak load. The RIT-D proponent has identified two credible options to achieve this:

1. increase capacity in the section of the network to take up load by 10 per cent. This will be achieved through network augmentation or
2. decrease peak demand through a demand side participation program so that the existing network can serve an increase in the pre-demand side participation peak load of 10 per cent.

Under the first option, the RIT-D proponent will build the plant in year 4. Project planning will commence in year 2. The RIT-D proponent expects the new plant will satisfy the capacity needs on the section of the distribution network until year 20, after which it will consider more options for meeting the identified need. In this case, a suitable modelling period would be 20 years.

Under the second option, the RIT-D proponent will develop the demand response program and start it in year 3. Project planning will commence in year 1. The RIT-D proponent expects end-users to gradually take up the demand response, which will reach a steady state in year 12. The RIT-D proponent expects it will need to consider more options for meeting the identified need in year 20. In this case, a suitable modelling period should be approximately 20 years. This is because there are approximately 20 years from the commencement of project planning until the network is in a similar state in terms of the identified need.

10 Market benefit classes

The total benefit of a credible option includes the change in:

- consumer surplus—, being the difference between what consumers are willing to pay for electricity and the price they are required to pay and
- producer surplus, being the difference between what electricity producers and transporters receive in payment for their services and the cost of providing those services (excluding the costs of the credible option).

We require a RIT-D proponent to include all classes of market benefits in its analysis that it considers to be material when applying the RIT-D. A RIT-D proponent must consider whether each credible option could deliver the classes of market benefits specified under cl. 5.17.1(c)(4) of the NER. Clause 5.17.1(d) of the NER specifies that:

> A RIT-D proponent may, under the *regulatory investment test for distribution*, quantify each class of market benefits under paragraph (c)(4) where the RIT-D proponent considers that:
>
> (1) any applicable market benefits may be material; or
>
> (2) the quantification of market benefits may alter the selection of the *preferred option*

While a RIT-D proponent must consider each class of market benefit specified under cl. 5.17.1(c)(4) of the NER, a RIT-D proponent is not obligated to quantify the benefits that it considers to be immaterial or will not alter the selection of the preferred option. Likewise, a RIT-D proponent is not obligated to quantify market benefits for reliability driven projects.[30]

However, where an identified need is not for reliability corrective action, including more classes of market benefits may assist a credible option to have a positive net economic benefit and hence satisfy the RIT-D. Therefore, in this circumstance the quantification of market benefits is effectively required.

While there might be some ambiguity in the NER, the AEMC clarifies this in its final determination:[31]

> The Commission confirms that it is the intention of clause 5.17.1(d) that the quantification of market benefits is optional under the RIT-D. However, this clause must be read in conjunction with clause 5.17.1(b) which states that:
>
> > "(b) ...For the avoidance of doubt, a preferred option may, in the relevant circumstance, have a negative net economic benefit (that is, a net economic cost) where an identified need is for reliability corrective action."
>
> Therefore, where an identified need is not for reliability corrective action, a RIT-D proponent would need to quantify both the applicable costs and market benefits associated with each credible option in order for the preferred option to have a positive net economic benefit. On this basis, the quantification of market benefits under the RIT-D would be optional for reliability driven projects only.

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30 AEMC, Rule Determination: *National Electricity Amendment (Distribution Network Planning and Expansion Framework) Rule 2012*, 11 October 2012, pp. 81–82.

31 AEMC Rule Determination, *National Electricity Amendment (Distribution Network Planning and Expansion Framework) Rule 2012*, 11 October 2012, pp. 81–82.

Example 8.1: Market benefits with immaterial impacts

A RIT-D proponent's preferred option is to upgrade one of its substations. The RIT-D proponent expects that constructing this credible option will cost $40 million. As a part of this upgrade, the RIT-D proponent proposes to install more efficient transformers.

Load at region of the distribution network is 100 MW. Energy costs after generation are $11/MWh.

The RIT-D proponent expects the new transformers to marginally reduce electrical energy losses from 6 per cent to 5.9 per cent when operating at 100 MW.

In the base case:

- total losses = $11*0.06*100 MW = $66 per hour

In the state of the world with the credible option:

- total losses = $11*0.059*100 MW = $64.9 per hour

Assuming the same conditions over 8760 hours per year, the contribution of decreased network losses to the market benefit of the credible option is ($66 - $64.9)*8760 = $9 636 per year. As the net present value of such a benefit would only be approximately $100 000 this could be considered immaterial given the cost of this credible option.

Example 8.2: Market benefits that will not alter the selection of the preferred option

RIT-D proponents should quantify classes of market benefits that may affect the identification of the preferred option.

For example, a RIT-D proponent is considering three credible options:

- network option
- sophisticated demand side option
- simple demand side option with a deferred network option.

Assume that each option has a similar cost and only has an impact on load shedding.

The RIT-D proponent determines on reasonable grounds, that all three credible options will reduce involuntary load shedding by a very similar amount.

However, the RIT-D proponent expects that these credible options will differ significantly in the changes in voluntary load shedding they produce.

While the credible options may produce marginal differences in involuntary load shedding, the RIT-D proponent is not required to calculate these differences as it will be irrelevant in identifying the preferred option. However, the RIT-D proponent expects, on reasonable grounds, that the preferred option will depend on the relative changes in voluntary load shedding.

In this example, the RIT-D proponent may only need to quantify the changes in voluntary load shedding to identify the preferred option.

RIT-D proponents should only consider the classes of market benefits that are relevant to the circumstances surrounding the individual RIT-D assessment and the credible options.

Clause 5.17.1(c)(4) of the NER requires RIT-D proponents to consider whether each credible option could deliver the following classes of market benefits:

- changes in voluntary load curtailment
- changes in involuntary load shedding and customer interruptions caused by network outages, using a reasonable forecast of the value of electricity to customers
- changes in costs for parties, other than the RIT-D proponent, due to differences in:
  - the timing of new plant
  - capital costs and
  - the operating and maintenance costs.
- differences in the timing of expenditure
- changes in load transfer capacity and the capacity of embedded generators to take up load
- any additional option value (where this value has not already been included in the other classes of market benefits) gained or foregone from implementing the credible option with respect to the likely future investment needs of the NEM
- changes in electrical energy losses and
- any other class of market benefit determined to be relevant by the AER.

We consider this list of market benefit classes to be sufficiently extensive. It would be difficult to propose any additional class of market benefit that would have a material impact and/or be specific to the NEM. For this reason, we do not propose any additional class of market benefit.

If a RIT-D proponent quantifies an additional class of market benefit in its RIT-D assessment, we will consider it. However, a RIT-D proponent must receive approval from the AER before it makes its non-network options report available to other parties. If the RIT-D proponent is not preparing a non-network options report, the AER must provide its approval before the RIT-D proponent publishes the notice of its determination stating that there are no non-network options that are credible options.

11 Valuing market benefits

Under cl. 5.17.2(c)(5) of the NER, the application guidelines must provide guidance and worked examples to the acceptable methodologies for valuing the market benefits of a credible option. This section provides guidance on valuing market benefits broadly.

In the RIT-T application guidelines, the market benefit of a credible option is obtained by:

- comparing, for each relevant reasonable scenario the state of the world:
  - with the credible option in place, with
  - in the base case, in which no credible option is implemented by the DNSP.
- weighting any benefits or costs by the probability of each reasonable scenario occurring.[32]

Under the RIT-D, where the identified need for an investment is to increase market benefits, a similar approach could apply. That is, the market benefit of each credible option could be calculated by comparing a state of the world with the credible option in place against a state of the world with no credible option in place, and weighting reasonable scenarios appropriately. However, under the RIT-D, where the identified need is for reliability corrective action, there may be no need to establish a base case in which no credible option is implemented. Rather, the RIT-D proponent will only have to calculate the relative market benefits between credible options.

A relative market benefit of a credible option is obtained by:

- selecting one credible option to serve as the base case for the RIT-D analysis (base case credible option)
- comparing for each reasonable scenario, the state of the world with each other credible option (other credible option) in place against the state of the world with the base case credible option in place
- where the state of the world with another credible option in place exhibits benefits compared to the state of the world with the base case option in place, the difference is a relative market benefit to that other credible option. Where the reverse occurs, the difference is a negative relative market benefit or a relative market cost and
- weighting any relative market benefits or costs by the probability of each reasonable scenario occurring.

The RIT-D proponent will then need to demonstrate (by subtracting relative costs) that the preferred option has the highest relative net economic benefit of all the credible options, which may be zero if the preferred option is the base case credible option.

Example 9: Credible options affecting reasonable scenarios (demand management)

The level of economic growth and the associated level of base electricity demand are key components of a reasonable scenario.

To the extent that a demand side option leads to lower peak demand under each of these reasonable

[32] Defined as a set of variables or parameters that are not expected to change across each of the relevant credible options

scenarios, RIT-D proponents should account for this effect in the states of the world associated with that option in each of the reasonable scenarios.

This ensures transparency where the RIT-D proponents calculates the benefits of the demand side option in high, medium and low demand scenarios, as the benefits of the demand side option may vary according to the demand scenario.

11.1 Deriving relevant states of the world

State of the world means a reasonable and mutually consistent description of all of the relevant supply and demand characteristics and conditions that may affect the calculation of market benefits over the period of the assessment.

A state of the world should be internally consistent. That is, all aspects of the state of the world could reasonably coexist. In some cases, the development of new generation (incorporating capacity, technology, location and timing) may vary depending on which credible option RIT-D is implemented. This variation may also occur in circumstances where the 'do nothing' base case is applicable. Therefore, each credible option and the 'do nothing' base case, (if applicable), will be associated with a different state of the world reflecting different patterns of generation investment and other characteristics and conditions.

When deriving all states of the world, RIT-D proponents must consider the inclusion of the following:

- to the extent relevant, all existing assets and facilities at the time the RIT-D is applied must, at least initially,[33] form a part of all states of the world.
- appropriate committed, anticipated and modelled projects which are future investment in generation, network and load relevant to or contingent on any or all credible options proceeding or not proceeding.

Committed and anticipated projects should form a part of all states of the world, based on the reasonable judgement of RIT-D proponents.

The choice of modelled projects, if relevant, in a given state of the world will need to be determined based on appropriate market development modelling. This involves determining the kind of projects that would be undertaken in the longer term, with and without each credible option proceeding. Market development modelling must be undertaken on a transparent and robust basis.

By enabling the derivation of modelled projects in the presence of a credible option and the base case, market development modelling assists in determining the market benefits of the credible option in a given reasonable scenario. For example, market development modelling may assist in determining whether, in high, medium or low demand reasonable scenarios, a demand side option is likely to lead to the deferral (or advancement) of new generation investment compared to other credible options. To the extent it does, this would constitute a positive (or negative) contribution to the market benefit of the credible option in each of those reasonable scenarios.

[33] Reasonable scenarios may appropriately contemplate retirement of existing plant or facilities.

11.2 Comparing relevant states of the world

RIT-D proponents obtain the market benefit of a credible option in a given reasonable scenario with each option in place against the base case credible option or the 'do nothing' base case. RIT-D proponents must derive the states of the world with each credible option (and the 'do nothing' base case if relevant) in place and compare the associated states of the world across all reasonable scenarios.

Example 10.1 below illustrates how this could be done in a case where the identified need meets a mandatory service standard. The example has two credible options that would satisfy that need – a network and a demand side response option.

Example 10.1: Comparing states of the world where the identified need is for reliability corrective action

Given two credible options (a network option and a demand side option) and three reasonable scenarios (high, medium and low demand), it is necessary to:

- derive both a network option state of the world and a demand side option state of the world under conditions of high, medium and low demand. This will require the development of six market modelling paths to establish the states of the world:
  - (1) network option with high demand
  - (2) demand side option with high demand
  - (3) network option with medium demand
  - (4) demand side option with medium demand
  - (5) network option with low demand
  - (6) demand side option with low demand.
- compare the states of the world under each credible option. This requires a comparison between state of the world (1) against (2), (3) against (4) and (5) against (6). Treating the network option as the base case credible option yields the relative market benefits of the demand side option as compared to the network option in each of the three reasonable scenarios.

For this example, assume that in the network option states of the world, the RIT-D proponent estimates the following costs of generation and load shedding:

- $30 million in a high demand scenario
- $20 million in a medium demand scenario
- $10 million in a low demand scenario.

Further, assume that in the demand side option states of the world, the RIT-D proponent estimates the following costs of generation and load curtailment:

- $60 million in a high demand scenario
- $40 million in a medium demand scenario
- $15 million in a low demand scenario.

This means that the demand side option has relative market benefits of:

- negative $30 million in a high demand scenario
- negative $20 million in a medium demand scenario
- negative $5 million in a low demand scenario.

11.3 Weighting the market benefits arising in each reasonable scenario

The final step is to weight the market benefits of each credible option arising in each reasonable scenario. This is illustrated in example 10.2 below.

Example 10.2: Comparing probability-weighted states of the world

Drawing from example 10.1, assume that the probability of a:

- high demand scenario is 50 per cent
- medium demand scenario is 40 per cent
- low demand scenario is 10 per cent.

Under these assumptions, the relative market benefits of the demand side option is -$23.5 million (0.5*-$30 million + 0.4*-$20 million + 0.1*-$5 million).

Note: this example incorporates the negative utility from voluntary demand side curtailment as part of the negative market benefits of the demand side option. This means that payments to consumers for curtailment do not need to be counted again as part of the costs of the option. Accordingly, the costs of the option will be limited to the fees or commissions of the demand side aggregator or energy service company (see section 12 of the application guidelines). As long as the demand side option involves fees or commissions to the demand side provider, that are at least $23.5 million less than the costs of the network option, the demand side option will provide relative net economic benefit over the network option. Therefore, the demand side option would be the preferred option.

12 Valuing costs

Under cl. 5.17.1(c)(6) of the NER, the RIT-D proponent must consider whether the following classes of costs would be associated with each credible option:

- financial costs incurred in constructing or providing the credible option
- operating and maintenance costs over the operating life of the credible option
- cost of complying with laws, regulations and applicable administrative requirements in relation to the credible option
- any other financial costs the AER determines to be relevant.

A RIT-D proponent must capture these classes of costs in its RIT-D assessment.

Note that where the identified need is for reliability corrective action, costs refer to the incremental or relative costs of another credible option over (or under) the costs of the base case credible option. RIT-D proponents must not subtract actual option costs from relative market benefits.

In the case of demand side options, rewards or inducements paid to consumers for voluntary load curtailment may be counted as either a:

i. cost of the demand side option (implicitly included in the full contract cost paid by the RIT-D proponent to the non-network service provider) or

ii. negative market benefit of the demand side option (while the commission or fees paid by the RIT-D proponent to the demand side aggregator or relevant energy service business count as a cost of the demand side option).

The less consumers need to be paid to voluntarily curtail their power use, the lower the negative market benefits from a voluntary curtailment option. This is because in a competitive market, the amount consumers need to be paid to voluntarily curtail their power should reflect, at a minimum, the real loss of utility they experience from not consuming power.

As set out in example 11 below, the two options for the treatment of demand side payments are intended to be equivalent, although the second option may yield a more accurate result where payments to consumers vary by reasonable scenario.

Example 11: Treatment of demand side response payments

Load on a particular network is expected to reach 201 MW but the network's capacity is only 200 MW. Consumers value involuntarily curtailed load at $45 000/MWh. A demand side credible option involves paying a demand aggregator:

- $500 000 per year as an availability payment – passed on in full, to a group of large electricity consumers; and
- $1 500/MWh to curtail load by 1 MW during 100 pre-notified hours of critical peak periods each year – of which $500/MWh is retained by the aggregator, while the remaining $1 000/MWh is paid to the large electricity consumers to curtail their load during these periods.

In the base case:

- demand exceeds supply by 1 MW for 100 hours a year
- value of voluntary load curtailment is $0
- value of involuntary load curtailment is 1 MW x 100 hours x $45,000/MWh = $4 500 000 per year.

Under the demand side credible option, demand is curtailed by 1 MW for 100 hours a year to ensure system load does not exceed system supply. This means there is no involuntary load shedding under the demand side option, in contrast to what occurs in the base case. The apportioning of costs and market benefits under the two options described above is shown in the table 2 below:

Table 2 Modelling and analysis required under the RIT-D (Reliability corrective action project)

	Credible option	Option (i)	Option (ii)
Costs	Payment to the demand aggregator	Full load curtailment payment + availability payment: 1 500/MWh x 1 MW x 100 hours + $500 000 = $650 000 per year	Only the part of the load curtailment payment retained by the aggregator: $500/MWh x 1 MW x 100 hours = $50 000
	Total Cost	**$650 000**	**$50 000**
Market Benefits	Negative value of voluntary load curtailment (as reflected in payments to consumers)	$0	Load curtailment payment + availability payment: -$1 000/MWh x 1 MW x 100 hours - $500,000 = -$600 000
	Value of avoided involuntary load curtailment	$4 500 000	$4 500 000
	Total Market Benefit	**$4 500 000**	**$3 900 000**
	Benefits less costs	$4 500 000 - $650 000 = $3 850 000 per year	$3 900 000 - $50 000 = $3 850 000 per year

Benefits less costs are the same in both treatments. The two options are equivalent.

12.1 The treatment of land

Given that the cost of land may be a cost incurred in constructing or providing a credible option,[34] the value of land should be included as part of a RIT-D assessment. The purpose of the RIT-D is to identify the credible option that maximises the present value of the net economic benefit to all those who produce, consume and transport electricity in the NEM. As a result, it is important that all credible options are assessed at present values. The market value of land should therefore be used in the assessment of costs incurred in constructing or providing credible options.

12.2 Other financial costs

A RIT-D proponent may propose any other financial cost that it considers relevant. If a RIT-D proponent includes other financial costs in its RIT-D assessment, it should provide the AER with a written explanation outlining the relevance of the financial cost, including any underlying assumptions.

The RIT-D proponent must submit this proposal to the AER before making its non-network options report available to other parties. If the RIT-D proponent is not preparing a non-network options report, we must approve the proposal before the RIT-D proponent publishes a notice of its determination that there are no credible non-network options.

If we agree that the RIT-D proponent should account for the proposed class and magnitude of financial cost, we will provide an approval in writing. The AER will make this determination as soon as practical.

The cost of complying with laws and regulations

RIT-D proponents must comply with any law, regulation or administrative requirements. However, in some cases, the RIT-D proponent may have a choice as to how it meets these requirements. For example, the RIT-D proponent may lawfully choose to pay a financial amount rather than undertake some other action (which is otherwise necessary to comply with the relevant law, regulation or administrative requirement). If the financial amount is smaller than the costs of undertaking some other action, then the RIT-D proponent may treat this financial amount as part of the costs of such a credible option.

However, any harm to the environment or to any party that is not expressly prohibited or penalised under the relevant laws, regulations or administrative requirements does not form part of the costs or affect the market benefits of the credible option.

The limitation of costs in the RIT-D places the onus on policy makers to explicitly prohibit certain activities or to determine the value on various types of harm and impose financial penalties accordingly. It is not the role of the RIT-D to prohibit or penalise certain activities that policy-makers have not themselves determined to prohibit or penalise.

Examples below demonstrate costs of a credible option on externalities.

Example 12.1: Cost of a credible option (un-priced externality)

To meet an identified need, a RIT-D proponent identifies the development of a local gas-fired

[34] NER, cl. 5.17.1(c)(6)(i).

embedded generator in close proximity to an existing hotel as a credible option. The present value of the embedded generator's expected construction and operating costs is $90 million. The RIT-D proponent expects the generator to reduce the hotel's earnings due to a loss of visual amenity. The present value of this loss is $5 million. There are no planning standards, consents or other requirements which protect the hotel against this loss.

In the absence of any planning standards, consents or other requirements hindering its development, the costs of the credible option remain $90 million. The negative externality created by the embedded generator's development and borne by the hotel is not regulated or legislated by any relevant law, regulation or administrative requirement and therefore does not form part of the costs of the credible option.

Example 12.2: Cost of a credible option (penalised externality)

Assume that a regulatory body allows the development of the credible option contingent on the RIT-D proponent paying for landscaping to conceal the embedded generator and to reduce the harm to the visual amenity of the hotel's guests. The present value of this landscaping is $5 million.

In this case, the costs of the credible option would be $90 million + $5 million = $95 million. The $5 million is now included as part of the costs of the credible option since a relevant regulatory body requires the generator's development was contingent on such an expense being incurred.

13 Reasonable scenarios and sensitivities

Clause 5.17.1 of the NER requires RIT-D proponents to base the RIT-D assessment on a cost-benefit analysis that includes an assessment of reasonable scenarios of future supply and demand. For example, in assessing two credible options, a RIT-D proponent might formulate a reasonable scenario based on the following set of input assumptions, which it reasonably considers most likely:

- medium base forecast electricity demand
- a discount rate of 8 per cent
- medium capital and operating costs for existing, committed, anticipated and modelled generation projects.

This set of inputs represents the central reasonable scenario with which the RIT-D proponent can proceed to calculate the net economic benefit of the two credible options. However, depending on the nature of the options being assessed, the use of additional reasonable scenarios may be appropriate.

Clause 5.17.1(2) of the NER states that the RIT-D must not require a level of analysis that is disproportionate to the scale and likely impact of each credible option considered. Consequently, the appropriate number and choice of reasonable scenarios is likely to vary for each set of credible options.

The development of additional reasonable scenarios involves a process of applying sensitivity analysis to key input variables within the central reasonable scenario. Where a change to a parameter or value in a central reasonable scenario yields or is likely to yield a change to the ranking of credible options by net economic benefit, the RIT-D proponent should adopt additional reasonable scenarios that reflect variations in that parameter or value.

For example, drawing from the above example, a RIT-D proponent could choose to undertake a sensitivity analysis on demand. This will determine whether the ranking of credible options by net economic benefit changes if demand grows faster or slower than anticipated, assuming no change in carbon prices and new generation costs (which are assumed to be independent of demand growth). In some cases, where relevant and appropriate, given the overall requirement of proportionately, undertaking a sensitivity analysis may involve taking account of changes in the sensitivity variable (such as demand) on other inputs, such as new generation investment, by using plant expansion modelling.

Example 13 illustrates how a RIT-D proponent could undertake a sensitivity analysis of forecast demand.

Example 13: Demand sensitivity

Assume this example is for reliability corrective action and therefore a relative ranking of credible options is required (as opposed to a comparison with a 'do nothing' base case to quantify market benefits).

Assume there are two credible options:

1. augmentation of a distribution line at a cost of $60 million
2. contracting with an embedded generator to provide additional peak demand support at a cost of

$15 million.

The first option is chosen as the base case credible option. Therefore, only the relative market benefits and costs of the second credible option need to be calculated.

The RIT-D proponent forecasts that energy and peak demand in the region will grow by 3 per cent over the period of the analysis.

In the central reasonable scenario, the relative market benefits of the embedded generator credible option will be determined as follows:

- variable electricity supply costs will be higher under the embedded generator option than under the base case network augmentation option because the embedded generator is likely to have a higher variable cost than a remote generator. This makes a negative contribution to the embedded generator option's relative market benefits.

- fixed new generation costs (excluding the cost of the embedded generator option itself) will be lower under the embedded generator option than under the base case network augmentation option because the embedded generator postpones the need for new generation from year 5 in the base case to year 10. This makes a positive contribution to the embedded generator option's relative market benefits.

Assume that the RIT-D proponent calculates the relative market benefits of the embedded generation credible option as -$40 million. As the costs of the embedded generator credible option are lower than the costs of the network augmentation credible option, the relative costs of the embedded generator will be negative, -$45 million. This results in a relative net economic benefit of the embedded generation credible option of $5 million.

The RIT-D proponent now runs a sensitivity analysis on the assumption regarding growth in energy and peak demand. Under the sensitivity analysis, growth in energy and peak demand in the region will be 10 per cent over the period of the analysis, instead of 3 per cent.

In the modified high demand scenario, the relative market benefits of the embedded generation credible option will change from that in the central reasonable scenario in that:

- The embedded generator option's relative total variable electricity costs will be higher than under the central reasonable scenario, because more high-cost electricity from the embedded generator will be consumed over the assessment period. This should further reduce the embedded generator option's relative market benefits.

- The embedded generator option's relative new generation fixed costs will be lower than under the central reasonable scenario, because more generation investment will be required over the assessment period even if the augmentation proceeds. This should further reduce the embedded generator option's relative market benefits.

Accordingly, the RIT-D proponent calculates the relative market benefit of the embedded generation connection credible option is -$55 million and assuming the project's costs have not changed, the relative net economic benefit of the embedded generation connection credible option is now -$10 million.

The analysis shows that, in the event that growth in energy and peak demand is higher than forecast, the ranking of net economic benefit between the two credible options may change. Therefore, it would

be worthwhile for the RIT-D proponent to adopt additional reasonable scenarios with varying levels of forecast demand in its assessment of the credible options.

The impact of sensitivity analysis on the number and choice of reasonable scenarios used to assess a particular set of credible options will vary according to the circumstances surrounding the RIT-D assessment. Further, there may be other approaches for deriving the appropriate number and choice of reasonable scenarios for each set of credible options under consideration.

Once a RIT-D proponent has formulated an appropriate number and choice of reasonable scenarios, it will need to calculate the market benefits of each credible option arising under each reasonable scenario. These market benefits would then need to be probability-weighted to derive the relevant market benefits of each credible option. This process is discussed in the section 14 of the application guidelines.

It is important to note that the number of reasonable scenarios and credible options used in a particular RIT-D assessment will have a major influence on the extent of modelling and analysis for the RIT-D proponent to undertake.

Assume that a RIT-D proponent has undertaken appropriate sensitivity analysis and chooses to assess a $50 million investment to increase network transfer capability accommodating an expected load growth which meets mandatory reliability standards (i.e. for reliability corrective action). The RIT-D proponent conducts the analysis using the network option as the base case credible option and assesses the project:

- against one alternative credible option
- based on a single set of capital and operating costs for existing, committed, anticipated and modelled projects
- based on two alternative demand forecasts
- using two alternative carbon prices.

This would require the development of:

- four reasonable scenarios—encompassing two different demand levels (high and low) and two different carbon prices, and
- eight states of the world, reflecting one set of reasonable scenarios for each of the two credible options.

As reflected in example 13 above, a RIT-D proponent may need to model a separate market development path for each state of the world to identify whether different options or changes in scenario result in changes to the pattern of new plant development. For example, it could be appropriate to model how plant expansion paths change with different levels of demand with or without different credible options. However, there may be some parameters for which it would be infeasible or unnecessary to model separate plant expansion paths as those parameters varied. Such parameters could include discount rates and generator bidding behaviour.

Table 3: Modelling and analysis required under the RIT-D (Reliability corrective action project)			
Reasonable scenario	**Credible option**	**Market development path**	**State of the world**
1: High demand, low carbon price	Base case	1	1
1: High demand, low carbon price	Alternative option	2	2
2: High demand, high carbon price	Base case	3	3
2: High demand, high carbon price	Alternative option	4	4
3. Low demand, low carbon price	Base case	5	5
3. Low demand, low carbon price	Alternative option	6	6
4: Low demand, high carbon price	Base case	7	7
4: Low demand, high carbon price	Alternative option	8	8

If RIT-D proponents varied some of the input assumptions further, then the number of reasonable scenarios, market development paths and required states of the world would multiply.

14 Uncertainty and risk

We recognise that at the time of applying the RIT-D, the future will be uncertain. This section provides information and guidance on how a RIT-D proponent can respond to this uncertainty when applying the RIT-D.

14.1 Uncertainty regarding market benefits

The first step in taking account of material uncertainty over future market supply and demand conditions is to formulate a set of reasonable scenarios that reasonably reflect potential future market conditions. The process for deriving reasonable scenarios is discussed section 13 of the application guidelines. The next step is for the RIT-D proponent to assign a reasonable probability to each of these reasonable scenarios occurring in practice. The need to attribute probabilities to each reasonable scenario is unavoidable if the RIT-D is to transparently produce a clear ranking of credible options. The AER does not expect the RIT-D proponent to ascribe an exact probability to every scenario. For example, it is sufficient for a proponent to attach a 20 per cent probability to a scenario, as opposed to 23 per cent. It is not the AER's intention that relatively small divergences of views over reasonable scenario probabilities become a source of dispute. Rather, the RIT-D proponent must be able to provide a sound reason for its use of particular probabilities based on the information it has or reasonably ought to have had available when it made the assessment and given the nature of the credible options under consideration .

The market benefit of a credible option is the probability-weighted sum of all market benefits of that option across all reasonable scenarios. The methodology for assigning probabilities to each reasonable scenario will depend on the methodology for defining the reasonable scenario. For example, where there is uncertainty about future demand, two different methodologies are possible:

- approach 1—a range of equally-spaced values for future demand, and probability weightings for each of these values are chosen. Extreme values of future demand will receive lower probabilities than values closer to the mean.

- approach 2— RIT-D proponents will rank different values for future demand. After RIT-D proponents rank these values, they will divide them into groups—quartiles, or deciles, and so on. The RIT-D proponents will then select a representative value for demand from each group. The probability assigned to each representative value is the same for example, 25 per cent in the case of quartiles and 10 per cent in the case of deciles. Under this approach, the probability of each demand value arising is constant, but the chosen representative demand values are likely to be grouped closer together for values of demand closer to the mean.

Either approach is acceptable. However the methodology for assigning probabilities to each reasonable scenario must be consistent with the methodology for choosing the reasonable scenarios.

Where a RIT-D proponent does not reasonably consider one reasonable scenario is more likely than any other, they may weight all reasonable scenarios equally.

Example 14.1: Calculating market benefits across a probability weighted range of reasonable scenarios

A RIT-D proponent is considering three credible options to address an identified need of reliability corrective action across four reasonable scenarios.

The three credible options are:

- network option–base case
- distributed generation option
- demand side participation option.

The four reasonable scenarios are:

- high capital costs–high demand (scenario 1)
- high capital costs–low demand (scenario 2)
- low capital costs–high demand (scenario 3)
- low capital costs–low demand (scenario 4).

The following probabilities of occurrence are assigned to each of the above reasonable scenarios:

- scenario 1 = 10 per cent
- scenario 2 = 30 per cent
- scenario 3 = 10 per cent
- scenario 4 = 50 per cent.

Table 4 shows the performance of the two other credible options across each of the four reasonable scenarios according to their relative market benefits over the base case network option (which by definition has a relative market benefit of zero).

Table 4: Credible options across reasonable scenarios ($m)

Credible option	Relative market benefit			
	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Base case network option	0	0	0	0
Distributed generation option	3	11	-5	7
Demand side participation option	-5	20	-35	4

For each other credible option, the RIT-D proponent must weight the relative market benefit under each reasonable scenario, by that reasonable scenario's probability of occurrence. Calculating the probability-weighted relative market benefit across the range of reasonable scenarios requires analysis from the results generated in Table 4. Table 5 therefore generates one relative market benefit estimate for each other credible option.

Table 5: Calculating expected market benefit ($)					
Credible option	**Probability-weighted relative market benefit under each scenario**				**Probability weighted relative market benefit**
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	
Base case network option	0	0	0	0	0
Distributed generation option	300 000	3 300 000	-500 000	3 500 000	6 600 000
Demand side participation option	-500 000	6 000,000	-3 500 000	2 000 000	4 000 000

14.2 Uncertainty regarding costs

The cost of the credible option is the probability weighted present value of the direct costs of the credible option under the different cost assumptions. Where the identified need is reliability corrective action, costs refer to incremental costs above (or below) the base case credible option.

For the avoidance of doubt, 'cost assumptions' are distinct from the reference to costs within reasonable scenarios as used elsewhere in the RIT-D and the application guidelines. Here, 'cost assumptions' refers to the costs of each credible option. Elsewhere, in the context of reasonable scenarios, cost assumptions refers to the costs of existing, committed, anticipated and modelled projects that may arise within the relevant reasonable scenario. The direct costs of a credible option may vary for reasons other than the nature of the relevant reasonable scenario. For example, the direct costs of a credible option may be uncertain because they depend on variables such as exchange rates or the price of copper. Similarly, whether a reasonable scenario reflects high or low demand growth is unlikely to affect the costs of a credible option. This is why the RIT-D requires the RIT-D proponent to separately undertake a weighted averaging of the direct costs and the market benefits of a credible option.

As with the probabilities assigned to reasonable scenarios, the probabilities assigned to different costs need only be broadly reasonable given the information available or reasonably available to the RIT-D proponent and the nature of the credible option under consideration.

Example 14.2 illustrates calculating expected costs. It follows on from example 14.1 above.

Example 14.2: Calculating expected cost

For each of the three credible options the RIT-D proponent also considered three cost assumptions (‘Low’, ‘Medium’ and ‘High’).

The three cost assumptions and associated probabilities of occurrence for each credible option are:

- base case network option:
  - low (low steel prices; favourable exchange rate) = 20 per cent
  - medium (medium steel prices; average exchange rate) = 50 per cent

- high (high steel prices; unfavourable exchange rate) = 30 per cent.

- distributed generation option:
  - low (low steel prices, low labour costs) = 10 per cent
  - medium (medium steel prices; medium labour costs) = 50 per cent
  - high (high steel prices; high labour costs) = 40 per cent.

- demand side participation option:
  - low (low implementation and maintenance costs) = 30 per cent
  - medium (medium implementation and maintenance costs) = 50 per cent
  - high (high implementation and maintenance costs) = 20 per cent.

A RIT-D proponent can calculate an expected cost for each credible option by taking a weighted-average across cost assumptions. This is set out in table 6 below.

Table 6: Calculating expected cost ($m)

Credible option	Cost scenario			Expected cost	Expected relative cost
	Low	Medium	High		
Base case network option	7.5	10	17.5	11.8	0
Distributed generation option	8	12	14	12.4	0.6
Demand side participation option	0.4	0.5	0.75	0.5	-11.3

15 Externalities

The RIT-D seeks to identify the credible option that maximised the present value of the net economic benefit to all those who produce, consume and transport electricity in the NEM. Consequently, the RIT-D considers economic impacts that accrue to parties other than those who produce, consume and transport electricity in the NEM as externalities.

Clause 5.17.1(c)(4) of the NER requires the RIT-D proponent to consider whether each credible option could deliver specified classes of market benefits. Similarly, 5.17.1(c)(6) of the NER requires the RIT-D proponent to consider whether each credible option would be associated with various classes of costs. These clauses do not require RIT-D proponents to consider externalities as costs or market benefits of a credible option. Therefore, externalities should not be included in the determination of the net economic benefit.

We interpret, 'all those who...consume...electricity in the NEM' in cl. 5.17.1(b) of the NER as referring to costs or market benefits incurred or obtained, respectively, by parties in their capacity as consumers of electricity. Thus, RIT-D proponents should exclude costs or market benefits which arise but are incidental or consequential to parties' electricity consumption from their RIT-D analysis Example 15 illustrates negative and positive externalities.

Example 15 Changes in property values

In order to support increased consumer demand for electricity, the RIT-D proponent augments the distribution network by installing a new substation and electricity wires.

The increase in network infrastructure decreased the visual aesthetics of that region. Residents around the new substation were also concerned that the new plant could cause negative health impacts. Consequently, property prices around this area of the network decreased by 2 per cent.

RIT-D proponents cannot measure the decrease in visual aesthetics and the decrease in property values as a negative market benefit to persons in their capacity as generators, DNSPs, TNSPs or consumers of electricity. Therefore, the RIT-D proponent would consider it an externality and exclude it from its RIT-D analysis.

A Valuing specific classes of market benefits

Under cl. 5.17.2(c)(5) of the NER, the application guidelines must provide guidance and worked examples on the acceptable methodologies for valuing the market benefits of a credible option.

Appendix A provides guidance and worked examples on valuing the following classes of market benefits:

- changes in voluntary load curtailment
- involuntary load shedding
- changes in costs to other parties
- differences in the timing of distribution investment
- changes in load transfer capacity and the ability of embedded generators to take up load
- additional option value
- changes in electrical energy losses.

A.1 Voluntary load curtailment

A credible option may lead to a change in the amount of voluntary load curtailment. For example, a demand side reduction option may lead to an increase in the amount of voluntary load curtailment. This would be a negative contribution to the market benefits of the credible option. It is as follows:

- the quantity (in MWh) of voluntary load curtailment undertaken due to the credible option is multiplied by
- consumers' willingness to pay (or be paid) (in $/MWh) for the electricity that is voluntarily curtailed due to the credible option.

The less consumers need to be paid to voluntarily curtail their electricity use, the lower the negative market benefits from a voluntary curtailment option. This is because in a competitive market, the amount consumers need to be paid to voluntarily curtail their power should reflect, at a minimum, the real loss of utility they experience from not consuming power.

However, negative contribution to market benefits of a demand side option should be more than offset by a positive contribution to market benefit caused by a reduction in the amount of involuntary load shedding that would otherwise occur. This is set out in example 16 below.

RIT-D proponents would derive the net contribution to market benefits of a demand side option from the difference between the value of unserved energy to consumers generally (e.g. $30 000/MWh) and the value of that energy to those consumers who have voluntarily agreed to consume less as a result of the demand side option.

For example, a demand side option that led to voluntary load curtailment of 10 MWh of electricity valued by consumers at $30/MWh instead of involuntary load shedding of 10 MWh of electricity valued at $30 000/MWh, yields a positive contribution to market benefits of ($30 000-$30)*10 = $299 700.

Example 16: Increased voluntary and decreased involuntary load curtailment

Assume that load is 201 MW. Remote coal-fired generation has a fuel cost of $10/MWh and capacity of 250 MW. The capacity of the network between the remote generator and the load is limited to 200 MW. In the event demand exceeds supply load is involuntarily curtailed. Customers value involuntarily curtailed energy at $30 000/MWh.

The credible option is a demand side management scheme where commercial customers agree with a retailer to reduce power demand by 1 MW when requested by the retailer. This will occur when the retailer expects the spot price to exceed $1 000/MWh in the absence of load curtailment. The $1 000/MWh price reflects the retailer's view of its commercial customers' likely willingness to accept being voluntarily curtailed.

In the base case:

- demand outstrips supply by 201 MW – 200 MW = 1 MW
- price is set at the value customers place on involuntarily curtailed load ($30 000/MWh) and 1 MW of load is involuntarily curtailed to ensure demand = supply
- value of voluntary load curtailment = 0 MW*$1 000 = $0 per hour
- value of involuntary load curtailment = 1 MW*$30 000 = $30 000 per hour.

In the state of the world with the credible option:

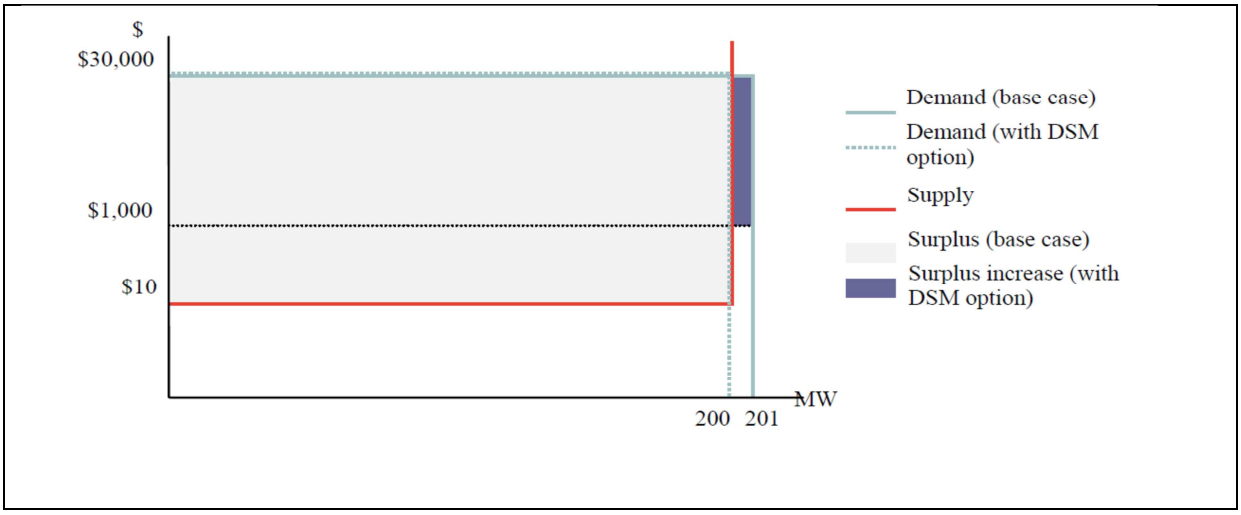
- demand = load – voluntary load curtailment = 201MW – 1MW = 200 MW
- price is set by the remote generator at $10/MWh
- voluntary load curtailment under the credible option and at a price of $10/MWh is 1 MW
- demand = supply and there is no load shedding
- value of voluntary load curtailment = 1 MW*$1 000 = $1 000 per hour.

The market benefits of the credible option arise from the demand side option through:

- decreased involuntary load curtailment = $30 000 - $0 = $30 000 less
- increased voluntary load curtailment = $1 000 - $0 = $1 000.

The combined contribution to the market benefits of the credible option (in terms of increased voluntary and decreased involuntary load curtailment) is $29 000 per hour. Assuming the same conditions over 10 hours in a year, the total contribution to the market benefits of the credible option would be 10*$29 000 = $290 000 per annum. This is set out in figure C below.

Figure C: Increased voluntary and decreased involuntary load curtailment



A credible option may lead to a reduction in the amount of voluntary load curtailment. For example, a RIT-D proponent may have a pre-established program where it pays large customers to reduce their energy usage during times of peak demand. For instance, this may entail paying energy-intensive factories to temporarily shut-down. If a RIT-D project (for example, augmenting the distribution network) decreases reliance on the programs, then it would represent a reduction in voluntary load curtailment.

A.2 Involuntary load shedding and customer interruptions

A credible option may lead to a reduction in the amount of involuntary load shedding. This may occur if the credible option is a:

- local generation option that supplies electricity
- demand side reduction option that leads to voluntary load curtailment and thereby reduces demand for electricity
- control scheme that helps prevent overloads on the network or
- network option that enables electricity to be plentiful at times that involuntary load shedding would otherwise need to occur. Network options could achieve this by transporting electricity from a location where it is relatively plentiful to where it is relatively scarce. They could also achieve this by improving infrastructure so that less energy is lost in distribution or so that infrastructure is more resilient to external interferences.

This reduction in involuntary load shedding can be valued as a market benefit and is derived by:

- the quantity (in MWh) of involuntary load shedding not required due to the credible option

  multiplied by

- a reasonable forecast of the value of electricity to consumers (in $/MWh) not shed due to the credible option.

A RIT-D proponent should use a reasonable measure of the value of customer reliability (VCR) in calculating market benefits. A RIT-D proponent should also use VCR estimates from a reputable source, such as the VCR used by AEMO for network planning in Victoria.

A negative contribution due to the provision of the credible option would partially offset this positive contribution to market benefits. For example, a local generation option may reduce involuntary load shedding but will increase the use of fuel to supply electricity.

Example 17: decreased involuntary load shedding

Load is 201 MW. Remote coal-fired generation has a fuel cost of $10/MWh and capacity of 250MW. The capacity of the network between the remote generator and the load is limited to 200 MW. Customers' value of involuntarily curtailed energy is $30 000/MWh.

The credible option is to build a 25 MW local gas-fired generator with a fuel cost of $100/MWh. In the base case:

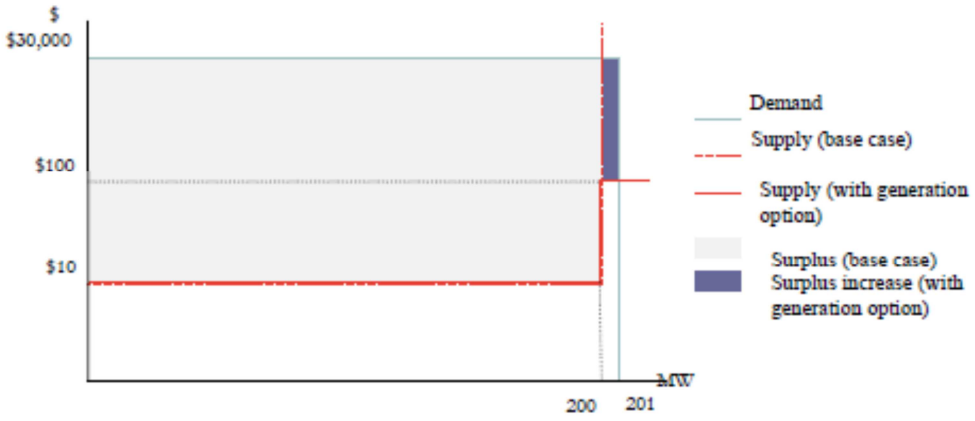
- demand outstrips supply by 201 MW – 200 MW = 1 MW
- the value customers place on involuntarily curtailed energy is $30,000/MWh
- value of fuel consumed = 200 MW*$10 = $2 000 per hour
- value of involuntarily curtailed load = 1 MW*$30 000 = $30 000 per hour.

In the state of the world with the credible option:

- output of remote generator = 200 MW and output of local generator = 1 MW
- the local gas-fired generator has a fuel cost of $100/MWh
- value of fuel consumed = 200 MW*$10 + 1 MW*$100 = $2 100 per hour
- demand = supply and there is no load shedding.

The contribution to the market benefits of the credible option from a reduction in involuntary load curtailment is $30 000 - $0 = $30 000. This would be partly offset by the cost of increased fuel consumption needed to generate electricity which is $2 100 - $2 000 = $100 per hour. The net contribution to the market benefits of the credible option (in terms of decreased involuntary load curtailment and increased fuel consumption) is therefore $29 900 per hour. Assuming the same conditions over 10 hours in a year, the total contribution to the market benefits of the credible option is 10*$29 900 = $299 000 per annum. This is set out in figure D below.

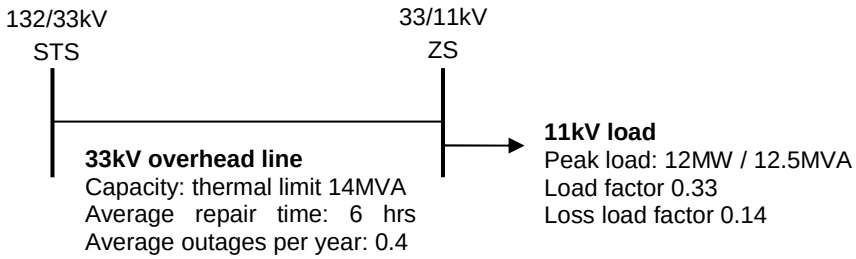
Figure D: Decrease involuntary load shedding



Example 18: Reliability improvement in a radial system

A rural 33/11kV zone substation is radially supplied by a long 33kV overhead line from a 132/33kV subtransmission substation. The parameters of the system are shown in Figure E.

Figure E: Existing supply arrangement



Substation capacity is limited by the thermal capacity of the 33kV line. Due to an emerging capacity constraint at the zone substation, the RIT-D proponent proposes to replace the existing line with a 33kV dual circuit overhead tower line. As well as addressing the capacity constraint, this option will result in higher customer reliability.

Under the existing supply arrangement, for an outage on the 33kV line:

- the load at risk is the average load at the zone substation: (peak demand MW) * (load factor) = 12MW * 0.33 = 4MW
- the period of risk is the average repair time after an outage = 6h

- the probability of an outage in a year: (number of elements) * (element outage rate per year) * (hours at risk in year / 8760) = 1 * 0.4 * (8760h / 8760h) = 0.4
- the energy at risk: (load at risk) * (period of risk) * (probability of outage) = 4MW * 6h * 0.4 = 9.6 MWh
- assuming a VCR of $50 000 per MWh, the value of risk attributable to an outage of the 33kV line in the first year is 9.6 MWh*$50 000/MWh = $480 000.

Under the credible option (replacing the existing 33kV line with a dual circuit 33kV line) the risk of a dual outage on both circuits is assumed to be small enough to be set to zero, so the value at risk is zero.

The contribution to market benefits of the credible option due to the reliability improvement (in the first year) is $400 000 - $0 = $400 000.

As discussed above, a demand side reduction option may simultaneously have a negative contribution to market benefits due to an increase in voluntary load curtailment as well as a positive contribution to market benefits due to a decrease in involuntary load shedding. However, the net effect on market benefits would likely be positive, as electricity will usually be worth more to those that are involuntarily curtailed than to those voluntarily curtailed, see example 16.

A.3 Costs to other parties

Other parties may experience costs from differences in the timing of new plant, capital costs, as well as operating and maintenance costs. These costs capture the impact of a credible option on the plant expansion path of the market.

To the extent that a credible option leads to a delay in the commissioning of a new plant (which reduces the present value of the resource costs incurred to meet demand), or to other reductions to other parties' costs, this represents a positive market benefit of the option. The reverse may also apply.

Credible options that delay the need for investment in the distribution network could potentially have a similar impact on the need for investment in the transmission network. These are likely to include options aimed at managing load when and where there are network constraints. Such credible options may constitute demand management programs and the use of embedded generation and energy storage. This is set out in example 19 below.

Example 19: Delaying network augmentation

The credible option is a program aimed at managing peak demand. As well as delaying the need to augment the distribution network, it will delay the need to augment the transmission network by 3 years. Without the demand management program, the transmission network would need to be augmented immediately (t=0). The augmentation of the transmission network has a capital cost of $200 million. The discount rate is 7 per cent.

Based on the above assumptions, the positive contribution to the market benefits of the demand management program option to the delayed investment in the transmission network (in terms of delaying capital costs only) can be calculated as follows:

Present value (PV) of the capital costs in the transmission augmentation in the base case:

$$PV = \frac{\$200 \text{ million}}{(1.07)^0} = \$200 \text{ million}$$

PV of the capital costs in the transmission augmentation with the credible option:

$$PV = \frac{\$200 \text{ million}}{(1.07)^3} = \$163 \text{ million}$$

The positive contribution to the market benefits of the credible option due to the delayed investment in the transmission network is $200 million - $163 million = $37 million.

A.4 Timing of expenditure

A credible option may change the timing (or the configuration) of other future investments to be made by/for the RIT-D proponent.

When considering changes in timing, the RIT-D proponent should only take into account distribution investments that are directed towards different identified needs to that of the credible option. It is not clear whether or how many investments this category would include. This is set out in example 20 below.

Example 20: Changes in timing of expenditure

A RIT-D proponent has forecast that in 9 years, it will be required to replace many plants in one of its substations. It has estimated that it will need to spend $15 million in replacement costs.

The current discount rate is 9 per cent.

Meanwhile, the RIT-D proponent is considering a non-network option to meet an identified need for reliability corrective action. This will involve an integrated solution where it will combine direct load control, demand response and the connection of an embedded generator.

The RIT-D proponent has forecast that the integrated solution will decrease peak demand by 15 per cent by year 5, and 20 per cent by year 10. The RIT-D proponent has estimated that this will also alleviate stress on the network and will delay the need to replace the plant in its substation by 1 year.

The RIT-D proponent could calculate the PV of replacement costs in year 9 as a part of its base case.

$$PV = \frac{\$15 \text{ million}}{(1.09)^9} = \$6\,906\,417$$

The RIT-D proponent could calculate the PV of replacement costs in year 10 as the state of the world with the credible option in place.

PV = $15 million = $6 336 162

$(1.09)^{10}$

The positive contribution to the market benefits of the credible option due to the delayed investment in the substation decreases PV costs: $6 906 417 - $6 336 162 = $570 255.

A.5 Load transfer capacity and embedded generators

Clause 5.10 of the NER defines load transfer capacity as:

> meeting the *load* requirements for a *connection point* by the reduction of *load* or group of *loads* at the *connection point* and increasing the *load* or group of *loads* at a different *connection point*.

RIT-D proponents can improve load transfer capacity where a credible option allows end users to gain access to a back-up the power supply. This is a market benefit as backed-up power supplies can service end-users in the event of a power failure.

RIT-D proponents could count improved capacity for embedded generators to take up load as a market benefit for the same reason. Namely, where embedded generation can reliably take up load, it can contribute to the security of supply by supplementing the power available from the network. Consequently, in the event of a supply failure, RIT-D proponents can use protective equipment to "island" the embedded generation and part of the affected network to ensure that a part of the affected load remains supplied.

A RIT-D proponent could effectively treat market benefits gained from an increased load transfer capability and/or the ability of embedded generators to take up load as it would for changes in involuntary load shedding. Involuntary load shedding and customer interruptions.

A.6 Option value

Clause 5.17(c)(4)(vi) of the NER requires RIT-D proponents to consider option value as a class of potential market benefits where it had not already been included in other classes of market benefits.

Option value refers to a benefit that results from retaining flexibility in a context where certain actions are irreversible (sunk), and new information may arise in the future as a payoff from taking a certain action. We consider that option value is likely to arise where there is uncertainty regarding future outcomes, the information that is available in the future is likely to change and the credible options considered by the RIT-D proponent are sufficiently flexible to respond to that change.

We consider that appropriate identification of credible options is capable of capturing any option value, thereby meeting the requirement to consider option value as a class of market benefits under the RIT-D.

Identifying credible options is discussed further in section 8 of the application guidelines.

A.7 Electrical energy losses

A credible option may lead to a net increase or decrease in network losses. An increase in network losses makes a negative contribution to the market benefits of a credible option, while a decrease in network losses makes a positive contribution to the market benefits of a credible option.

The majority of electricity losses occur in the distribution network. Electricity losses may be minimised through:

- power lines being built so that it connects large consumers more directly
- improving the efficiency of distribution transformers, or, where possible, reducing the number of transformation steps
- reducing the average utilisation rate of distribution network cables, since higher loads on power lines result in higher variable losses
- using power lines and cables with wider cross-sections
- installing distributed generations systems for energy to be consumed locally or in densely populated areas
- systems for optimising energy delivery efficiency on distribution systems
- power factor correction.

Example 21: Decreased electrical energy losses

Load at region B in a distribution network is 100 MW. Energy costs after generation are $12/MWh and capacity on the distribution network is 120 MW.

The credible option is the augmentation of the distribution network at region B. This will entail installing more distribution network cables. The RIT-D proponent expects the augmentation to reduce distribution losses from 20 to 5 per cent when operating at 100 MW.

In the base case:

- price is $12/MWh
- total losses = $12*0.2*100 MW = $240 per hour.

The state of the world with the credible option:

- price is $12/MWh
- total losses = $12*0.05*100 MW = $60 per hour.

Assuming the same conditions prevail over 8 760 hours per year, the contribution of decreased network losses to the market benefit of the credible option is ($240 - 60)*8760 = $1 576 800 per year.

Example 22: Energy loss reduction in a radial system

Under the supply arrangement set out in example 18, the network loss at the time of peak demand is 1.5MW. After the construction of the dual circuit line, as per the credible option, this falls to 0.3MW.

- annual losses under the existing supply arrangement—(network loss at peak demand) * 8760h * (loss load factor) = 1.5MW * 8760h * 0.14 = 1 840MWh
- annual losses under the credible option: (network loss at peak demand) * 8760h * (loss load

factor) = 0.3MW * 8760h * 0.14 = 368MWh.

The annual loss reduction under the credible option is 1 840MWh - 368MWh =1 472MWh. Assuming the value of losses is $35 per MWh, the contribution of the decreased network losses to the market benefit of the credible option is 1 472MWh * $35/MWh = $51 520 in the first year.

B Glossary

Term	NER Ref	Meaning
Connection applicants	Ch. 10	A person who wants to establish or modify connection to a transmission network or distribution network and/or who wishes to receive network services and who makes a connection enquiry as described in cl. 5.3.2 of the NER. Note: In the context of Chapter 5A, the above definition has been displaced by a definition specifically applicable to that Chapter. See cl. 5A.A.1 of the NER.
Credible option	Cl. 5.15.2 (a)	An option (or group of options) that: (1) addresses the identified need; (2) is (or are) commercially and technically feasible; and (3) can be implemented in sufficient time to meet the identified need, and is (or are) identified as a credible option in accordance with paragraphs (b) or (d)(as relevant)
Demand side engagement register	Cl.5.10.2	A facility by which a person can register with a Distribution Network Service Provider their interest in being notified of developments relating to distribution network planning and expansion.
Dispute notice	Cl. 5.17.5 (c) (1)	The notice given by the disputing party, setting out the grounds for the dispute in writing as required under cl.5.17.5(c)(1) of the NER.
Disputing party	Cl. 5.17.5 (c)	The party disputing matters in the final project assessment report.
Draft project assessment report	Cl.5.10.2	The report prepared under cl. 5.17.4(i) of the NER
Dual Function Asset	Ch. 10	Means any part of a network owned, operated or controlled by a Distribution Network Service Provider which operates between 66 kV and 220 kV and which operates in parallel, and provides support, to the higher voltage transmission network which is deemed by cl. 6.24.2(a) of the NER to be a dual function asset. For the avoidance of doubt: (a) a dual function asset can only be an asset which forms part of a network that is predominantly a distribution network; and (b) an asset which forms part of a network which is predominantly a transmission network cannot be characterised as a dual function asset, through the operation of cl. 6.24.2(a) of the NER.
Embedded generating unit	Ch. 10	A generating unit connected within a distribution network and not having direct access to the transmission network.
Embedded generator	Ch. 10	A Generator who owns, operates or controls an embedded generating unit. Note: In the context of Chapter 5A, the above definition has been displaced by a definition specifically applicable to that Chapter. See clause 5A.A.1.
Final project assessment report	Cl.5.10.2	The report prepared under cll. 5.17.4(o) or (p) of the NER.
Identified need	Cl.5.10.2	Identified need means the objective a Network Service Provider (or in the case of a need identified through joint planning under clause 5.14.1(d)(3) or clause 5.14.2(a), a group of Network Service Providers) seeks to achieve by investing in the network.

Interested parties	Cl. 5.15.1	In cll. 5.16.4, 5.16.5, 5.17.4 and 5.17.5 of the NER, interested party means a person including an end user or its representative who, in the AER's opinion, has the potential to suffer a material and adverse National Electricity Market impact from the investment identified as the preferred option in the project assessment conclusions report or the final project assessment report (as the case may be).
Involuntary load shedding	Ch. 10	Load shedding where the load shed is not an interruptible load except load under the control of under frequency relays as described in cl. S5.1.10.1(a) of the NER, or a scheduled load.
Intending Participant	Ch. 10	A person who is registered by AEMO as an Intending Participant under Chapter 2.
Load	Ch. 10	A connection point or defined set of connection points at which electrical power is delivered to a person or to another network or the amount of electrical power delivered at a defined instant at a connection point, or aggregated over a defined set of connection points.
Load shedding	Ch. 10	Reducing or disconnecting load from the power system.
Load transfer capacity	Cl.5.10.2	Meeting load requirements for a connection point by the reduction of load or group of loads at the connection point and increasing the load or group of loads at a different connection point.
Network option	Cl.5.10.2	A means by which an identified need can be fully or partly addressed by expenditure on a transmission asset or a distribution asset which is undertaken by a Network Service Provider.
Non-network option	Cl.5.10.2	A means by which an identified need can be fully or partly addressed other than by a network option
Non-network options report	Cl.5.10.2	The report prepared under cl. 5.17.4(b) of the NER.
Non-network provider	Cl.5.10.2	A person who provides non-network options.
Potential credible option	Cl.5.10.2	An option which a RIT-D proponent or RIT-T proponent (as the case may be) reasonably considers has the potential to be a credible option based on its initial assessment of the identified need.
Preferred option	Cl. 5.17.1 (b)	The credible option that maximises the present value of the net economic benefit to all those who produce, consume and transport electricity in the National Electricity Market. For the avoidance of doubt, a preferred option may, in the relevant circumstances, have a negative net economic benefit (that is, a net economic cost) where the identified need is for reliability corrective action.
Publish/publication	Ch. 10	A document is published by the AER if it is: (a) published on the AER's website; and (b) made available for public inspection at the AER's public offices; and (c) in the case of a document inviting submissions from members of the public – published in a newspaper circulating generally throughout Australia. In Part B of Chapter 5, a document is published by the Distribution Network Service Provider if it is published on the Distribution Network Service Provider's website. Otherwise, a document is published by someone else if it is made available to Registered Participants electronically.
Registered Participant	Ch. 10	A person who is registered by AEMO in any one or more of the categories listed in rules 2.2 to 2.7 (in the case of a person who is registered by AEMO as a Trader, such a person is only a Registered Participant for the purposes referred to in rule 2.5A). However, as set out in cl. 8.2.1(a1), for the purposes of some provisions of rule 8.2 only, AEMO, Connection Applicants, Metering Providers and Metering Data Providers who are not

		otherwise Registered Participants are also deemed to be Registered Participants
Reasonable scenario	N/A	a set of variables or parameters that the RIT-D proponent does not expect to change across each of the relevant credible options.
Reliability corrective action	Cl.5.10.2	Investment by a Transmission Network Service Provider or a Distribution Network Service Provider in respect of its transmission network or distribution network for the purpose of meeting the service standards linked to the technical requirements of schedule 5.1 or in applicable regulatory instruments and which may consist of network options or non-network options.
RIT-D project	Cl.5.10.2	(a) a project the purpose if which is to address an identified need identified by a Distribution Network Service Provider, or (b) a joint planning project that is not a RIT-T project.
RIT-D proponent	Cl.5.10.2	The Network Service Provider applying the regulatory investment test for distribution to a RIT-D project to address an identified need. The RIT-D proponent may be: (a) if the identified need is identified during joint planning under cl. 5.14.1(d)(3), a Distribution Network Service Provider or a Transmission Network Service Provider ; or (b) in any other case, a Distribution Network Service Provider.
Sub-transmission line	Cl.5.10.2	Means a power line connecting a sub-transmission asset to either the transmission system or another sub-transmission asset.
Value of customer reliability		The value that electricity customers place on avoiding service interruptions. The VCR determines how much customers are willing to pay for improved service.
Zone substation	Cl.5.10.2	A substation for the purpose of connecting a distribution network to a sub-transmission network.