Decision

Reliability Requirements in Sydney CBD

Determination on dispute - application of the regulatory investment test for distributon

October 2018

AUSTRALIAN ENERGY REGULATOR

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Executive Summary

The Energy Users Association of Australia (EUAA) (the disputing party) lodged a written notice[1] with the Australian Energy Regulator (AER) disputing the conclusions made in Ausgrid's final project assessment report (FPAR) for the regulatory investment test for distribution (RIT-D)[2] associated with a project to address reliability in Sydney Central Business District area (Sydney CBD).

The FPAR identified transferring the City East and Dalley Street zone sub-substation (ZSS) loads to the Belmore Park ZSS via one 2x10 duct bank and, subsequently, decommissioning the two substations, as the option that satisfied the RIT-D. In the dispute notice, the disputing party contends that:

> *Ausgrid used a Sydney CBD Value of Customer Reliability (VCR) value of $170/kWh which is inconsistent with the Sydney CBD value of $90/kWh used by TransGrid and Ausgrid as the basis for their Powering Sydney's Future project.*

Our determination is that Ausgrid's assessment of this project was in accordance with the RIT-D requirements.

Importantly, in conducting our review, we found that the FPAR for the Sydney CBD RIT-D project provided limited sensitivity analysis and supporting justification for the choice of a reasonable estimate of the VCR. However, after taking into account the additional information provided by Ausgrid and additional analysis undertaken by our consultant, we are satisfied that the selection of the preferred option and the timing of the project is not materially impacted by the choice of reasonable VCR estimates. Therefore, we are satisfied that Ausgrid's preferred option is likely to be the option that maximises the net economic benefits, and that Ausgrid is not required to amend its FPAR.

Our determination is that Ausgrid's decision was in accordance of the RIT-D requirements does not depend on the reasonableness of the specific VCR it applied. Given this, we do not regard this decision to be a precedent for estimating this parameter in the future. It should be noted that the AER has commenced a review of the methodology for determining VCR estimates.

Importantly, we are of the view that this dispute may have been avoided if a more transparent consultation process had been adopted in finalising the FPAR. Relevantly, we consider that if the cost benefit analysis had been published in support of the FPAR and more extensive sensitivity analysis associated with the VCR had been used to test the robustness of the analysis, the dispute may have been avoided. For future RIT-D consultation processes that are undertaken by network businesses, including Ausgrid, we expect that all supporting information and economic analysis be provided to ensure transparency and fully informing interested parties. We expect that a more transparent process would reduce the risk of unnecessary disputes being raised with the AER.

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1 https://www.aer.gov.au/communication/aer-receives-notification-of-rit%E2%80%93d-dispute-from-euaa

2 As permitted under National Electricity Rules (NER), clause (cl) 5.17.5(a)

The regulatory investment test for distribution (RIT-D)

The RIT-D is an economic cost–benefit analysis to identify the investment option—the preferred option—that maximises net economic benefits to all those who produce, consume and transport electricity in the national electricity market (NEM) and, where applicable, meets the relevant jurisdictional or National Electricity Rules (Electricity Rules) based reliability standards.[3]

Subject to certain exclusions, distribution businesses must apply the RIT-D to all proposed distribution investments.[4] The RIT-D process is intended to promote efficient distribution investment (both network and non-network) in the NEM and ensure greater consistency, transparency and predictability in distribution investment decision making.

Ausgrid (the distribution network service provider in the Sydney region) conducted a RIT-D consultation process between April 2018 and June 2018 on the need and options to address the reliability of supply risks to customers after identifying aging asset condition issues at City East and Dalley Street ZSSs.

During the RIT-D process, Ausgrid considered investment options that would provide increased market benefits in relation to reliability of supply in the Sydney CBD compared to the 'business as usual' approach of serving load from the City East and Dalley Street ZSSs. The RIT-D process identified two options considered to be technically and commercially feasible (referred to as credible options). The RIT-D concluded that option 2 is preferred. This option involved:

- transferring the City East and Dalley Street ZSSs loads to Belmore Park ZSS via one 2x10 duct bank; and subsequently
- decommissioning the City East and Dalley Street ZSSs by 2025/26.

The alternative, option 1, involved transferring the load from the Dalley Street and City East ZSSs to Belmore Park ZSS via two 1x16 11 duct banks, fully commissioned by 2026/27.

Summary of the dispute

The AER is responsible for determining RIT-D disputes raised following the conclusion of the RIT-D consultation process as set out in the Electricity Rules.[5] Disputes may be raised on the grounds that either the RIT-D proponent has not applied the RIT-D in accordance with the Electricity Rules or there has been a manifest error in the calculations performed by the RIT-D proponent in applying the RIT-D.[6]

Within the dispute notice, the disputing party contends that Ausgrid did not apply the RIT-D in accordance with the Electricity Rules. In particular, the disputing party considers that Ausgrid incorrectly applied a central estimate assumption for the Value of Customer

3 The RIT-D Application Guidelines are available at: https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rit-t-and-rit-d-application-guidelines-minor-amendments-2017

4 NER, cl. 5.17.3

5 NER, cl. 5.17.5

6 NER, cl. 5.17.5(a)

Reliability (VCR) of $170/kWh in the Sydney CBD RIT-D. They contend that this VCR assumption is inconsistent with and not supported by the agreed Sydney CBD VCR estimate of $90kWh[7], or the AEMO consumer based estimate of $34.15 kW/h.[8] The disputing party states that in applying this estimate, a poor precedent would be set going forward, which could be used to justify over investment in the regulatory asset base.

Assessment approach

As required by the Electricity Rules, our review of this RIT-D was a compliance assessment against the requirements of the RIT-D.

In accordance with the Electricity Rules, our dispute resolution process focused on the grounds for dispute raised within the dispute notice. We identified the grounds for the dispute as:

> ….a failure by Ausgrid to apply the RIT-D in accordance with the Electricity Rules, on the basis that it applied an unreasonable VCR estimate in its assessment of market benefits, which may have led to the incorrect option and timing being identified.

As part of our review we engaged an expert consultant, WSP, to assist us in assessing whether the Sydney CBD RIT-D was in accordance with the RIT-D requirements, in particular, the grounds of the dispute.

Our consultant also identified some additional issues arising from their review of Ausgrid's application of the RIT-D but which do not directly relate to the grounds for dispute. Both our determination and our consultant's report provide some commentary on these additional issues, in light of their potential precedent for other RIT-D applications.

AER determination

Our determination is that Ausgrid is not required to amend its FPAR. We are satisfied that Ausgrid applied the RIT-D in its assessment of the Sydney CBD RIT-D project in accordance with the Electricity Rules.[9]

We also note that the FPAR for Sydney CBD RIT-D provided limited sensitivity analysis and supporting justification for the choice of a reasonable VCR. However, after taking into account the additional information provided by Ausgrid and additional analysis undertaken by our consultant, it is clear that the selection of the preferred option and the optimal timing of the project is insensitive to a reasonable alternative VCR estimate.

Our determination that Ausgrid's decision was in accordance of the RIT-D requirements does not depend on the reasonableness of the specific VCR it applied. Given this, we do not consider this decision to be a precedent as it is based on historical approaches to

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7 As identified in IPART, September 2016, Review of Transmission Reliability Standards and

8 TransGrid and Ausgrid, November 2017, Powering Sydney's Future RIT-T, Project Assessment Conclusions Report
Australian Energy Market Operator, September 2014, Value of customer reliability review final report

9 NER, cl. 5.17.5(d)(3)(ii)

determining VCR estimates. It should be noted that the AER has commenced a review of the methodology for determining VCR estimates.

We also consider that a robust cost benefit analysis presented in the FPAR and effective RIT-D consultation process could have avoided the dispute and allowed a more timely completion of the RIT-D process.

1 Introduction

This chapter sets out the relevant background information to our determination on the dispute in relation to the Sydney CBD RIT-D, including a summary of the dispute and the dispute resolution process.

1.1 Who we are and our role in this process

The AER is the economic regulator for electricity transmission and distribution services in the NEM.[10] Our electricity-related powers and functions are set out in the National Electricity Law (Electricity Law) and Electricity Rules.

We are responsible for developing, publishing and maintaining the RIT-D and accompanying RIT-D Application Guidelines. The RIT-D is an economic cost–benefit analysis that is used by distribution businesses to assess and rank different electricity investment options. The purpose of the RIT-D is to identify the credible option[11] which maximises the present value of the net economic benefit to all those who produce, consume and transport electricity in the market (the preferred option).[12] The RIT-D Application Guidelines provide guidance on the operation and application of the RIT-D.[13]

Distribution businesses must apply the RIT-D to all proposed distribution investment subject to certain exclusions.[14] The RIT-D is intended to promote efficient distribution investment decision making in the NEM and ensure greater consistency, transparency and predictability.

1.2 Background to the Sydney CBD Network Project

The Dalley Street ZSS and City East ZSS form part of the electricity distribution network that supplies the Sydney CBD, a high demand area with a peak load of 450MVA. Ausgrid identified condition issues at both ZSSs, which if left unaddressed may increase the likelihood of equipment failure leading to involuntary load shedding and breaches of reliability standards, alongside higher maintenance costs.[15] Ausgrid considered that reliability corrective action is required for the City East and Dalley Street ZSSs to address the above needs. While replacing assets and refurbishing City East and Dalley Street ZSSs is technically possible, Ausgrid considered that transferring loads supplied by these two zone substations to a nearby zone substation (Belmore Park), and then decommissioning the City

10 In addition to regulating transmission and distribution in the NEM and Northern Territory, we also monitor the wholesale electricity and gas markets to ensure suppliers comply with the legislation and rules, taking enforcement action where necessary, and regulate retail energy markets in Queensland, New South Wales, South Australia, Tasmania (electricity only) and the ACT.

11 A credible option is defined in NER, cl. 5.15.2(a) as an investment option that addresses the identified need, is commercially and technically feasible and can be implemented in sufficient time to address the identified need.

12 NER, cl. 5.17.1(b)

13 AER, September 2017, Regulatory Investment Test for Distribution Application RIT-D Guidelines

14 NER, cl. 5.17.3

15 Ausgrid, June 2018, Final Project Assessment Report, Ensuring reliability requirements in the Sydney CBD (Sydney CBD RIT-D), p.14-15

East and Dalley Street ZSSs, is more economically and technically efficient compared to replacing aging assets on a one-for-one basis.

As part of the Ausgrid and TransGrid's joint Powering Sydney's Future (PSF) Regulatory Investment Test for Transmission (RIT-T), the Project Assessment Draft Report (PADR) for this RIT-T adopted a $170/kWh VCR estimate for the combined Inner Sydney and Sydney CBD regions, which was based on an earlier HoustonKemp report.[16] In assessing TransGrid's 2018-2023 Revenue proposal, the AER raised concerns with the application of this estimate for these combined regions. The AER stated that the figure was likely to be upwardly focused, and inconsistent with the VCR estimate of $90/kWh used by IPART for both these regions in their review.[17]

Following this determination, Ausgrid and TransGrid reapplied a lower central VCR estimate of $90/kWh to the Powering Sydney's Future RIT-T Project Assessment Conclusions Report (PACR), claiming that this input was immaterial in the identification of optimal timing of the project.[18]

1.3 The Sydney CBD RIT-D

On 19 April 2018, Ausgrid commenced a RIT-D consultation process to identify the preferred option to maintain reliability of supply to Sydney CBD.[19] This consultation concluded on 8 June 2018 with Ausgrid publishing a FPAR.[20]

The FPAR considered two credible options, concluding that option 2 would deliver the highest net market benefits to satisfy the RIT-D. Option 2 involved:

- transferring the City East and Dalley Street ZSS loads to the neighbouring Belmore Park ZSS via new electrical cables installed through one 2x10 duct bank along College Street, followed by:
- decommissioning the two aging substations.

The project cost of the preferred option is estimated to be $44 million, with a completion date by 2024/2025. The alternative, Option 1, involved a load transfer through two 1x16 way duct banks, at a cost of $55.4 million and a completion date by 2026/27.[21]

1.4 The dispute

On 2 July 2018, the AER received a written notice from EUAA disputing the conclusions of the FPAR in accordance with the Electricity Rules.[22] In accordance with clause 5.17.5(a) of

16 Houston Kemp, July 2016, CBD and Inner Metro VCR estimates,

17 AER, September 2017, Draft Decision, TransGrid transmission determination 2018 to 2023 Attachment 6 – Capital expenditure, p. 103-4, IPART, September 2016, Electricity transmission reliability standards Supplementary Report

18 TransGrid, December 2017, Revised Revenue Proposal 2018/19-2022/23, p.59.

19 Ausgrid, April 2018, Draft project assessment report for Sydney CBD RIT-D

20 Ausgrid, June 2018, Final project assessment report for Sydney CBD RIT-D

21 Ausgrid, June 2018, Final project assessment report for Sydney CBD RIT-D, p. 17-18

22 EUAA, July 2018, Re: EUAA Notice of a Dispute under Clause 5.17.5 of the NER – Ausgrid Final Draft Assessment Report https://www.aer.gov.au/communication/aer-receives-notification-of-rit%E2%80%93d-dispute-from-euaa

the Electricity Rules, interested parties (among others) may dispute conclusions made by a RIT-D proponent in a FPAR on the grounds that:

- the RIT-D proponent has not applied the RIT-D in accordance with the Electricity Rules; or
- there was a manifest error in the calculations performed by the RIT-D proponent in applying the RIT-D.

The disputing party considers that:

- Ausgrid incorrectly applied a central estimate assumption for the VCR of $170/kWh within their baseline (central) and high scenario analysis in the Sydney CBD RIT-D.[23] They contend that this is inconsistent with an "agreed Sydney CBD value" of $90/kWh used within the PSF RIT-T.[24] They consider that the application of this estimate in the analysis may be used as precedent to justify significant overinvestment in the network.
- In addition, that Ausgrid has undertaken limited sensitivity testing of a $90/kWh VCR across the scenarios assessed under its RIT-D.[25]

1.5 Structure of this document

This document sets out our determination on the dispute in relation to the Sydney CBD RIT-D, including the reasons for the determination.

The decision is structured as follows:

- chapter two sets out our dispute resolution process and how it relates to the present dispute
- chapter three sets out our assessment of the application of the RIT-D by Ausgrid
- chapter four sets out our determination on the dispute in relation to the Sydney CBD RIT-D, including the reasons for the determination.

23 Ausgrid, June 2018, Final project assessment report for Sydney CBD RIT-D

24 TransGrid and Ausgrid, November 2017, Powering Sydney's Future RIT-T, Project Assessment Conclusions Report

25 EUAA, July 2018, Re: EUAA Notice of a Dispute under Clause 5.17.5 of the NER – Ausgrid Final Draft Assessment Report, p. 2, https://www.aer.gov.au/communication/aer-receives-notification-of-rit%E2%80%93d-dispute-from-euaa

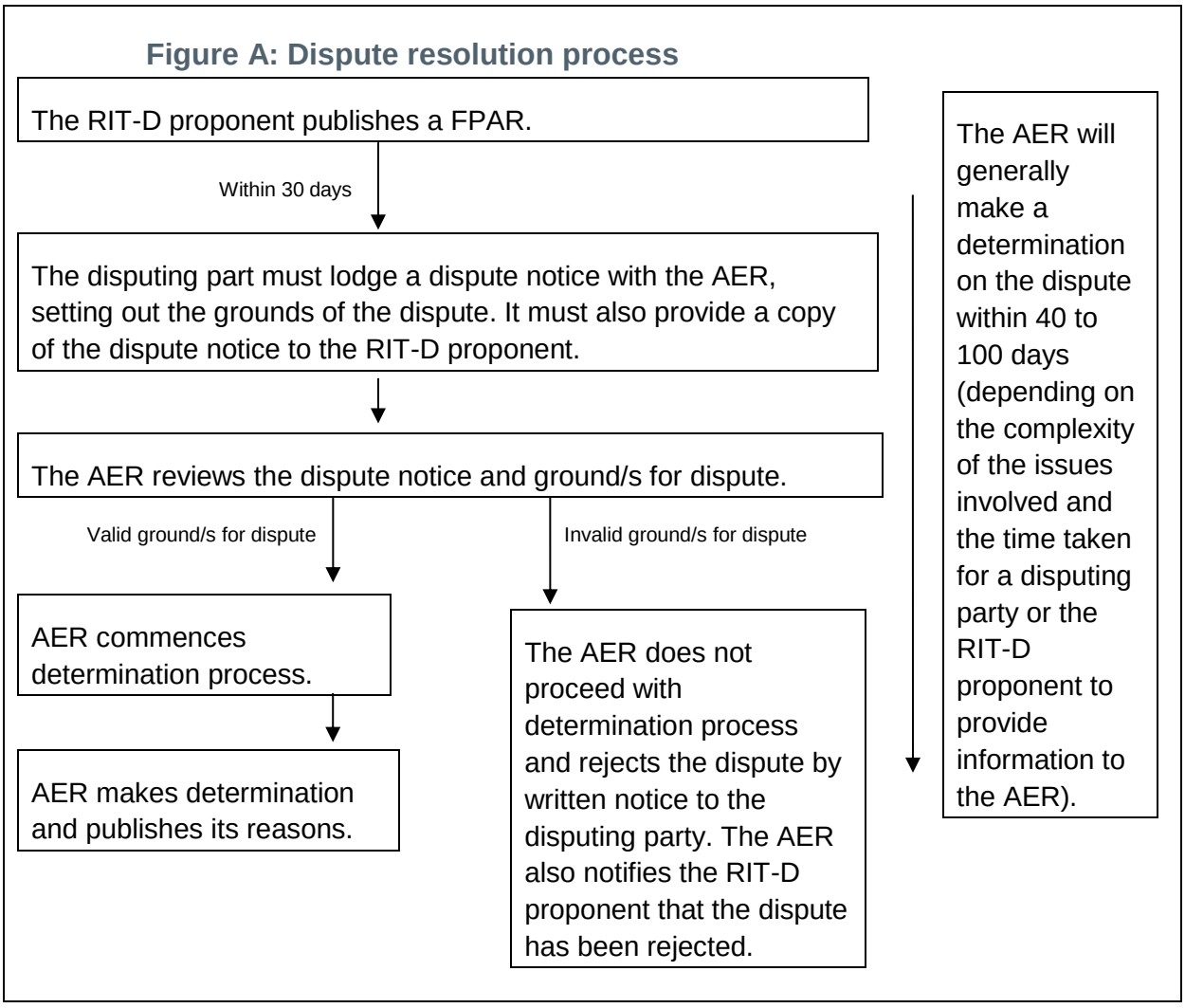
2 RIT-D dispute resolution

2.1 Our dispute resolution process

The AER is responsible for determining RIT-D disputes raised by parties following the conclusion of the RIT-D consultation process as set out in the Electricity Rules. In accordance with clause 5.17.5(c) of the Electricity Rules, certain parties may raise a dispute in relation to the conclusions made in the FPAR by a RIT-D proponent by lodging a written notice to the AER within 30 days of the publication of the FPAR.

Clause 5.17.5(a) of the Electricity Rules identifies Registered Participants, the AEMC, Connection Applicants, Intending Participants, AEMO, interested parties and non-network providers as parties eligible to lodge a dispute notice. As stated above, a dispute may be raised in relation to the conclusions made by the RIT-D proponent in the FPAR on the grounds that either the RIT-D proponent has not applied the RIT-D in accordance with the Electricity Rules or there was a manifest error in the calculations performed in applying the RIT-D.

Figure A: Dispute resolution process



A dispute notice 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.[26] The AER's RIT-D Application Guidelines provide guidance on the information that should be included in a dispute notice.[27] Our Guidelines also provide a summary of the RIT-D dispute resolution process. This summary has been reproduced as Figure A above.[28]

After considering the dispute notice and any other relevant information, we must either reject the dispute or make and publish a determination. 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.[29]

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.[30]

We must decide whether a dispute is valid and resolve the dispute 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.[31]

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.[32]

Under clause 5.17.5(h) of the Electricity Rules, we may request additional information regarding the dispute from the disputing party and/or the RIT-D proponent. The disputing

26 NER, cl. 5.17.5(b)
27 AER, September 2017, Regulatory Investment Test for Distribution (RIT-D) Application Guidelines p. 21-22
28 AER, September 2017, Regulatory Investment Test for Distribution (RIT-D) Application Guidelines p.22
29 NER, cl. 5.17.5(d)(1) and (2)
30 NER, cl. 5.17.5(d)(3)
31 NER cl. 5.17.5(d)
32 NER, cl. 5.17.5(f)

party or the RIT-D proponent (as the case may be) must provide any additional information as soon as reasonably practicable.

A request for additional information will automatically extend the period of time for making a determination 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 and
- the RIT-D proponent or disputing party provides the information within 14 days of receipt of the request.

2.2 Application of our dispute resolution process

We received a written dispute notice from the disputing party on 2 July 2018. Clause 5.17.5(c) of the Electricity Rules requires a dispute notice to be provided to us within 30 days of the date of the publication of the FPAR. The FPAR was published on 8 June 2018, hence, the deadline for raising a valid dispute in accordance with clause 5.17.5(c) was met by the disputing party.

After an initial assessment, we considered that the dispute notice was not invalid, misconceived or lacking in substance and that it adequately specified the grounds of the dispute. The concerns raised in the dispute notice (as summarised in section 1.4 above) involved a claim that Ausgrid, as the RIT-D proponent, has not correctly applied the RIT-D in accordance with the Electricity Rules.

We also determined that, due to the complexity of the issues involved, we required additional time in order to resolve the dispute.[33]

Accordingly, on 14 August 2018, we provided written notice to Ausgrid and the disputing party of our decision to extend the 40 day time period within which we must resolve the dispute by an additional 60 days. We also informed Ausgrid and the disputing party that we had engaged the services of an expert consultant, WSP (our consultant), to assist us in independently assessing Ausgrid's application of the RIT-D for the purposes of resolving the dispute.

To better understand the economic modelling performed by Ausgrid, prior to the engagement of our consultant, we met with Ausgrid and the disputing party separately. These meetings allowed us to gain a better understanding of the basis for dispute and explain the dispute resolution process. The disputing party also raised concerns about the consultation process undertaken by Ausgrid for the Sydney CBD RIT-D, stating that a robust analysis in the FPAR and effective consultation could have avoided them raising a dispute with the AER.

On 25 July 2018, we requested additional information from Ausgrid, including the assessment on the application of the VCR estimate alongside the broader modelling in reaching the preferred option and scenario analysis. A copy of our letter and Ausgrid's

33 As provided by NER, cl 5.17.5(d)

redacted response, dated 8 August 2018, is available on our website.[34] Our assessment of Ausgrid's response indicated that the economic analysis did not provide information used by Ausgrid in identifying the optimal timing of the project. Following on from this, we requested and received additional modelling information regarding project timing on 10 September 2018, which is also available on our website in a redacted format.[35]

2.3 Our expert consultant

To assist in our review, we engaged the services of economic and technical consultants, WSP Australia Pty Limited (WSP), to undertake an independent assessment of whether the Sydney CBD RIT-D is likely to satisfy the requirements of the RIT-D.

In particular, our consultant:

- provided expert advice on the market benefits assessment and economic modelling undertaken by Ausgrid
- tested the validity of the outcomes of the Sydney CBD RIT-D; and
- considered material such as:
    - the FPAR and its underlying economic model
    - the dispute notice
    - additional information provided by Ausgrid (including the economic model supporting that analysis), and
    - information provided in discussions with Ausgrid and the disputing parties.

Our consultant's report detailing its views about the Ausgrid RIT-D is available on our website.[36]

2.4 Our assessment approach

WSP were engaged to undertake an independent review of the Sydney CBD RIT-D. If they considered that Ausgrid had incorrectly applied the RIT-D, WSP were to consider whether that misapplication was likely to have materially affected the identification of the preferred option.

In accordance with the Electricity Rules, our review of this RIT-D assessment was a compliance assessment against the RIT-D, focused on the grounds of the dispute. We do not consider it appropriate for us to undertake an independent cost-benefit analysis of the potential investment options to determine whether Ausgrid's application of the RIT-D was in accordance with the Electricity Rules.

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34 Letter dated 25 July 2018 from Peter Adams, General Manager Wholesale Markets Branch, AER to Matt Webb, Manager Asset Management, Ausgrid. Letter dated 8 August 2018 from Matt Webb, Manager Asset Management, Ausgrid to Peter Adams, General Manager Wholesale Markets Branch, AER.

35 Ausgrid, 10 September 2018, Re:Follow-up Information Request - Sydney CBD RIT-D Dispute.

36 WSP, October 2018, Application of RIT-D Requirements by Ausgrid - Sydney CBD Project.

Our assessment involved undertaking a review of the economic models which the FPAR conclusions were based upon, alongside in considering the advice of WSP. Relevantly, WSP performed a range of sensitivity tests on the economic model used by Ausgrid in order to test the robustness of the conclusions made in the FPAR.

This determination specifically addresses the basis for the dispute raised by the disputing party in the dispute notice (see sections 3.1 – 3.2). However, as part of the compliance assessment, a broader sensitivity analysis was undertaken and a number of additional issues were identified that do not directly relate to the grounds for dispute. These are relevant to Ausgrid's application of the RIT-D and our assessment of other regulatory investment test applications in the future.

3 AER assessment of RIT-D dispute

This section outlines our compliance assessment of the application of the RIT-D by Ausgrid in relation to the Sydney CBD project in response to the dispute notice we received. In particular, we assessed whether Ausgrid's application of the RIT-D was in accordance with the requirements of the Electricity Rules. The structure of this section addresses the grounds for dispute raised in the dispute notice (see section 1.4) and additional issues identified during the course of our compliance assessment.

3.1 Value of Customer Reliability used for Sydney CBD RIT-D

3.1.1 The basis of the dispute

The first basis of the dispute is that Ausgrid applied an unreasonable VCR estimate to its Sydney CBD RIT-D assessment. Consideration of a reasonable VCR estimate is critical in calculating market benefits of the credible options and may not only affect the ranking of the credible options but also the optimal timing of these options. In the dispute notice lodged with the AER, the disputing party claimed that:

- a higher $170/kWh VCR estimate was adopted by Ausgrid as an input to the baseline (central) scenario in its assessment of reasonable scenarios for the Sydney CBD RIT-D assessment. This is inconsistent with the VCR estimate used for the Sydney CBD area and Inner Sydney used in TransGrid and Ausgrid's joint PSF RIT-T.[37]
- TransGrid and Ausgrid adopted a $90/kWh VCR estimate in the Project Assessment Conclusions Report (PACR) for the PSF RIT-T, which should be taken as an 'agreed' VCR estimate for Sydney CBD area. EUAA notes that the IPART review that adopted the $90/kWh VCR was more justified, and based upon deeper consumer engagement.
- in TransGrid's 2018-2023 Revenue Proposal, the AER raised concerns with the application of the $170/kWh VCR to the central scenario, stating that it was inconsistent with the $90/kWh VCR estimate used by IPART.[38]
- the HoustonKemp study[39], the source of the $170/kWh VCR estimate used in the central scenario of Sydney CBD RIT-D assessment, is a desktop study built on other desktop studies which lacks proper consumer input and is hence less credible in ascertaining a reasonable VCR estimate.
- limited sensitivity testing was undertaken to determine the robustness of the VCR estimate.

The basis of the dispute is whether the VCR estimate adopted by Ausgrid reasonably reflects the value of electricity to those customers supplied from City East and Dalley Street zone substations. A central consideration for this determination is whether the application of

37 TransGrid and Ausgrid, November 2017, Powering Sydney's Future RIT-T, Project Assessment Conclusions Report
38 AER, September 2017, Draft Decision, TransGrid determination 2018 to 2023 Attachment 6 – Capital expenditure, p. 103-4
39 Houston Kemp, July 2016, CBD and Inner Metro VCR estimates

a different VCR estimate would lead to a different preferred solution, scope and timing of the project.

3.1.2 RIT-D requirements

The VCR is the value that that electricity customers place on avoiding service interruptions, which determines how much customers are willing to pay for improved service. It is generally utilised for evaluating efficient ways to build or upgrade infrastructure. In accordance with the RIT-D Guidelines, a RIT-D proponent should use a reasonable VCR estimate when calculating market benefits. The estimate should be fit for purpose for any current or potential uses of the VCR that we consider to be relevant. In addition, a RIT-D proponent should use VCR estimates from a reputable source, such as the AEMO estimates.[40]

The RIT Application Guidelines provide guidance on how a RIT proponent should assess market benefits of credible options, which includes factoring in how to assess reductions in involuntary load shedding in projects such as the Sydney CBD RIT-D. This is derived through assessing the quantity of involuntary load shedding avoided by the credible option, multiplied by the reasonable forecast of value of electricity to consumers of the estimated involuntary load reductions due to the credible option.[41]

3.1.3 Independent assessment

In assessing a reasonable estimate of VCR, our consultant's view was that Ausgrid's RIT-D assessment of the Sydney CBD was in accordance with the RIT-D requirements. They also concluded that the selection of the preferred option and the project optimal timing was not materially impacted by any reasonable alternative estimate of VCR.

Our consultant undertook a detailed review of the current sources of VCR estimates relevant to electricity consumers in NSW, including reports from HoustonKemp[42], AEMO[43] , Oakley Greenwood[44] and IPART.[45] The review was not focused on ascertaining an optimal estimate of VCR to be used for Sydney CBD or any future RIT-Ds, but to test the stated and implied assumptions used in ascertaining a reasonable VCR estimate. Relevantly, in assessing the reasonableness of the VCR estimate used by Ausgrid, it examined the assumptions made by HoustonKemp in developing the estimate. In particular our consultant made the following observations on HoustonKemp's methodology in developing the estimates of VCR:

- there is a reasonable argument to justify that a different VCR estimate should apply in the Sydney CBD area from that applied in the inner Sydney area or state-wide. CBD areas are unique in the mix of customers representing a dominance of high rise buildings with high demands for electricity, business customers who rely on e-commerce and an associated high reliance on a reliable electricity supply. It considered that a different estimate might be placed on electricity in CBD areas compared to other areas.

40 Australian Energy Market Operator, September 2014, Value of customer reliability review final report.
41 AER, September 2017, Regulatory Investment Test for Distribution (RIT-D) Application Guidelines, pg 56
42 HoustonKemp, July 2016, CBD and Inner Metro VCR estimates
43 Australian Energy Market Operator, September 2014, Value of customer reliability review final report.
44 Oakley Greenwood, May 2012, Final Report - NSW Value of Customer Reliability.
45 IPART, September 2016, Electricity transmission reliability standards Supplementary Report.

- basing economic value on key indicators of economic contribution (GDP) appears appropriate for a CBD area assessment. Additionally, the use of CPI to escalate the VCR values is consistent with the application of VCR under the AER's guidance for its Service Target Performance Incentive Scheme.

Our consultant noted that they have not found any evidence suggesting that the approach used to estimate the relative value of energy is unreasonable and that it is likely to reflect an appropriate estimate for VCR. However, they acknowledged the uncertainty in terms of reasonableness of these VCR estimates, given the age of the Oakley Greenwood and AEMO studies. Furthermore, our consultant stated that the aforementioned studies do not take into account the impact of standby generators, and the decreasing reliance on network supply reliability. These matters will impact on the appropriate VCR for these customers, making the newer constructions less reliant on grid connected electricity.

Given the about limitations that our consultant has acknowledged, the robustness of the RIT-D modelling should be tested using different reasonable VCR estimates.

In order to test the impact of uncertainty, our consultant undertook a range of sensitivity tests on the cost-benefit and project timing models provided by Ausgrid to test the reasonableness of the VCR estimates and whether this is material to the application of the RIT-D. This additional analysis revealed the following results:

- varying the reasonable VCR estimates does not change the preferred option; and
- varying the VCR values between $150/kWh to $190/kWh does not change project timing, and is insensitive to VCR values above $100/kWh, varying the timing by only one year;
- applying a $90/kWh VCR would delay the project timing of the preferred option by only 2 years, but the net economic benefits of doing this would not be materially different.[46]

Additional information provided by Ausgrid

In response to our information request and associated discussions, Ausgrid subsequently provided clarification on a number of questions surrounding the application of a reasonable VCR estimate. In particular, Ausgrid used a different VCR estimate for Sydney CBD area as opposed to Inner Sydney (which includes both the CBD and surrounding areas) because of the differences in customer type mix. Ausgrid contend that:

1. while there is a roughly even split between business and residential customer meters ('NMIs') in the CBD, business customers are responsible for approximately 97 per cent of the current annual electricity consumption (with residential customers making up the remaining 3 per cent); and
2. in the wider Inner Sydney area, residential customers make up a far greater proportion of both NMIs (86 per cent compared to 44 per cent for the CBD) and annual consumption (24 per cent compared to 3 per cent for the CBD).

46 Table 4.5 shows a two year deferral would only increase the net economic benefit from $38.1m to $38.6m. See WSP, *Application of RIT-D requirements by Ausgrid: Sydney CBD project*, October 2018, p. 20.

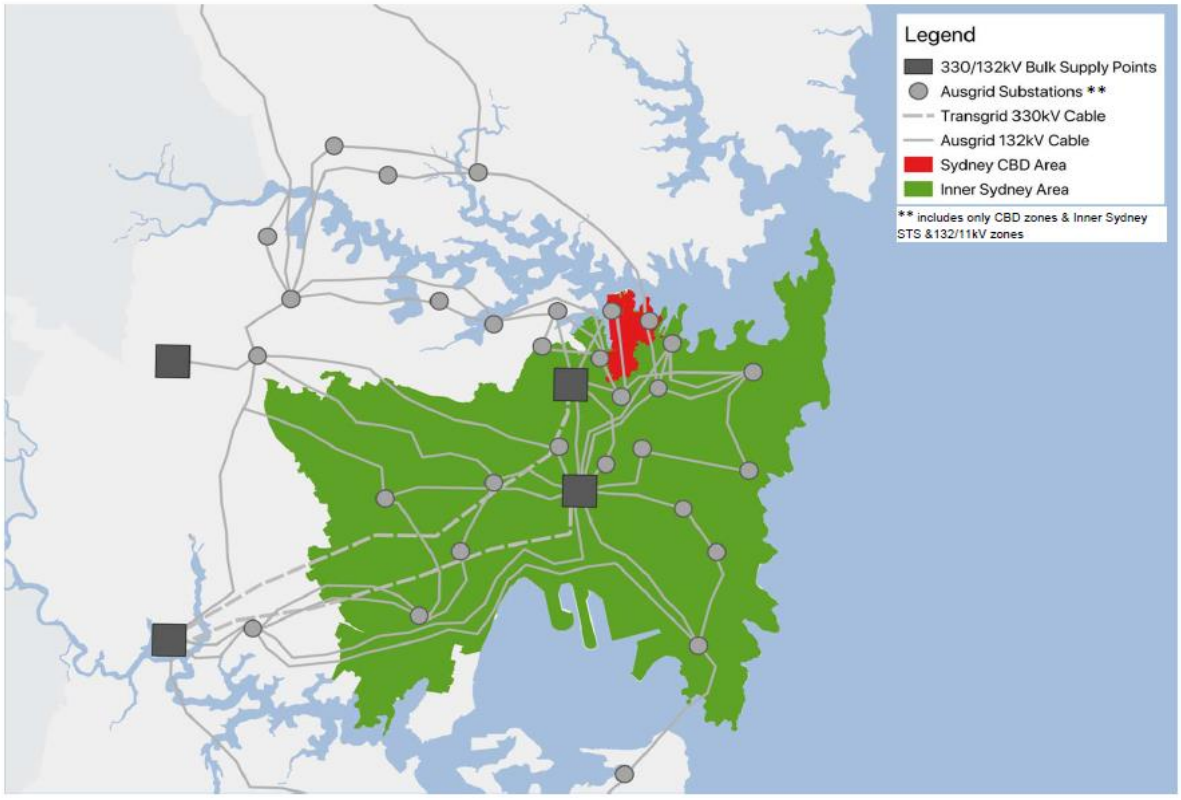
As supporting evidence, Ausgrid also provided the full list of Sydney CBD NMIs by customer to support their justification that these customers value reliable electricity supply highly (and consequently can be expected to have a high VCR). Ausgrid also provided the underlying cost benefit analysis and project timing models used for this RIT-D assessment to test the sensitivities of the outcomes.

In the case of the Sydney CBD RIT-D, Ausgrid also contends that it did not consider that the application of AEMO's standard VCR estimates, without modification, would be appropriate, for two reasons:

1. the AEMO estimates are not broken down into different geographic areas beyond state-level values and therefore do not provide any insight into differences in VCR between customers in regions like Sydney CBD, and the rest of New South Wales; and
2. the methodology used to calculate the AEMO estimates does not cater for prolonged outages (the longest outage considered was 12 hours) and so the 'low probability but high impact' supply interruptions contemplated in this RIT-D are not accurately captured.

Therefore, Ausgrid considered the use of the $170/kWh estimate as reasonable given it represents the mid-point of the only independent estimates available of VCR for the Sydney CBD, as determined by HoustonKemp.[47]

Relevantly, Ausgrid provided the below map of the areas covered by PSF RIT-T and Sydney CBD RIT-D.[48]



47 HoustonKemp, July 2016, CBD and Inner Metro VCR estimates

48 Ausgrid, 8 August 2018, Information Request - Sydney CBD RIT-D Dispute, p 4

Ausgrid states that this demonstrates how the $90/kWh VCR used in PSF RIT-T catered for a much broader area than the area covered by the Sydney CBD RIT-D, and hence catered for a different customer mix. Relevantly, Ausgrid state that it has used $40/kWh rather than $90/kWh VCR estimates for its RIT-Ds focussing other Inner Sydney areas, which represent lower economic activity as opposed to the Sydney CBD.[49] This shows that Ausgrid has been consistent with its position that the $90/kWh VCR estimate is an inner Sydney average. Hence, the inputs and assumptions used for both the projects are different for the aforementioned reasons. Ausgrid have also stated that whilst these VCR estimates were the most reasonable at the time, they may be subject to change with the upcoming AER VCR review.

3.1.4 AER view

We consider that Ausgrid's RIT-D assessment was in accordance with the RIT-D requirements.

Based on the information provided by Ausgrid and advice from our consultant, it appears that the PSF RIT-T and Sydney CBD RIT-D cater for different customer mixes. The Sydney CBD RIT-D covers the Sydney CBD area which has very high economic activity. While it is assumed by Ausgrid that customers in that area are likely to value electricity more, on average, than customers in the combined regions of Inner Sydney and Sydney CBD regions covered by the PSF RIT-T, this value is subject to uncertainty .To test the impact of uncertainty, the sensitivity testing undertaken by our consultant across a range of reasonable VCR estimates ($90/kWh to $190/kWh) clearly demonstrates that it is immaterial to the choice of preferred option or the project timing. Given this uncertainty regarding the reasonable value for VCR in the CBD region, the use of the $90/kWh estimate in the PSF RIT-T does not necessarily demonstrate that the use of the $170/kWh estimate in the Sydney CBD RIT-D was not in accordance with the RIT-D requirements.

However, the FPAR for Sydney CBD RIT-D provided limited sensitivity analysis and supporting justification for the choice of a reasonable alternative VCR estimate. The FPAR should have provided greater transparency on the underlying methodologies and the supporting sensitivity analysis. Notwithstanding this conclusion, our consultant's review demonstrates that the selection of the preferred option and the optimal timing of the project is not materially impacted by the choice of reasonable estimate of VCR.

Our determination that Ausgrid's decision was in accordance of the RIT-D requirements does not depend on the reasonableness of the specific VCR it applied. Given this, we do not consider this decision to be a precedent. It should be noted that the AER have commenced a review of the methodology for determining VCR estimates.

The AEMC made a rule change on 5 July 2018 giving us the formal responsibility of determining VCR.[50] This rule change requires us to make our first VCR determination by 31 December 2019. As part of this determination, we will engage with stakeholders and industry

[49] Ausgrid, 8 June 2018, Final project assessment report for Sydney CBD RIT-D, p. 21

[50] https://www.aemc.gov.au/rule-changes/establishing-values-of-customer-reliability

participants to address the areas that would provide additional guidance in determining VCR estimates.

3.2 Robustness of Sensitivity Analysis

3.2.1 The basis of the dispute

The second basis for the dispute is the limited sensitivity and scenario analysis regarding the adopted VCR estimates by Ausgrid in its Sydney CBD RIT-D assessment. The sensitivity analysis within the RIT-D modelled the low scenario with a $90/kWh VCR estimate, based on the IPART review,[51] and the PSF RIT-T.[52] The aforementioned $170/kWh VCR estimate was applied to the central and high scenarios of the Sydney CBD RIT-D. The central scenario was assigned a 50 per cent probability weighting, with the low and high scenarios assigned 25 per cent each.

The disputing party contends that Ausgrid have undertaken limited sensitivity testing of a $90/kWh VCR estimate on one “low benefits scenario” only,[53] with no results shown for a $90/kWh VCR estimate in the central or high benefits scenario. The disputing party contend that this may have resulted in incorrect results regarding the timing and costs of the two credible options.

3.2.2 RIT-D requirements

Clause 5.17.1 of the Electricity Rules require a RIT-D proponent to base a RIT-D assessment on a cost-benefit analysis which includes an assessment of reasonable scenarios of future supply and demand within a sensitivity analysis. The RIT Guidelines state that the appropriate number and choices for reasonable scenarios will be dependent on the circumstances of the project. A reasonable scenario would generally be a set of variables or parameters that the RIT-D proponent does not expect to change across each of the relevant credible options within high, medium and low demand scenarios.[54] In accordance with the Electricity Rules, this does not require a level of analysis that is disproportionate to the scale and likely impact of each of the credible options being considered.[55]

3.2.3 Independent assessment

Our consultant's view was that the sensitivity analysis conducted by Ausgrid in relation to the materiality of various VCR estimates is in accordance with the RIT-D requirements, and does not result in a misapplication of the RIT-D. This conclusion was supported by our consultant undertaking a broader sensitivity analysis of key parameters used in the Sydney CBD RIT-D assessment against the RIT-D requirements. The full methodology of these process are provided within our consultant's report.

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51 IPART, September 2016, Electricity transmission reliability standards Supplementary Report

52 TransGrid and Ausgrid, Powering Sydney's Future RIT-D, Project Assessment Conclusions Report

53 Ausgrid, 8 June 2018, Final project assessment report for Sydney CBD RIT-D, p. 22

54 AER, September 2017, Regulatory Investment Test for Distribution (RIT-D) Application Guidelines, p. 44

55 NER, cl. 5.17.1(2)

Assessment and Analysis of Key Parameters

In the course of testing the robustness of the preferred option, our consultant assessed the methodology surrounding key parameters including VCR estimates used in Ausgrid's cost benefit analysis (CBA) and project timing models for this RIT-D assessment. Based on the analysis of the Project Timing and CBA models, our consultant made the following observations:

- the preferred option to undertake construction of new underground cable feeders that will transfer 90 MVA of load from zone substations City East and Dalley Street ZSS to Belmore Park ZSS is not impacted by variations to key inputs, including to reasonable choices in the value of VCR.
- the preferred timing based on the Project Timing model, which determined the year when annual benefits of replacement exceed the annualised cost of the project, is estimated to occur between 2024 and 2026.
- the preferred timing for the project based on the highest NPV calculated using the CBA model generally fall between 2025 and 2027, with 2026 being the preferred year when applying the expected baseline values of costs and benefits.
- values assigned to safety and environmental benefits appear high and have not been justified. However, substituting lower values does not impact on the preferred option but affects the optimal timing.
- Ausgrid did not include a detailed description of the methodologies used in quantifying safety and environmental benefits and as to why the market benefits relating to losses and changes in embedded generation are not included in the analysis. However, after reviewing further information provided by Ausgrid, these omissions were not expected to materially impact on the analysis.

In addition, our consultant's analysis showed that the optimal timing of the project is not materially dependent on assumptions made about capital costs, safety benefits, avoided maintenance cost and VCR. Overall our consultant's review demonstrated that there is potential to defer the project by one or two years, however, the difference in NPV is not material and therefore a commissioning year of 2025 is reasonable.

Additional information provided by Ausgrid

Ausgrid provided clarification on their sensitivity analysis and associated inputs based upon our information request and associated discussions. They advised that the overall methodology for the RIT-D was consistent with other projects, however was more comprehensive given the multi-staged nature.

In further discussions with Ausgrid, they advised that individual variations on the sensitivities of the VCR estimates were undertaken, however the results of which were not published within the FPAR.[56] They confirmed that no sensitivity analysis was conducted on a VCR estimate below $90/kWh, in line with the IPART review.[57] This was due to Ausgrid viewing a

56 Ausgrid, June 2018, Final project assessment report for Sydney CBD RIT-D

57 IPART, September 2016, Electricity transmission reliability standards Supplementary Report.

reasonable VCR as a secondary factor in the analysis which did not affect the preferred option.

Ausgrid provided the following data to assist with the sensitivity analysis:

- the cost benefit model of the project, in addition to the model used to determine the preferred timing of the project;
- an explanation on the build-up costs of safety, environment and corrective maintenance factors;
- the capital costs build-up of the two options based on the currently available information;
- data on the annual outages for the area, alongside reliability of the City East and Dalley St ZSS;
- data on the demand forecasting methodology, including input data, modelling results and the forecasting models. Furthermore, data on the Sydney CBD spot loads and interval demand data was provided;
- an explanation of the methodology of the Expected Energy at Use models and the associated modelling outputs.

3.2.4 AER view

We consider that Ausgrid's sensitivity analysis as part of the Sydney CBD RIT-D assessment highlighted inconsistencies in relation to the approach used in calculation of safety and environmental benefits. As part of the FPAR, we consider that Ausgrid should have provided a detailed description of the methodologies used in quantifying safety and environmental benefits and as to why the market benefits relating to losses and changes in embedded generation are not included in the analysis. However, the additional analysis undertaken by our consultant and information provided by Ausgrid, demonstrates that this does not materially affect the outcome of the RIT-D.

We also consider that the FPAR for Sydney CBD RIT-D provided limited sensitivity analysis and supporting justification for the choice of a reasonable VCR estimate. In our view, Ausgrid could have reasonably considered a range of VCR estimates and provided further justification to show whether or not it was material to calculation of market benefits or in ascertaining the optimal timing of the project. However, in the light of the further information provided by Ausgrid, and the additional analysis undertaken by our consultant, we are satisfied that a reasonable estimate of VCR does not materially affect the outcome of this RIT-D.

4 AER determination

In accordance with clause 5.17.5(d)(3)(ii) of the Electricity Rules, our determination is that Ausgrid is not required to amend its FPAR. We are satisfied that Ausgrid applied the RIT-D in its assessment of the Sydney CBD RIT-D in accordance with the Electricity Rules..

We note that the FPAR for Sydney CBD RIT-D provided limited sensitivity analysis and supporting justification for the choice of a reasonable VCR. However, after taking into account the additional information provided by Ausgrid and additional analysis undertaken by our consultant, it is clear that the selection of the preferred option and the optimal timing of the project is insensitive to a reasonable alternative VCR estimate.

Our determination that Ausgrid's decision was in accordance of the RIT-D requirements does not depend on the reasonableness of the specific VCR it applied. Given this, we do not consider this decision to be a precedent as it is based on historical approaches to determining VCR estimates. It should be noted that the AER has commenced a review of the methodology for determining VCR estimates.

We also consider that a robust cost benefit analysis presented in the FPAR and effective RIT-D consultation process could have avoided the dispute and allowed a more timely completion of the RIT-D process.