



REZ access rights and scheme design: Central-West Orana

Consultation paper

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Abbreviations and definitions

AEMO	Australian Energy Market Operator
AEMO Services	AEMO Services Limited, the Consumer Trustee ¹
CWO	Central-West Orana
CWO REZ	Central-West Orana REZ Access Scheme
Department	NSW Department of Planning, Industry and Environment
EII Act	<i>Electricity Infrastructure Investment Act 2000</i>
ESB	Energy Security Board
LTESA(s)	Long-term energy service agreement(s). The LTESA is an option contract granting projects a series of rights, but not an obligation, to access a minimum cash flow for their energy services during the term of the agreement ² .
LTES operator	Party responsible for the construction, operation and management of the generation or long-duration storage facility
NEMDE	National Electricity Market Dispatch Engine
New REZ Infrastructure	New transmission infrastructure to support REZ development delivered through the EII Act
REZ	Renewable Energy Zone
REZ Network Operator(s)	A person authorised to carry out a network infrastructure project under the EII Act
REZ Network Infrastructure	The network infrastructure that is specified in a REZ declaration made under section 19(1) of the EII Act. For the Central-West Orana REZ, this declaration includes new and existing network infrastructure specified in the CWO REZ declaration.
REZ Scheme Network	The subset of the REZ Network Infrastructure that supports the ‘intended network capacity’ of a REZ under the REZ declaration and to which access rights are allocated. For the Central-West Orana REZ, the REZ Scheme Network will comprise only the New REZ Infrastructure within the geographical boundary of the REZ. The ‘intended network capacity’ for network infrastructure in the Central-West Orana REZ is 3 gigawatts.
Roadmap	Electricity Infrastructure Roadmap
TNSP	Transmission Network Service Provider
TUOS	Transmission use of system

¹ The NSW Minister for Environment and Energy appointed AEMO Services Limited as the Consumer Trustee in July 2021, with an effective date of 31 October 2021.

² For further information see [Long-Term Energy Service Agreement Design consultation paper](#)

Acknowledgment of Country

The Department of Planning, Industry and Environment acknowledges the Traditional Owners and Custodians of the land on which we live and work, and pays respect to Elders past, present and future.

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Introduction

Getting and staying connected to a REZ

Access schemes are a key element to coordinate and encourage investment in Renewable Energy Zones (REZs), and to realise the objectives of the [Electricity Infrastructure Roadmap](#). The Central-West Orana REZ Access Scheme (CWO REZ) will be the first of its kind in the National Electricity Market. The CWO REZ is located around Dubbo and Wellington, on the land of the Wiradjuri, Wailwan and Kamilaroi peoples.

Access schemes provide a range of benefits to generators and investors by controlling how projects connect to REZs and defining their rights to access the REZ Network Infrastructure. The schemes will encourage efficient investment in new generation and storage projects in REZs by reducing the risk and uncertainty that exists under the current open access framework.

The CWO REZ was formally declared on 5 November 2021. The 'minimum viable access product' for the CWO REZ is scheduled to be operationalised and allocated in a competitive tender by the NSW Consumer Trustee (AEMO Services) in the fourth quarter of 2022³. Consultation through this paper will support the timely development of regulation, the access scheme declaration process and readiness for the scheduled tender.

By managing generation and storage connection in REZs, the access schemes will enable active coordination of network, generation and storage investment, allowing up-front planning to support local outcomes.

In March 2021, the NSW Department of Planning, Industry and Environment (the department) consulted on three access scheme options through the [Central-West Orana REZ Access Scheme Issues Paper](#). The three options proposed were:

- Option 1 – Limited physical connection model
- Option 2A – Financial compensation model
- Option 2B – Enhanced financial compensation model.

The feedback suggested a stakeholder preference for Option 1, with a secondary preference for Option 2B. Option 1 was preferred for its simplicity and Option 2B because it provides a firmer access and more flexibility than Option 2A. Based on the feedback received and further analysis, the department is proposing a physical connection model which is adapted to mitigate the risk of underutilisation of the REZ.

The access right is a promise to limit capacity connected to the REZ Network Infrastructure based on a targeted level of transmission curtailment. The access right is intended to provide generators with a better ability to forecast National Electricity Market locational price signals such as marginal loss factor and curtailment. It also aims to provide greater certainty around connection standards, processes and the timing of connection. The access right is not intended to remove locational price signals for generators, but rather to give projects enough information to accurately assess these risks, and to limit new connections where the target transmission curtailment is exceeded.

Access rights will be allocated under a declared access scheme that authorises access to, and use of, the REZ Network Infrastructure. REZ Network Infrastructure may include new and/or existing transmission network inside and outside of the geographical perimeter outlined in each access scheme declaration. For each REZ, the relevant access scheme declaration will nominate the

³ For further information please refer to [AEMO Services Infrastructure Investment Objectives \(IIO\) Report](#). The report includes the Development Pathway for the construction of electricity infrastructure in NSW and the 10-year plan for conducting competitive tenders.

transmission network to be categorised as 'REZ Scheme Network' to support the 'intended network capacity' giving rise to access rights.

Competitive tenders will recommend the allocation of access rights to provide for efficient utilisation of the REZ Scheme Network. In return for the access right, holders of an access right will pay an access fee. Connection and the use of REZ Network Infrastructure outside of the REZ Scheme Network will be controlled through declarations to ensure efficient use of the REZ Scheme Network.

The department considers it is vital that the communities who host new infrastructure benefit from it. A portion of the access fees paid by access right holders for participating in access schemes will go towards supporting community and employment initiatives for each REZ⁴.

Purpose of this paper

Designing an effective access scheme will help ensure REZs deliver their intended outcomes. This paper outlines proposed design concept, structural and implementation elements of the access right and scheme for the purposes of gathering feedback.

Questions are set out in 'Have your say boxes' and we encourage stakeholders to make a submission. Your feedback from this paper will help inform the final access right and scheme design and other key mechanisms that will deliver the CWO REZ access scheme, including

- the access scheme declaration – the primary statutory instrument that implements and operationalises the terms and conditions of the access scheme
- proposed modifications to the [National Electricity Rules](#) to enable the operation of a declared access scheme
- the implementation of the streamlined connection process
- design of the combined competitive tender process conducted by AEMO Services.

Consulting on policy design and key implementation matters is an important part of the department's Electricity Infrastructure Roadmap implementation strategy. The department has adopted a structured approach to seeking feedback through a series of papers on key policy areas. Key papers that have been released for stakeholder engagement on policy and design issues to inform Roadmap implementation are located in our [Virtual Engagement Room](#).

Details on current consultations, relevant briefing sessions and how to make submissions are available [on our website](#). We look forward to your valued input.

⁴ In accordance with section 26 of the EII Act.

Structure of this consultation paper

This paper has been structured for readability and is set out in the sections outlined below.

Section name with hyperlink	Content
Section 1. Access at a glance	Summary of access right and scheme objectives, overview and proposed design of access product, approach to allocating access rights, the delivery of the access scheme via declaration, regulation and contracts, access fees and control mechanism. We are seeking your feedback to ensure our design concept achieves the intended objectives.
Section 2. Staying connected: allocation approach in detail	Describes in-depth the key concepts underpinning the allocation of the access right, the proposed allocation approach, the approach for other project types; and introduces subordinate access rights to improve network utilisation.
Section 3. Staying connected: streamlined connection process	Provides the proposed streamlined connection process including REZ Access Standards, batched power system studies, modifications to the National Electricity Rules to enable the process and the provision of system strength services.
Section 4. Access scheme control mechanism	Introduces the proposed access control mechanism options that could apply to projects seeking to connect to existing infrastructure identified in the REZ declaration. We are seeking your feedback on the two options being explored to preserve commercial incentives for access right holders.
Section 5. Setting and usage of access fees	Outlines the proposed process and principles for determining access fees, the CWO REZ benefit-sharing model and how access fees may be used.
Section 6. Changing regulatory environments	Describes modifications needed to the National Electricity Rules to enable the operation of a declared access scheme and implementation of the access right. Highlights upcoming national reform interaction with access scheme.
Supplementary information	Summaries the roles and functions of the entities under the access scheme and describes how the access scheme declaration proposes to operationalise the terms and conditions of the scheme.

This paper excludes:

- detailed insights from the previous Central-West Orana Renewable Energy Zone Access Scheme Issues Paper
- detailed modelling methods or outcomes or how these may be written into the access scheme design.

It is acknowledged the detailed information on the competitive tender and evaluation process are important to scheme design; and this will be addressed in future published materials.

Have your say

The department is seeking feedback on the proposed access right design and its elements. Your feedback will help inform decisions on the detailed legislative and commercial instruments necessary to implement the access scheme.

You are invited to provide your feedback via one of two methods:

- download and complete the Word version of the submission form from the [Electricity Infrastructure Roadmap webpage](#) and email it to Electricity.Roadmap@dpie.nsw.gov.au with **'Your Name – Access product design consultation submission'** in the subject line
- provide a free form submission via email to Electricity.Roadmap@dpie.nsw.gov.au with **'Your Name – Access product design consultation submission'** in the subject line.

The consultation will be open until **14 February 2022**.

Please note that providing a submission is entirely voluntary, is not assessable, and does not in any way include, exclude, advance or diminish any entity from any future procurement or competitive process in regard to REZs and/or the long-term energy service agreement (LTESA) under the Roadmap, or any other NSW Government program.

Confidentiality and intellectual property

The department is committed to an open and transparent process, and all online responses and submissions will be made publicly available, except those requested to be kept confidential. The department will redact personal details from submissions made by individuals to protect personal information. If a submission author considers any content in their submission to be revealing of protectable corporate intellectual property, they should clearly note and define this in their submission. In the absence of an explicit declaration to the contrary, the department will assume that the information provided is not considered intellectual property of the respondent. Written submissions should be provided as documents that can be published on the department's website.

If you wish for your written submission to remain confidential (except to department project staff/officers and advisers, who are subject to appropriate confidentiality arrangements), please clearly state this in your submission, and only your organisation's name will be published.

The department may disclose confidential information provided by you to:

- the NSW Minister for Energy and Environment or Minister's office
- the NSW Ombudsman, Audit Office of NSW or as may be otherwise required for auditing purposes or Parliamentary accountability
- directly relevant departmental staff/officers, consultants and advisers
- the Australian Energy Market Operator (AEMO), Energy Security Board (ESB), Australian Energy Market Commission (AEMC), Australian Energy Regulator (AER) or the Australian Competition and Consumer Commission (ACCC)
- the legal person appointed, or to be appointed, to the position of Consumer Trustee (AEMO Services), including its staff/officers, consultants and advisers
- the Clean Energy Finance Corporation (CEFC) or the Australian Renewable Energy Agency (ARENA) or distribution network service providers
- other parties where authorised or required by law to be disclosed.

Where the department discloses this information to any of these parties, it will inform them that the information is strictly confidential. The department may publish or reference aggregated findings from the consultation process in an anonymised way that does not reveal confidential information.

Section 1. Access at a glance

The access right and scheme are intended to address high costs, delays and uncertainty associated with the National Electricity Market's open access regime and current connection process.

The current 'open access' arrangements give generators the right to negotiate connection to transmission or distribution networks, however, it can create challenges for coordination of investment in generation and new network infrastructure, including:

- new renewable generation projects have had their connection delayed or output significantly curtailed due to system security issues, which are exacerbated by a lack of shared network capacity
- revenue uncertainty for generation projects has increased because of higher congestion and marginal loss factor risk on the shared network in areas where more generation projects have connected than the network has capacity to support
- generation proponents have no incentive to fund shared network improvements because other 'free rider' competitors may benefit from the investments, while also increasing network congestion.

Access right and scheme objectives

The objective of the integrated access right and scheme is to deliver projects the following benefits:

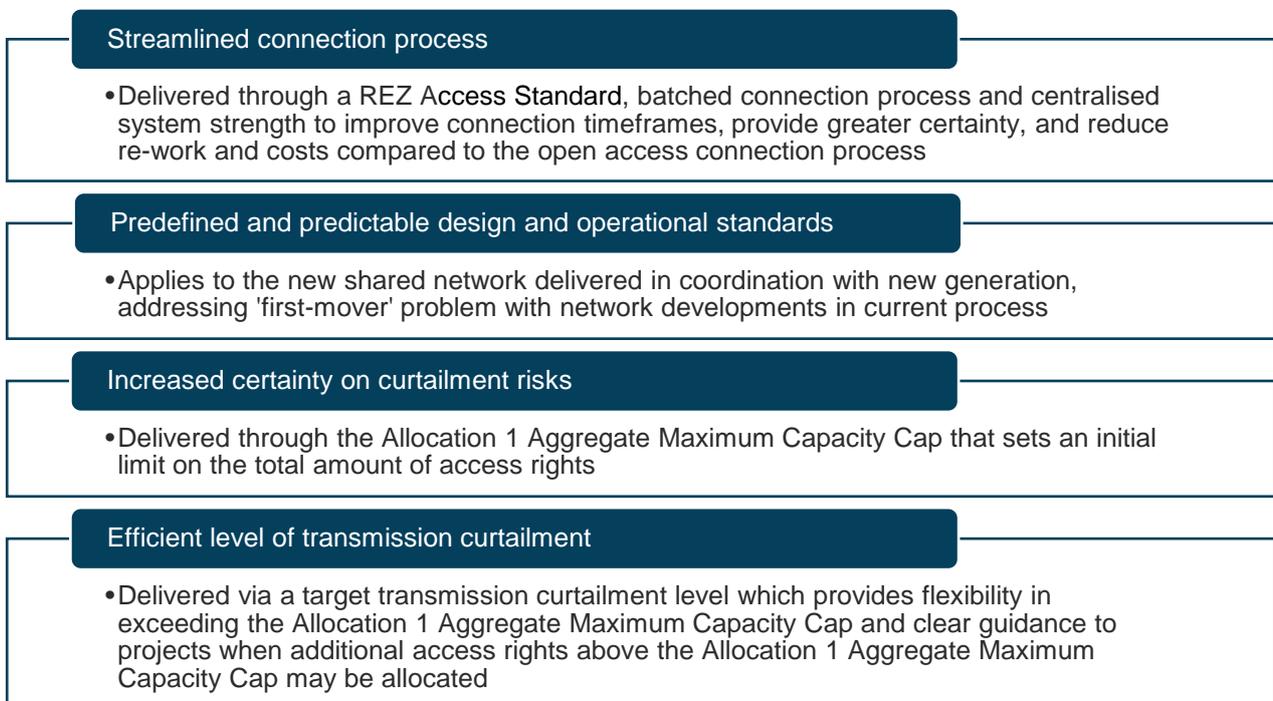


Figure 1. Access right and scheme objectives

Overview

The access scheme declaration will apply to the REZ Network Infrastructure and is designed to achieve the access right and scheme objectives in Figure 1. The access scheme sets the rules that govern the allocation of access rights for the REZ Scheme Network and controls projects connecting to the REZ Network Infrastructure outside of the REZ Scheme Network. This is to ensure efficient utilisation of the REZ Scheme Network.

The access scheme for CWO REZ will be based on a physical connection model with access rights initially being awarded up to an Aggregate Maximum Capacity Cap. This access scheme provides non-firm access to the network but places certain rules on the quantum and timing of access rights allocation. Holding an access right will permit proponents to enter into a Connection Agreement for the REZ Scheme Network up to their Project Maximum Capacity, specified in their access right.

The right is allocated to a specified legal person to:

- authorise the Primary Transmission Network Service Provider (TNSP) and/or the REZ Network Operator to connect a project to the REZ Scheme Network, subject to executing a Connection Agreement and meeting the REZ Access Standard and other technical connection requirements under the National Electricity Rules
- export in accordance with a Project Maximum Capacity Profile when dispatched in the National Electricity Market
- participate in a streamlined connection process.

The access scheme term is proposed to run for 15 years from the commissioning of the first substation on the REZ Scheme Network. For projects, this means:

- The access right start date for individual projects will vary depending on the commercial operation date of the project. Projects built and energised earlier will benefit from access rights for a longer period.
- All projects' access rights will conclude on the same date at the expiry of the access scheme and access will transition to the National Electricity Market position that exists at the time of expiry.

It is envisaged that access rights will not be tradable, subject to usual rights of project financiers and change of control provisions. Where access rights are not utilised by a project these will be surrendered and reallocated.

Access right design concept

The access right design concept intends to form the basis of all future REZs with elements that can be adapted to suit individual characteristics of each REZ and to accommodate:

- impacts of meshed networks or multiple boundary points
- development of new transmission infrastructure
- different approaches to contestability impacting the roles of the REZ Network Operator and Primary TNSP.

Figure 2 outlines the proposed, high-level design and includes information specific to the CWO REZ.

At the heart of the access right design is balancing the need to provide projects with more certainty on their curtailment risk while allowing full utilisation of a consumer asset – transmission. The philosophy of the access right concept is to:

- identify the efficient utilisation of the transmission asset and in the process set a target transmission curtailment level

- set an Aggregate Maximum Capacity Cap, expressed in megawatts, that is an initial limit on the allocation of access rights. The Aggregate Maximum Capacity Cap, along with the Aggregate Expected Capacity Profile, are set with the intention of not exceeding the target transmission curtailment level.
- allocate to projects a maximum capacity for each of 4 periods throughout the day - dawn, day, dusk and night – with the 4 maximum capacities being the Project Maximum Capacity Profile and the Aggregate Maximum Capacity Profile for all projects in a REZ being equal to or less than the Maximum Aggregate Capacity Cap in each of the 4 time periods
- the Maximum Aggregate Capacity Cap can only be revised (i.e. additional access rights issued) if the target transmission curtailment level is not forecast to be met, for example where the network is augmented to increase its carrying capacity.

The design concept is developed for feedback and is intended to achieve key objectives outlined in Figure 1.

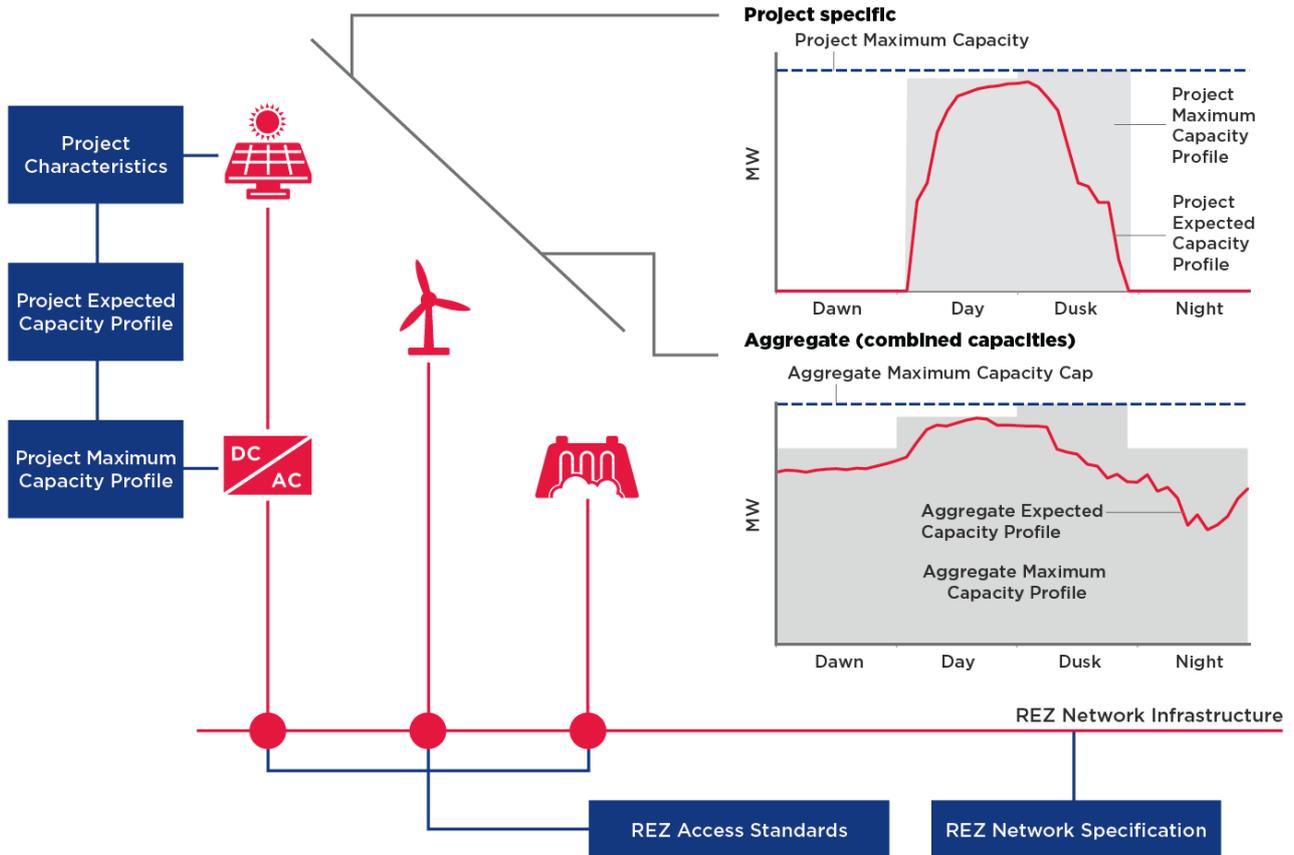


Figure 2. Access right and scheme design concept for feedback, with table describing each element

Proposed design element	Definition	All REZ
Project Characteristics	Details of the project, including technology composition of the generator or storage plant that are fixed for the life of the project (subject to alteration, amendment and augmentation approvals).	Proponents required to nominate Project Characteristics in the competitive tender process.
REZ Access Standards	Technical standards required of projects connecting to the REZ Scheme Network. It includes both a REZ-specific Generator Performance Standard and a standard specific to inverter-based resources. It is intended that the REZ-specific Generator Performance Standards will be less onerous than the current automatic access standards and therefore eliminate the need for protracted technical negotiations for individual projects.	Proponents required to agree to meet the REZ Access Standards as a condition of being allocated an access right. Primary TNSP required to accept the REZ Access Standards as the agreed Generator Performance Standards in the Connection Agreement ⁵ .

⁵ It is proposed that projects will be able to use the existing process under clause 5.3.9 of the National Electricity Rules to negotiate minor alterations to agreed Generator Performance Standards or connected plant.

Proposed design element	Definition	All REZ
Project Maximum Capacity Profile	<p>Project Maximum Capacity Profile is a set of 4 sent-out capacity limits in megawatts of sent-out generation that a generation or storage project is authorised, under their access right, to dispatch during each of 4 time periods: day, night, dawn and dusk. A project can have a different maximum capacities across each of the 4 periods.</p>	<p>In the competitive tender process, projects are to nominate a Project Maximum Capacity Profile for the 4 time periods.</p>
Aggregate Maximum Capacity Profile	<p>Aggregate Maximum Capacity Profile is the aggregate of the Project Maximum Capacity Profile for all projects connecting in a REZ Scheme Network, for each of the 4 time periods.</p>	<p>At the ender of each tender round, an Aggregate Maximum Capacity Profile will be published.</p>
Aggregate Maximum Capacity Cap	<p>Aggregate Maximum Capacity Cap is the initial cap which applies to the Aggregate Maximum Capacity Profile for all 4 time periods. That is, subject to Allocation 2 and 3, access rights may not be awarded so that the Aggregate Maximum Capacity Profile for any one of the 4 periods exceeds the Aggregate Maximum Capacity Cap. This sets a limit on the access rights which may permissibly be allocated to projects.</p> <p>Note: Access rights beyond the Aggregate Maximum Capacity Cap can only be allocated under:</p> <ul style="list-style-type: none"> • Allocation 2 if Headroom exists in one of the 4 periods of the Aggregate Maximum Capacity Profile an allocation may be made to the time period with Headroom • Allocation 3 if a proponent led network augmentation proceeds and a project is assessed to ‘do no harm’ to other access right holders. 	<p>The Aggregate Maximum Capacity Cap is set in the access scheme declaration and may not be revised down.</p> <p>The Aggregate Maximum Capacity Cap can only be revised up following an assessment of network utilisation by EnergyCo NSW which identifies underutilisation that can be set as the Headroom capacity.</p> <p>Headroom exists where the target transmission curtailment level is not expected to be met and only applies to the additional capacity level which is forecast to see that target transmission curtailment level met.</p> <p>For CWO REZ, the proposed target is 3.69 gigawatts⁶.</p>

⁶ Based on modelling undertaken by AEMO and Ernst and Young for the department to inform the NSW Consumer Trustee’s Infrastructure Investment Objectives Report. Note: this figure is indicative and will be finalised based on consultation feedback and the latest available information prior to the access scheme declaration.

Proposed design element	Definition	All REZ
Project Expected Capacity Profile	A time series profile representing the forecast generation, in megawatts, for a generator or storage project for each dispatch interval over a forecast year. This profile excludes the impacts of network limitations or the dispatch optimisation process. In each interval, a Project Expected Capacity Profile must be less than its Project Maximum Capacity Profile.	For each project, EnergyCo NSW will forecast the Expected Capacity Profile based on Project Characteristics and Project Maximum Capacity Profile. The forecast will be updated as projects are built and connected to the REZ.
Aggregate Expected Capacity Profile	A time series profile representing the aggregate of the Project Expected Capacity profiles for all projects connecting in a REZ Scheme Network, for each dispatch interval over a forecast year.	Published before each tender to reflect a forecast generation profile using an indicative technology mix. The Aggregate Expected Capacity Profile provided for the first tender will be based on the indicative generation mix that informed the Aggregate Maximum Capacity Cap.
Target transmission curtailment level	The extent to which the Aggregated Expected Capacity Profile exceeds the REZ transfer capacity. This is based on the indicative generation mix underlying the Allocation 1 Aggregate Maximum Capacity Cap and is a proxy metric for curtailment driven by in-REZ technical characteristics.	Target transmission curtailment level will be defined in the access scheme declaration and cannot be amended for the term of the access scheme. For CWO REZ, the proposed target is 0.3% ⁷ .
REZ Network Specification	The functional specification that: <ul style="list-style-type: none"> • includes New REZ Infrastructure construction and operation requirements • meets the system standards in Chapter 5 of the National Electricity Rules⁸ • specifies New REZ Infrastructure electrical characteristics' requirements for connection and operation as part of the broader transmission system • is informed by the REZ Access Standards to be met by projects, including the new inverter-based resource standard. 	To be set by EnergyCo NSW for the design of the New REZ Infrastructure. REZ Network Operator required to meet the REZ Network Specification during construction and operation of the New REZ Infrastructure.

⁷ Based on the modelling undertaken by the department using publicly available information.

⁸ These standards may be incorporated into the Project Deed between EnergyCo NSW and the REZ Network Operator.

Access right allocation approach

The department is proposing that access rights will be provided in three allocations that optimise consumer outcomes and meet the following policy objectives:

- provide sufficient certainty to proponent generators
- ensure efficient utilisation of the REZ Scheme Network
- support the ability for proponents to fund augmentation of the REZ Scheme Network.

The department understands that the use of three potential access right allocations is more complex than a single allocation. Following a review of international precedents, the department concluded that this complexity is important to preserve some of the attractive features of open access regimes. For example, Allocation 3 allows the market to bring forward augmentation proposals and top have these assessed and approved based on a ‘do no harm’ principle.

Table 1 summarises each allocation and outlines its high-level process. (See [Section 2](#) for detailed descriptions.)

Table 1. Summary of proposed access right allocation approach

Allocation	Summary	Process
Allocation 1	To allocate access rights up to the initial Aggregate Maximum Capacity Cap.	<ul style="list-style-type: none"> • Set the Allocation 1 Aggregate Maximum Capacity Cap, informed by internal modelling of an efficient level of over-subscription⁹ • Tender access rights through the combined process run by AEMO Services for LTESA and access rights • Allocate access rights to successful projects from the combined tender process
Allocation 2	<p>To allocate additional access rights up to any revised Aggregated Maximum Capacity Cap.</p> <p>Aggregated Maximum Capacity Cap can only be revised upward where the modelled target transmission curtailment level of the REZ Scheme Network is not expected to eventuate after Allocation 1. This includes EnergyCo NSW-led expansion of a REZ’s network capacity.</p>	<ul style="list-style-type: none"> • EnergyCo NSW assesses network utilisation to identify any under-utilisation that can be set as the Headroom capacity • Headroom exists where the target transmission curtailment level is not forecast to be met • The Aggregate Maximum Capacity Cap can only be revised up by the amount of Headroom capacity • Target transmission curtailment level and the method for assessing Headroom capacity will be published prior to first access right tender • Headroom capacity will be communicated with reference to the Aggregate Maximum Capacity Profile to capture the interaction between the transmission curtailment level and the different time periods where additional capacity should be made available

⁹ Conducted by EnergyCo NSW.

Allocation	Summary	Process
Allocation 3	To allocate access rights where the market proposes network augmentation which expand the REZ intended network capacity	<ul style="list-style-type: none"> Proposals will be assessed based on 'Do No Harm' principle for Allocation 1 and 2 access right holders EnergyCo NSW will devise the implementation process for this allocation

Further to Allocation 2, it is proposed that EnergyCo NSW is to also have the power to introduce a framework for subordinate access rights provided that such a framework will do no harm to existing access right holders. The subordinate access rights are intended to improve utilisation of the REZ if the actual technology mix is materially different to the forecasted mix. (See [Improving network utilisation](#).)

Combined tender process

During Allocation 1, access rights will be granted up to the Allocation 1 Aggregate Maximum Capacity Cap through a series of competitive tenders run by AEMO Services offering both LTESAs and access rights¹⁰. At the end of the tender evaluation process, AEMO Services will recommend successful projects to EnergyCo NSW for allocation of an access right. It is expected that the access right will take the form of an entry into a public access right register maintained under the access scheme declaration.

A combined tender process:

- allows AEMO Services to perform due diligence and assess against the objects of the *Electricity Infrastructure Investment Act 2020* (EII Act), including minimising delivery risk, maximising community support and regional economic benefits
- reduces administration for proponents seeking both an LTESA and access right
- allows the value of the access right to be reflected in the LTESA offer through reduced LTESA bid prices.

Proponents that require an access right and a LTESA for a project must obtain these in a single competitive tender round. To mitigate proponents gaining an unintended advantage in the competitive tender process it is anticipated that AEMO Services will:

- prevent projects that bid for and are successful in obtaining an LTESA (but not an access right) from seeking an access right in a later tender round
- prevent projects that bid for and are successful in obtaining an access right (but not a LTESA) from seeking an LTESA in a later tender round.

Some flexibility may be permissible in limited circumstances where proponents have acted in good faith and an exemption to apply separately for an access right and LTESA is in the best interest of NSW electricity consumers. Regulations to facilitate this approach are being considered by the department.

Activating the access scheme¹¹

The access scheme will be delivered through the Minister's declaration under section 24 of the EII Act, regulation and contract (see [Supplementary information](#) section). Figure 3 illustrates how the access scheme will be operationalised.

¹⁰ For further information please refer to [AEMO Services Infrastructure Investment Objectives \(IIO\) Report](#)

¹¹ See [Access scheme entities](#) for detailed information on entities and their function under the access scheme.

Declaration

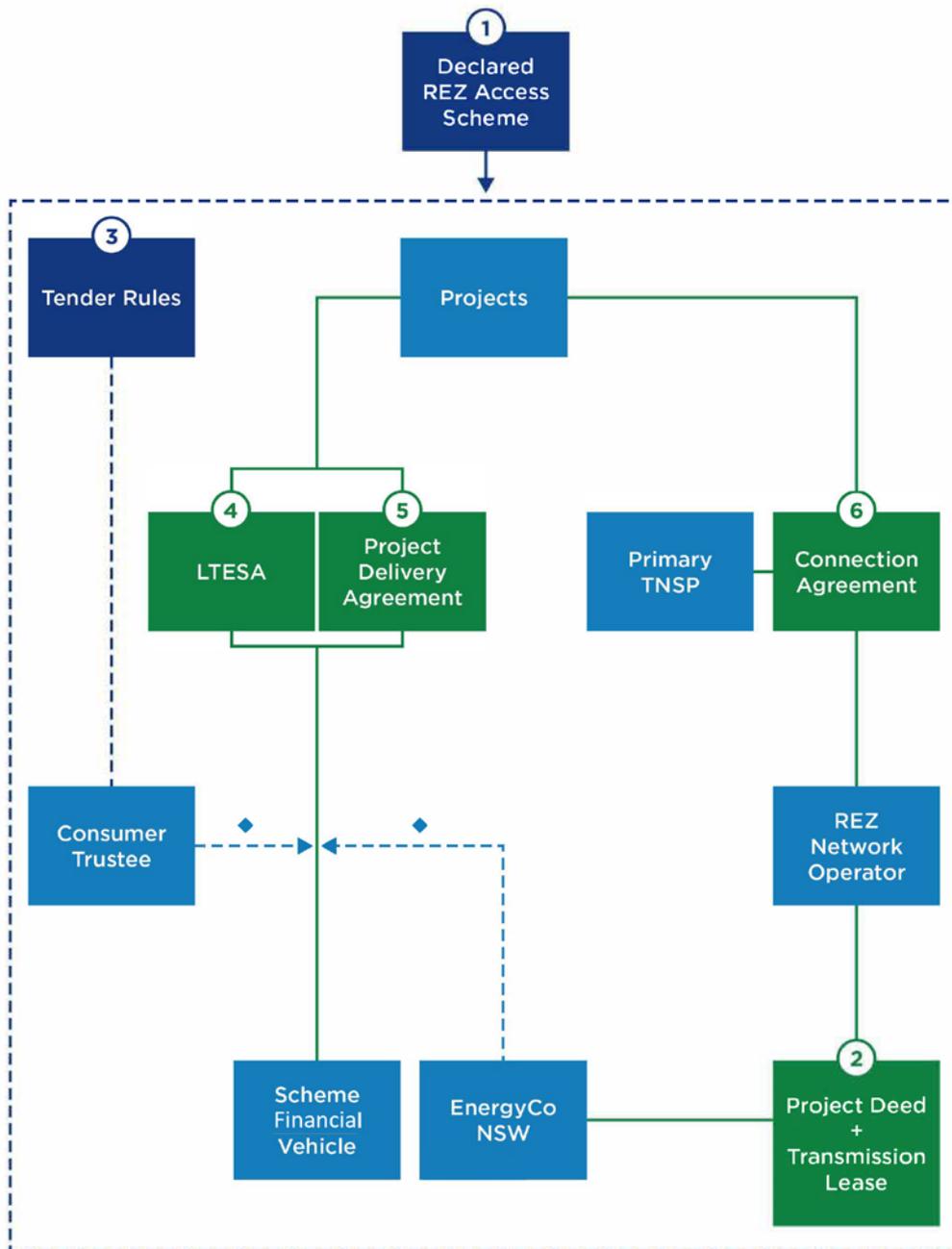
The declaration is intended to provide proponents with enough certainty to conduct their own due diligence and risk assessment. This certainty is supported by legislative provisions that limit the ways in which a published declaration can be amended or repealed.

The declaration will provide the method to grant access rights, including setting the Allocation 1 Aggregate Maximum Capacity Cap of the REZ and authorising AEMO Services to run a competitive tender to recommend access rights up to the Allocation 1 Aggregate Maximum Capacity Cap. The declaration will also establish an access right register and maximum term for an access right.

Have your say

1. What details should an access scheme declaration include to provide clarity and certainty for the access scheme?

Further information on how the access scheme declaration proposes to operationalise the terms and conditions of the scheme is contained in the Supplementation information section.



◆ AEMO Services and EnergyCo NSW will play a role in advising the SFV in management of the LTESA and Project Delivery Agreement. EnergyCo NSW may be the counterparty to a Project Delivery Agreement where a project holds an access right only and not an LTESA.

Figure 3. Access right contract structure

Regulation

The access right is expected to be implemented through a regulatory framework similar to the designated network asset framework under the National Electricity Rules (designated network asset framework). Similar to designated network asset, the open access regime under the National Electricity Rules will not apply to the REZ Scheme Network and will be replaced by the REZ access arrangements (rather than a designated network asset access policy). Modifications will be required to the National Electricity Rules to enable the operation of a declared access scheme (see [Section 6](#)).

Tender

AEMO Services will publish the Tender Rules that set out how it will conduct competitive tenders for the award of LTESAs and allocation of access rights¹². At the end of the combined competitive tender, AEMO Services will recommend:

- proponents seeking an LTESA to the Scheme Financial Vehicle for the award of an LTESA
- proponents seeking to connect to the REZ Scheme Network to EnergyCo NSW for the allocation of an access right.

Contracts

Project Delivery Agreement

It is proposed that all proponents, whether seeking an LTESA or access right, enter into a Project Delivery Agreement. The Project Delivery Agreement will set and monitor tender bid undertakings, including Project Characteristics, development and construction milestones, reporting requirements, plus community and employment commitments. It is also proposed to incorporate a mechanism for projects to modify Project Characteristics with the approval of EnergyCo NSW.

Bonding and collateral arrangements are expected to be set in the Project Delivery Agreement to achieve the objectives at each project stage as set out in Table 2.

Table 2. Project Delivery Agreement risk mitigation objectives

Stage	Mitigation
Development	To mitigate the risk of a proponent which has been allocated access rights not utilising those access rights, and the costs of reallocation of the access rights
Construction	To mitigate construction stage risks and the additional risks associated with construction activities pursuant to the access rights
Operating	To mitigate proponent credit risk and reallocation costs associated with access rights

The bonding required by proponents will be sufficient to mitigate the risk to the REZ Scheme Network of an access right holder not meeting the terms of its bid or legally binding obligations.

Milestones will be used, in conjunction with bonding, to ensure that:

- proponents bidding for and securing access rights are highly incentivised to use any access rights allocated to them
- any risk of delay or failure of a project is well understood as early as possible (i.e. by failing to meet an early milestone).

¹² under section 47 of the EII Act

To achieve these objectives, it is proposed that target dates and longstop dates for milestones will be part of the contractual agreements that proponents enter¹³.

Successful proponents seeking:

- an LTESA only, or LTESA and access right together, will enter into an LTESA and Project Delivery Agreement
- an access right only, will enter into a Project Delivery Agreement and will not enter into an LTESA.

Connection Agreement

Proponents holding access rights will be permitted to enter into a Connection Agreement for the REZ Scheme Network. The Connection Agreement is proposed as a tripartite agreement between the proponent, Primary TNSP and REZ Network Operator.

It is proposed that a pro-forma Connection Agreement including a REZ specific Generator Performance Standard will be developed¹⁴. This is expected to incorporate a dispute resolution mechanism. The pro-forma Connection Agreement may accommodate a proponent connecting to the REZ Scheme Network through a designated network asset where the designated network asset access policy is consistent with the REZ access scheme.

Project Deed and Transmission Lease

The Project Deed is a concession for the REZ Network Operator to design, build, own and finance the New REZ Infrastructure. The expectation is that the deed will:

- set out the role of the REZ Network Operator to maintain the New REZ Infrastructure and the interface with the Primary TNSP for the period of the concession
- include terms such as the target commercial operation date, route selection, substantial locations, and REZ Network Specification (including initial provision of system strength).

It is expected that liquidated damages and/or other compensation will be payable to EnergyCo NSW where the operational date is delayed. Proposed proponents will be informed of the expected target commercial operation date prior to the first access right tender. Proponents are expected to sequence their construction with the development of the New REZ Infrastructure and will be provided with regular progress reporting to enable this.

It is expected that liquidated damages and/or other compensation will be paid by the REZ Network Operator to EnergyCo NSW if the commercial operation date for the New REZ Infrastructure is delayed and permitted extensions including force majeure provisions do not apply. Where EnergyCo NSW receives payments for delay, it is proposed that these funds will be applied to reduce or reimburse the access fees payable by proponents through the access scheme declaration. Proponents will be expected to demonstrate loss and apply reasonable mitigation measures. The reduction or reimbursement of access fees is not proposed to constitute a commitment to compensate proponents for all expected or actual costs incurred due to delay of delivery of the New REZ Infrastructure beyond the expected target commercial operation date notified to proponents.

New REZ Infrastructure delay is also proposed to entitle projects to an extension in the term of affected LTESAs.

¹³ These dates may be extendable for force majeure (narrowly defined) and extensions to milestones caused by delays in the construction and commissioning of the New REZ Infrastructure. Where a project fails to achieve a target date (as extended), a remediation regime is intended to apply. Where a project fails to achieve a longstop date (as extended) access rights may be forfeited.

¹⁴ It is anticipated that while portions of the Connection Agreement will be proforma, including the REZ Access Standards, some aspects may remain bespoke to individual projects.

Primary obligations in the Project Deed are expected to end on commissioning. Parties then enter into a Transmission Lease. This lease will remain for the term of the concession (with options for renewal) and will set out lease payments and obligations for the REZ Network Operator to maintain the New REZ Infrastructure and comply with licence requirements and regulatory instruments.

The department is considering mechanisms to incentivise the REZ Network Operator to deliver improved levels of service performance in relation to unplanned outages, planned outages and network availability. This may be similar to incentives which apply to TNSPs under the National Electricity Rules through the application of the service target performance incentive scheme.

Treatment of Change in Law

The department will monitor legislative changes to the National Electricity Rules and National Electricity Law. The department intends to derogate where necessary to protect and maintain the substance of the access scheme as delivered through the declaration, and related statutory and commercial framework, for the period of the access right. This is intended to provide proponents with the certainty that the access scheme as tendered remains in place until the expiry of the access right.

Have your say

2. What continuous or regular reporting information will be required to enable proponents to mitigate the risk of any New REZ Infrastructure delay?

Access fees

Proponents will pay a fee to the Scheme Financial Vehicle for participating in an access scheme to obtain and maintain an access right. This is in return for greater connection certainty and continued access to the network, generation and storage infrastructure (see [Section 5](#)).

Under the EII Act, AEMO Services has the function of determining access fees for each REZ, considering the following principles:

- maximising financial value for NSW electricity customers
- recovering the cost of the operation of the access scheme
- optimising the use of the existing and planned network infrastructure in the REZ.

The access fee must also cover legislated community and employment purposes¹⁵.

The department envisages that the access fee may include an amount to recover the cost of REZ infrastructure (in part or full), where that amount will be set so that it does not:

- create unacceptable barriers to the utilisation of REZ infrastructure
- materially impact LTESA fixed prices, option exercise behaviour and contract market liquidity
- result in adverse impacts on the long-term financial interests of consumers.

¹⁵ Section 26 of the EII Act.

Access control mechanism

Consideration is being given to access control mechanisms that will apply to existing network infrastructure inside and outside the geographical boundary of the REZ that is over a specified threshold. The proposed threshold for the CWO REZ is 66 kilovolts (kV). (See [Section 4](#).)

Two options being explored are:

- control access through the competitive tender allocation process for adjacent projects¹⁶
- control access through an additional 'do no harm' test¹⁷.

Have your say

The department is actively seeking feedback on the proposed design concepts, structural and implementation elements of the access right and scheme.

Questions relating to the design and implementation of the access right and scheme are set out each of the following sections.

¹⁶ Only applicable for projects not seeking a LTESA.

¹⁷ Applies to all projects irrespective of whether the project intends to apply for a LTESA.

Section 2. Staying connected: allocation approach in detail

The proposed approach to allocating access rights is underpinned by the following key design elements:

- Project Maximum Capacity and Project Maximum Capacity Profile
- Project Characteristics
- Expected Capacity Profile
- Target transmission curtailment level
- Headroom.

These underpinning elements make up the allocation approach that intends to deliver a balance between constraining access to improve investor certainty with allowing for flexibility that promotes efficient network utilisation and network augmentation.

Key elements

Project Maximum Capacity and Project Maximum Capacity Profile

In simplest terms, Maximum Capacity is a flat, sent-out generation limit on a generation project. Maximum Capacity is currently included in Generator Performance Standards and provided to AEMO during the generator registration process. A generating unit cannot be dispatched by AEMO above its Maximum Capacity.

Access rights will be allocated in alignment with a Project Maximum Capacity Profile which introduces a time-based element to the concept of Maximum Capacity. These profile periods have been selected to align with solar generation hours and the broader energy market's contractual peak periods. The 4 time periods proposed are day, night, dawn and dusk.

An example of a solar project's Maximum Capacity Profile is illustrated in Figure 4.

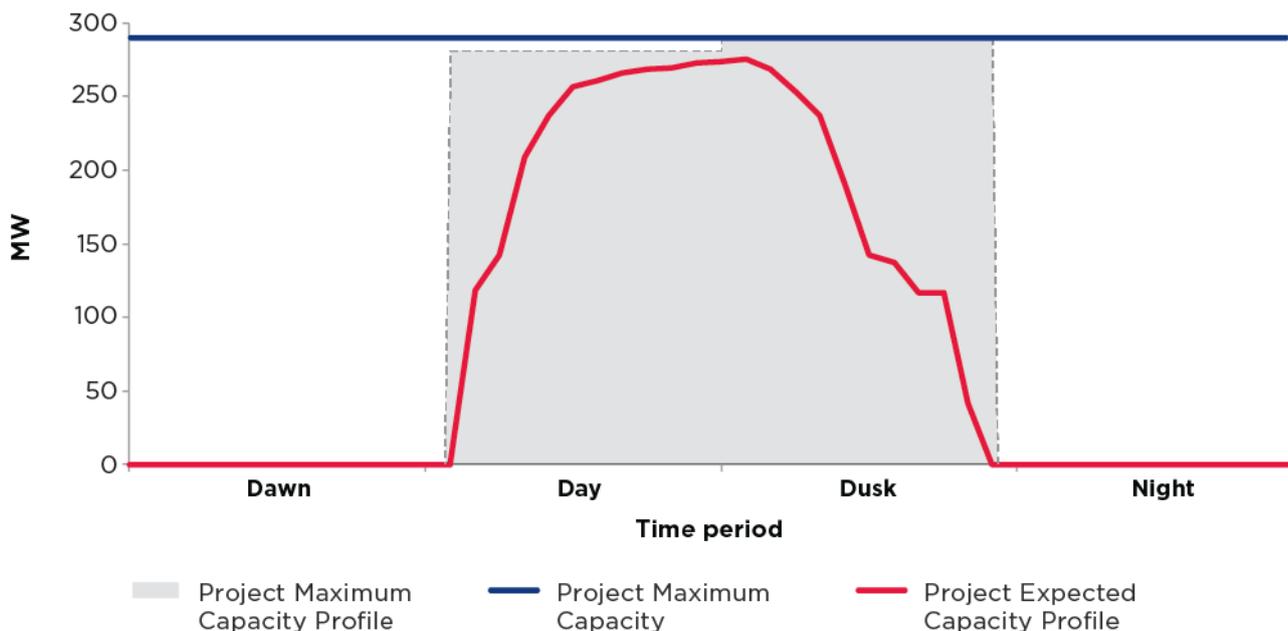


Figure 4. Illustrative example of Maximum Capacity Profile for a solar project (in megawatts, MW)

Proponents are expected to nominate a Project Maximum Capacity Profile during the competitive tender process. After the tender evaluation process, AEMO Services may recommend successful proponents' projects receive an allocation of equivalent access rights. Each project's Maximum Capacity Profile is intended to be set under the Project Delivery Agreement and Connection Agreement.¹⁸

AEMO Services may, on advice from EnergyCo NSW, vary the project's nominated Maximum Capacity Profile if it is assessed as an inefficient allocation relative to the project's Maximum Capacity and Project Characteristics.¹⁹ The Aggregate Maximum Capacity Profile of successful projects will be published at the end of each tender round.

Hybrid projects that combine co-located generation or storage technologies are expected to have the ability to tender for a Project Maximum Capacity Profile for either the combined total of all component technologies or at lower capacity based on their commercial preference for any of the time periods associated with the Maximum Capacity Profile. For example, a hybrid project that includes 100 megawatts of solar generation and 50 megawatts of co-located battery storage could decide to tender for a Project Maximum Capacity Profile below the 150-megawatt aggregate capacity for each of the 4 time periods.

Project Maximum Capacity Profile implementation

The department is considering several options to implement the Project Maximum Capacity Profile including:

- A requirement for projects to register a Project Maximum Capacity Profile to be incorporated into AEMO's National Electricity Market Dispatch Engine. Under this approach, enforcement would be provided by existing National Electricity Rules dispatch compliance processes.
- The development of a bespoke software system to limit projects' bids to their Project Maximum Capacity Profile. All dispatch bids would be filtered through this software prior to submission to AEMO's National Electricity Market Dispatch Engine.
- A monitoring, compliance and penalty regime to be developed by EnergyCo NSW that would involve reviewing project bidding behaviour and dispatch outcomes to ensure conformance with the allocated Project Maximum Capacity Profile.

The department will continue to consult with key stakeholders on implementation and operational challenges of the Maximum Capacity Profile prior to settling on a final access scheme design.

Have your say

3. What aspects should be considered in setting the time periods for the Project Maximum Capacity Profile?
4. What approach should be taken to implement the Project Maximum Capacity Profile?
5. Are there any unintended consequences of introducing a Project Maximum Capacity Profile, including implementation and/or operation implications?

Aggregate Maximum Capacity Cap

The Aggregate Maximum Capacity Cap is a limit on the highest coincident capacity of the Aggregate Maximum Capacity Profile which captures all projects connecting in a REZ Scheme Network.

¹⁸ It should be noted that the LTESA derivative may be linked to a lower capacity.

¹⁹ For example, a solar project is unlikely to have a night period Maximum Capacity allocation approved.

Allocation 1 will be for a volume of access rights equivalent to the Allocation 1 Aggregate Maximum Capacity Cap set in the access scheme declaration. This cap is informed by internal modelling²⁰ forecasting an efficient over-subscription of the CWO REZ.

Project Characteristics

Details of the project, including technology composition of the generator or storage plant, that are fixed for the life of the project (subject to alteration, amendment and augmentation approvals). The department expects that proponents will be required to nominate Project Characteristics during the competitive tender process.

Modifications

Consideration is being given to circumstances where a proponent may request to modify its Project Characteristics. The department expects that modification requests that do not increase a project's Maximum Capacity Profile will be subject to assessment and approval by EnergyCo NSW on a case-by-case basis. EnergyCo NSW's assessment is anticipated to consider the impact on existing REZ projects, including the target transmission curtailment level and system strength.

EnergyCo NSW will not unreasonably refuse a requested modification of a Project's Characteristics where the same Project Maximum Capacity Profile is retained, and the change does not harm the other REZ projects. Modifications that materially impact other REZ projects may require proponents to remedy those impacts prior to EnergyCo NSW approval. Consent from EnergyCo NSW will permit a project to seek approval to amend their Connection Agreement under clause 5.3.9 of the National Electricity Rules.

Modifications that would require an increase to a project's Maximum Capacity will require a proponent to re-tender for additional access rights. Modification requests to change its Project Maximum Capacity Profile, without increasing the project's Maximum Capacity, may be considered by EnergyCo NSW without the need to re-tender.

The Project Characteristics of a project may be amended up to the date of commissioning because of factors including:

- limitations set on the project as a requirement of REZ Generator Performance Standards (as determined through commissioning)
- commercial decisions by the proponent (i.e. change in design and/or products)
- other externalities (i.e. land constraints).

The Project Characteristics of a project may be amended post-commissioning, permitting the proponent to seek approval to amend the Connection Agreement²¹, due to factors including:

- addition of energy storage behind the meter
- addition of load behind the meter (e.g. electrolysers or industrial load)
- technology improvements to increase the volume or predictability of project output.

Have your say

6. Does the approach to modifications to Project Characteristics pre- and post-project commissioning allow for sufficient flexibility?
7. What factors will drive a project's decision to materially modify its Project Characteristics?

²⁰ Based on modelling undertaken by AEMO and Ernst and Young for the Department to inform the NSW Consumer Trustee's Infrastructure Investment Objectives Report. Note: this figure is indicative and will be finalised based on consultation feedback and the latest available information prior to the access scheme declaration.

²¹ Modifications to generating systems is governed by chapter 5 of the National Electricity Rules.

Expected Capacity Profile

In each interval, a project's Expected Capacity Profile must be less than its Project Maximum Capacity Profile. A Project Expected Capacity Profile is a time series representing the forecast generation in megawatts for a generator or storage project for each dispatch interval in a forecast year, excluding the impacts of network limitations or the dispatch optimisation process, as illustrated in Figure 2. EnergyCo NSW intends to use the nominated Project Characteristics to forecast each projects' Expected Capacity Profile as outlined below.

Wind or solar projects: consistent with existing approaches for modelling generation availability profiles, using:

- weather data for the REZ (or for individual project sites where possible)
- the Project Characteristics
- a resource to power conversion model based on the generator technology.

As projects are built and connect to the REZ, the Project Expected Capacity Profile of each will be updated by utilising site-level data consistent with information provided to AEMO for the development of the Unconstrained Intermittent Generation Forecast.

Storage or other dispatchable projects: the intent will be to model these using an approach that is consistent with existing AEMO and industry practice. This may involve market modelling to assess the likelihood of a project responding to price signals in the wholesale energy market.²²

Aggregate Expected Capacity Profile

Aggregate Expected Capacity Profile is the aggregate of the Project Expected Capacity profiles of all of the projects connecting in a REZ Scheme Network (Figure 5). It is expected that the Aggregate Expected Capacity Profile will be published ahead of each tender round instead of setting predetermined technology-based caps for the REZ. For the earliest tender that includes access rights, EnergyCo NSW's calculation of the Aggregate Expected Capacity Profile will be based on the assumed generation mix used to form the Allocation 1 Aggregate Maximum Capacity Cap.

²² An additional approach may be required to calculate the Expected Capacity Profile of a hybrid project.

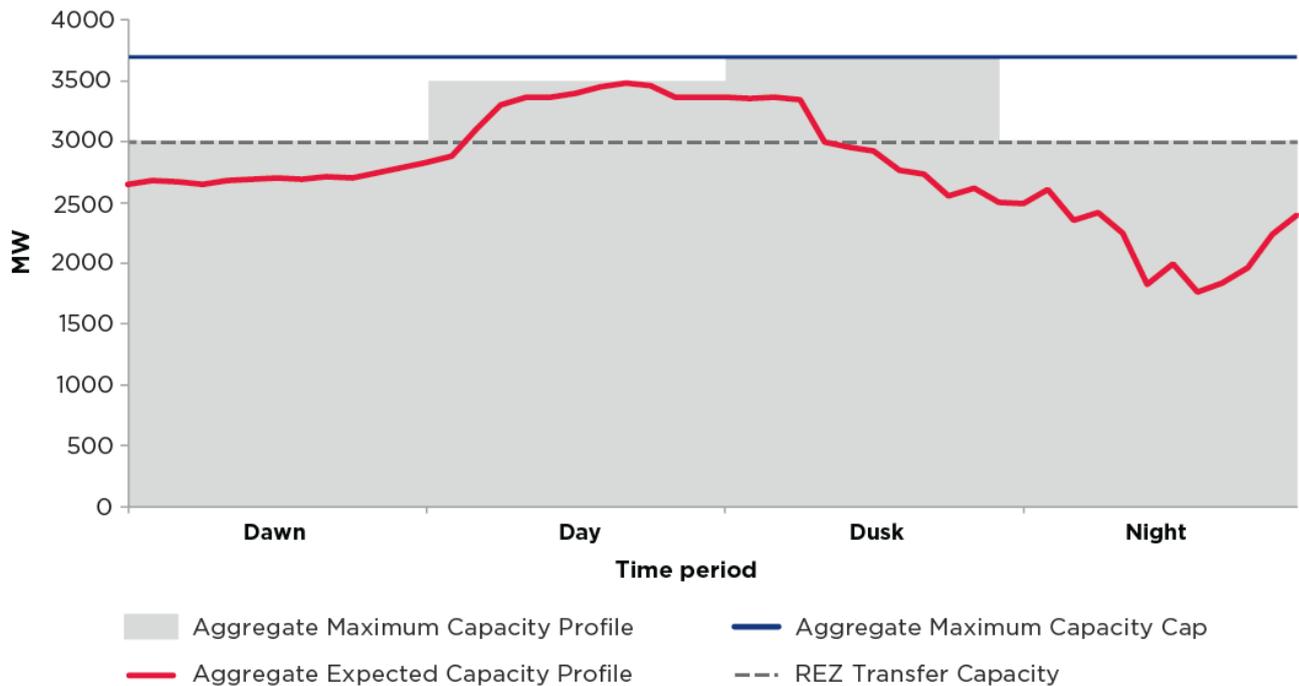


Figure 5. Illustrative example of Aggregate Maximum Capacity Profile and Aggregate Expected Capacity Profile (in megawatts, MW)

Have your say

8. What additional factors should be considered when calculating the Project Expected Capacity Profile for a project?
9. How should the Project Expected Capacity Profile of a storage or hybrid project be calculated?

Target transmission curtailment level

Where a solar or wind project's dispatched output is lower than its generation availability it is said to be subject to 'curtailment'. The access right is not proposed as a firm right and REZ projects may be exposed to curtailment driven by:

- **technical constraints inside the REZ** – generation output is reduced by REZ network limits to maintain a secure grid
- **technical constraints outside the REZ** – generation output is reduced by National Energy Market-wide network limits to maintain a secure grid
- **economic spill** – generation output is reduced due to the NSW Regional Reference Price being less than the generator's energy market bid.

The introduction of a target transmission curtailment level intends to provide:

- flexibility to grant access rights above the Allocation 1 Aggregate Maximum Capacity Cap where the network is considered under-utilised, including when the intended network capacity of a REZ is increased by EnergyCo NSW
- connected projects with the certainty that additional projects will not be connected in Allocation 2 if the target transmission curtailment level is forecast to be met or exceeded.

A target transmission curtailment level is expected to be set in the declaration before the first access right tender. Figure 6 provides an illustration of the proposed approach. This target is calculated using an approach that reflects a simplified view of the technical constraints inside the

REZ and that can be repeated by proponents.²³ The calculation reflects the extent to which the Aggregated Expected Capacity Profile is forecast to exceed the REZ transfer capacity. Indicative modelling for the CWO REZ indicates the target transmission curtailment level would be set at 0.3% of the annual volume of forecast generation availability for Allocation 1 REZ projects. This target will be used to assess whether Allocation 2 should proceed.

The department anticipates that EnergyCo NSW will be responsible for determining whether the target transmission curtailment level is forecast to be exceeded at the end of Allocation 1 and on an annual basis following that. To make this determination, a similar approach to how the target transmission curtailment level was set will be taken, however, consideration may also be given to:

- the Aggregate Expected Capacity Profile used will be that of projects allocated access rights
- whether the REZ network transfer capacity has varied from the modelling to set the target, including subsequent transfer capacity improvements
- whether load has connected to the REZ and is expected to reduce transmission curtailment inside the REZ
- whether generation from outside the REZ flows through the REZ Scheme Network.

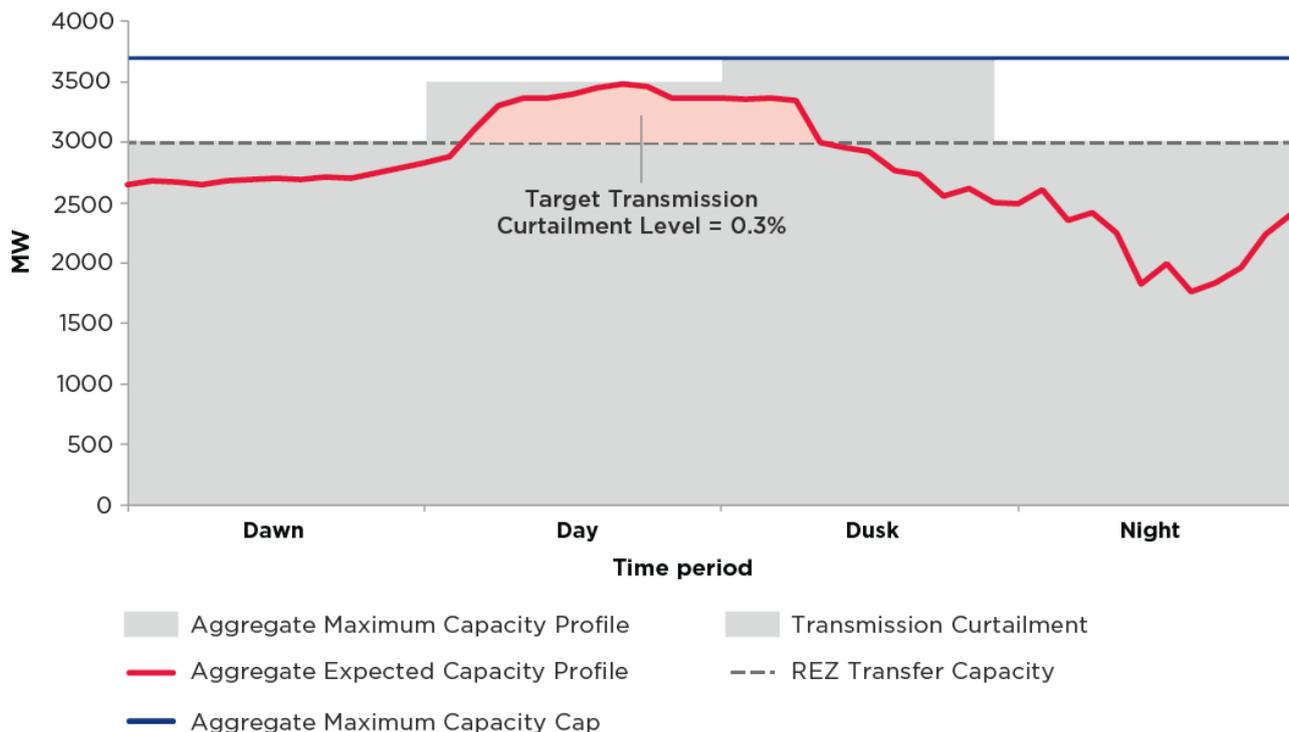


Figure 6. Illustrative example of the proposed target transmission curtailment level (in megawatts, MW)

²³ This target does not consider the impact of any other factors, including economic spill or technical constraints outside the REZ, that impact the whole NSW region or National Energy Market.

Have your say

The department is seeking feedback on the method for setting the target transmission curtailment level outlined in the table below.

Step	Method
1	<p>Identify Allocation 1 Aggregate Maximum Capacity Cap, and the indicative technology mix through market modelling that considers an efficient over-subscription of the REZ.</p> <p>For CWO</p> <ul style="list-style-type: none"> Allocation 1 Aggregate Maximum Capacity Cap is set as 3.69 GW based on indicative modelling. The 3.69 GW represents an indicative technology mix of 0.71 GW solar (single-axis tracking), 0.80 GW wind (with high-quality energy resource) and 2.18 GW wind (with low-quality energy resource).²⁴
2	<p>Use AEMO's publicly available subregional 1 MW generation traces used in their latest planning studies to calculate generation forecasts, i.e. Project Expected Capacity Profile, for each available reference year. The traces are scaled up by the indicative technology mix and related capacities to create the Aggregate Expected Capacity Profile.</p> <p>Generation forecasts for CWO REZ wind and solar are taken from 2020 Integrated System Plan input database.²⁵ Reference years of 2011–2019 are available.</p>
3	<p>Select a financial year from the forecast years available.²⁶</p> <p>For CWO REZ the forecast year selected is financial year 2030, aligned with the closest financial year to when the minimum objectives of the EII Act are to be met.</p>
4	<p>Calculate the volume of the Aggregate Expected Capacity Profile that exceeds the REZ transfer capacity. This is repeated for all reference years. The reference year with the highest volume of exceedance will be used to set the target transmission curtailment level.</p> <p>CWO REZ transfer capacity is assumed to be 3 GW.²⁷ The 2017 reference year is selected as having the highest volume of Aggregate Expected Capacity Profile that exceeds the REZ transfer capacity.</p>
5	<p>Set the target transmission curtailment level by calculating the sum of Aggregate Expected Capacity Profile that exceeds the REZ transfer capacity (in gigawatt hours / GWh) divided by the sum of Aggregate Expected Capacity Profile (GWh).</p> <p>This is only calculated for the reference year selected in step 4.</p> <p>For the CWO REZ this was indicatively calculated as 0.3% using the 2017 reference year.</p>

10. Does the target transmission curtailment level provide value to proponents?

11. What additional considerations are relevant to setting the target transmission curtailment level?

12. What additional considerations are relevant when forecasting if the target transmission curtailment level has been met or exceeded at the end of Allocation 1?

a. Should there be regulator oversight of the decision?

²⁴ No storage projects were included in the outcome of this modelling. This modelling exercise will be repeated based on consultation feedback and the latest available information prior to the access scheme declaration.

²⁵ The 2020 Integrated System Plan input database was the latest available at the time of analysis.

²⁶ In AEMO's generation traces, the different reference years determine the generation profile for each technology by location. Within a generation trace for a given reference year, the generation profile every forecast year will be similar, thus a single year is sufficient for this analysis.

²⁷ This is in line with the intended network capacity published in the [CWO REZ declaration](#).

Allocation approach in detail

Access rights will be granted in three allocations that each target a distinct outcome. The allocations provide a balance between constraining access to improve investor certainty while allowing for flexibility that promotes efficient network utilisation and augmentation of the network.

Allocation 1

Allocation 1 sets a cap on access rights at an efficient level above the REZ's intended network capacity. The cap is referred to as the Aggregate Maximum Capacity Cap. As the Aggregate Maximum Capacity Cap will exceed the REZ's intended network capacity, access rights will not provide firm access to the REZ Scheme Network. However, this approach provides greater certainty to the upper bound on in-REZ transmission curtailment risk for proponents.

Proponents will need to perform their own due diligence and modelling as curtailment outcomes will not be promised or compensated. Access rights will not change the National Electricity Market Dispatch Engine (NEMDE) process and access right holders can still be curtailed due to constraints. This could result in access right holders being affected by constraints differently from one another.

To assist proponents in modelling their curtailment risks, it is proposed that proponents will be provided with an indicative generation mix and associated Aggregate Expected Capacity Profile that is used in setting the Allocation 1 Aggregate Maximum Capacity Cap²⁸. After each tender, the Aggregate Expected Capacity Profile will be updated by EnergyCo NSW to reflect the tender outcomes.

Allocation 2

Allocation 2 will allow more access rights to be granted if the forecast transmission curtailment levels, modelled after Allocation 1 access rights have been granted, are lower than anticipated at the time the target transmission curtailment level was set. This is an important element to the access scheme as sufficient utilisation of the REZ Scheme Network is critical to delivering optimal benefits to NSW electricity consumers.

This addresses the situation where actual REZ utilisation falls significantly below expectations and there is an indication that more generators can connect. This may occur if:

- projects are operating significantly below initial forecasts of their Project Expected Capacity Profile
- the coincidence of actual generation is lower than was modelled
- significant load or energy storage has joined the REZ during Allocation 1
- the transfer capacity limits of the New REZ Infrastructure are higher than anticipated, including for any expansions of the REZ's intended network capacity led by EnergyCo NSW.

Allocation 2 will proceed if it is determined by EnergyCo NSW that the recalculated transmission curtailment level is forecast to be below the target transmission curtailment level. The amount of access rights available in Allocation 2, or the Headroom, will be calculated by EnergyCo NSW. EnergyCo NSW will decide on the process for allocating access rights in Allocation 2.

Headroom

Headroom is the volume of additional access rights which could be allocated without causing the forecasts of transmission curtailment to exceed the target transmission curtailment level.

²⁸ This will be in addition to the REZ Network Specification, the Phase 1 Aggregate Maximum Capacity and the target technical curtailment level.

Headroom will be communicated with reference to the Aggregate Maximum Capacity Profile, i.e. separately for each of the 4 time periods, prior to commencing Allocation 2.

The department anticipates that EnergyCo NSW will, in making the determination of Headroom, use generic generation profiles in conjunction with the modelling used to assess if the target transmission curtailment level is forecast to be exceeded. It will also consider any broader impacts to the founding access right holders of connecting new generation or storage projects to the REZ.

Allocation 3

The department understands the importance that additional REZ network augmentations may have in the future and should consider these if it is in the long-term financial interests of NSW electricity customers.

A third allocation of access rights is intended to provide a mechanism for the market to fund, or EnergyCo NSW to propose, augmentation to the REZ Scheme Network to allow the creation of additional access rights without harming Allocation 1 and 2 access right holders. Allocation 3 will be granted by EnergyCo NSW on an ad-hoc basis, but will only become available after Allocation 1 has been fully exhausted and is expected to take place only after any initial Allocation 2 provision.

EnergyCo NSW is anticipated to assess market-funded augmentation proposals once a year in accordance with a process that will include consultation and assessment based on a 'do no harm' principle for Allocation 1 and 2 access right holders²⁹. Where there are multiple overlapping augmentations proposed, EnergyCo NSW will evaluate and select proposals that best meet the long-term financial interests of NSW customers and further the objects of the EII Act.

Market-led proposals for Allocation 3 access rights must:

- be supported by proposed augmentation works to be funded by the proponent
- not duplicate, advance ahead of, or constrain augmentations for future stages of the REZ planned by EnergyCo NSW³⁰.

Have your say

13. Does the proposed allocation approach:

- a. allow an efficient level of generation and storage projects to connect above the transfer capacity of the REZ?
- b. improve investor certainty for curtailment risk of their projects?

14. Does the proposed access right duration suffice for projects to reduce curtailment risks across its asset life?

15. Are there high-level elements regarding the interaction of the LTESA and REZ access right allocation processes that need to be regulated?

Improving network utilisation

Under the declaration, EnergyCo NSW is proposed to have the power to introduce a framework for subordinate access rights where it can demonstrate that such a framework will do no harm to existing access right holders. The rationale for subordinate access rights is to further improve asset utilisation over and above Allocations 1 and 2.

²⁹ This assessment is expected to include consideration of the target transmission curtailment level.

³⁰ in this case, a commercial arrangement with the projects to bring forward a future stage of the REZ may be more efficient and appropriate.

Subordinate access rights are not intended to be equal to the original access rights³¹. Fees applicable to subordinate access rights are expected to form part of the framework design. The introduction of a subordinate access right framework intends to safeguard existing access right holders. The design of the framework will incorporate the following steps:

- EnergyCo NSW to consult with existing access right holders on the framework design
- EnergyCo NSW to seek independent third-party verification that the framework design does no harm to existing access right holders.

Have your say

16. What are the primary considerations for a framework for subordinate access rights to ensure they do no harm to existing access right holders?

Allocation approach for other project types

Other project types may seek connection to the REZ Scheme Network. The proposed approach for connection and the need for access rights for these projects is summarised in Table 3 and detailed in this subsection.

Table 3. Summary of access right requirement and allocation to other project types

Project type	Right to connect to REZ Scheme Network	Provision through Allocation 1	Provision through Allocations 2 and 3
Generation projects under 30 megawatts	Required to hold an access right	Can only obtain an Allocation 1 access right if it is eligible for a generation LTESA. The aggregated assets must be no less than 30 megawatts.	Generation projects of any size are eligible to apply for Allocations 2 or 3
Storage projects	Required to hold an access right	Allocation 1 access right available to projects eligible for long duration storage LTESA or a generation LTESA, via a hybrid generation/storage project	Any storage project, including standalone short duration storage, is eligible to apply for Allocations 2 or 3
Load	Not required to hold an access right or pay an access fee	Permitted to connect under current National Electricity Law and National Electricity Rules arrangements	
Existing distribution networks	Permitted to connect in accordance with a declared access scheme	Able to connect to a REZ Scheme Network where EnergyCo NSW determines it to be the most efficient outcome for the power system	

Generation projects under 30 megawatts

Allocation 1 access rights will be open to generation projects that are eligible for generation LTESAs. Projects under 30 megawatts will be eligible to apply in Allocation 1 where they meet this threshold by being considered in aggregate with other projects.

Generation projects of any size are eligible to apply for Allocations 2 or 3.

³¹ The appropriateness of tradability of subordinate rights will be considered as part of the framework design.

Storage projects

Storage will facilitate the efficient utilisation of the REZ Scheme Network and reduce curtailment risk. However, it is proposed that storage will be required to hold an access right to connect to the REZ Scheme Network. This allows for EnergyCo NSW and the AEMO Services to assess its impact (including system strength) on other projects appropriately.

- **Long duration storage** (i.e. at least 8 hours of storage) may apply for access rights in any access right allocation.
- **Short duration storage** (i.e. less than 8 hours of storage) may apply for access rights in any access right allocation if it is part of a hybrid generation project and eligible for a generation LTESA. Standalone, short duration storage projects will be accommodated in Allocations 2 and 3. These projects will require bespoke allocation arrangements and fees that will be determined as part of the assessment process.

Use of system charges

The department understands that use-of-system charges applicable to the load component of a storage project form an important part of a storage proponent's business case. Therefore, it is proposed that storage projects will not be charged use-of-system charges associated with recovering the cost of the New REZ Infrastructure³². However, it is proposed that storage will be charged for use of the existing shared transmission network up to the boundary points of the New REZ Infrastructure in alignment with the national framework³³.

The Australian Energy Market Commission (AEMC) recently reviewed the application of transmission use of system (TUOS) for storage projects within the 'Integrating energy storage systems into the National Energy Market rule change. Under the AEMC's final rule, storage proponents will be able to choose whether to receive a prescribed transmission service and pay TUOS charges, or seek a negotiated service for a negotiated price, which may be zero.³⁴

Through the existing framework and under the AEMC's final rule, a storage proponent seeking connection to a REZ would likely seek a negotiated shared transmission service from Transgrid rather than a prescribed transmission service for which they would pay regulated TUOS charges. The negotiated charges payable by a storage proponent will depend on the outcome of the negotiation for the service between it and Transgrid.³⁵

Load

The department considers load (e.g. industrial facilities or hydrogen projects) should be encouraged to directly connect to New REZ Infrastructure to maximise the utilisation of the REZ Scheme Network and reduce curtailment risks. Therefore, the proposed position is that load connected to the REZ Scheme Network³⁶:

- will not be required to hold an access right or be charged an access fee
- will be permitted to connect to the network under current network access arrangements
- will be required to meet the same technical requirements as load connecting to other parts of the NSW transmission system³⁷.

³² Access fees may include a component to cover the cost of New REZ Infrastructure pending the final access fee position.

³³ This proposed approach is consistent with that for designated network assets.

³⁴ For more information see the AEMC's [Fact sheet – Network use of system charges for storage](#) and the AEMC's [Rule Change project webpage](#).

³⁵ Clause 5.2A.6 of the [National Electricity Rules](#) provides a framework for this negotiation, including a set of negotiating principles. The TNSP is also required, see National Electricity Rules clause 6A.19.4, to comply with its approved cost allocation methodology when allocating costs between prescribed and negotiated services.

³⁶ not including the load side of a storage facility

³⁷ Refer to Chapter 5 and Schedule 5.3 of Conditions for connection of Customers.

No specific incentives schemes are proposed, however, the loss factors in the REZ and avoiding an access fee are expected to provide a natural incentive for load to connect. Load that connects to the REZ Scheme Network will only be charged network use-of-system costs associated with the existing shared transmission network up to the boundary points of the REZ. Load is not charged network fees associated with recovering the cost of the REZ Network Infrastructure. This provides a financial incentive for load to connect, without increasing costs for generators.

In some REZs, including the Hunter Central Coast REZ, load will play an equally important role as generation when planning the electricity network. Understanding future large energy users and businesses seeking to switch to renewable energy will inform decisions on the need for additional network augmentation in a REZ.

Existing distribution networks

The proposed position is that distribution networks will be able to connect to a REZ Scheme Network where EnergyCo NSW determines it is the most efficient outcome for the power system. Distribution networks (planned, new or existing) will only be allowed to connect in accordance with a declared access scheme.

EnergyCo NSW is responsible for advising if specific existing or planned distribution networks within a REZ should be included in an access scheme.

Have your say

17. What is the materiality of leaving in-REZ storage projects exposed to the potential for negotiated use-of-system charges related to the cost of shared network services up to the boundary point of the REZ?
 - a. Should additional measures be considered to address the uncertainty a negotiation process introduces?

Section 3. Staying connected: streamlined connection process

There is a strong case for the NSW Government to intervene and alleviate issues around the current connection process. The present connection process is lengthy, costly, lacks transparency and is constrained by AEMO's and the Primary TNSP's resources. There is also concern that multiple generators connecting to the REZ Scheme Network at the same time may exacerbate existing resourcing constraints.

A streamlined connection process will expedite connection and achieve efficiencies for projects, AEMO, the REZ Network Operator and the Primary TNSP. The intention is that this process will be available for generators that connect to the REZ Scheme Network. The key design terms are set out in Table 4.

Our design concept: streamlined connection

Table 4. Design concept for streamlined connection process

Term	Design concept
REZ Access Standards	<p>EnergyCo NSW facilitates AEMO and the Primary TNSP to develop REZ-specific Generator Performance Standards and inverter-based resource standards (together called REZ Access Standards) in consultation with industry. Different standards may apply for different generation and storage technologies.</p> <p>Proponents will be required to agree to meet these standards as a condition of the access rights tender and to propose the REZ Access Standards in their application to connect to the REZ Scheme Network.</p> <p>AEMO and the Primary TNSP must accept the REZ Access Standards as the agreed Generator Performance Standard without negotiation.</p>
System strength solutions	<p>The REZ Network Specification will require the REZ Network Operator to meet specified system strength requirements for the New REZ Infrastructure based on forecasts of the type and quantity of generation and storage projects that will connect to the New REZ Infrastructure (Forecast System Strength Requirement).</p> <p>The REZ Network Operator's costs of providing the Forecast System Strength Requirement will be recovered from generation and storage projects through a fixed allocation methodology per megawatt.</p> <p>Any future system strength requirements for the REZ Scheme Network (e.g. as a result of a difference between the Forecast System Strength Requirements and the requirements for system strength forecast annually by AEMO) following commissioning of the REZ Scheme Network will be provided by the Primary TNSP on a centrally coordinated basis.</p> <p>The Primary TNSP's costs of meeting the system strength requirements will be recovered by the Primary TNSP from generation and storage projects connected to the REZ Scheme Network via a system strength transmission charge, based on that project's forecast contribution to the need for system strength.</p> <p>Proponents will be provided with a REZ system strength specification (the system strength standards to which the New REZ Infrastructure will be planned) before applying for access rights. This will include the REZ-specific inverter-based resource standard that all renewable generators will need to meet at a minimum.</p>

Term	Design concept
Batching of power system studies	<p>Proponents receiving an access right will follow a 'batched' connection process. Proponents will receive key connection-related information before applying for access rights including:</p> <ul style="list-style-type: none"> • the REZ Access Standards that must be met by connecting plant • the REZ system strength specification • a diagram of the REZ Scheme Network and a data pack and standard connection configurations for each REZ hub. <p>Following allocation of access rights, proponents will apply to connect to the Primary TNSP and REZ Network Operator and agree to meet the REZ Access Standards. The Primary TNSP will notify the proponent that its Generator Performance Standards have been agreed³⁸. The proponent will then be required to provide final plant models to the Primary TNSP.</p> <p>The Primary TNSP will conduct REZ power system studies for all projects that have submitted applications to connect to the REZ Scheme Network within a specified time window (e.g. in the previous 6-month period). This will minimise re-work as the connection, limit and stability studies will be completed for all batched projects in one process. Following the power system studies, the Primary TNSP and REZ Network Operator will make offers to connect to the proponents and Connection Agreements will be executed.</p>
Connection via designated network assets	<p>Projects connecting to designated network assets which connect to the REZ Scheme Network will be required to hold access rights under the REZ access scheme before connecting to that designated network asset.</p> <p>EnergyCo NSW will maintain a coordination role and is proposed to maintain a right to intercede to achieve improved costs and social licence where connection can be achieved through a shared connection asset.</p>

Streamlined connection process in detail

It is proposed that the streamlined network connection process will be integrated with the combined tender process to minimise the effort required by proponents applying for access rights to a REZ. Figure 7 outlines the proposed connection process including REZ Access Standards and batched power system studies.

³⁸ This is referred to as clause 5.3.4 approval.

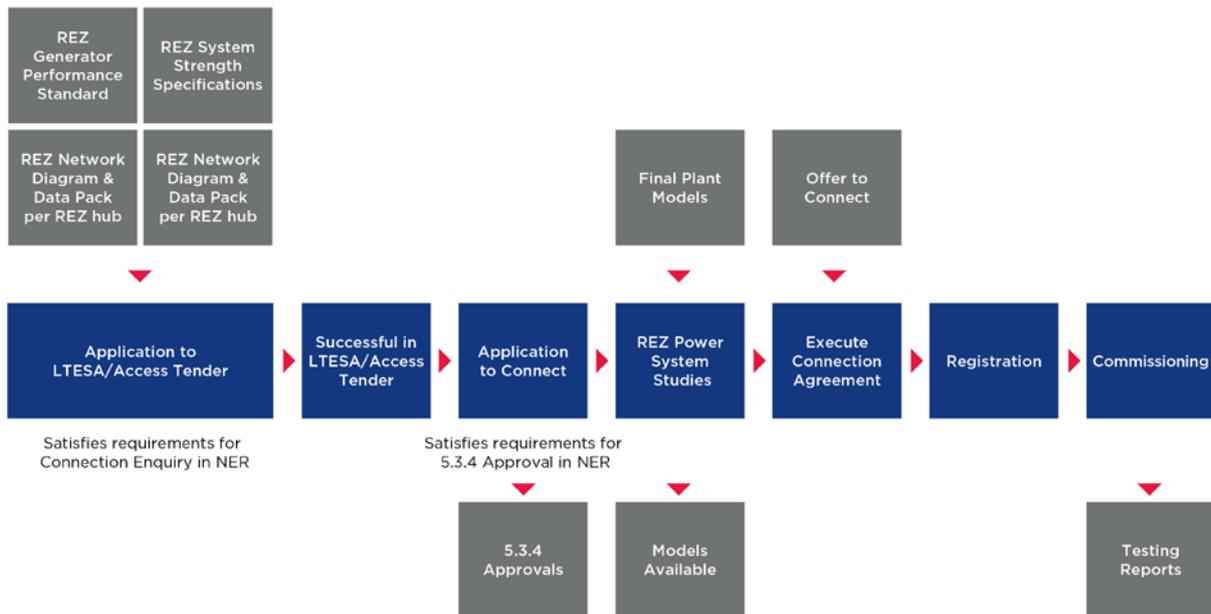


Figure 7. Proposed streamlined connection process

REZ Access Standards

EnergyCo NSW will facilitate the development of the REZ Access Standards. REZ Access Standards are intended to:

- remove the need to negotiate Generator Performance Standards during the process to connect to the New REZ Infrastructure
- expedite project design, development and connection by prescribing the technical standards that must be met by each project. By specifying the REZ system strength specification and REZ diagram and data pack up-front, prospective proponents have earlier certainty of their technical requirements and improved certainty of their connection outcome.

REZ Access Standards will be comprised of:

- **REZ Generator Performance Standards** – standards that could be automatically met by a reasonable quality generating plant. Different standards may be specified for different types of generation and storage projects. It is anticipated that, for some technical requirements, these standards will be less onerous than the automatic access standard for those technical requirements under the National Electricity Rules.
- **REZ inverter-based resource standard** – which apply to all inverter-based resources connecting to the REZ Scheme Network and will identify the required technical limits that plant will need to meet, including:
 - a minimum short circuit ratio
 - voltage phase shift withstand capability
 - rate of change of frequency requirements.

This will be informed by anticipated system strength requirements based on the forecast connection of inverter-based resources to the REZ Scheme Network. The requirement for inverter-based plant connecting to meet this standard will reduce the project’s adverse system strength impact on the REZ Scheme Network.

Proponents will be required to meet the REZ Access Standards as a condition of participation in the competitive tender for an access right and the standards will be included as an agreed performance standard in a proponent's Connection Agreement.

Before applying for access rights, proponents will receive key connection-related information including:

- the REZ Access Standards that must be met by connecting plant
- the REZ system strength specification
- a diagram of the REZ Scheme Network and a data pack and standard connection configurations for each REZ hub.

Where a proponent is allocated an access right, they must submit an application to connect to the Primary TNSP and REZ Network Operator that agrees to meet the REZ Access Standards. The Primary TNSP will agree the REZ Access Standards without negotiation.

Have your say

18. Which negotiated standards are often agreed during the connection process for generation and storage projects?
 - a. Are there any concerns or unintended consequences that arise from removing the option to negotiate Generator Performance Standards?
19. Will the streamlined connection process, as currently proposed, provide developers with improved certainty of timeframes and technical requirements?
 - a. Will it minimise the amount of power system modelling required?

Batching of power system studies

Once successful proponents receive an approval under section 5.3.4A/B of the National Electricity Rules, the Primary TNSP will conduct 'batched' REZ power system and connection studies. This will apply to all projects that have submitted applications to connect to the REZ Scheme Network within a specified time window (e.g. in the previous 6-month period).

Batched connections are proposed to minimise re-work by completing the connection, limit and stability studies for all projects in one process.

Sharing of information will be required by all parties. Proponents will need to provide their final plant models to allow the full system strength assessment and power system studies to be modelled with actual equipment information. The power system models, including encrypted generator models, are also proposed to be shared with proponents to facilitate collaboration.

To support batched connection, the Project Delivery Agreement will stipulate timeframes for projects to apply to connect and to provide plant models. The Project Delivery Agreement will also provide indicative connection milestones based on batched power system studies.

Following the power system studies, the Primary TNSP will make offers to connect to the proponents and Connection Agreements will be executed. Registration and commissioning will continue to occur under the current process, and it will remain the responsibility of projects to successfully obtain market registration from AEMO and to commission their equipment.

Streamlined connection implementation

To implement this process, and enable EnergyCo NSW to exercise its functions under the access scheme, modifications of the National Electricity Rules are proposed which include changes to:

- disapply the requirement in section 5.3.2 for a connection enquiry where proponents are connecting to New REZ Infrastructure

- modify the requirement for the Primary TNSP to respond to a connection enquiry where proponents are connecting to New REZ Infrastructure, noting that proponents will continue to need to be informed of any plant standards, normal voltage, interface specifications, technical data requirements, commercial information requirements, application fees and any additional information relevant to a proponent's application to connect
- permit a proponent to apply to connect without meeting the requirements in a response to a connection enquiry, noting that modifications will be needed to ensure that applications consider the factors above as relevant
- require proponents to propose the REZ Access Standards for each applicable technical requirement under the National Electricity Rules, including in their application to connect
- require proponents to agree to meet the inverter-based resources standard
- treat the REZ Generator Performance Standard as if it were an automatic access standard under the National Electricity Rules
- apply the inverter-based resource standard in place of the minimum standards that will apply under sections 5.2.5.15 and 5.2.5.16 of the National Electricity Rules³⁹
- treat EnergyCo NSW as a registered network service provider under the National Electricity Rules for the purpose of obtaining information from AEMO, or otherwise provide EnergyCo NSW with powers to compel information from relevant bodies for specified purposes
- require the sharing of information between Transgrid and EnergyCo NSW, such as information associated with relevant generator connections and power system models.

Regulations are also proposed to permit EnergyCo NSW to receive, on a confidential basis, information from Transgrid and AEMO on generator and load connections and any other information required by EnergyCo NSW in connection with its functions under the access scheme.

Further modifications to the National Electricity Rules may be required to implement the final design of the streamlined connection process.

Large loads would be expected to meet the technical requirements and design standards set out in the National Electricity Rules⁴⁰. Load is viewed as beneficial to the REZ and a REZ-specific access standard for load is not proposed as existing standards in the National Electricity Rules are expected to be sufficient.

Provision of system strength services

The department is proposing a coordinated, centralised approach to provision of system strength⁴¹ for the REZ Scheme Network⁴². This is intended to achieve efficiencies in design and procurement.

Proponents applying for access rights will not be required to provide their own system strength solutions. Under the Project Deed between the REZ Network Operator and EnergyCo NSW, the REZ Network Operator will deliver specified system strength requirements designed to ensure stable network operation up to the Allocation 1 Aggregate Maximum Capacity Cap of a given REZ, at the time of design. The requirements will be based on representative plant models (including the

³⁹ These new standards will come into effect on 15 March 2023 (subject to transitional arrangements under the NER): see AMECs' [Efficient management of system strength on the power system](#).

⁴⁰ See Chapter 5 and Schedule 5.3 (Conditions for connection of Customers).

⁴¹ System strength is considered by AEMO to be the ability of the power system to maintain and control the voltage waveform at any given location in the power system, both during steady-state operation and following a disturbance. For more information see AEMO's [System Strength in the NEM Explained](#).

⁴² The application of system strength services may differ for REZs other than the CWO REZ and will be tailored to the relevant infrastructure build of each REZ.

REZ Access Standards and the specification for the REZ Scheme Network (Forecast System Strength Requirements)).

As part of the competitive tender process, proponents will be provided with an initial system strength specification, based on the REZ Network Operator's delivery of the system strength requirements.

Modifications to the National Electricity Rules are proposed to remove the requirement for individual project system strength assessments during the connection process, although information on system strength impacts may still be gathered from connection applicants during the connection process. The requirement to remediate adverse system strength impacts prior to connection will also be removed.

The REZ Network Operator's costs of meeting initial system strength solutions will be paid by projects based on a fixed allocation methodology. The fixed allocation methodology will reflect predetermined contributions on a pro-rata basis per megawatt of generation capacity. An alternative approach is to forecast each project's individual contribution to the need for system strength. The alternative is not supported as it would require additional modelling that may increase connection timeframes and cost.

Future provision of system strength as part of the REZ Scheme Network is dependent on timing and the factors driving the requirement. Changes in system strength requirements due to any expansion of the REZ will be accommodated separately as part of the cost of providing any expanded REZ infrastructure.

If a need for additional system strength arises due to factors external to the REZ Scheme Network, this system strength will be provided by the Primary TNSP on a centrally coordinated basis, in accordance with the National Electricity Rules.⁴³

The Primary TNSP's costs of meeting these future system strength requirements will be recovered by the Primary TNSP from generation and storage projects connected to the REZ Scheme Network via a system strength transmission charge under the National Electricity Rules, based on that project's forecast contribution to the need for system strength. This approach is consistent with the application of the framework for management of system strength under the National Electricity Rules to Designated Network Assets.

The proposed approach to delivering system strength will avoid the need to model the system strength impacts of each project individually and the inefficiencies that can be created by decentralised provision of system strength (i.e. each project remediating its own adverse system strength impact through investment in synchronous condensers or other assets or services that can provide system strength).

Have your say

20. What level of risk or uncertainty is introduced by:

- a. removing the option for system strength self-remediation for proponents when connecting to the REZ Scheme Network?
- b. leaving any future system strength requirements for the REZ Scheme Network to the National Electricity Rules which opens the possibility that access right holders will be liable for future incremental system strength requirements?

⁴³ This may occur, for example, due to changing of system strength nodes locations/requirements or increases in generation capacity during Allocation 2.

Centralised storage as a shared asset

Bringing storage into the market in a coordinated, centralised manner may be a more cost-effective process than the counterfactual of smaller storage projects entering in an uncoordinated, decentralised manner. Centralised storage could be used to manage and provide system strength and could be developed as a shared asset or as part of the specifications for the New REZ Infrastructure. Centralised storage would also be able to improve network utilisation and reduce transmission curtailment risk within the REZ Scheme Network and provide a generation firming service for REZ projects that have committed to fixed shape fixed volume LTESAs.

Have your say

21. How will a centralised storage facility interact with an access scheme and will this provide value to access right holders?
- Should it operate only where it benefits REZ projects or in the best commercial interest with the profits shared between invested parties?
 - Should funding a centralised storage facility be a network augmentation option for the creation of an Allocation 3 access right?

Coordination of common connection assets

The department considers scale-efficient common connection assets would minimise total infrastructure costs as well as social and environmental impacts.

The department will continue to consider whether additional measures should be introduced to reduce barriers to the coordination and delivery of connection assets. EnergyCo NSW will maintain a coordination role and is proposed to maintain a right to intercede to achieve improved costs and social licence for the projects and whole of REZ where connection can be achieved through a shared connection asset. If EnergyCo NSW was to intercede, this would be a negotiated outcome between EnergyCo NSW, the REZ Network Operator and the relevant projects.

Common connection assets are expected to be delivered through the designated network asset framework under the National Electricity Rules. Designated network assets are considered part of the shared transmission network but apply a special access regime instead of open access. This regime facilitates third-party transmission investment by providing access protections for funding parties to avoid open access free-rider issues.⁴⁴

Where the designated network asset regime is used to provide common connection assets, it will be important that any access scheme applying to it does not conflict with the broader REZ access scheme that it connects to. To address the potential for access policy conflicts the Department proposes the following principles for designated network assets connecting to the REZ Scheme Network:

- generation and storage projects intending to connect via a designated network asset must be allocated an access right to connect to the REZ Scheme Network.
- access rights for designated network asset connected generators and storage projects will be assessed at the boundary point between the designated network asset and the REZ Scheme Network.

⁴⁴ A designated network asset refers to a specific part of the transmission network that conveys electricity for an identified user group (a group of generators or loads) and is subject to a special access framework. For more information see the AEMC's recent [Connection to dedicated connection assets rule change project webpage](#).

- it is expected that a designated network asset will be sized to accommodate the generation capacity of, and access rights held by, the generation and storage projects connecting to the designated network asset.

Have your say

22. What would be the impact of the REZ Network Operator either providing or facilitating connection assets for access right holders?

Section 4. Access scheme control mechanism

Access right holders' access can be curtailed, and their marginal loss factors⁴⁵ impacted, by projects connecting to nearby infrastructure. This impact may affect the overall REZ network performance degrading its commercial attractiveness to proponents.

To preserve commercial incentives for access right holders, a mechanism to control projects connecting to declared REZ infrastructure that does not contribute to the intended network capacity of the REZ is under consideration⁴⁶. The proposed access control mechanism will apply to projects seeking to connect to existing infrastructure identified in the REZ declaration (i.e. categories C and D in Figure 8).

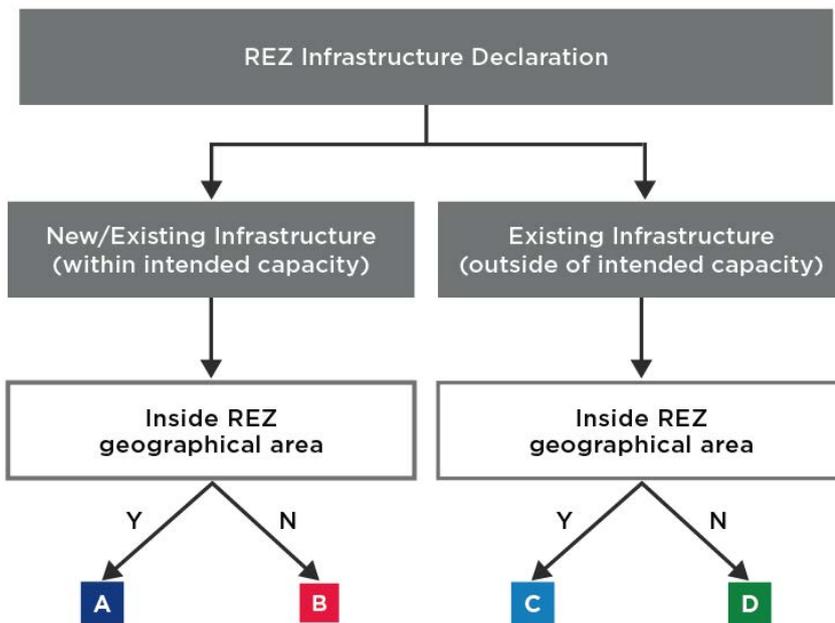


Figure 8. Categorisation of projects according to where they are seeking to connect

Using CWO REZ as an example, Figure 9 and Table 5 illustrate the treatment of categories A to D when connecting infrastructure.

⁴⁵ Marginal loss factors are a multiplier used to describe the marginal electrical energy loss for electricity used or transmitted.

⁴⁶ For the CWO REZ, the network infrastructure that forms the intended network capacity of the REZ is the New REZ Infrastructure within the geographical boundary of the REZ.

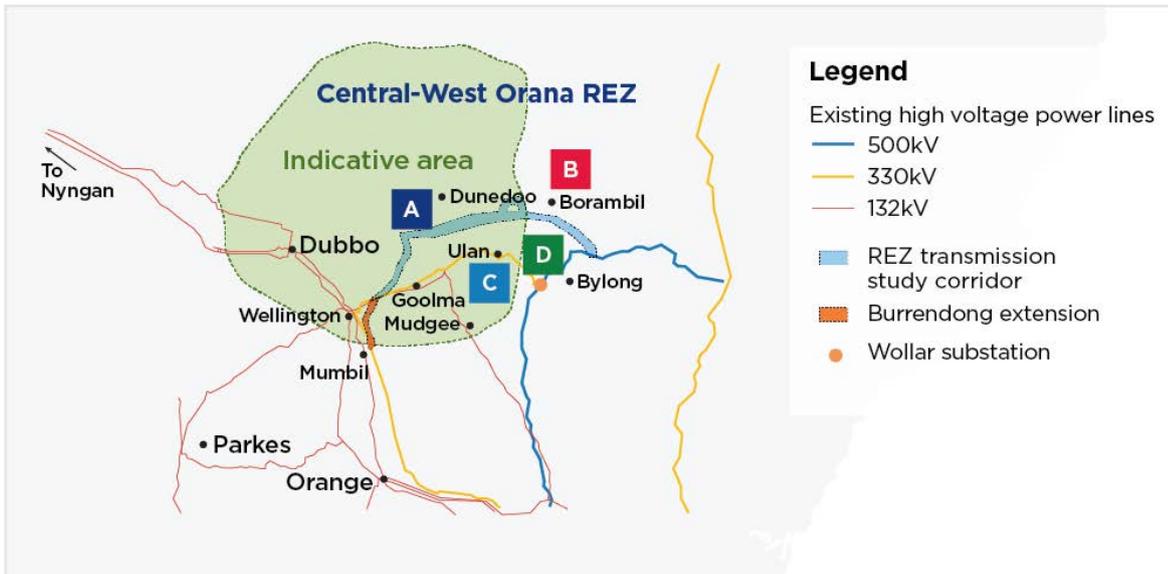


Figure 9. Illustrative map of the CWO REZ

Table 5. Treatment of categories A to D when connecting infrastructure

Project characterisation	Treatment
<p>Category A: Projects that seek to connect to infrastructure that contributes to the intended network capacity of the REZ. For CWO REZ this is the New REZ Infrastructure within the geographical boundary of the REZ.</p>	<ul style="list-style-type: none"> Projects must hold an access right to connect.
<p>Category B: Projects that seek to connect to New REZ Infrastructure outside of the geographical boundary of the REZ.</p>	<ul style="list-style-type: none"> This network is intentionally excluded from the geographical boundary of the REZ due to land-planning and community concerns. Projects will not be allowed to connect to this part of the network infrastructure.
<p>Categories C and D: Projects that seek to connect to existing declared network infrastructure that does not form part of the intended network capacity of the REZ, inside (Category C) or outside (Category D) the geographical bounds of the REZ.</p>	<ul style="list-style-type: none"> Connections to this infrastructure have the potential to cause adverse network effects for Category A projects. Access rights will not be allocated for this part of the network. It is proposed to control access to this network using a control option described below. Transitional arrangements will apply to projects that have reached a certain stage of development.

Proposed control options for categories C and D

Access control mechanisms will apply to existing network infrastructure over a voltage threshold. Projects seeking to apply to network infrastructure under this threshold may apply under existing connection arrangements. For the CWO REZ, the proposed threshold is 66 kilovolt.

The connection process for these projects will be timed to align with the streamlined connection process of REZ projects. This will ensure the connection of these projects does not delay the REZ’s streamlined connection process.

Two methods for controlling access for Category C and Category D projects are detailed for consultation.

Option 1: control access through competitive tender allocation process for adjacent projects

In Option 1 (which is only applicable for projects not seeking LTESAs), EnergyCo NSW would assess the impact on REZ network performance and social licence under competitive tender evaluation process.

Projects seeking permission to connect are assessed against the same eligibility criteria as projects seeking LTESAs. However, they will only be required to provide responses to selected merit criteria. This is expected to include:

- impact on the electricity system – to demonstrate that there is no material adverse impact on the REZ
- land use compatibility – to demonstrate no material land-use compatibility concerns
- community engagement and shared benefits – to demonstrate that community engagement and shared benefits assessed as satisfactory
- regional economic development – to demonstrate that regional economic development plans assessed as satisfactory.

The project will be permitted to connect if it meets certain merit criteria thresholds. This permission would confer no benefit beyond the ability to connect to the network via the standard open access regime.

Where multiple projects apply in a single tender round in the same REZ, and existing line capacity is limited, access will be allocated based on a ranking of merit criteria until capacity is exhausted.

Option 2: control access through an additional ‘do no harm’ test

This option intends to exercise control through a mandate for the network service provider to perform a ‘do no harm’ test as part of the connection process. This test applies irrespective of whether the project intends to apply for an LTESA.

Projects would follow the existing open access connection process to gain access to the network, with the network service provider applying an additional ‘do no harm’ test. Developed by EnergyCo NSW, the test will assess whether the project is expected to have an adverse impact on a fully subscribed REZ (i.e. at the end of Allocation 1 and 2).

Based on the network service provider’s application of this test, EnergyCo NSW would permit or prohibit a project’s connection. Permission confers no benefit beyond the ability to connect to the network via the standard open access regime. If a project fails the ‘do no harm’ test, there will be provisions for revised submission/feedback until the project either passes or elects not to proceed with the connection. EnergyCo NSW may also apply a community- and employment-based test for projects connecting to existing infrastructure within a REZ geographical boundary.

It is proposed that any required remediation work will be carried out by the network service provider and funded by the project. The fee to carry out remediation works will be charged in addition to any shallow connection costs required as part of the existing connection process.

Cut-off dates

It is proposed that the access control mechanism will not apply to projects that have either of the following within 6 months of the date of publication of the access scheme declaration:

- a development consent, or
- a submitted application to connect.

This is intended to provide certainty to projects currently under development that are seeking access under Category C and Category D.

Have your say

23. What is your view on the materiality of the impact of Category C and D projects on REZ projects?
24. Which of the two proposed options are preferred to manage connections to existing declared network infrastructure for Category C and Category D projects?
25. Does the cut-off date for the application of the access control mechanism provide sufficient certainty to projects currently under development?

Section 5. Setting and usage of access fees

Under the EII Act, AEMO Services is to determine the fees payable to the Scheme Financial Vehicle by participants in an access scheme in accordance with the following principles:

- maximising financial value for NSW electricity customers
- recovering the cost of the operation of the access scheme
- optimal use of the existing and planned network infrastructure in the REZ
- other principles prescribed by the regulations.

Exploration on the composition of access fees, including whether access fees should recoup network related costs in part or full, is currently being undertaken. In the National Electricity Market, the cost of the shared network, greenfield interconnectors and other projects approved through regulatory tests is paid for by consumers. Generation, storage and load projects pay for the incremental costs of their specific connection, along with any necessary augmentation to the shared network.

Applying this model to a REZ would result in consumers paying for the shared REZ network and generation projects paying the cost of their connections to that REZ network.

AEMO Services intends to consider the following when determining if REZs should deviate from the existing National Electricity Market transmission payment regimes:

- REZs exist primarily to deliver additional generation capacity, and not to improve the transmission network more broadly
- costs and benefits of a REZ can be attributed to discrete projects in ways that the broader National Electricity Market transmission cannot
- where projects pay for REZ infrastructure it is more likely that the transmission will be fit for purpose and utilised
- it is vital that the communities who host new infrastructure benefit from it.

Conversely, if new generation is required to cover the costs of the REZ this could:

- create a significant disparity between the costs to generators within the REZ and those outside the REZ
- increase the cost of LTESA strike prices – leading to a greater number of periods where LTESA options are exercised and withdrawing liquidity from the wholesale contracts market
- create a split market where REZ projects have high costs due to the transmission costs and projects outside of REZs have lower transmission costs but higher risks of curtailment.

To protect the long-term financial interests of NSW electricity consumers, it is anticipated that AEMO Services will need to determine access fees on a REZ-by-REZ basis, in consultation with industry and consumers groups.

Determining the access fee

AEMO Services will address the following principles in the determination of the access fee:

- legislated community and employment purposes⁴⁷
- seek to include the cost of REZ infrastructure, to the extent that it does not:
 - create unacceptable barriers to the utilisation of REZ infrastructure

⁴⁷ Section 26 of the EII Act.

- materially impact LTESA fixed prices, option exercise behaviour and contract market liquidity
- create a material adverse impact on the long-term financial interests of consumers.

AEMO Services intends to conduct scenario-based analysis comparing levels of access fees for their impact on:

- LTESA fixed price and repayment threshold bids
- the impact on REZ Infrastructure utilisation and wholesale electricity/contract markets
- how these impacts effect the long-term financial interests of NSW electricity consumers in terms of:
 - net Scheme Financial Vehicle liabilities
 - total access fees accrued
 - remaining transmission costs recovered through TUOS.

Access fee format

AEMO Services will determine the access fee quantum for each REZ and the different types of access, including:

- access rights or subordinate access rights allocated to connect to the REZ Scheme Network
- any other access permitted to REZ Network Infrastructure that does not form part of the intended network capacity (for the CWO REZ, this would include existing infrastructure over a 66 kilovolt threshold)

Separate to access fee quantum, the department expects that AEMO Services will set a mechanism for the recovery of access fees. To maintain technology neutrality, the access fee is likely to be set on an equal per unit basis, irrespective of generation type.

Mechanisms for recovering access fees could include:

- up-front capital payments by projects
- annuity payments
- a combination of both.

These options are shown in Table 6 using illustrative values for a 300-megawatt project.

It is anticipated that the costs of the access scheme operation will be partly incurred by the time projects connect to the network, and partly over the life of the access scheme.

The mechanism for recovery being proposed is a combination, where a portion of the total access fee is charged up-front with the remainder consisting of a yearly subscription fee over the access right contract period.

Table 6. Illustrative mechanisms for recovering access fees

Option	One-off payment	Yearly subscription fee	Combination of one-off and yearly fee
Description	Entire access fee is paid up-front (e.g. when connecting to the network)	Annual subscription fee is paid over the life of the access right (e.g. 20 years)	A portion is paid as a one-off 'joining fee' and the remainder over time
Illustrative example	\$12 million total	\$600,000 per annum	\$5 million + \$350,000 per annum
Benefits	Simple administration that allows proponents to capitalise cost	Less likely to impact LTESA strike price linked to debt	Cost recovery aligned with scheme expenses

Existing community benefit-sharing arrangements

Projects that participate in the access scheme will be required to contribute to community and employment initiatives through access fees.

The department recognises that renewable energy projects that are advanced in their development process may have existing benefit-sharing initiatives and arrangements with local communities and stakeholders, or may be actively developing these arrangements.

In New South Wales, Voluntary Planning Agreements⁴⁸ between renewable energy developers and the relevant local council are commonly used to fund community benefit-sharing initiatives. These agreements may vary from project to project and capture a range of funding initiatives, such as direct support for local infrastructure upgrades or other strategic projects identified by the council, as well as a Community Enhancement Fund component (or similar) to fund local community projects.

The department acknowledges that the Community Enhancement Fund component of these agreements, or other similar arrangements, contributes to community initiatives and outcomes that will be achieved through the CWO REZ benefit-sharing model.

CWO REZ benefit-sharing model

Projects that participate in the access scheme will be required to contribute to and participate in the CWO REZ benefit-sharing model. It is expected that this arrangement will satisfy community benefit-sharing arrangements that would otherwise be captured by individual project's Community Enhancement Funds.

The department recognises that where these costs have already been incurred or agreed to, the access fees for these projects should be adjusted. AEMO Services will determine the maximum for any applicable adjustment.

The CWO REZ benefit-sharing model is not expected to capture funding for any project-specific impacts or costs incurred as part of delivering a project, such as (but not limited to) landholder lease or easement payments, neighbour benefit-sharing payments, council rates, section 7.11 or section 7.12 contributions⁴⁸, or payments for infrastructure upgrades or remediation required to mitigate project impacts.

Local councils will continue to have a critical role in delivering benefit-sharing outcomes that meet the needs and aspirations of the local communities they represent under the CWO REZ benefit-

⁴⁸ Part 7 of the *Environmental Planning and Assessment Act 1979*.

sharing model. EnergyCo NSW is in the early stages of developing this model and governance arrangements for the distribution of community and employment funds in the REZ, and will consult closely with local councils, regional stakeholders, communities and industry on these arrangements.

How access fees will be used

Community purpose

The community purpose component of access fees is:

- intended to collect funds to benefit REZ communities. Access fees and the tender's non-financial merit criteria are intended to complement each other to deliver benefits and opportunities to local communities
- not to substitute project-specific initiatives encouraged in LTESAs and access right tender eligibility and merit criteria, such as initiatives designed to build relationships with local communities or procurement-related commitments and strategies. Tender proponents are expected to demonstrate the merits of their projects and set competitive targets against the merit criteria.

Employment purpose

The employment purpose component of access fees is:

- intended to promote the employment, skills and training of employees inside a REZ who are affected by changes in electricity generation in New South Wales
- not meant to substitute the competitive commitments outlined in the tender merit criteria relating to project-specific procurement.

Have your say

26. What is an appropriate format and quantity for access fees?
27. Should this recover a component of the REZ network infrastructure costs?
28. How should regulations prescribe the minimum and maximum amounts or proportions for the community and employment components of the fee?
29. What other principles should be prescribed by the regulations for AEMO Services to consider when setting the access fees?

Section 6. Changing regulatory environments

Regulation to implement the access right

The open access regime under the National Electricity Rules will not apply to the REZ Network Infrastructure. The open access regime will be replaced by a REZ access arrangement declared by the Minister under the EII Act. Modifications will be required to the National Electricity Rules to enable the operation of the declared access scheme. These modifications are expected to include:

- Access to the REZ Network Infrastructure by generation and storage projects will be governed by the access arrangements set out in the declaration⁴⁹.
- Load that connects directly to the REZ Scheme Network will not be required to hold access rights.
- Projects seeking to connect to the REZ Scheme Network will require an access right, a register of which will be maintained by EnergyCo NSW under the access scheme declaration.
- The TNSP for the REZ Scheme Network will only be able to make an offer to connect to, or approve a connection alteration to, the REZ Scheme Network if a generator or storage project holds sufficient access rights, or, in the case of connection alterations, EnergyCo NSW has approved any modification of relevant Project Characteristics. This proposed separation of control over access and connection is similar to the designated network asset framework under the National Electricity Rules.
- Each project connecting to the REZ Scheme Network will have a separate transmission network connection point, at which arrangements for performance standards, settlement and loss factors under the National Electricity Rules will apply.
- REZ Network Operator:
 - will build the New REZ Infrastructure to the REZ Network Specifications
 - will not be entitled to seek a revenue allowance under the National Electricity Rules for the costs of carrying out the New REZ Infrastructure
 - will recover its efficient, reasonable and prudent costs of carrying out the New REZ Infrastructure under the cost recovery arrangements of Part 5 of the EII Act.
- The CWO New REZ Infrastructure will be partly funded from the Electricity Infrastructure Fund⁵⁰, and will have more than one boundary point with the existing transmission network. Modifications are proposed to reflect that the REZ Scheme Network may not be a radial asset.
- Disputes relating to access to the REZ Scheme Network will not be subject to the commercial arbitration or dispute resolution provisions under the National Electricity Rules. It is proposed that a separate dispute resolution mechanism will apply to the access scheme through regulations or the declaration.
- Amendments will be made as necessary to facilitate an access control mechanism.

⁴⁹ REZ Network Infrastructure governed by the declared access scheme will be limited to a subset based on voltage level to be specified in the access scheme declaration.

⁵⁰ The Electricity Infrastructure Fund will be funded by customers through contribution orders on distribution network service providers, in contrast to the designated network asset framework which assumes that assets will not be funded through charges on customers

Have your say

30. Are the proposed derogations and modifications to the National Electricity Rules appropriate to deliver the access scheme?
31. What are the key considerations in designing a dispute resolution mechanism to apply to the access scheme?

Energy Security Board model for congestion management

In July 2021, the Energy Security Board (ESB) provided recommendations to Energy Ministers on its redesign of the National Electricity Market to enable the provision of a secure, reliable and lower emissions electricity system at least-cost to consumers.

The ESB recommended that Energy Ministers agree to the preparation and submission of a rule change that progresses the congestion management model adapted for integration with REZs. Subject to Ministers' responses, the model is targeted for implementation in 2025. The ESB proposes that where a bespoke REZ-specific access scheme is implemented prior to 2025, it may be integrated into or applied in conjunction with the congestion management model.

The model involves a dual mechanism of congestion charges and rebates, where only incumbent generators and those who locate in accordance with the planning framework (i.e. in REZs or areas of the grid with available capacity) receive the congestion rebate. This approach is intended to support and strengthen the REZ framework by rewarding generators who locate within a REZ with greater revenue and congestion certainty through a congestion rebate.

National reform interaction with access scheme

The ESB's congestion management model could be implemented through an AEMC rule change during the term of NSW access rights.

If the congestion management model is implemented, the department will evaluate impacts on access right holders and determine whether it is appropriate to derogate in any aspect to protect and maintain the substance of the access scheme.

There remain several outstanding policy issues in the development of the ESB's proposal. The department will continue to work closely with the ESB and other market bodies.

Have your say

32. How would the ESB's proposed congestion management model, or a similar reform, impact the value of the REZ access scheme?

Supplementary information

Access scheme entities

Entity	Access scheme function
Minister for Energy and Environment	<ul style="list-style-type: none"> Responsible for making the declaration that authorises or prohibits access to, and use of, specified network infrastructure in a REZ by network operators and operators of generation and storage infrastructure⁵¹ Establishes committees under s34W(1)(b) of the <i>Energy and Utilities Administration Act 1987</i> to advise on employment purposes component of the access fee
Energy Corporation of NSW (EnergyCo NSW)	<ul style="list-style-type: none"> Leads the coordination and delivery of the 5 REZs as the Infrastructure Planner Procures the design, finance, build and maintenance of the New REZ Infrastructure to meet the REZ Network Specifications Administers an access scheme in accordance with the declaration, including: <ul style="list-style-type: none"> managing the quantity of access rights that may be allocated assessing market-funded augmentations (i.e. Allocation 3 access rights) maintaining a register of access rights assessing any modifications to Project Characteristics may make recommendations to the Scheme Financial Vehicle with respect to managing project delivery agreements Facilitates the delivery of the streamlined connection process and shared system strength Disperses a portion of access fees for community and employment activities
Consumer Trustee (AEMO Services Limited)	<ul style="list-style-type: none"> Conducts competitive tenders, including assessing projects against merit criteria, to recommend the award of LTESAs and allocation of access rights in accordance with the Tender Rules and the declaration. This allocation must be done in the long-term financial interests of NSW electricity consumers Determines access fees
REZ Network Operator	<ul style="list-style-type: none"> Enters into the Project Deed with EnergyCo NSW Authorised by AEMO Services to carry out the New REZ Infrastructure project – costs of the project are recovered under the EII Act⁵² Delivers some components of the streamlined connection process including delivering the centralised provision of initial system strength for the New REZ Infrastructure as part of the REZ Network Specification

⁵¹ This is undertaken in consultation with EnergyCo NSW.

⁵² Under Part 5 of the EII Act. Part 5 of the EII Act also provides the cost-recovery mechanism for the project.

Entity	Access scheme function
Primary TNSP ⁵³	<ul style="list-style-type: none"> • Is a party (with the REZ Network Operator) to the Connection Agreement • Has rights and responsibilities under the Connection Agreement relevant to its system operation functions • Plays a role in delivering some components of the Streamlined Connection Process. This includes 'batching' the connection of projects holding REZ access rights and developing and approving REZ Access Standards • As the NSW Jurisdictional Planning Body, will also meet any future system strength requirements at system strength nodes on the REZ Scheme Network as prescribed transmission services under the National Electricity Rules
Projects / LTES operators	<ul style="list-style-type: none"> • Projects bid for access rights and LTESAs through the competitive tender process administered by AEMO Services, including nominating their Project Characteristics • Projects must comply with their Project Delivery Agreement, the access scheme declaration and the LTESA (where relevant), including: <ul style="list-style-type: none"> ○ adhering to Project Characteristics ○ meeting agreed development and construction milestones ○ paying the access fee ○ delivering tender bid commitments ○ meeting reporting obligations • Successful projects will participate in the streamlined connection process and execute a Connection Agreement with the Primary TNSP and REZ Network Operator
National Market Operator (AEMO)	<ul style="list-style-type: none"> • AEMO and the Primary TNSP will approve REZ-specific Generator Performance Standards to support a streamlined connection process • Under the EII Act, AEMO must approve any National Electricity Rules derogations that affect its function
Scheme Financial Vehicle	<ul style="list-style-type: none"> • The counterparty to LTESAs and Project Delivery Agreements and is responsible for all payment obligations • Collects access fees and transfers to relevant entities

⁵³ Transgrid is currently the Primary Transmission Network Service Provider (Primary TNSP) which operates the high-voltage transmission network in New South Wales. Transgrid performs power system operations functions for the NSW transmission network.

Access scheme declaration

The declaration made by the Minister⁵⁴ will be the primary statutory instrument that implements the access scheme. The declaration will operationalise the terms and conditions of the scheme, and is proposed to:

- nominate the person or body who is to administer the access scheme (expected to be EnergyCo NSW for the CWO REZ)
- identify the infrastructure forming the REZ Scheme Network to which access rights may be allocated (for CWO REZ expected to be the New REZ Infrastructure within the geographical boundary of the REZ)
- set the method for determining the volume of access rights that can be allocated, including the Allocation 1 Aggregate Maximum Capacity Cap
- provide a mechanism to increase the volume of access rights that can be allocated where new infrastructure or augmentations increase the capacity of the REZ Scheme Network
- authorise AEMO Services to run a competitive tender process to recommend access rights up to the available volume in Allocation 1
- govern the process to grant access rights in Allocations 2 and 3
- establish a mechanism to control access to existing infrastructure specified in a declaration that is not part of the intended network capacity of the REZ
- facilitate the development of the REZ Access Standards
- establish a procedure to improve utilisation of the REZ while maintaining the value of existing access rights through the introduction of subordinate access rights
- establish and maintain a public register of access rights, granting projects the right to connect to the REZ Scheme Network (expected to be linked to the Project Delivery Agreement).

⁵⁴ Section 24 of the EII Act.

Probity, confidentiality and caveats

It is important to note that this paper and any feedback processes associated with it, are not part of, nor a pre–requirement to, any procurement process.

Participation by any entity in this stakeholder engagement process is entirely voluntary.

Participation, or non-participation, in feedback will not provide any participant any advantage or disadvantage in any future procurement process for the program. No information provided by submission will be used in any future evaluation of competitive offers.

Industry information gained from feedback may be used in the further scoping and development of the access scheme. Internal NSW project and program staff and advisers – who are subject to confidentiality requirements – will have access to submissions in full, including submitter details. Participants should also be aware that provisions of the *Government Information (Public Access) Act 2009* (NSW) may apply to any documents submitted (and information should be submitted on that basis) and also to any summary report compiling key information and feedback.

This paper has been developed as a market engagement tool to ensure that, as far as is practical, equal information and information access will be provided to all interested parties.

Any participation in this engagement process or any reliance on this document shall be entirely at a person's or entity's risk. While this document sets out current information and options regarding the access scheme and has been prepared in good faith and with reasonable efforts, it is issued without prejudice and is subject to change at any time (including as a result of this consultation process).

Nothing in this document is, or should be relied upon as, a promise or representation by the NSW Government that any project will subsequently proceed. The NSW Department of Planning, Industry and Environment reserves the right to alter or amend any process, stated or implied within this document, at any time. By participating in the option to provide a written submission, you or your organisation agrees to the following conditions:

- participation in this feedback process does not imply any registration, pre-qualification or any other preferred status in respect of any project
- any person or organisation which does not participate will not be prejudiced in any way in respect of any subsequent procurement process in relation to this, or any other project
- in the event of the commencement of any formal competitive or procurement process, participants will not rely on any information supplied or communicated as part of this paper
- participants are discouraged from providing unsolicited offers or any marketing material on the capabilities of their organisation – this information will not be considered.