

# How a renewable energy zone works

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Over the next decade, NSW will be powered by renewable energy as coal-fired power stations shut down. Our power will come from wind and solar energy, backed up by storage such as batteries and pumped hydro.

## Renewable energy zones

The NSW Government is developing renewable energy zones (REZs), which will group renewable energy projects as well as high-voltage poles and wires to power homes and businesses across the state:

- EnergyCo is delivering the new grid to connect renewable energy projects to consumers.
- The private sector is developing new renewable energy and storage projects, like wind, solar and batteries to connect to the network.

## REZ-wide coordination and planning

To see where existing and proposed generators are located in the REZs, and to find out more about each project, view our interactive map at [caportal.com.au/energyco/rez](http://caportal.com.au/energyco/rez).



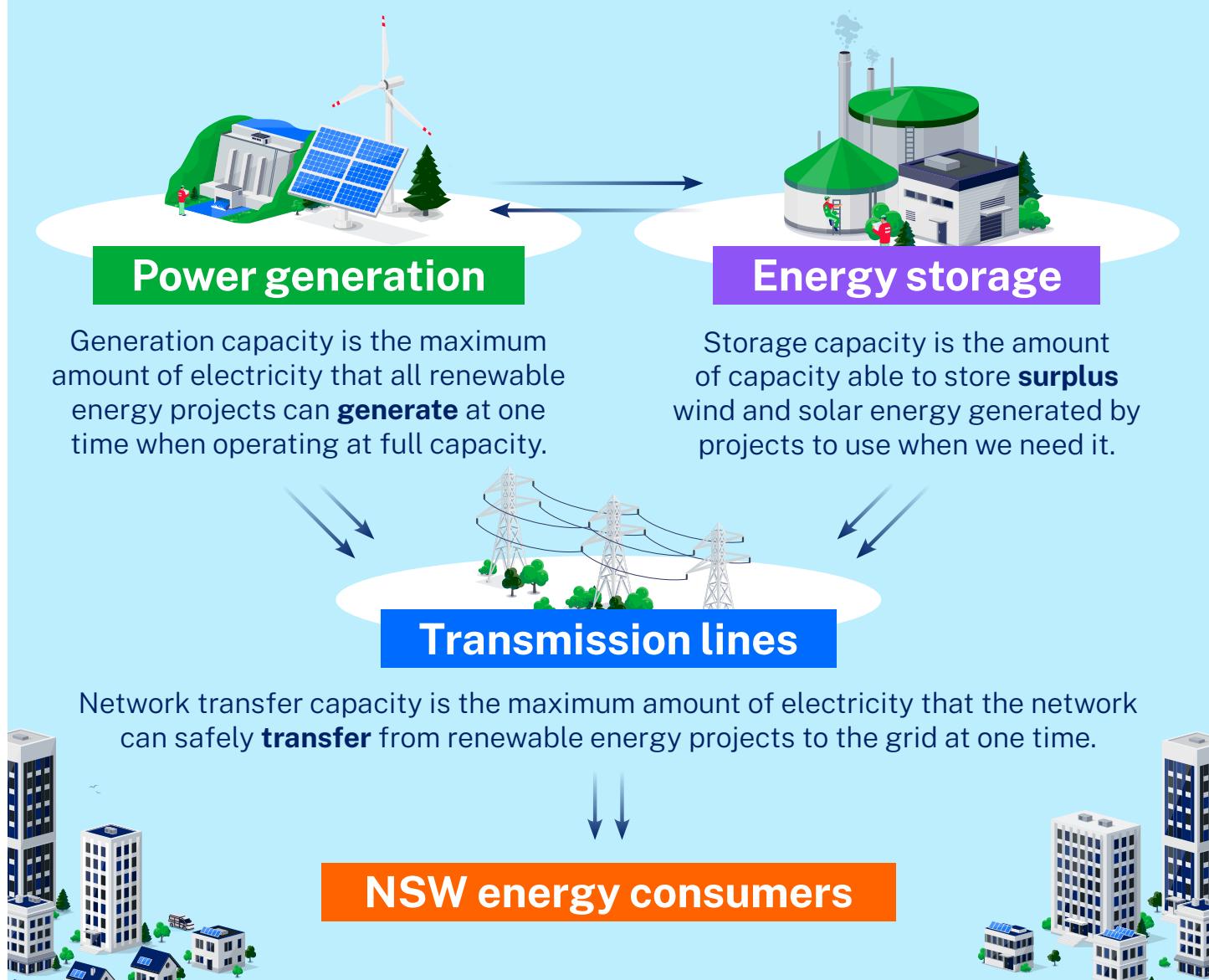
# Operating the REZs

It's important that we plan the operation of the REZ networks to make sure energy flows from renewable energy projects to the grid in a reliable and balanced way. This is a complex process and is similar to a road network with detailed traffic management and road rules to keep cars moving safely from place to place.

When the sun is shining and the wind is blowing, solar and wind projects might generate more energy than the amount that can be transferred to the network at one time. This is why we have storage systems like batteries which store any excess energy to transfer to the network at times when generation capacity is less.

## How does energy capacity work?

For the REZs to operate safely and efficiently, we need to manage generation capacity and storage capacity to align with network transfer capacity:



# Working with generation and storage developers

Generation and storage developers are private entities who plan, build and operate generation and storage projects in the REZs. We call them generators because they generate electricity and export it to the grid. This includes storage projects, like batteries, which store excess electricity and send it to the grid when we need it.

EnergyCo is working closely with generators to make sure the REZs are coordinated carefully and fit for purpose.



## These projects may include:



**Solar projects convert sunlight into electricity using solar panels.**



**Wind projects use large turbines to generate electricity from wind.**



**Pumped hydro uses the force of moving water to create electricity.**



**Battery energy storage systems (BESS) provide power on-demand to supply electricity when needed.**





## Think of the grid as a highway

If the grid is a highway then the electricity is the cars travelling on the road.



The highway can only handle so many cars at once before it gets too crowded and causes a traffic jam.

Network transfer capacity is the maximum number of cars that can travel on the highway without causing a traffic jam.

Just like the highway, there are rules in place to keep energy flowing safely and efficiently through the grid.

## Connecting renewable projects to the grid

One of EnergyCo's key roles is coordinating how generation and storage projects connect to the grid.

We want to make sure projects can connect and generate energy quickly once the new network is built so that homes and businesses can get more affordable, clean and reliable energy as soon as possible.

## Generator connection lines

Energy hubs are a type of substation that collect electricity from generators and transfer it to the broader network. You can view proposed energy hubs in the REZs on our interactive map at [caportal.com.au/energyco/rez](http://caportal.com.au/energyco/rez).

Renewable energy projects will connect via a dedicated or shared power line into the network or to an energy hub. We refer to this as generator connection lines and they typically have a voltage of 330 kilovolts (kV). EnergyCo is working with developers and playing a central role in the design, planning and layout of generator connection lines.

### We are making sure:



the length and number of connection lines is minimised



we can deliver the energy we need on time



the network is future-proofed to expand network transfer capacity required to meet energy demand



potential impacts on landowners and the community are managed carefully and minimised.

## Think of the access scheme as road rules and access rights as car registration



The access scheme manages how generators can connect to the network, like road rules which control how cars travel on the highway.

Access rights are like a car registration for the REZ network. They decide if a project is allowed to send power to the grid, and how much energy they can supply at one time.

## Access schemes

The rules that govern the electricity market are complex and highly regulated. They are important to make sure homes and businesses have a reliable and affordable energy supply. The Australian National Electricity Market (NEM) operates under an 'open access regime', meaning that any generator that meets certain criteria can connect to the grid regardless of whether this creates network congestion or is needed by the system.

For new REZ networks, the NSW Government has the ability to apply an access scheme to manage generator access to the network. Access schemes help to make the most out of the network by managing the amount of generation capacity and coordinating which generation and storage projects can connect. Access Schemes also support investment certainty for generation and storage projects and encourage development in areas that support the grid into the future.

There are two ways an access scheme can manage generation and storage capacity:

- through an access rights regime which requires projects to gain rights to connect to the part of a network where the access rights regime applies (called an access rights network).
- through an access control mechanism which requires a project to seek EnergyCo's consent to connect to the part of a network where an access control mechanism applies (called an access control network).

In both cases, projects need to get permission to connect to a network. An access scheme outlines the type of permission and requirements a generator needs to meet to connect to a network.

## Access rights

Generation and storage projects will need to apply for an access right under an access scheme to connect to an access rights network. Access rights decide:

- if the project can connect to the network
- the maximum amount of electricity the project can send to the network at one time.

Access schemes make sure the network operates in the best interest of consumers and REZ communities.

### They do this by:



**Encouraging investment** providing clear rules and incentives for renewable energy projects to develop and connect to the grid



**Preventing overload** making sure we have enough electricity flowing consistently to keep the lights on without overloading the grid



**Making sure the best projects connect** running a competitive process to make sure the best projects on merit get to connect and supply energy to the grid.



**Improving community outcomes** collecting fees from the access rights holders which are invested in improving local community, First Nations and employment outcomes.

An access scheme competitive process will prioritise the best quality projects on technical, environmental, economic and social merit, not just the projects that are quickest to develop.



Existing transmission line near Wallabadah

## How generation and storage projects are awarded access rights

1

### Application process

Generation and storage project developers apply for an access right to connect to the REZ.

Applications will outline where the project is located, how much electricity the project will generate, how the project will connect to the network and how the project meets the required merit criteria.

2

### Evaluation and selection

Applications are reviewed and projects are shortlisted against merit criteria.

In addition to technical requirements, merit criteria will cover areas that deliver regional benefits including community engagement, industry participation and supporting local supply chains.

3

### Allocating access rights

Successful projects are awarded access rights.

Each access right awarded has a cap on the amount of electricity they can transfer to the grid at one time.



## Access rights and community benefits



Projects that are awarded access rights will pay yearly access fees which will contribute to funding for community and employment benefits.

The community and employment benefit program will support the long-term prosperity of regional NSW by funding community-led initiatives, public infrastructure and First Nations projects.

The program will continue for many years after the renewable energy zones are delivered. It will invest hundreds of millions of dollars into regional communities to ensure they receive lasting benefits.

## Contact us



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