

Snowy 2.0 Transmission Connection Project

Environmental Management Fact Sheet

Note: The information in this Fact Sheet is a summary of our more detailed [Biodiversity Management Plan](#) that is available on the [Lumea website](#).



The Snowy 2.0 Transmission Connection project (STCP) will connect Snowy Hydro 2.0 into the National Electricity Market. By connecting Snowy 2.0 to the grid, the renewable energy (up to 2,000 megawatts) that has been generated and stored can be distributed within minutes when it is most needed.

To do this we will construct:

- 9km of new high voltage transmission lines from Lobs Hole in Kosciuszko National Park to a new switching station at Maragle, adjacent to Transgrid's existing Line 64 in Bago State Forest.
- A switching station located in the Bago State Forest.
- And upgrade access tracks to the new switching station and transmission line structures.

This fact sheet summarises the plans in place to minimise any impact for native wildlife, vegetation, soil and waterways during construction.



Tumut River Pondage – Photo courtesy of Michael Egan.

Caring for Kosciuszko National Park and Bago State Forest

The total approved project disturbance area covers approximately 118.27 hectares of native vegetation. Transgrid and UGL are working closely to reduce native vegetation disturbance as works progress. Lumea, Transgrid and UGL have worked closely with Local, State and Federal regulators and local Aboriginal Stakeholders to develop Environmental and [Heritage Management Plans](#) that will guide how we work within the project area. Aboriginal representatives will be onsite throughout the first 12 months of the project to ensure that Aboriginal heritage finds can be respectfully managed. Detailed plans are in place to identify, relocate or manage native wildlife during clearing and construction works, and to restore habitat connectivity wherever possible.

Preparing to clear vegetation

Seed collection was undertaken by a specialist across the project area before clearing began. This ensures that native (and endemic) seed is available for use during rehabilitation activities. The timing of this collection is based on the species and readiness for seed collection.

Clearing during breeding times for hollow-dependent fauna has been avoided as far as possible. This includes intensive inspection of potential habitat and considering breeding times during surveys.

28 days before clearing starts

Monitoring for native wildlife is conducted in the project area by a qualified team of ecologists for 28 days before clearing starts. This involves undertaking the following steps.

Identifying possible habitat for Masked Owls

- Installing song meters in clusters of potential Masked Owl nest trees and stag watching of potential nest trees with physical signs of use for a period of four weeks.
- Song meter results will be used to target potential nest trees during the four week monitoring period.
- Stag watching of potential nest trees will be undertaken an hour before dawn and an hour before and after dusk.
- If nesting owls are present, the tree will be clearly marked, and removal of the tree will be delayed until the chicks have fledged (10-12 weeks). There will be no disturbance within 50 m of the tree, and disturbance between 50 – 100 m will be minimised.

Identifying possible habitats for Gang-gang Cockatoo

- Installing song meters in clusters of potential Gang-gang nest trees for a period of four weeks.
- In the final two weeks of the song meter monitoring, stag watching will target potential nest trees during the day for cockatoo activity.
- If nesting birds are present, the tree will be clearly marked, and removal of the tree will be delayed until the chicks have fledged (10-12 weeks). There will be no disturbance within 100m of the tree, and disturbance up to 200m from the tree will be minimised.

14 days before clearing starts

Ecologists will do the following at least 14 days before clearing:

- Clearly mark clearing zones and exclusion zones.
- Ensure trees to be removed from the Transmission Structure Zone can be felled so they fall into the cleared zone. No vegetation felling or damage to vegetation from felling activities is to occur within exclusion zones.
- Place exclusion zone high visibility fencing outside tree protection zones.
- Install Booroolong Frog Buffer fencing.
- Clearly mark Rocky Outcrop Avoidance Zones.
- Clearly mark out areas of the orchid, *Caladenia montana*.
- Physically mark and record any important habitat features that may be used by significant species, including:
 - Large active stick nests
 - Hollow-bearing trees and whether hollows are active at the time of inspection
 - Yellow-bellied Glider den trees and sap trees (i.e. presence of a v-notch)
 - Active nesting/breeding sites (dens, drays, nests etc.)
 - Threatened species habitat (as evidenced by scratchings, scats etc)
 - Unexpected threatened flora
- Targeted searches to ground truth the extent of weeds in the Project area.
- Identify suitable places to release fauna.
- Identify and surround trees for protection with exclusion fencing.
- Within Booroolong Frog habitat any rocks, logs that are required to be removed will be salvaged for rehabilitation within riparian areas.
- Within Yellow-bellied Glider habitat inspect den/sap trees to determine if live gliders are present. If gliders are present or likely to be present, the tree is to be clearly marked as an exclusion/ no-go zone with fencing/ flagging. The removal of the tree must allow time for fauna to leave of its own accord.
- Prepare a clearing permit including maps of the abovementioned features.

24 hours before clearing starts

The following steps are taken by the Project Ecologist:

- Review the Project Environmental Management Plans for areas to be protected during clearing.
- Confirm boundaries for construction, clearing and exclusion zones are accurate and clear.
- Confirm habitat trees and features are correctly marked.
- Confirm requirements for weed and pathogen management.
- Yellow-bellied Glider habitat: Re-inspection of den/sap trees to determine if live gliders are present. If they are, the tree is to be clearly marked as an exclusion/no-go zone with fencing/flagging.
- Prepare a pre-clearing report summarising the outcomes of pre-clearing inspections.

-
- Complete the pre-clearing permit including a site walkthrough to validate all required pre-clearing activities have been completed and undertake a briefing with all those who will be involved in the clearing works including machine operators.

Clearing vegetation

Clearing will be undertaken as a staged process:

- Stage 1 clearing of non-habitat vegetation e.g., shrubs, regrowth, ground cover and non-habitat trees). Hand clearing only will be used in Booroolong Frog and *Caladenia montana* habitat.
- There is a 24 hour wait period between initial clearing of non-habitat vegetation and clearing of habitat vegetation to allow fauna to relocate.
- Stage 2 clearing of habitat vegetation (hollow-bearing trees, habitat trees, and bushrock), supervised by a qualified ecologist. A qualified ecologist will be present during all clearing operations to record any tree hollows not identified during the pre-clearing survey, and to rescue any animals disturbed by clearing.
- Habitat trees will be mechanically shaken prior to felling to encourage any remaining animals to leave or become visible for capture and relocation. Trees will be felled using soft felling techniques and sectional removal of hollow-bearing limbs will be undertaken using elevated work platforms. Felled material will be carefully inspected for fauna by a qualified ecologist.

Clearing methods

During the planning process a [Biodiversity Development Assessment Report](#) was approved by NSW Government. This sets out how the impact of clearing on vegetation and habitat during construction and operation of the transmission lines will be minimised. Management zones have been established that will be either partially or totally cleared.

Partial clearing is the removal of trees and shrubs that could grow above 4m tall, whilst retaining all vegetation that will grow less than 4m tall. These are areas where vegetation needs to be managed while the transmission lines are operating for safety reasons but do not need to be fully impacted during construction. Partial clearing will take place in the following areas:

- Outside the 50-meter radius around each individual transmission tower
- Along the transmission line easement for ongoing management of vegetation that will grow taller than 4m. Ground cover vegetation will be kept.
- Alongside the easement where trees are high enough that, if they were to fall, they would strike the overhead conductors or the transmission structures. These trees pose a considerable bushfire risk and risk to the operation of the line.

Total clearing is the removal of all vegetation in specific areas to make way for new infrastructure, or for safety reasons. They have been assessed and direct impacts have been offset. Total clearing is required in the following areas:

- Within the areas where the tower pads, transmission structures and drainage infrastructure will be built.
- A maximum 30m wide corridor to establish access tracks to the transmission towers. Only the vegetation required will be cleared to construct the access tracks.
- The Substation access road, and the area surrounding the 500/330 kV switchyard.

Access tracks have been designed to take advantage of the terrain to minimise cut/fill and vegetation clearing. For example, ridgelines are used at higher elevations. The project design will be adjusted if needed to reduce impacts on rocky outcrops, large boulders, piled rock, and rock features.

Habitat trees will be identified by an ecologist. Tree barrels with habitat features (such as hollows) will be removed and relocated to the edge of the easement to retain habitat for fauna.

Felled vegetation will generally be mulched onsite, with mulch to be used for erosion and sediment control. Using mulch in this way provides immediate site stabilisation and enhances site rehabilitation.

A detailed Clearing Procedure has been developed. This can be found in Appendix B of the [Biodiversity Management Plan](#).

Protecting wildlife during clearing

- A qualified ecologist will be present during all clearing activities to record any tree hollows not identified during the pre-clearing survey, and to rescue any animals disturbed by clearing.
- A walk through by an ecologist will be done before the start of clearing each day to ensure there is no wildlife present.
- There will be a daily drive-through of areas planned for construction. If an animal is found within the area during construction works, all work will immediately cease and a local wildlife rescue or an ecologist will help as needed.

Where threatened species are unexpectedly identified during pre-construction, or construction, we follow an Unexpected Threatened Species Procedure. This can be found in Appendix D of the [Biodiversity Management Plan](#).

Protecting habitats during construction and operation

Aquatic habitats

To protect them during construction, activities in aquatic habitats and areas surrounding waterways will be avoided, excluding approved works at Sheep Station Creek.

The design of temporary and permanent creek crossing structures, including the permanent structure over Sheep Station Creek have been designed to minimise impacts on fish and aquatic habitat by ensuring stream flow is unaffected.

The potential for bank erosion will be reduced by retaining stumps in areas surrounding waterways and aquatic habitats.

A [Soil and Water Management Plan](#) has been put in place to ensure the protection of aquatic habitat connected to the project area, with particular focus on protecting the habitat for the Booroolong Frog.

A 50m Booroolong Frog Exclusion Zone will be marked and signs will be placed around the tributaries that flow downhill into the Yarrangobilly River. This Exclusion Zone will be a no-go zone during construction. This will remain in place until rehabilitation of areas upstream has been finished, and slopes have been stabilised. A Monitoring Program (BFMP) has been developed to guide the monitoring and management of the Booroolong Frog during construction.

The detailed monitoring program can be found in Appendix G of the [Biodiversity Management Plan](#).

Yellow-bellied Gliders

A Glider Connectivity Strategy has been developed so that Yellow-bellied Gliders can continue to move across the transmission easement. This includes monitoring during the first five years of operation to understand the effectiveness of the steps taken.

The Connectivity Strategy is in place for Yellow-bellied Glider habitat, the westernmost section of the transmission easement located between the Tumut river and switching station. Actions taken to minimize impact on Yellow-bellied Gliders include:

- Installing glide poles so that Gliders can cross the gap created by the transmission line. Because this is the action that will have the biggest benefit for Gliders, cameras will be mounted on the poles to provide information on how they are used.
- Any barbed wire/razor wire fencing installed will have visible objects added to make it easier to see and keep in-flight Gliders away. This can include adding metal tags, tapping or cloth material
- Installing fauna-friendly anti-climb deterrents on transmission towers.

If monitoring shows that Gliders are not crossing the transmission corridor Lumea will work with NPWS and the Biodiversity and Conservation Division of NSW Government to develop a different approach so that the longevity of the Glider population is not impacted.

The detailed strategy is found in Appendix J of the [Biodiversity Management Plan](#).

Birds and bats

A Bird and Bat Management Plan (Collision Strategy) has been developed to protect bird and bat species. Actions include:

- Weekly monitoring in easements for evidence of bird / bat collision with transmission lines.
- Monitoring of taller structures for evidence of raptor nest building.
- Placement of fit-for-purpose bird / bat divertors in areas where a defined number of incidents have occurred for flight paths have been identified.

The species that are the focus of this monitoring are:

- Large Bent-winged Bat
- Grey-headed Flying Fox
- Musk Duck
- White-bellied Sea-eagle
- Sooty Owl
- Powerful Owl
- White-faced Heron
- Masked Lapwing
- Swamp Harrier
- Peregrine Falcon
- Little Eagle
- Wedge-tailed Eagle
- Whistling Kite

The detailed plan is found in Appendix K of the [Biodiversity Management Plan](#).

Soil and water management

A high level of control is required for soil and water to protect local waterways, aquatic habitat and Booroolong Frog populations. The [Soil and Water Management Plan](#) outlines the controls for how soil and water will be managed during construction. This involves the use of erosion and sediment controls that exceed industry standards due to the highly sensitive environment within and surrounding the Project, including:

- Using mulch for erosion control and breaking the site into smaller catchments to reduce point loading, adding additional sediment traps & sumps, increasing basin size to a 90th%ile, and increasing bund heights.
- Increased inspection frequency and definition to ensure erosion and sediment controls are working and that erosion and sediment control is working as intended.

The plan includes the following controls:

- Drainage control – managing the passing of stormwater through the construction site.
- Erosion control – includes using techniques such as mulching to protect exposed ground; keeping ground cover intact (e.g. partial clearing) to reduce the extent and duration of soil exposure; progressive management of the works to reduce overall area exposed; promptly stabilising exposed areas once activities have been completed, and protection with mats & blankets (e.g., jute, geotextile). For high-risk areas during construction, prior to forecast rainfall of > 50 % chance of 10 mm or more in 24 hours, all exposed batters (excluding rock faces) will be temporarily covered.
- Sediment control – The Project will adopt a ‘treatment train’ approach, where various control measures are used in sequence. Site-won materials will be used to control sediment, including the use of topsoil windrows, mulch as groundcover and rock checks in drainage lines.

Weed and pathogen control and monitoring

A Weed and Pathogen Control and Monitoring Procedure is in place.

The procedures describe the following:

- Weed identification across the Project area (KNP and Bago State Forest).
- Mapping and control of weeds prior to, during and following construction.
- Weed hygiene protocols for all vehicles and machinery to ensure no weeds are transported to or from the site.
- Methods for undertaking weed control and treatment.
- Requirements for monitoring and disposal of weeds.
- Monitoring, control and reporting of pathogens such as amphibian chytrid fungus and *Phytophthora cinnamomi*.
- Reporting of any biosecurity issues to FCNSW and NPWS immediately.

The detailed procedure is outlined in Appendix H of the [Biodiversity Management Plan](#).

Environmental monitoring

An environmental monitoring program has been established for the Project. Environmental inspections will be done to understand the effectiveness of the plans and procedures that are in place.

Inspections will include:

- Weekly site inspections by UGL's Environment Team.
- Pre and post rainfall site inspections.
- Transgrid inspections.
- Work inspections.

Independent audits of the Project will be conducted and carried out at the following frequency:

- Within 3 months of commencing construction.
- Every 6 months of the construction phase thereafter.
- Within 3 months of commencement of operations.
- Annual environmental compliance reporting, published on the [Lumea website](#).

The detailed procedure is outlined in Appendix F of the [Biodiversity Management Plan](#).



Easement trail track – Photo courtesy of Michael Egan.



Want to be kept informed? Email us on communities@lumea.com.au to join our mailing list so that we can send you project updates.

If you have any questions, concerns, or would like more information, please contact the Lumea Community Team on 1800 674 022 or email communities@lumea.com.au.