



snowyhydro

# NEWS

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## Digging deep at Marica

- ▶ Winter road safety
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In this edition of Snowy Hydro News we acknowledge the tragic loss of Alan Machon, who sadly died in a road accident on the Snowy Mountains Highway in late April. Alan was passionate about his job driving trucks, working with his mates in his role helping to deliver the Snowy 2.0 project and being part of the Cooma community. The news of Alan's passing hit us hard. We continue to support each other and Alan's wife Erica, and family, remain in our thoughts.





# CEO UPDATE

## A message from Snowy Hydro CEO Dennis Barnes

Snowy 2.0 is a critically important clean energy project that will support Australia's transition to renewables.

The deep storage capability of Snowy 2.0 will help underpin grid security and reliability by storing excess renewable energy and generating power to fill the gaps in supply when the sun doesn't shine and the wind doesn't blow. It can store energy for weeks and months and works alongside batteries, which play an important role in same day storage.

Snowy 2.0 is also a construction 'megaproject' right here in the Snowy Mountains - it's a huge and highly complex pumped-hydro expansion of the Snowy Scheme and with its scale comes challenges that our team of experts are working to resolve while continuing to make construction progress across multiple worksites.

Recently we announced that we are resetting the delivery timeline and budget for Snowy 2.0 with our principal contractor Future Generation Joint Venture (FGJV). This will allow the project to be placed on a robust and sustainable footing for FGJV to achieve progress in a realistic and productive manner. We anticipate that the schedule will go out by between one and two years and we are currently working through the budget implications of that.

As the CEO of Snowy my personal priority is transparency, so informing all of our key stakeholders - especially the local community - about this updated and realistic timetable is very important. You can read more about it on the Media page of our website.

Another of our projects, the Hunter Power gas plant at Kurri Kurri, is moving ahead in leaps and bounds with very large concrete slabs poured, ready for the installation of two heavy-duty open cycle gas

turbines. We expect commissioning of the plant in the middle of next year.

Meanwhile winter is upon us and that means snowfall in the mountains. Later in the year, the snow melts to create the runoff that becomes our Snowy Scheme hydro 'fuel'.

This time of year may be exciting for skiers and our Snowy Hydro hydrographers (who measure snow depths and the water cycle across our extensive hydro meteorological network), but it can also present challenging conditions for drivers. The safety of our workers, community members and holiday makers is paramount so please be extra careful on the roads, especially when snow, ice and fog are present.

Also on the topic of safety, our Snowy Hydro Safe Access Program is reducing potential safety hazards for our workers when they need access to awkward or restricted spaces during maintenance and inspections of Snowy Scheme assets. For example, we're removing temporary scaffolding, ladders and barriers and replacing them with platforms, stairs and handrails, among a range of measures to ensure that our systems reflect the latest stringent safety standards.

In my first few months in the CEO role, it has been rewarding to connect with the community at an event in Cooma we held with our Board of Directors. I look forward to further opportunities to do this as the year progresses.

All the best,

*Dennis*



## PROJECT UPDATE



Marica surge shaft



TBM Lady Eileen assembly at Talbingo adit

# Snowy 2.0

TBM Lady Eileen has been progressively dismantled and removed from the Main Access Tunnel (MAT) over the past two months. This involved disconnecting the eight trailing gantries and partially dismantling the upper decks. The gantries are lifted and transported out of the tunnel using self-propelled mobile transporters (SPMT). The bridge and segment erector and main drives have also been removed with only the cutterhead and shields remaining underground for now. The TBM is being reassembled at the Talbingo adit with new shields and a cutterhead before starting excavation of the tailrace tunnel.

## Marica

The headrace tunnel surge shaft has reached a depth of about 50 metres using conventional excavation techniques, along with drill and blast as more solid geology has been encountered. A combination of rock bolts, lattice girders and fibre-reinforced shotcrete has been installed on the walls of the shaft according to geological assessment.

These support techniques allow for safe excavation. When excavation is completed, a minimum 600mm thick concrete liner will be installed in the shaft.

## Tantangara

TBM Florence has not advanced in recent months, however, there is plenty of activity at the Tantangara site, with additional geotechnical investigations and ground consolidation works in front of the TBM. The geotechnical investigations indicate a further 50 metres of variable ground conditions in front of the TBM before solid rock is encountered.

Ground consolidation activities from the TBM have typically involved drilling in front and fanning out from the machine before injecting grout to bind and strengthen the residual soil and rock. Work has also been done to consolidate the soil in the surface depression directly above the TBM cutterhead.

Construction of the slurry plant is approaching the final stages, with energisation and commissioning activities underway. Along with some modifications to the TBM, this plant will allow TBM Florence to operate in slurry mode.

## Slurry mode

When in slurry mode, the TBM cutterhead is sealed, filled with water and marginally pressurised. As the TBM advances, spoil cut enters the cutterhead as normal, is mixed with water to form a slurry, and passes through a small crusher to break down bigger rocks before being pumped through pipelines to the slurry plant.

The slurry is then dewatered to produce a crushed rock and filter cake and the water is recycled back to the TBM.



## Meeting in the middle

Leed Engineering and Construction is progressing steadily with the pioneering construction of an internal access road to an emplacement area on Talbingo Reservoir. Works began from both ends across very steep and undulating terrain to meet across the Middle Creek cliffs.

Access to the western end has been via barge and boat, operating predominantly from the Talbingo boat ramp. Installation of a temporary bridge across Middle Creek is providing access from the east side.

In late April, the team achieved a major milestone with the two pioneering fronts joining across the cliffs. In the coming months, works will focus on excavating the 30-metre cut across the top of the cliffs to achieve design grades, progressively installing slope support as required.



Tantangara slurry plant



Minister Chris Bowen in TBM Florence control room

## Project briefing

The Snowy 2.0 project team welcomed Climate Change and Energy Minister Chris Bowen to the region for project briefings and a tour of the various worksites. The Minister arrived in Cooma before visiting Tantangara, Lobs Hole and Talbingo.

At the main access tunnel portal, Mr Bowen and his team were taken via multi-service vehicles along the 2.6km tunnel to see progress on the cross passages and construction tunnels, 800 metres underground.

Final stop on the multi-site tour was Main Camp at Lobs Hole for dinner at the mess before an overnight stay in the worker accommodation.



# Safe access



Crossover walkway at Murray 2 valve house

When carrying out maintenance tasks and inspections around the power stations, waterways and other assets of the Snowy Scheme, workers often need access to awkward or restricted spaces where potential safety hazards may exist.

Snowy Hydro's Safe Access Program has identified a number of locations where temporary measures such as scaffolding, ladders or barriers should be replaced with more permanent solutions. Modern-day safety standards are more stringent compared with standards in the 1950s and '60s, particularly around the risk of slips, trips or falls.

Risk reduction typically involves installing platforms, stairs and handrails, establishing systems to prevent falls from ladders, and replacing heavy covers with lighter covers to reduce the potential for strain injuries.

At Jindabyne Pumping Station for example, operators periodically need to carry out repairs or maintenance on instruments and filters on top of the motor covers. Without appropriate edge protection, there is risk of injury should someone slip and fall. The Safe Access Program has addressed this by installing

permanent edge barriers to replace existing protection.

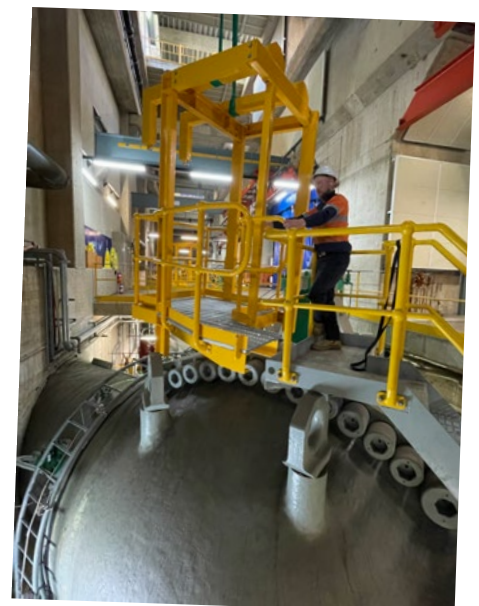
Over at Murray 2 Power Station, the anti-vacuum valves located at the valve house at the top of the pipelines are difficult to access. In the past, temporary scaffolding has been used but the installation of a new crossover walkway means there is no longer any need for elevated work platforms or scaffolds. Operators simply park their vehicle and walk up the stairs to safely access the valves.

After kicking off in 2020, more than 50 Safe Access projects have been completed to address legacy hazards and ensure worker protection. Local contractors across the region, including Tumut's Roddy Engineering, Baker and Provan Southern in Cooma and Yarrawonga-based SJ & LM Contracting, are working with Snowy Hydro teams to carry out the works.

Stage One is due for completion in 2024 covering almost 100 initiatives at Snowy's gas, diesel and hydro sites at a cost of over \$10 million. Stage Two is prioritising the next series of hazard reduction measures to ensure safety risks are addressed.



Above and below: Permanent edge barriers help protect workers from falls





# Winter driving



Ice and snow on Snowy Mountains roads

The idea of a winter wonderland lures thousands of adventure seekers to the Snowy Mountains each year, and with Selwyn Snow Resort reopening this ski season, even more drivers will be travelling through the region.

At Snowy Hydro, safety is our number one priority. We want our workers, community members and holiday makers to be safe on the roads at all times.

Steep, winding mountain roads can be challenging to navigate in good weather so extra caution is essential when snow, ice and fog are present. Roads become very slippery with little warning and drivers are reminded to slow down, allow extra distance from the vehicle in front and keep the headlights on to increase visibility.

Weather conditions can change quickly and cause unexpected hazards. There may be wildlife crossing, fallen rocks or trees, or vehicles stopped on the road ahead. When driving on ice and snow, it is far more difficult to remain in control of a vehicle when making sudden decisions. Brake gently and accelerate slowly. Steering and traction can become extremely tricky, even unresponsive in certain conditions.

Ice and snow are common on the road between the months of June and October, but these hazards can occur at other times of the year. Black ice, in particular, is hard to spot and will cause extreme slipperiness. It will take longer to stop when braking so drivers are reminded to drive defensively in winter weather.

When fog is present, the advice is to switch headlights on day and night and use hazard lights in low visibility to help other drivers see vehicles around them.

Another important reminder is to check road conditions and weather forecasts before setting out. Ice and snow should be cleared from the vehicle and windows defrosted. Tyres must be suitable for snow and ice driving and drivers must have tyre chains on board and know how to fit them.

Remember to drive to the conditions that are present and share the road sensibly with fellow drivers. If a vehicle becomes stranded in bad weather, drivers should remain with the vehicle, switch on hazard lights and call for assistance.



## Park and play

- When tobogganing, choose a clear, open area and look ahead to make sure there is plenty of space to stop well away from traffic.
- Never stop a vehicle on the shoulder to take photos or play. Look for the nearest safe exit and pull the vehicle well off the road.
- Children should be closely supervised by an adult at all times near roadside locations.

## HUNTER POWER PROJECT

# Laying the foundations

Snowy Hydro's Hunter Power Project reached a significant construction milestone earlier this year following the installation of two hundred auger piles and two concrete slabs, ready to support the power station's heavy-duty open cycle gas turbines.

The installation of the 20-metre continuous flight auger piles involved pumping concrete through a hollow stem into the excavated cavities then immediately inserting steel reinforcement cages into the concrete mix.

With the piles in place, preparation began for the momentous concrete pour for the slab that will support Gas Turbine 1. Taking 18 hours from start to finish, the process began at 4am and required 220 concrete truck deliveries and the support of three local concrete batching plants.

Weather conditions are a critical consideration during a concrete pour of this size, with humidity, temperature and wind speed all taken into account on the day. After two rescheduled dates due to high temperatures, the pour went according to plan, resulting in a 3,700-tonne foundation slab measuring 3.5m high, 11m wide and 36m long.

The pour for the second slab to support Gas Turbine 2 was completed in March in cooler temperatures than the first pour, but with the added challenge of storms and wet weather to work around. After the pour, the slabs were monitored continuously for four weeks to test compressive strength.

Snowy Hydro is investing in the peak load Hunter Power Project to provide reliable, on-demand energy and capacity that support Australia's ongoing transition to renewables. Once operational, the facility will enable renewable energy sources like solar and wind to operate in the National Electricity Market (NEM) by providing dispatchable power during periods of low wind and solar supply.

Major works contractor United Group Limited (UGL) was appointed to the Kurri Kurri-based project in 2022, with construction expected to be complete in 2024 and the station to be exporting power by the end of December 2024. Once operational, the Hunter Power Project will supply up to 660 megawatts of power into the NEM or the equivalent of 160,000 household solar installations.



Giant fin fan coolers arriving on site



# High-tech tunnel vision

Since Snowy 2.0's conception, visual imagery has been used to help inform design and engineering decisions for the giant pumped-hydro project. The latest addition to the digital modelling toolset is a scanning instrument called a 'kanone', the German word for cannon. Made in Austria by tunnel surveying experts Dibat Measuring Technologies, the scanner takes high definition images of all the tunnels in the Snowy 2.0 project.

Dubbed the Cooma Cannon as it's housed in Cooma when not in use, the remote-controlled scanner has 10 industrial-grade cameras that capture a 360-degree (vertical) high definition image as it travels through each tunnel. A large LED flash on the outside of the unit ensures the right amount of light is consistently present when the photos are captured. Laser image detection and ranging (LiDAR) is also used to enhance the accuracy of the scan.

Australian geospatial information specialists Intellispatial brought the machine to Australia specifically for Snowy 2.0 and it's one of only two in existence worldwide. The Intellispatial team says the scanner is the perfect tool for imagery in the challenging conditions of tunnel excavation.

As it travels through each tunnel, the scanner takes thousands of overlapping photos which are later stitched together using computers to create a highly accurate 3D digital model. This high definition model can be viewed via an online portal by all members of the project no matter where they're located, and can be used to measure areas and volumes within each tunnel.

Capturing the images is relatively quick – the Cannon travels at speeds of around 8km/h in the Snowy 2.0 tunnels – but processing the huge amount of data collected can take up to three weeks. In just 5.5 kilometres of Snowy 2.0 tunnels, the scanner captured more than 120,000 photos and 2.5 gigabytes of raw data.

The visual created from raw data is referred to as a digital 'twin' and serves as a snapshot of the tunnel at a certain point in time. This allows work such as defect monitoring to be accurately tracked without workers needing to access the tunnel.

The digital twin will also assist with ongoing and future design work, allowing engineering design to be carried out anywhere in the world because team members can be 'virtually' onsite at any point.

As an added bonus, the imagery will also provide a unique vantage point for visitors interested in learning more about Snowy 2.0 via a range of digital viewing experiences.



Cooma Cannon at work scanning the Snowy 2.0 tunnels





75 YEARS

# Land Rover celebrates

If you grew up on a property in Australia in the 1950s, '60s or '70s, chances are there was an early model Land Rover bumping across the paddocks in a cloud of dust. A generation of rural teens unofficially learned to drive behind the wheel of a 'Landie', loosely supervised by an older cousin.

When the first of Land Rover's Series 1 vehicles arrived from the UK shortly after launch in the late 1940s, the Snowy Scheme was in the early years of construction. Legend has it that a couple of local farmers convinced commissioner Sir William Hudson the Land Rover was ideally suited to the region's tough driving conditions. The vehicles were trialed and soon became the Scheme's transport of choice. With hundreds purchased over the years of construction, the Land Rover became part of the fabric of the Scheme and the surrounding Snowy towns.

With that history, it's understandable that Cooma has become a favourite venue for Land Rover's birthday celebrations. After a successful 70th birthday in 2018 involving hundreds of Land Rovers and thousands of owners and fans, the party was back over the Easter long weekend this year to celebrate 75 years.



Grand Parade through the streets of Cooma







Land Rovers at Snowy Hydro Discovery Centre.

Below: Park and display at Cooma showground

The multi-day event offered something for everyone including memorabilia, swap meets, storytelling, endless photo opportunities and a chance to wander through rows and rows of Land Rovers parked for display at Cooma showground.

A photographic exhibition at the Snowy Hydro Discovery Centre in Cooma showcased Land Rover's role in the construction of the Snowy Scheme ferrying workers, their families, engineers and VIPs between sites and towns all over the mountains in all kinds of weather..

The 75th celebrations culminated in a Grand Parade on Easter Sunday through the main street of Cooma, with organisers estimating around 650 Land Rovers took part in the convoy. Head over to the Land Rover 75th Anniversary page on Facebook for a collection of photos from the event.



Land Rovers on site during the Snowy Scheme construction





# Generations of connection

Joe Nalesnyik has been coming to the Snowy Mountains since the 1960s, when he spent a short but memorable chapter running cables during the construction of Tumut 2 Power Station. He was 16 at the time, living with his family in Melbourne after migrating from Hungary, and looking for work. He and his mate heard about jobs going at the Snowy Scheme and drove up to Cooma to try their luck. After a brief stint at Cabramurra, the pair was seconded to work as electrical assistants at the site of the new power station.

"They were starting cable laying at Tumut 2 so they sent us down there and we stayed at the workers camp at Section Creek," Joe recalls.

"I worked mainly in the cable yard where the cables go up from the power station itself to the surface. Trucks took us from the workers camp and transported us all the way down through the tunnel. We had to walk up all those stairs in the cable shaft, which was a long stairway going up maybe 300 steps."

Despite the tough physical nature of the work, Joe loved his time at T2. He says he was able to save almost all his wages as their employer covered the cost of housing and food – and at meal times, he wasn't shy about filling his plate.

"The chefs were Hungarian, I remember that quite well. For breakfast I used to eat 8-10 eggs sunny-side-up with beans and bacon. In one sitting. We needed our strength!"



Joe and wife Michele hiking in the Snowy Mountains



Joe at the T2 control room in the 1980s

Joe – who turns 78 this year – says he has fond memories of working on the Scheme, but it was his most recent Snowies trip this year that reminded him just how strong a connection he still has with the region.

While driving through mountain roads, Joe and his wife Michele stopped at Scammells Ridge lookout to take in the view. Joe noticed another person there had arrived in a Snowy Hydro-branded vehicle.

They struck up a conversation and to his delight, Joe discovered he was speaking to Peter New, who not only works at Snowy Hydro, but also happens to be planning to replace the same cables Joe had laid six decades earlier. Peter and Joe had plenty to talk about!

The biggest difference between the cable laying projects then and now is that T2 was under construction in Joe's time. Today it's an operating power station with a key role in Snowy Hydro's generation portfolio. With market risk and contract obligations top of mind, the team's focus this time around will be on minimising downtime at T2 while the replacement cables are installed. The project is expected to start in 2025.

Joe with T2 cabling colleagues in 1961







# A philosophy of trust

Red Energy's continued focus on providing an exceptional customer experience has earned the company several more highly regarded awards.

The Roy Morgan Trusted Brand Awards recognise outstanding levels of trust earned by brands across 20 industries in Australia. Red Energy won top spot for the Most Trusted Utility Brand in 2022 ahead of 50 providers of electricity, gas and water.

A decade ago, Red Energy set out to shake up the electricity and gas industry by offering customers exceptional Australian service. CEO Iain Graham's strategy to "treat people decently" established a philosophy of building trust that continues to underpin the company to this day.

"You can't demand trust, it has to be given," Mr Graham says. "It arrives on a snail and can leave on horseback. You can never take it for granted or rest on your laurels, customer service is a devotion, not a transaction."

Consumers surveyed about brand trustworthiness say being reliable, easy to deal with, supportive and quick to fix issues are the main

reasons for preferring one brand over another.

Along with top honours in the Roy Morgan Trusted Utilities Brand award, Red Energy has won a host of state, territory and national awards for customer trust, satisfaction and outstanding value. These include prestigious Canstar Blue Awards for Most Trusted Electricity Provider (National 2023) for the third year running, Most Satisfied Customers (National dual fuel 2023), and Most Outstanding Value (ACT 2022) for demonstrating strong price performance, quality call centre, billing options and partnerships such as Qantas.

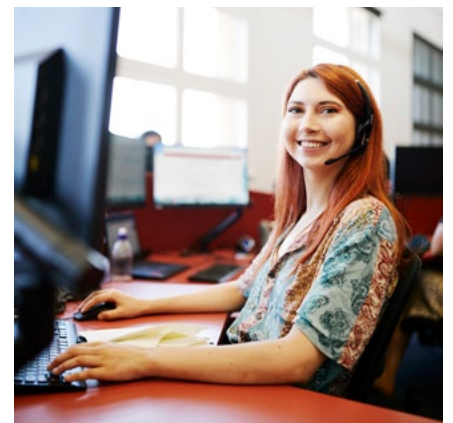
Red puts its success in customer satisfaction down to simplicity and personal service. The company employs more than 1,200 people, with its customer solutions team all based in Australia and empowered to solve problems and manage requests.

Mr Graham says: "Customers appreciate our Australian ownership and onshore contact centre, and many feel proud to support a company owned by the iconic Snowy Hydro, which has been a leader in renewable energy for generations."

Feedback from Red's customers is so consistently positive, Canstar Blue has Awarded Red Energy the Most Satisfied Customer Award (Energy Providers) every year since 2010 - that's 13 years in a row!



Above and below: Red Energy's award-winning customer solutions team at work





## COMMUNITY & EDUCATION

### Festival season

If the turnout at local festivals and agricultural shows over autumn is any indication, the Snowy Mountains community is more than ready to be out and about enjoying this glorious region.

After all the fun of the Cooma and Adelong Shows in March, it was time for Jindabyne's Lake Light Sculpture 2023 Street Edition to shine.

Snowy Hydro has been a long-standing supporter of Lake Light Sculpture and continues to support local communities through the Community Grants Program and the provision of funding for Snowy Mountains festivals and events.

The next round of Snowy Hydro's Community Grants program will open in September 2023. For more information visit [snowyhydro.com.au/communitygrantsprogram](https://snowyhydro.com.au/communitygrantsprogram)



Supporting events like the Cooma Show and the Festival of the Falling Leaf is an opportunity for Snowy Hydro to support the communities where we live and work.



Our Next Generation Education Academy activities were a big hit with the kids, and there was plenty of interest in taking a seat in the Snowy Hydro Tesla!

## EDUCATION



### Year 9 Careers Open Day

Snowy Hydro's inaugural Year 9 Careers Open Day drew more than 110 local students representing four schools from across the region.

Students from Monaro High School, McAuley Catholic Central School, St Patrick's Parish School and Jindabyne Central School began their day at Snowy Hydro with a welcome from senior leaders. They heard from Snowy engineers, climate scientists and STEM experts, who volunteered to share their passion for STEM and encourage students to learn more about these fields.

The students had a behind the scenes look at how Snowy's generation operations control room works and experienced a virtual flyover of the Scheme in the Discovery Centre immersive theatre. There were also information sessions on work experience, traineeships and apprenticeships to learn about career pathways at Snowy.

Students keen to know more about climate science, trade skills, tech innovations, construction or engineering could choose an elective presentation based on their STEM interests.

The Year 9 Careers Open Day is expected to become an annual fixture on the local schools calendar with the possibility of multiple events per year depending on interest from local schools.



## Local STEM Fund announced

Round One of Snowy Hydro's new Local School STEM Fund has closed with funding requests for a fascinating array of educational ideas to support students interested in science, technology, engineering and maths.

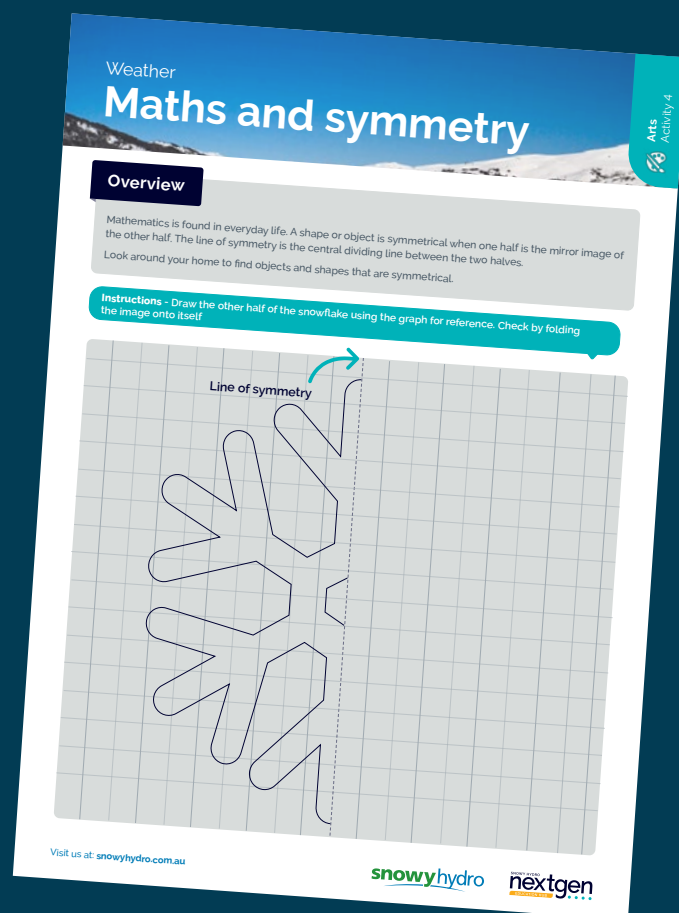
Applications from around the region were submitted earlier this year and after careful assessment, funding requests to the value of more than \$150,000 for 17 schools have been given the green light.

The amounts vary depending on the specific project and are capped at \$10,000. Local students can look forward to new classroom equipment, STEM-related camps, excursions and workshops, 3D printers and robotics, computer-aided design (CAD) programs, even a sustainable garden.

Snowy Hydro is proud to support schools in developing STEM programs and fostering career pathways for local young people.

### STEM funding Round One

Brungle Public School  
Cooma North Public School  
Cooma Public School  
Franklin Public School  
Jindabyne Central School (High School)  
Khancoban Public School  
McAuley Catholic Central School  
Nimmitabel Pre-School  
Nimmitabel Public School  
Snowy Mountains Christian School  
Snowy Mountains Grammar Junior School  
Snowy Mountains Grammar Senior School  
St Joseph's Catholic Primary School  
St Mary's Primary School Batlow  
St Patrick's Parish School  
Tumbarumba High School  
Tumbarumba Public School



### Mirror Image

The subject of maths covers topics from arithmetic to geometry to statistics and so much more. Symmetry is a great example of a type of maths that is all around us, in nature and ordinary household objects. Snowy Hydro's online Next Generation Education Hub has a fun new Maths and Symmetry snowflake activity sheet ready to download. Only half the snowflake is printed. Copy the lines exactly to create a mirror image and complete a perfectly symmetrical snowflake.

And while we're on snowflakes, here's a fun fact. Did you know that all snowflakes have a six-sided structure?

Download and print the  
symmetrical snowflake  
activity sheet here:



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