



snowyhydro

NEWS

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The future is bright

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☎ 1800 623 776 @ communityfeedback@snowyhydro.com.au

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CEO UPDATE

A message from Managing Director and CEO Paul Broad

I have always believed dreaming big has its rewards! And at the moment there is nothing bigger than the huge tunnel boring machine (TBM) that will excavate the first mountain tunnel for our Snowy 2.0 project.

It seems like only yesterday we were planning this nation-building, clean energy pumped-hydro expansion of the Snowy Scheme. Now we are witnessing real action, including a 2,000-tonne, 11-metre diameter machine that will dig out the main access tunnel at Lobs Hole and line it with concrete segments made at the new factory in Polo Flat, Cooma.

Moreover hundreds of new jobs have been created and local businesses are booming.

This is just one of many exciting milestones across the project.

Last month in Cooma we turned the first sod on the construction of the 126-bed worker accommodation known as Joule Ridge. I was pleased to join representatives from our Snowy 2.0 principal contractor Future Generation Joint Venture, Snowy Hydro directors and the Snowy Monaro Regional Council Mayor Peter Beer to mark an important development that will ease local housing demand.

It was another great day when the 400-tonne cutterhead was lifted onto the TBM (very carefully!) in a major operation that required a 750-tonne crane and many hours of pre-planning.

We've proudly named this TBM the Lady Eileen Hudson, a pioneering woman in every respect, and who was awarded an OBE in recognition of her commitment as an ambassador for the Snowy Scheme. Lady Eileen, whose husband was the first Snowy Scheme Commissioner. Sir William Hudson, was known, among many

things, for hosting hundreds of Australians and overseas visitors throughout the years of construction.

You may not know there is a tradition for all TBMs to have female names, and we're launching a competition across Snowy Mountains schools to give local kids a chance to name our two other Snowy 2.0 TBMs, inspired by ground-breaking Australian women in STEM.

Across the Snowy Scheme, the Snowy Hydro team is busy not only keeping the lights on for electricity consumers, but carrying out a range of projects and activities to maintain and improve our assets.

One ongoing project at the Tumut 3 (T3) and Blowering power stations involves replacing diesel standby generators, which kick into gear if the station needs back-up power when the main supply is lost. The value of these generators can't be underestimated - for months the T3 intake has been operating on these back-up supplies before a new power line is commissioned.

Snowy Hydro continues to support the community through events sponsorship - such as the successful Tumut Cycle Classic which directly benefits the local hospital - and employment and training opportunities for the region's young people.

In January we welcomed onboard 12 new business administration trainees and it's been fantastic to see the enthusiasm and talent they have brought to the business.

Paul Broad
Managing Director and CEO

PROJECT UPDATE

SNOWY 2.0

Tantangara and Marica

Progress on the Snowy 2.0 project continues to pick up speed, with the number of workers ramping up across multiple sites. At Tantangara (pictured above), the upper reservoir on the eastern side of the project, work has begun on excavation of the adit for the headrace tunnel.

This site will soon start to look similar to the main access tunnel at Lobs Hole, with a portal big enough to enable safe access for the third of three tunnel boring machines (TBMs) to begin tunnelling. Construction of access roads continues here and over at Marica, located above where the underground power station will be built. Work has also started on the Marica camp, in readiness for workers who will be based in this area later in the project.

Lobs Hole

We have seen the final assembly of the first TBM to begin the tunnelling required to provide the first access to the underground power station. This TBM has been named Lady Eileen Hudson after the wife of Sir William Hudson, the Snowy Scheme's first commissioner.

It was an exciting moment when the 400-tonne cutterhead was lifted into place - this operation was very carefully planned and executed using the 750-tonne crane based at the main access tunnel portal. Prior to this, the front, middle and tail shields were assembled, along with gantries 1, 2 and 3 and the connection bridge into the TBM cradle.

Gantry 1 contains the operator cabin and the grouting system, gantry 2 has the transformers and the segment unloader, and gantry 3 has the hydraulic power packs and air compressors. All up, this TBM is equipped with seven gantries and one connection bridge to hold the auxiliary supply systems.

The spoil conveyor has been installed from the front of the machine to the end of gantry 3 and will carry debris from the cutterhead to a pile outside the tunnel, where trucks will transport it to designated spoil locations. Also on board are two probe drills which will collect core samples of the rock, and if required, grout ahead of the tunnelling to add strength and stability to the surrounding rock prior to excavation.

ECVT

The portal for the emergency, cable and ventilation tunnel (ECVT) is starting to take shape. Excavation has been primarily through blasting, with more than 40,000 kilograms of explosives used and approximately 100 loads of material from the site moved per day for use on other sites around Lobs Hole.



The Lady Eileen Hudson tunnel boring machine, which at 137 metres is longer than a standard football field, will bore the main access tunnel in preparation for excavation of the cavern that will house the power station. The entire 2,300-tonne machine will then be disassembled and rebuilt at the Talbingo adit to excavate the tailrace tunnel. Pictured left is the tailskin being installed.

Exploratory Camp

It was a busy few months over summer finalising construction of the Exploratory Camp at Lobs Hole. The camp now has around 330 workers living there, with generators up and running to power the kitchen, diner and laundry. The gym, accommodation and wet mess building are in the last stages of commissioning.



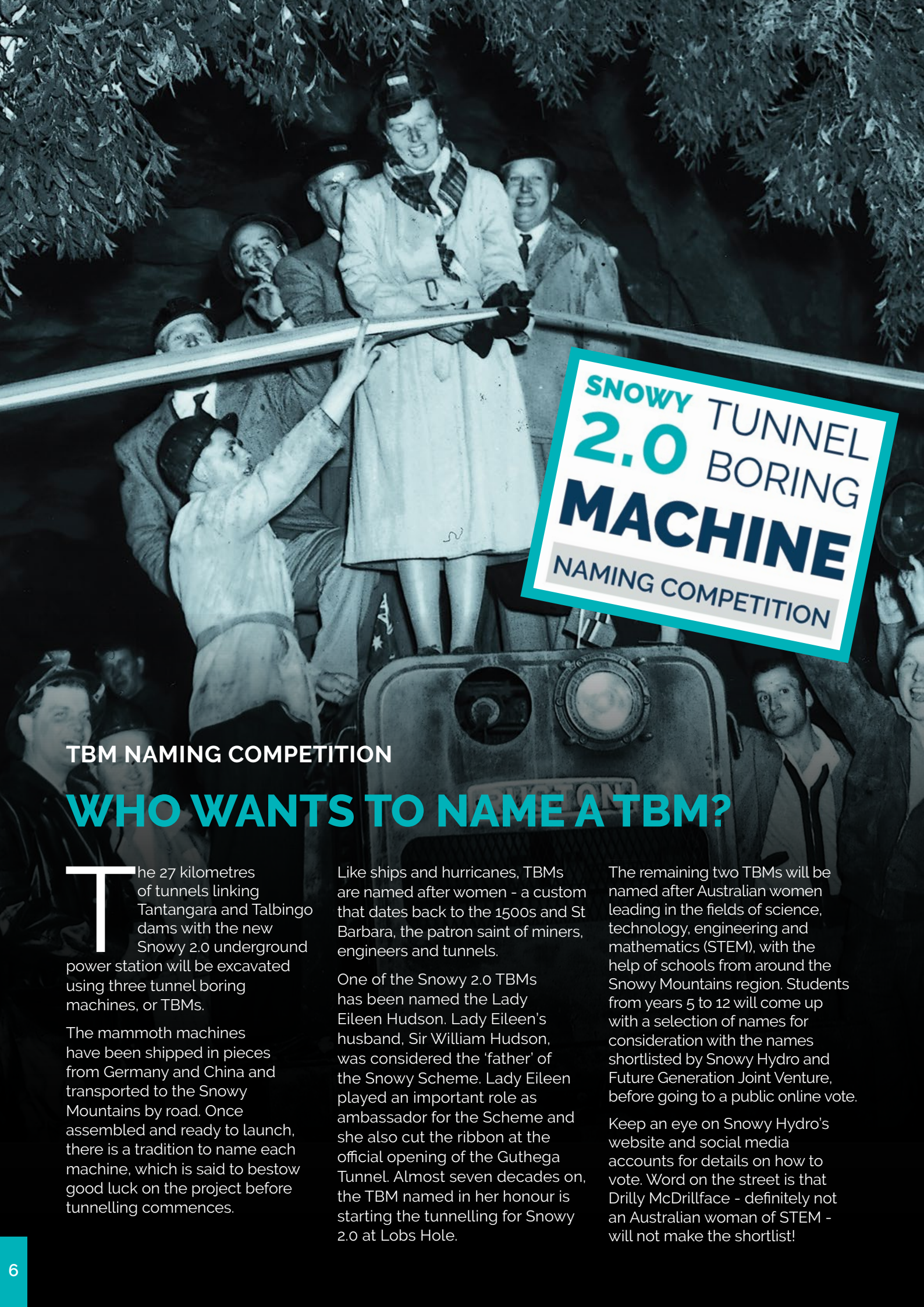
EMPLOYMENT OPPORTUNITIES

New work fronts opening up across the Snowy 2.0 project mean more jobs for the region. Snowy 2.0 principal contractor Future Generation Joint Venture is looking to fill hundreds of roles across plant and equipment, construction, administration and more. With tunnelling activities ramping up at Lobs Hole, dozens of TBM mechanical roles must be filled in the coming months. Workers are also wanted to build the accommodation camps at Marica and Tantangara, and at the segment factory at Polo Flat.

Project safety remains our number one priority and Future Generation Joint Venture is recruiting health, safety and environment officers, advisors and managers who will be deployed across project sites.

There are now more than 1,000 people working on the Snowy 2.0 project, with hundreds of jobs going to local applicants.

For more information on vacant roles, or to apply: futuregenerationjv.com.au/job-opportunities-1



SNOWY 2.0 TUNNEL BORING MACHINE NAMING COMPETITION

TBM NAMING COMPETITION

WHO WANTS TO NAME A TBM?

The 27 kilometres of tunnels linking Tantangara and Talbingo dams with the new Snowy 2.0 underground power station will be excavated using three tunnel boring machines, or TBMs.

The mammoth machines have been shipped in pieces from Germany and China and transported to the Snowy Mountains by road. Once assembled and ready to launch, there is a tradition to name each machine, which is said to bestow good luck on the project before tunnelling commences.

Like ships and hurricanes, TBMs are named after women - a custom that dates back to the 1500s and St Barbara, the patron saint of miners, engineers and tunnels.

One of the Snowy 2.0 TBMs has been named the Lady Eileen Hudson. Lady Eileen's husband, Sir William Hudson, was considered the 'father' of the Snowy Scheme. Lady Eileen played an important role as ambassador for the Scheme and she also cut the ribbon at the official opening of the Guthega Tunnel. Almost seven decades on, the TBM named in her honour is starting the tunnelling for Snowy 2.0 at Lobs Hole.

The remaining two TBMs will be named after Australian women leading in the fields of science, technology, engineering and mathematics (STEM), with the help of schools from around the Snowy Mountains region. Students from years 5 to 12 will come up with a selection of names for consideration with the names shortlisted by Snowy Hydro and Future Generation Joint Venture, before going to a public online vote.

Keep an eye on Snowy Hydro's website and social media accounts for details on how to vote. Word on the street is that Drilly McDrillface - definitely not an Australian woman of STEM - will not make the shortlist!

REGIONAL WORKS

THE NEW GENERATORS ON THE BLOCK



After almost 50 years of operation, the original standby generators at Tumut 3 Power Station and intake structure have reached their 'end of life', and have been replaced with the latest technology to ensure the station's ongoing reliability.

As a peak energy provider, Snowy Hydro must be ready to generate power into the electricity grid at any given time. This means our power stations need to be available to produce clean, renewable energy 24/7, 365-days-a-year.

To support our market position and ensure the stability of electricity supply to the National

Electricity Market, our assets have back-up power systems.

During the 2020 bushfires, the incoming power supplies to Jounama Small Hydro Power Station and the Tumut 3 intake structure were cut off when the transmission lines burnt down. The back-up diesel generators were key to Jounama and Tumut 3 power stations being able to continue to operate until regular power supplies were restored.

Replacing the original diesel generators has been an important project for Snowy Hydro.

The generators at Tumut 3 - installed during construction of the power station in 1973 - were unable to be supported by the

original suppliers and spare parts were no longer available.

We take pride in maintaining our assets to keep them in top condition, and a key part of our strategy is to modernise equipment when maintenance is no longer economically feasible.

The safety of our staff, contractors, visitors and the community is our number one priority, and we partner with local organisations which share these values. For this job, the Snowy team has appreciated the great work from local electrical contractor, PHE Tumut.

Blowering Power Station's standby generator will also be replaced in the coming months.

SNOWY TRAINEES

New recruits

For local school-leavers feeling daunted by the all-important next steps on their career path, joining Snowy Hydro's trainee program can provide a valuable entry to the world of work.

Launched 30 years ago, the program has introduced hundreds of young people from local communities to a range of employment experiences, from the application and interview process, through to accepting a full-time position. Successful candidates are embedded in teams across the Snowy Hydro business.

Many trainees have secured further career opportunities at Snowy Hydro with cadetships, permanent and casual positions, and some have taken on an apprenticeship. Others head off to university, often returning to work at Snowy during their holidays.

In 2021, 10 trainees will be employed at the main office in Cooma, with one each in Talbingo and Khancoban. Aylah Rice is one of the successful new recruits, and has some family experience to draw on - her grandfather was a diesel mechanic during the construction of the original Snowy Scheme. Aylah, pictured above,



went to school in Tumut and is excited about her first full-time role. She is taking the year to learn new skills, gain experience and consider her future career. One option she is keen to explore is joining the Royal Australian Air Force.

The trainee program is part of Snowy Hydro's commitment to supporting the local community through education and employment opportunities, and helping the next generation get started in their careers. Around 10% of the Snowy workforce is in development roles, with trainees actively contributing to the day-to-day running of the business. Having enthusiastic, interested young workers also benefits the company by bringing fresh perspectives and energy to existing teams.

Candidates for trainee positions must have completed Year 12, and be willing to study Business Administration at TAFE as part of their program. Cooma trainees attend TAFE weekly and regional trainees study online, with a monthly visit to Cooma. Two of last year's trainees, Nicolas Stibbard and Maria Tarasyuk, are completing a two-year IT traineeship, which is a new offering and includes 18 months of TAFE study alongside full-time employment.

Recruitment for the next intake of trainees will begin in mid-2021, with representatives from Snowy Hydro visiting local schools to present information sessions and answer questions about the program.

TUNNELLING 1.0

BLAST FROM THE PAST

As we begin tunnelling for Snowy 2.0 using state-of-the-art tunnel boring machines, we take a look back at how they used to do it in the days of the Snowy Scheme construction.

For the original Snowy Scheme, built between 1949 and 1974, the 145 kilometres of interconnected tunnels were excavated using the drill and blast method. Heavy pneumatic

drills fitted to a three-level steel framework called the 'jumbo' simultaneously drilled up to 12 holes in the rock face. Each hole was manually filled with explosives before crews retreated a safe distance. When the smoke and dust had settled after each blast, a motorised shovel collected the spoil and dumped it into a 'muck' train. The jumbo was propelled on rails along the tunnel floor, moving further into the mountain after each blast.

The Scheme's first tunnel was the 4.7km Guthega tunnel, completed in 1955. The longest tunnels are the Eucumbene-Snowy tunnel (23.5km) completed in 1965, and the Eucumbene-Tumut tunnel (22.2km) completed in 1959.

The excavations were permanently supported using rock bolting, a methodology developed and refined by the Snowy Mountains Hydro-electric Authority in the 1950s and '60s and still used in modern day tunnelling around the world.



Machine hall excavation at Tumut 1 - 1957



Tumut 1 tunnel showing rock bolting



Eucumbene-Snowy tunnel - 1962

ASTROPHOTOGRAPHY

Snowy under the stars

The dams, power stations and penstocks of the Snowy Scheme have long been in the spotlight, with hundreds of iconic images captured over the years. The assets and their backdrop, the majestic Snowy Mountains, are an ideal subject for photographers with an eye for unique landscapes.

Snowy Hydro electrical apprentice and keen photographer Ian Grant (pictured right) is continually looking for interesting scenes to shoot, and around the Snowy Scheme, there's no shortage of options. A number of Ian's photos have been selected to showcase the Scheme, including wintery shots around Guthega Power Station and a spectacular night shot of Jindabyne Dam wall,

using a popular style known as astrophotography.

While astrophotography is not his 'go to' style, Ian says some images lend themselves to the technique which, as the name suggests, is all about the stars and the night sky. When a location strikes him as a potential candidate for the starry style, he makes the extra effort to monitor conditions and organise a shoot.

Astrophotography requires a clear sky, ideally with a new moon, no clouds and minimal light pollution. The location of the Milky Way is another key consideration. In the Snowy Mountains, Ian says looking south to south-east in the autumn months will provide the best angle for galaxy shots.

The Jindabyne Dam photo (top right) was taken in March 2020, not long after Ian started

a 12-month traineeship with Snowy Hydro and just before COVID restrictions. The set-up and shoot took half an hour, with Ian's father Martin, a maintenance manager at Snowy Hydro, on-hand to shine the car's headlights on the dam wall. Ian took around a dozen shots, experimenting with framing and exposure. Long exposures create arcs of light as the stars move across the sky, while a shorter exposure captures the spray of countless stars of the Milky Way.

Ian completed a trainee program with the Information Management team at Cooma in 2020 and has begun his four-year apprenticeship this year at Talbingo. On the photography side, he is already planning his next night shoot with Snowy's biggest power station, Tumut 3, taking centre stage.

JINDABYNE DAM PHOTO DETAILS

Exposure: 20 seconds

Iso: F4.5

Camera: Canon 90D

Lens: Canon EF-S 10-18mm F4.5-5.6 IS STM

TOP SPOTS FOR ASTROPHOTOGRAPHY

1. Porcupine Rocks, Perisher Valley
2. Curiosity Rocks area, Lake Jindabyne
3. Mount Gladstone Lookout, Cooma
4. Jacks Lookout, Jindabyne
5. Rainbow Lake, Perisher Valley



RETAIL

RED ENERGY TURNS PINK



Red Energy has a long-standing relationship with Breast Cancer Network Australia (BCNA) which will be further boosted in 2021 through a new customer plan that contributes up to \$120 to BCNA per household each year.

The Red BCNA Saver plan is an extension of Red Energy's seven years of support for BCNA initiatives to help raise awareness of breast cancer in the community.

Red Energy's General Manager Business Development David Holman believes contributions from the new plan will help BCNA continue with their vision to ensure no-one affected by breast cancer goes through it alone.

On average, 55 Australians will be diagnosed with breast cancer every day this year. BCNA provides information, support, connection and a voice for those affected by breast cancer and their families. For more than two decades, the organisation has advocated to ensure that all Australians who are

affected by breast cancer receive the very best care, treatment and support.

In addition to contributions from the Red BCNA Saver plan, Red Energy is also a major event partner of the annual AFL Pink Lady match, turning all branding and logos pink for the day in front of thousands of fans at the MCG.

The opportunity to join Red Energy in their support for BCNA is available to any household that signs up as a residential customer under Red Energy's new Red BCNA Saver plan.

How you can help support Breast Cancer Network Australia

Sign up your residential electricity and/or gas with Red Energy on a Red BCNA Saver plan and Red Energy will contribute \$5 per fuel to BCNA for each month you remain on that plan*.

To find out more, or switch to the Red BCNA Saver plan, call Red Energy on **131 806** or visit redenergy.com.au/bcna/offer

*Contributions start from the date Red Energy becomes responsible for a customer's electricity and/or gas supply. Eligibility criteria and conditions apply. Basic plan information documents and fact sheets available at redenergy.com.au/bpid.

SUPPORTING OUR COMMUNITY



Organisers of community events around the Snowy Mountains have high hopes for 2021, following an unpredictable year of rescheduling and cancellations due to bushfires and COVID restrictions. Snowy Hydro remains a great supporter of local communities and has invested millions of dollars in sponsorship for targeted community initiatives and events.

Tumut Cycle Classic

After missing out in 2020 due to the Dunns Road bushfire, the Tumut Cycle Classic returned in January with more than 440 cyclists participating in support of Tumut Hospital.

Experienced riders in the long distance events (100km and 75km) set off from Tumut's Bull Park just after sunrise, followed by the more social 40km group and the 20km family ride.

Since its inaugural race in 2015, money raised by event sponsors including Snowy Hydro, participants and local supporters

has funded the purchase of much needed hospital equipment and helped attract medical staff with essential skills. This year's goal of \$50,000 will go towards the upgrade of anaesthetic equipment.

Snowy Trout Challenge

Recreational trout fishing is a popular sport in the rivers and lakes of the Snowy Mountains, and not only for the bragging rights. From October 2020 to April 2021, anglers have the chance of reeling in one of 430 trout tagged with cash and prizes. The pink tags have a unique identifying number which corresponds to an event sponsor. Prizes range from a free meal at the local pub to fishing equipment, gift certificates and cash.

The NSW Department of Primary Industry (DPI) and local chambers of commerce developed the challenge to promote fishing and tourism during spring and summer. The brown and rainbow trout were tagged by DPI and released into Snowy waterways. Snowy Hydro is the major sponsor of the Snowy Trout Challenge, providing two cash prizes of \$4,500 and five merchandise packs worth \$200 each.

Albury fisherman Dirk Colville caught one of the competition trout in Lake Jindabyne and

almost threw it back before noticing the pink tag. He visited the Discovery Centre in January to collect his \$4,500 cash prize.

Tumbatrek and Tumbafest

Family fun is always top of the agenda at Tumbafest and while COVID safety measures are now in place at all community events, festival favourites including live music, market stalls and wine tasting continue to attract locals and visitors.

Held over the last weekend in February, Tumbafest is a much-loved regional celebration showcasing delicious fresh local produce, cool climate wines, arts and crafts and a great line-up of musical talent on the main stage. Snowy Hydro is a proud sponsor of Tumbafest.

Also in February, Tumbatrek was another great opportunity to support Tumbarumba and get a decent workout at the same time. Hosted by Snowy Valleys Council, the eight-kilometre bushwalk wound up through the hills behind the township and was classed as a medium-difficulty hike.

A team from Snowy Hydro joined the trekkers again this year, enjoying plenty of spectacular district views along the way.

Science of the Snowy Scheme

A community partnership to bring the Science of the Snowy Scheme to the Police Citizens Youth Clubs (PCYC) launched in January, offering educational activities and plenty of fun to more than 65 clubs across NSW.

The popular program encourages kids attending PCYC Outside School Hours (OOSH) vacation care to roll up their sleeves and get involved in science and engineering-based mini projects. Over summer, 730 PCYC children took part in Snowy Hydro's STEM-focused learning module, developed for the Next Generation Education Hub.

Children were also invited to design a futuristic renewable energy power station and enter their design in the 2021 PCYC Science of the Snowy Scheme

competition. Their imagined power station must generate 100% Australian-based electricity, but their operations are open for interpretation, with creativity strongly encouraged. Past entrants have designed power stations powered by Vegemite, kangaroos and of course, water – inspired by the mighty Snowy Scheme.

Competition winners receive a trip to the Snowy Mountains for their families and a visit to Australia's largest hydro-power station, as well as \$500 for their local PCYC club for art and craft supplies or sporting equipment.

Just add water

School may have been out for summer, but for Snowy Mountains kids, the learning never stops. Snowy's H2O holiday program was back with five sessions of the

STEM-based initiative delivered across local OOSH and vacation care centres.

This time around, children at centres in Tumut, Berridale, Cooma and Jindabyne (Gidgillys) took part in the program, with all sorts of science and engineering activities on offer to stimulate their minds.

One of Snowy's graduate engineers, Vardon Robson, gave a demonstration of a model turbine and basic hydro power set-up. Children also learnt how to make and test their own turbines. Others discovered the ins and outs of tunnel boring using playdough, while one group had the opportunity to visit Tumut 3 Power Station.

H2O Kids will be back for the Easter school holidays – check with your local OOSH provider for details.

Next Generation Education Hub

We are excited to officially launch our Australian curriculum-aligned online education platform. The Next Generation Education Hub is a digital learning platform created to involve people of all ages in learning and loving STEM (science, technology, engineering and maths) subjects.

The Next Generation Education Hub provides easy-to-access materials designed to inspire children to explore all aspects of STEM. The learning modules provide critical thinking opportunities through real-life, practical activities suitable for the classroom or at home.

The downloadable fact sheets and activity sheets all tie together with lesson plans and interactive fun. Discover how to build your own paper turbine, make snow, conduct experiments while

delving into the water cycle and engage with the interactive Snowy 2.0 digital pop-up book, all through the lens of the past, present and future of the Snowy Scheme.

The easy-to-navigate modules cover elements of engineering and power generation, the history of the Snowy Scheme, Snowy 2.0 and much more.

Snowy Hydro has a proud history of supporting the next generation of innovators by providing an in-person education program at the Discovery Centre in Cooma. The Next Generation Education Hub allows us to take these experiences online and provide new opportunities.



Another great way to support Breast Cancer Network Australia



Red Energy has partnered with Breast Cancer Network Australia since 2014 to help support Australians affected by breast cancer. Our partnership enables us to contribute, support and collaborate with BCNA on what is a very personal cause to many Australians.

How we will contribute to BCNA on your behalf

When you sign up as a residential customer to a Red BCNA Saver plan, we will contribute up to \$10 every month to BCNA. That's \$5 for electricity and \$5 for gas accounts for every month that you remain on the Red BCNA Saver plan up to the value of \$120 each year.*

We're here to help

Our Customer Solutions team is based in Melbourne so our customers benefit from dealing one on one with a locally based, award-winning team and the economy benefits from keeping Aussie jobs here. To find out more or switch to the 'Red BCNA Saver plan' call us **131 806**.



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*Offer available to residential customers signing up to the Red BCNA Saver plan. Red Energy will contribute \$5 per fuel to Breast Cancer Network Australia (ABN 16 087 937 531) for each calendar month you are on the Red BCNA Saver electricity and/or gas plan, starting from and including the date Red Energy becomes responsible for your electricity and/or gas supply. Eligibility criteria and conditions apply. Basic Plan Information Documents and Fact Sheets available at redenergy.com.au/bpid.