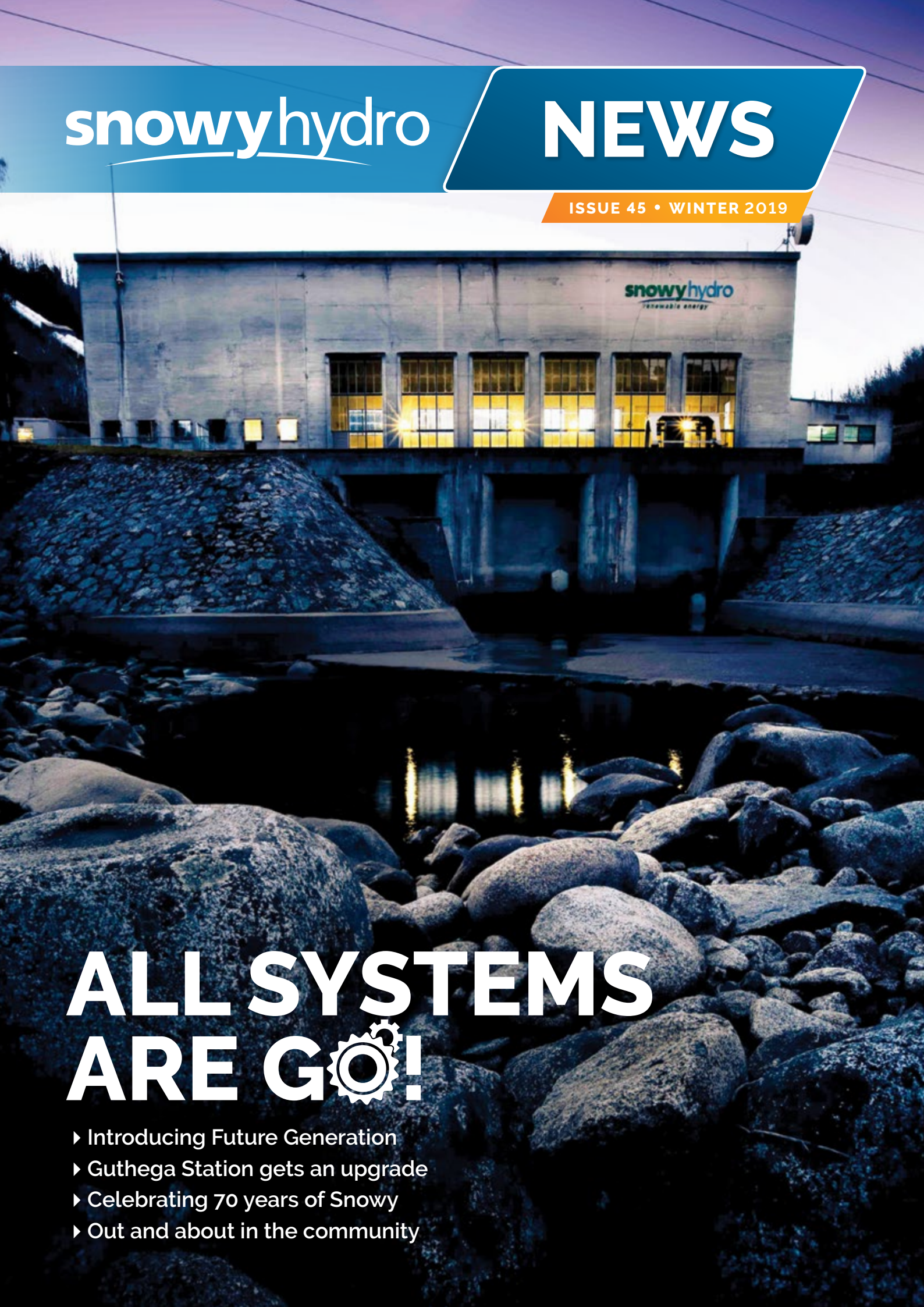
snowyhydro

NEWS

ISSUE 45 • WINTER 2019



ALL SYSTEMS ARE GO!

- Introducing Future Generation
- Guthega Station gets an upgrade
- Celebrating 70 years of Snowy
- Out and about in the community

INSIDE

For more information please visit our website **snowyhydro.com.au** or follow us on Facebook.

Contact us:
1800 623 776
communityfeedback@snowyhydro.com.au

CEO UPDATE

CEO Paul Broad gives an update on our key achievements at Snowy Hydro in the last few months.

Welcome to the 45th edition of Snowy Hydro NEWS, which features a fresh new look and the latest news and information about Snowy Hydro, especially for the Snowy Mountains community.

It has been 70 years since the first blast marked the start of the Snowy Scheme. Since then, investment in and maintenance of our assets has ensured we can help keep the lights on across the National Electricity Market.

Renewal and upgrade works are ongoing on the Scheme, with the current works including a major operation at our inaugural power station, Guthega, to replace the generator in Unit 1 after 64 years of reliable service.

As we come into winter, our weather team is busy analysing the inflow forecasts. While our fingers are crossed for a bumper ski season, the outlook is dry. This is consistent with the state's drought conditions so we're planning for a year of low water inflows. As we have done for many decades we will successfully and carefully manage our water resources to ensure we can generate at times of peak and of course continue to meet our water release obligations for downstream water users and environmental flows. Once again this year our cloud seeding operations are underway to maximise snow falls when the significant cold fronts move through the mountains.

On to Snowy 2.0, it's very exciting and satisfying to be on-site and carrying out work. While Exploratory Works activities are happening up at Lobs Hole we continue work on the Main Works Environmental Impact Statement. We are in discussions with the banks to fund the project and continue to advocate for much-needed upgrades to the shared transmission network which Snowy 2.0 and many other renewable energy projects will need as they come online.

In April, we appointed the Future Generation Joint Venture as principal contractor to construct Snowy 2.0. Increasingly you will see Future Generation staff around the region and there is an introductory story about them in this newsletter.

Later this month, the Snowy team will once again be hosting Snowy 2.0 community information sessions across Snowy Mountains towns. We look forward to seeing you there with the first session on June 25.

On the retail front, Red Energy's award-winning service and commitment to delivering additional value for customers is highlighted by passing the one-year mark with our Red Energy Qantas Frequent Flyer offer. This partnership with another iconic Australian company, Qantas, sees Red customers earning Qantas Frequent Flyer points with their existing Red Energy account.

Finally, with winter here, I'd ask everyone to please be mindful of the unpredictable and sometimes severe weather conditions that can occur at this time of year. If you're driving in the region please take extra care on the roads.

SNOWY 2.0: PROJECT UPDATE

It's all systems go with Snowy 2.0. We have formally appointed our principal contractors for the civil and electrical and mechanical works - Future Generation and Voith Hydro.

Lobs Hole Ravine Road drainage work

The roads component of Exploratory Works is in progress, after completion of a range of pre-construction activities such as boundary-marking and fencing of heritage and environmentally-sensitive areas at Lobs Hole.

Archeologists have been identifying, recording and salvaging a small number of heritage items known to be where buildings at Lobs Hole once stood, so work can commence in that area.

Roads contractor Leed Engineering and Construction is upgrading sections of existing roads and tracks and establishing 2km of new road so that there is safe and reliable access into the construction site.

Leed has more than 70 personnel on-site carrying out works including establishment of stormwater drainage and installation of erosion and sediment controls to protect the Yarrangobilly River and catchment areas.

Other elements of Exploratory Works to get underway in coming months include establishment of a workers' accommodation camp and a construction compound with a portal construction pad.

The portal will be the entrance to the exploratory tunnel, which will be excavated using the drill and blast method to the likely site of the underground power station.

This important work must be completed to ensure the power station cavern – which will house the 240m-long machine hall and the 200m-long transformer hall about 800m underground – is situated in a location suitable for the geological stress conditions at depth.

We are also carrying out essential safety reviews with our contractors. Before their appointment to Snowy 2.0, exhaustive due diligence was undertaken to ensure their safety systems, processes and performance were of the highest standard.

These reviews are to ensure the safety and quality performance is of the highest calibre throughout the construction of Snowy 2.0.

As owner of the project, we will be pursuing this ongoing program of reviews, audits and on-site inspections so that exceptionally high safety standards are maintained.

Monique, a Leed worker on-site

Come along to Snowy 2.0 information sessions

Snowy Hydro is hosting another round of community consultation sessions in towns across the mountains from 25 June to 1 July, to keep people updated about progress on Snowy 2.0.

There are 'drop-in' sessions and formal presentations with Q&As, plus plenty of opportunities to hear the latest Snowy 2.0 news and learn more about business, training and work opportunities.

You can also meet representatives from Future Generation, who are directly responsible for Snowy 2.0 procurement, sub-contracts and workforce employment.

We're keen to hear your views about Snowy 2.0, discuss any local concerns that you may have and answer your questions.

There is also a **Snowy 2.0 survey** you can complete on **page 8** of this newsletter, or on our website: **snowyhydro.com.au**

DATE	TOWN	VENUE	TIME
Tue 25 June	Cooma	Centennial Park, Sharp St **Drop in and chat**	10:00 am - 12:00 pm
Tue 25 June	Adaminaby	Adaminaby Bowling Club **Presentation and Q&A from 6pm**	6:00 pm - 8:00 pm
Wed 26 June	Tumbarumba	Nest cafe and cinema, Winton St **Presentation and Q&A from 6pm**	6:00 pm - 8:00 pm
Thu 27 June	Talbingo	Outside the Snowy Hydro display, Talbingo shops **Drop in and chat**	11:00 am - 12:00 pm
Thu 27 June	Tumut	Tumut Bowling Club, Richmond St **Presentation and Q&A from 6pm**	6:00 pm - 8.30 pm
Fri 28 June	Tumut	Wynyard Park, next to Pie in the Sky **Drop in and chat**	9:00 am - 11:00 am
Mon 1 July	Cooma	Cooma Ex-Services Club, Vale St **Presentation and Q&A from 6pm**	6:00 pm - 8.30 pm

REMINDER: Lobs Hole Ravine Road and the Lobs Hole camping area in Kosciuszko National Park are closed to the public for safety reasons during construction of Snowy 2.0. People should exercise caution when driving in the Snowy Mountains, as an increase in vehicle movements in the area is expected, particularly along the Snowy Mountains Highway and Link Road.

INTRODUCING FUTURE GENERATION JOINT VENTURE AND VOITH HYDRO

Future Generation is a name you will hear a lot over the next few years. In April the Future Generation Joint Venture was officially appointed by Snowy as the principal contractor for the design and construction of Snowy 2.0. Voith Hydro will provide the electrical and mechanical fit-out in the new power station.

Future Generation has been created specifically for Snowy 2.0 and brings together the combined engineering expertise and experience of three companies: Australian-based Clough, Italy's Salini Impregilo and US-based Lane Construction.

The Future Generation team's mission is to safely engineer, plan and deliver the Snowy 2.0 project to enhance and benefit the Australian community, and to create a positive and sustainable legacy for future generations while protecting the unique Snowy region environment.

Salini Impregilo and Clough

Salini Impregilo was founded in Italy in 1906 and has grown to become the world's most experienced tunnelling contractor and an international leader in hydro and dam infrastructure projects. With 30 tunnel boring machines currently working underground, Salini Impregilo has 450km of tunnelling projects under construction, adopting tunnelling methodologies to suit varying local conditions and working in environments as diverse as inner cities to remote alpine regions.

Clough is a pioneering engineering and construction company established in 1919 in Perth, Western Australia. Clough has a global workforce of almost 2,000 people and delivers challenging projects for the infrastructure, mining and energy industries, with a commitment to the highest safety standards.

Lane, which has operated in the US since 1890, has been part of the Salini Impregilo family since 2016. The company is a leader in diversified heavy civil construction and together with Salini Impregilo, has built 257 dams and hydroelectric plants in five different continents, with an installed capacity of more than 37,500MW.

Voith Hydro

A world leader in hydropower engineering and equipment supply, Voith Hydro will deliver the latest hydro-generation technology in the Snowy 2.0 power station, including its six pump-turbines.

Part of the Voith Group, the company supplies and services all major components for large and small hydro plants, from generators, turbines, pumps and automation systems, through to spare parts, maintenance and training services, and digital solutions for intelligent hydropower.

The Voith Group is a global technology company working in the energy, oil and gas, paper, raw materials and transport and automotive industries. Founded in 1867, Voith is family-owned and has more than 19,000 employees and locations in more than 60 countries worldwide.

Above: Clough - Mundaring Weir in Western Australia • Voith Hydro – inside the powerhouse at Gilgel Gibe I, Ethiopia
Background: Salini Impregilo – Ingula Pumped Storage Scheme, South Africa

SNOWY 2.0: FEEDBACK SURVEY

Where do you live? (your closest town)

Email address (optional, for project updates)

In relation to Snowy 2.0, how important are the following issues for you? (please circle a dot)

	Extremely unimportant ← 1	5	→ Extremely important 10
Reliability in the electricity network			
Flora and fauna of Kosciuszko National Park			
Opportunities for recreation within Kosciuszko National Park			
Maximising economic benefits for our communities			
Minimising impacts on the community during construction			

What benefits/positives do you think Snowy 2.0 will bring?

Are there any aspects of Snowy 2.0 that concern you?

SEND THIS SURVEY BACK TO US BY:

MAIL
Snowy 2.0 Community Relations
PO Box 332, Cooma NSW 2630

EMAIL
Snowy2.0@
snowyhydro.com.au

ONLINE SURVEY
is also available at:
snowyhydro.com.au

DISCOVER MORE ABOUT THE SNOWY SCHEME THIS WINTER

Find out more about the iconic Snowy Scheme at the Snowy Hydro Discovery Centre this winter. Join a guided and interactive tour through the Discovery Centre with one of our experienced staff members.

Discover more about the Scheme's past, present and future and hear some of the stories behind the engineering and our people. Our 20-minute Discovery Session will ignite your imagination and expand your knowledge of the mighty Snowy Scheme.

The Best of the Years screening hourly from 9.30am to 3.30pm

WINTER DISCOVERY SESSION TIMES

- Weekdays on the hour from 9am to 3pm
- Weekends on the hour from 10am to 2pm

Note: tours can be subject to change due to operational requirements.

WINTER SNOWY HYDRO DISCOVERY CENTRE TRADING HOURS

WEEKDAYS	WEEKENDS
Open 8am Close 5pm Cafe close 4pm	Open 7am Close 4pm Cafe close 3pm

Pop into the Snowy Hydro Discovery Centre located at Yulin Avenue Cooma, off the Monaro Highway – look out for our signs!

1800 623 776
bookings@snowyhydro.com.au

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SNOWY

GUTHEGA CONTINUES TO MAKE HISTORY

Works Constructed	Date of Award of Contract	Value of Contract at Date Awarded	Contractor
Guthega Dam, Guthega Tunnel, Pressure Pipeline, Guthega Power Station. Guthega Power Station	Sep 1951	$ 12 000 000	Ingenior F. Selmer A/S, Oslo, Norway, operating as Selmer Engineering Pty Ltd
Turbo-Generators	Apr 1951	$ 1 007 386	English Electric Co Ltd
Transformers	Mar 1953	$ 220 510	Hackbridge-Hewittic Ltd, England

The Snowy Scheme assets were always designed for longevity and durability.
A comprehensive maintenance and upgrades program has seen the Scheme exceed all expectations, operating more efficiently now than when it was new. Current work to replace the Unit 1 generator at Guthega Power Station will enable even higher functionality and performance from the Scheme.

Unit 1 is 64-years-old, having been commissioned in 1955. This is the first generator replacement across the Snowy Scheme, demonstrating the long life of the assets. It also highlights the original design and construction of the power station and the expertise of Snowy Hydro maintenance staff, past and present.

Guthega, the first station in the Scheme, generates electricity from the waters of the upper Snowy River diverted from Guthega Dam, through the Guthega pressure tunnel. The two units at Guthega have a generating capacity of 60MW.

The generator is connected to the turbine and is the part of the machine that converts the power produced by the spinning turbine into electrical energy for consumers.

So what work is occurring?

The Guthega upgrade, which kicked off in October 2017, is certainly not your average flat pack project.

Over the last few months the original stator and current rotor have been removed from the generating unit.

You may have seen huge, specialised trucks travelling through the mountains carrying the new rotor shaft and stator. These items are so big they had to be transported in two halves all the way up to Guthega.

The new generator will be assembled from many individual components and when complete, will weigh in at 230 tonnes.

The new Unit 1 generator is set to be commissioned in August 2019 and will reduce the duty requirement for Unit 2, thereby extending Unit 2's operating life.

The original rotor of the Unit 1 generator being lowered into place

Looking back at the history of Guthega

The concept of the Snowy Scheme came about in the 1880s as a way to help offset the disastrous effects of droughts by diverting water from some of Australia's best-known rivers – the Murray, Murrumbidgee, Snowy and Tumut – inland for irrigation. To help pay for this massive irrigation scheme, and to create electricity for the growing population, hydro power stations were built.

Removal of the original stator from Unit 1

The construction for the Guthega Power Station started in November 1951 and continued through until April 1955. Mrs Eileen Hudson (later Lady Hudson) cut the ribbon to officially open Guthega Tunnel in 1954.

The design for the generator and turbine was based on a power station at Loch Sloy in Scotland. The civil works contract was awarded to a Norwegian company, Selmer Engineering, which had extensive experience with similar projects in Norway - where at the time all power was hydro-generated. The contractor for the generators and turbines was awarded to English Electric.

The then Prime Minister Robert Menzies opened the intake valves at Guthega to start up the turbines and moved a switch to bring the generators up to load. The fact that the Scheme was at last producing electricity dispelled public doubts about the project.

In his speech, Prime Minister Menzies predicted that the Scheme would contribute "more to Australia than any other enterprise in the entire history of the continent". We think he was pretty spot on.

The first power from Guthega was sent to the New South Wales grid to boost supply at times of peak demand. As output increased, it also became a valuable back-up during thermal station breakdowns or other emergencies.

In the first year of operation, the quickly available power averted 47 blackouts in Sydney.

The station has many claims to fame. Apart from being the first station in the Scheme, its location at 1,330 metres above sea level makes it the highest power station in Australia.

Guthega operates almost continuously during spring to move water from the snowmelt further downstream into the bigger storage lakes. The station consists of two 31.3MW Francis turbines and English Electric generators and is the only power station in the Scheme that can be connected to both NSW and Victoria.

OUR PROUD HISTORY

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3

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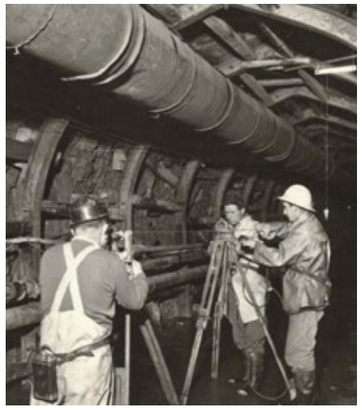

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1. 1956 - Land Rover stopped along the Alpine Way near Friday Flat • 2. 1959 - Drilling works in the Murrumbidgee-Eucumbeme tunnel • 3. 1951 - English class in progress for migrant Scheme workers in Cooma township • 4. 1957 - Snowy introduced beer-only canteens to reduce sly-grogging to enhance productivity and reduce accidents on the job • 5. 1960 - Construction alignment survey of the Murrumbidgee-Eucumbeme diversion tunnel • 6. 1955 - Washing day in Cabramurra township

70 YEARS OF SNOWY
1949 - 2019

A TIME FOR CELEBRATION AND REFLECTION

This year we celebrate our 70th year of the Snowy Scheme. In October 1949 the then Governor-General, Sir William McKell, Prime Minister Ben Chifley and William Hudson fired the first blast at Adaminaby to commence construction on the mighty Snowy Scheme.

In the coming months there will be events and opportunities to reflect on our history and celebrate one of the nation's greatest engineering achievements.

Keep an eye out for more.

PART OF THE COMMUNITY

SNOWY HYDRO DELIVERS FOR BOAT RAMP ROAD UPGRADE

L-R: Adam Russell Roads and Maritime Service, Stephanie McKew Snowy Hydro, John Barilaro Deputy Premier and the Member for Monaro, Suneil Adhikari Snowy Monaro Regional Council

Lake Jindabyne is an integral and beautiful part of the Snowy Scheme, providing a valuable recreation area and scenic focal point for the Snowy Mountains tourism hot spot.

Now community members and visitors can access the popular Widows Inlet boat ramp via a new sealed road with parking facilities, thanks in part to Snowy Hydro's $250,000 contribution to the local upgrade project.

Safety is a core value for Snowy Hydro. Prior to the works, access to the lake was via a dirt track, full of potholes, which was quite unsafe.

The upgraded road is a great community project, which benefits all lake users, and Snowy Hydro is proud to be part of it.

LIGHTING UP LAKE JINDABYNE

Over the Easter period, both Red Energy and Snowy Hydro were major sponsors of the Lake Light Sculpture event held in Jindabyne.

This year 140 artists submitted entries, which were viewed by more than 30,000 visitors.

- $5,000 Illumination Award, sponsored by Red Energy, was won by Victorian Sam Anderson with his work Gypsy of the Deep.

The piece, a 7.75m long whale shark which was lit up with 40meters of LED lighting was made from a combination of recycled materials and galvanised sheet steel.

- $2,500 Environmental Awareness Award was sponsored by Snowy Hydro and won by Cooma's St Patrick's School Year 9 students, with their work called Downstream Decay that used old milk bottles.
- Snowy Hydro also sponsored the $500 People's Choice Illumination Award, which was won by Myles Naylor for his work called Star Gate.

Red Energy's Neil Thew and winner Sam Anderson with 'Gypsy of the deep'

SUPPORTING SAFE DRIVING IN OUR COMMUNITY

Tumbarumba High School students took part in Young Driver Training

The Snowy Hydro Young Driver Training Program is a professionally-delivered program provided to year 12 students in local schools.

The program is fully funded by Snowy Hydro, delivered by Driving Solutions and specifically designed for the unique driving conditions of the Snowy Mountain regions. The young drivers undertake both theory and practical sessions including driving behaviours, distractions, speed management, snow and ice.

In May, during Global Road Safety Week, 1100km were travelled throughout the Snowy Mountains region to visit seven local high schools.

The success of the Snowy Hydro Young Driver Training Program is a direct result of Snowy Hydro's partnership with local schools and this high quality, professionally-run program provides a tremendous outcome, not only for participants and their families but also for the entire community.

Young Driver Training is highly valued by both high schools and the local community and is aimed at making a meaningful difference to the safety of all drivers on our roads, especially new drivers.

PUTTING THEORY INTO PRACTICE

Snowy has always been a strong supporter of STEM subjects (science, technology, engineering and maths) in local schools. After a conversation with the physics teacher at Monaro High School, Brad McElroy, we identified a cohort of year 12 physics students who were studying electromagnetism and required some additional theory and practical experiences.

Over two consecutive Wednesdays, graduate engineer, Oliver Webb gave a presentation on the theory of electromagnetism and Acting Plant Manager - Kosciuszko, Adam Robinson facilitated a tour of Jindabyne and Guthega power stations.

During the visit to Guthega Power Station, Unit 1's stator and rotor had been removed and were sitting in the assembly bay. The students were able to get up close and see the inner workings of a generator. This was a once in a lifetime event.

This program was highly successful, and it was great to help inspire the next generation of engineers.

The Snowy Hydro education program will work in partnership with local schools, the community and beyond to provide curriculum-aligned programs to meet the identified learning needs of students from infants to HSC, covering STEM, history, geography and culture.

Expanding and building on our already established vocational education and training program, providing opportunities, and fostering career pathways will always remain a priority for Snowy Hydro.

Monaro High School students visit Jindabyne Pumping Station

Matt Graham, **Australian Mogul Skiing Olympian and Red Energy Ambassador**

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