

March 2011

snowyhydro

NEWS

Power on way to a luxury

THIS is unsustainable. NSW residents — many of whom last

Power costs bite home

Power bills to keep surging

The power shocks to come

SPECIAL FEATURE

Increasing electricity prices, how do they really add up?

Power prices a turn-off for many

Electricity bills to increase yet again

New Year price bite

State charges and utilities on the rise

How to cut power bills

Pre-pay plan up to \$200 dearer

Paying more to be left in the dark

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ISSUE 12



What you need to know about increasing costs of power

Paul Smyth
Executive Officer, Risk Management,
Technology & Planning

Our household electricity bill is a familiar and sometimes painful reminder of the cost of electricity.



The rising cost of electricity has been a hot topic in the media and no doubt in homes across NSW. But what are the facts and why is the cost of household electricity increasing?

We have prepared this overview to assist the community in understanding why.

Q) How much has the cost of electricity increased in recent years, and what might it cost in the next few years?

In 2007 a typical country NSW household was paying \$1,101 per year.¹ By 2010 this had risen to \$1,503 per year, a 36% increase.

By 2013 the typical country NSW household will be paying \$2,128 per year even if the government does not introduce a carbon pollution reduction scheme (or CPRS).

That's at least a 42% increase on the 2010 bill and nearly double the 2007 bill.

If the government does introduce a CPRS, by 2013 the typical country NSW household could be paying \$2,457 per year.² That's a 63% increase on the 2010 bill and more than double the 2007 bill!

Whilst the electricity bill for every household will be different, depending on such things as actual household power consumption and location within NSW, one thing is very clear – the cost of electricity is increasing very significantly. Businesses are also facing considerable increases in the cost of their electricity.

It is important to note that State and Federal governments provide a level of compensation for low income customers that will, at least in part, compensate for the increased cost of electricity. The community are advised to contact their electricity supplier for information regarding such compensation arrangements.

¹ Household power bills in this article are calculated based on a household located in the Country Energy network with an annual electricity consumption of 5,600 kWh and paying the standard domestic tariff. Costs are GST inclusive.
² Based on a modest greenhouse gas reduction target of 5% by 2020.

Q) Why is the cost of electricity increasing so much?

The cost of electricity is made up of three major parts:

- 1) Wholesale,
- 2) Network,
- 3) Retail.

1. WHOLESALE

This is the cost of generating the electricity used in the household.

In New South Wales, electricity is provided from a mixture of sources such as coal, gas, hydro-electric and wind but is mostly from coal-fired power stations (95% coal and gas with only 5% coming from hydro, wind and other renewables).

For the typical household, around 40% of the total electricity bill goes to paying the electricity generator. This has remained constant over the past 8 years.

2. NETWORK

The second major part of the electricity bill is the cost of transporting the electricity from the power stations to the home, which is done using power lines.

The cost of building, operating and maintaining the vast network of power lines is included in the household electricity bill as the network charge.

For the typical household, around 50% of the total electricity bill goes to paying for the power lines, both large transmission lines and the smaller distribution lines you may see in your street.

3. RETAIL

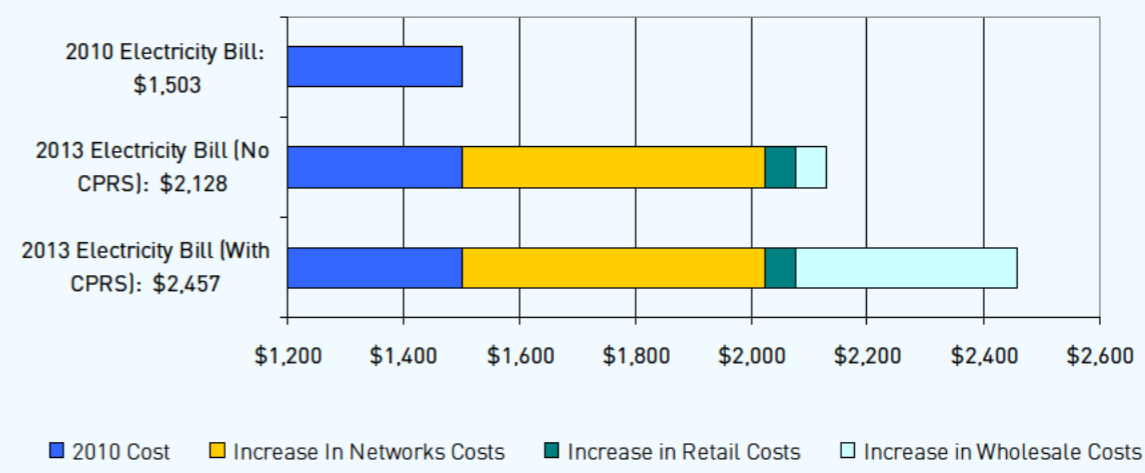
The third part of the electricity bill is the cost of managing the electricity supply to your home.

This is done by your electricity retailer such as Country Energy, Integral Energy and Energy Australia. Costs include such things as billing, customer service and call centres. This cost also includes purchasing renewable energy certificates as required by government mandate.

For the typical household, around only 10% of the total electricity bill goes to paying for the retail costs.

The following chart shows where the cost increases are occurring over the next three years, again using the typical country NSW household bill for a year.

The chart shows that, in the first instance, almost all of the increase in the household electricity bill over the next three years is due to increased network costs, that is the transmission and distribution powerlines.



Snowy Hydro has little direct impact or control over household electricity prices.

This is because the network owners are faced with increased costs to maintain and upgrade their now ageing power lines. The network owners also have to build new lines or augment existing ones, to satisfy increasing electricity demand. Electricity demand is increasing due to population growth and such things as household air conditioners, plasma TV screens and all the usual electric household conveniences in homes today.

A large increase in, what has been to now very stable and consistent wholesale costs, the will also occur if the government introduces a CPRS or emissions trading scheme. This is because most of the electricity supply in NSW is from generators that use coal and gas to make their electricity and hence produce greenhouse gasses.

These generators will have to pay the government a penalty for the greenhouse gasses they produce. Generators will have no other alternative but to pass on this penalty cost to electricity users like you and me!

Q) So where is Snowy Hydro in all of this?

Snowy Hydro produces less than 2% of the total electricity consumed across the network and we are positioned at the wholesale end of the market. That means we supply into the National Electricity Grid, from which the electricity retailers draw electricity to on-sell to you.

We have little direct impact or control over household electricity prices. We do however remove price risk from the market in which the retailers on-sell to you. The price is reduced when risk is removed.

We do this by developing innovative financial insurance products that remove this risk. These are contracts that the electricity retailers buy from us and which insure that they will only ever pay a predictable and known price for the electricity they on-sell to you. We can do this because we have fast start hydro and gas generation plant that is able to respond to all large fluctuations in price and this is when we generate.

Snowy Hydro, in this way, provides to our customers (Country Energy, Integral Energy and Energy Australia) protection from substantial daily price fluctuations in the National Electricity market. If Snowy Hydro didn't do this successfully, costs for electricity could be even higher!



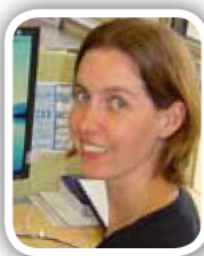
Transmission lines in the Tullinger Valley



Climate - can understanding the past help predict the future?

Dr Suzanne Kenyon
Scientific Services

Until recently, a large part of eastern Australia was suffering through a period of prolonged drought spanning around 10 years in most areas.



In fact most of New South Wales – including the Monaro – has been periodically drought declared over that period until only a few months ago. Recent weather events have changed this situation, with above average rainfall and flooding in many areas of the eastern States.

Inflows into the catchments of the Snowy Scheme have also improved from below average in recent months. Areas such Tumut and Tumbarumba have experienced heavy rainfall and increased stream flows, and many locals on the Monaro are saying this looks like it will be the best season they have ever experienced. These events have raised the question in our local community “is this climate change, or are we just getting back to normal”.

To answer this question, we first need to have some idea of what “normal” is.

To understand what “normal” really means, the Snowy Hydro Scientific Services team has been working with leading climate scientists from the University of Queensland.

Looking back over the last 10, 20 or even 30 years is not enough to give us an appreciation of climate and weather over the longer term. To improve our understanding of our present climate and weather patterns, and our perceptions of climate change, we need to look to the past – well before reliable weather record keeping commenced around 100 years ago.

To understand what “normal” really means, the Snowy Hydro Scientific Services team has been working with leading climate scientists from the University of Queensland.

The research team has been investigating the underlying relationships between atmospheric and oceanographic conditions and periods of droughts.

The objective has been to improve understanding of the causes of extreme drought sequences, including the recent millennium drought (2000 to 2009).

This study commenced in 2007, and was supported by a research grant from the Australian Research Council.

Severe drought in Australia is not unusual, and is known to be heavily influenced by cyclic climate patterns.

Severe drought in Australia is not unusual, and is known to be heavily influenced by cyclic climate patterns. For example, the well known El Niño/La Niña Southern Oscillation (ENSO) phenomenon was first described in 1892. ENSO has been shown to explain up to 40% of seasonal variability in our rainfall, with El Niño conditions typically occurring every 3 to 7 years. El Niño impacts are usually short lived, generally spanning several months to slightly more than a year. These events can usually be forecast 9 to 12 months in advance with reasonable confidence.

However, while ENSO cycles are known to have an important short term influence on climate, there are other atmospheric and ocean cycles that also have a very significant affect. Depending on the way these cycles interact, this can result in protracted periods of severe drought, or wetter than normal conditions.

The Pacific Decadal Oscillation (PDO) is one of these climate phenomena. It is known to change phase between positive and negative cycles at timescales of 30-40 years, and has been found to intensify or suppress the effects of ENSO, depending on the phase of each of the phenomena involved. Simply put, positive phases of the PDO have a strong tendency to exacerbate the impacts of El Niño, and suppress the effects of the La Niña. The risk of severe drought is significantly higher toward the end of the positive PDO phase (as were the conditions during the recent millennium drought sequence).

Negative phases of the PDO tend to suppress the impacts of El Niño, and increase the effects of La Niña.

Because the Australian historical weather record is relatively short, long term extreme drought events have only been observed a few times.

As a result, it is not possible to determine if these extreme drought periods were random events, or if these events are in fact normal over the much longer term.

In other countries, researchers have been able to reconstruct longer term climate records using indirect methods such as tree rings or marine corals. Unfortunately, these methods are of little use in south-eastern Australia, as drought events are not well recorded in natural archives of this type.

However, new techniques developed by the University of Queensland scientists have shown how certain types of dust deposits can be used as an alternative. This is because the Australian landscape responds quickly to rainfall variability – for example, drought in the Murray-Darling Basin is invariably associated with blowing dust and dust storms. As dust from this region is transported in an easterly direction, some of that dust is deposited in the peat swamps of the Snowy Mountains region. Over long periods of time, the dust gradually accumulates in the swamps, providing a record of past climatic conditions in the southern part of the Murray Darling Basin.



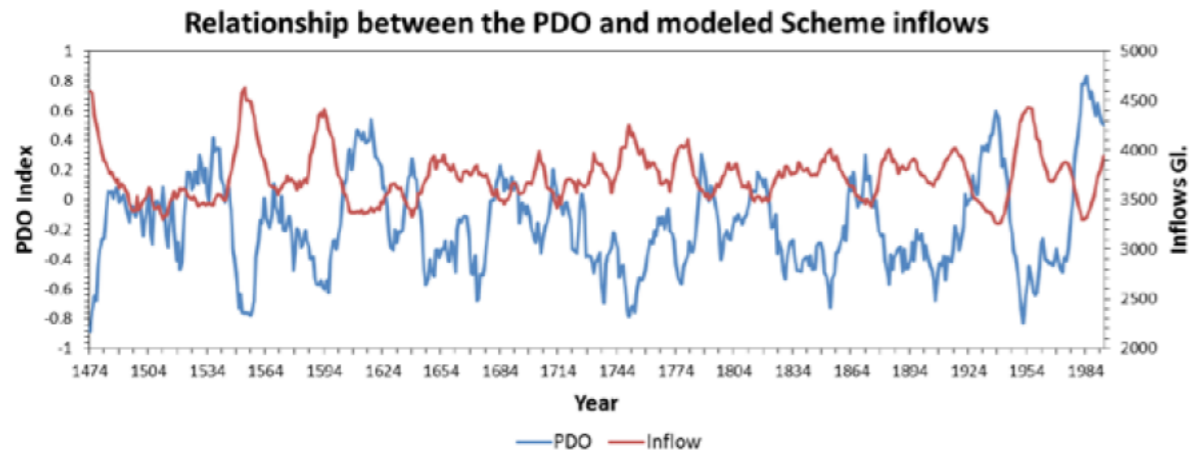
Collecting a peat core from an Alpine Bog site in the upper Snowy River catchment. Dust extracted from the cores is analysed to determine wet-dry cycles over time. Inset: Close-up of core.



Prof Hamish McGowan and Dr Nikolaus Callow (University of Queensland) collecting snow samples for oxygen isotope analysis.



Lake Jindabyne



Core samples taken from these swamps can be used to reconstruct our climate history over a much longer period of time. The challenge for the research team has been to identify the source of the dust, and to develop a climatic record with a meaningful timescale. By using special geo-chemical techniques and radioisotope dating methods, the scientific team has been able to reconstruct a 6,500 year climate history for the southern Murray Darling basin. A careful analysis of this history identified a number of wet-dry cycles spanning that period of record, with a 30 to 40 year cycle found to be the most dominant.

Using the relationship found between wet and dry climate cycles identified in the peat cores and a historical record of the PDO, the research team has been able to model (estimate) the inflows to the headwater catchments of the Murray River back to 1474 A.D (see above plot). The relationship between the PDO and Scheme inflows was much weaker around the turn of this century, when inflows were the lowest over the previous 526 years. This highlights the severity of the recent millennium drought, showing strong evidence that the recent drought sequence was the worst in at least the last 500 years.

The PDO commenced moving to a negative phase during 2008, and as predicted at that time conditions in eastern Australia have become progressively wetter as the PDO enhances the effect of the current La Niña. It is likely that the climate regime of southern and eastern Australia will experience less severe drought events while the PDO remains in the negative phase (expected to be around two to three decades) as a result of La Niña events being enhanced, and El Niño events being suppressed. Recent climate modelling studies tend to support this assessment, however it is important to remember that climate is subject to enormous natural variability.

It is worth noting this scientific research did not set out to determine the impact of human activity on climate. The work has however provided valuable insight into our climate history over the last 6,500 years, showing compelling evidence of considerable variations in climate (with significant wet/dry cycles) over that time.

Notably this record covers a historical period prior to the Industrial Revolution (late 18th Century) during which changes in climate cannot be attributed to human activity. The effects of the large natural drivers of climate such as the PDO must therefore be considered in any serious debate regarding future climate change.

The research team will now focus on the development of new innovative drought forecasting methods.

The research team will now focus on the development of new innovative drought forecasting methods. The objective will be to allow severe drought events to be anticipated around five years in advance, within reasonable bounds of certainty. While the research objectives are ambitious and the outcomes cannot be guaranteed, the potential value is unquestionable - the development of a predictive capability of this type would allow water and land managers to make informed and transparent decisions based on credible science, and would provide business with the necessary knowledge and additional tools to understand and manage the risks of drought. This would be an outcome of international significance.

The Snowy Hydro/University of Queensland research program has been recognised for its outstanding scientific merit, and the findings have been published in the international scientific journal, Geophysical Research Letters.

For further information on this and the other innovative research programs undertaken by Snowy Hydro please visit our web site www.snowyhydro.com.au

Jindabyne Spillway under construction

Michael Thornton
Project Manager

The final phase in the Jindabyne Dam upgrade project commenced in early February 2011 with the construction of a new \$10million spillway.



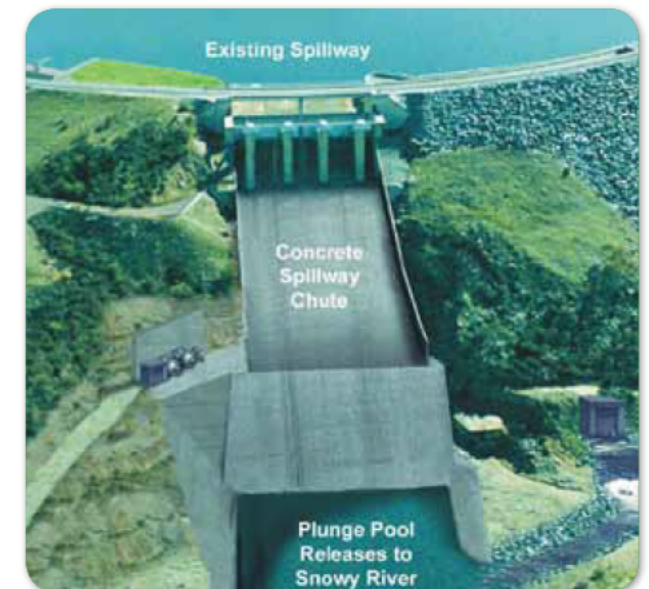
Works will include construction of a new concrete apron and training walls to connect the existing spillway to the new plunge pool.

MacMahon Pty Ltd has been awarded the works contract and it is estimated that 100+ staff will be involved with the project providing a significant boost to the Jindabyne and regional economy.

Construction of the new spillway is expected to be completed by September 2011. Site Rehabilitation works and landscaping will be undertaken in spring and is planned to be finished by December 2011.

The community is advised that there will be some increase in heavy truck and machinery movement in and around the area during construction with only occasional, short delays expected on Kosciuszko Road. There will be no delays expected during peak times in the winter ski season.

Environmental flows from Lake Jindabyne into the Snowy River are not expected to be affected. For further information on Snowy River environmental flows and



Artists impression of the completed concrete spillway works at Jindabyne Dam

dates of increased flows in 2011, contact the NSW Office of Water on 1800 353 104.

If you have any questions or concerns relating to the project a dedicated line has been established on 02 6453 2461.

The community will be kept advised of developments via local radio, news media, the Snowy Hydro Newsletter and our website at www.snowyhydro.com.au

Corryong, Cooma & Jindabyne students get a career headstart at Snowy Hydro

Erin Baker
Vocation Student

For many years Snowy Hydro has provided career head starts for local students in the form of traineeships, apprenticeships, work experience and even vocation employment, all of which are highly sought after by those finishing year 12 or completing their university studies.



This year, I am one of the lucky local students who gained vocation employment over the Christmas and New Year university break. The Snowy Hydro vocation employment program provides university students with the opportunity to expand our knowledge in our fields of study, whilst gaining practical

on the job experience. The program involves a three month position with Snowy Hydro, relevant to our area of study, and gives us students the chance to immerse ourselves in the work of our chosen field in a corporate environment and highly competitive market.

Snowy Hydro took on twelve vocation students this summer, some local to the area, from a variety of universities and locations. Vocation students worked in Engineering & Projects, Information & Control Systems and People & Culture during their placement, gaining experience in engineering, IT and Human Resources (HR).

Matthew Elliott, from Jindabyne, has completed vocation employment in Engineering & Projects and said his time at Snowy Hydro has provided real life experience in a professional organisation.

"I am currently studying civil engineering at the University of Wollongong and it is part of the curriculum

to complete three months of professional experience at an engineering company. I have now completed the three months at Snowy Hydro where highlights have been visiting areas of the region that I have never been to before, and also learning about how the Scheme operates. I would definitely recommend this program to other students especially those that are from the region."

As a local Cooma girl myself, the vocation program offered me a unique opportunity to spend my summer at home whilst gaining valuable industry experience. When I complete my degree in November this year, the experience I have gained from the vocation program will aid me in my pursuit of a career in HR. It will give me a competitive edge in the graduate market and provide me with relevant experience to draw on in my future career. It is a great program that I would recommend to all university students who are looking for valuable work experience in a great company.

In addition to vocation students, Snowy Hydro has also welcomed six Business Administration trainees. This year's trainees have recently completed Year 12 in Cooma, Berridale, and Corryong and will complete the 12 month traineeship program allowing school leavers to experience the workings of a company whilst attending TAFE, enabling practical application of training and development of valuable life experience.

Lizzie Star from Corryong, who just finished Year 12 at Corryong College, made the move to Cooma in January to start her traineeship in the Learning & Development Team and is enjoying the experience of working in a large company.

"Working in this kind of environment is really enjoyable. The people here at Snowy Hydro have been so wonderful, friendly and helpful and I am learning so many new things."

Trainees not only get 'on the job' experience, but complete both Certificate III and IV in Business Administration through onsite training with Cooma TAFE.

"I would recommend the traineeship to anyone wanting a head start as even if your ideal job is not an office based one, having a traineeship at Snowy Hydro will give you experience and qualifications that you will need and can apply to any job."

As a major employer in the region, Snowy Hydro are pleased to be able to provide these opportunities for our young people.

Snowy Hydro advertises traineeships, apprenticeships and vocation employment towards the end of each year. You can see what opportunities are on offer by visiting www.snowyhydro.com.au/careers



Dragon Boats in action

Another successful Jindabyne Flowing Festival

Kieran Cusack
Area Manager, Jindabyne



Snowy Hydro was proud to again be a major sponsor of the recent Jindabyne Flowing Festival and Dragon Boat Challenge, especially the Snowy Hydro Junior Challenge Cup involving our local schools.

The weekend was a great success and a lot of fun was had by all who came along, either to participate or just watch as the best of Jindabyne and the region battled it out on the lake in the Dragon Boat Challenge!

Dragon boat racing is an exciting and competitive water sport which has rapidly grown in popularity as a relatively new sport in Australia. The forty-foot long dragon boats are brightly painted, and the event is open to corporate, charity, novice, sports and juniors.

Snowy Hydro once again took up the challenge and a team of energetic and enthusiastic employees competed. The races are exciting and spectacular adrenaline charged sprint, and after some training on the Saturday we were ready to race.

The first heat was a great warm up round and after a bit of friendly badgering from other teams we were racing. Unfortunately, the Snowy team were a bit slow to start but finished strongly to take out 2nd place in our first heat.

After lunch, and after watching the amazing Mountain Lion dance and drummers, the racing continued.



The Mountain Lion Dance was a highlight of the day and drew a large crowd.

While the Snowy team performed well again in the next round of heats, unfortunately we didn't make it into the finals, but being good sports we stayed to cheer on the other teams with the Community Challenge taken out by the Larrrikans for the second year running.

A big thank you to all employees and their families for coming along and participating in this great day. We thank the organisers of the Lake Jindabyne Flowing Festival and Dragon Boat Challenge which continues to be such a successful event for Jindabyne.

For a full wrap up of the event visit their website at www.floatingfestival.com.au



Thank you for your community feedback

David Hogan
Manager, Public Relations & Community Affairs

Snowy Hydro would like to thank the community for participating in our 3rd bi-annual Community Feedback project.



Snowy Hydro wanted to again know what you think regarding our community communications, our community partnership program, our relationships across the local region and your understanding of our business; how it operates and what it needs to prosper in a very competitive industry.

Late last year Snowy Hydro engaged the services of two independent specialist firms to undertake this study on our behalf with the aim being to further improve our company communications and to strengthen our relationship with our local communities. For example, this Snowy Hydro Newsletter was a direct result of your feedback in earlier surveys and is now part of our ongoing community communications.

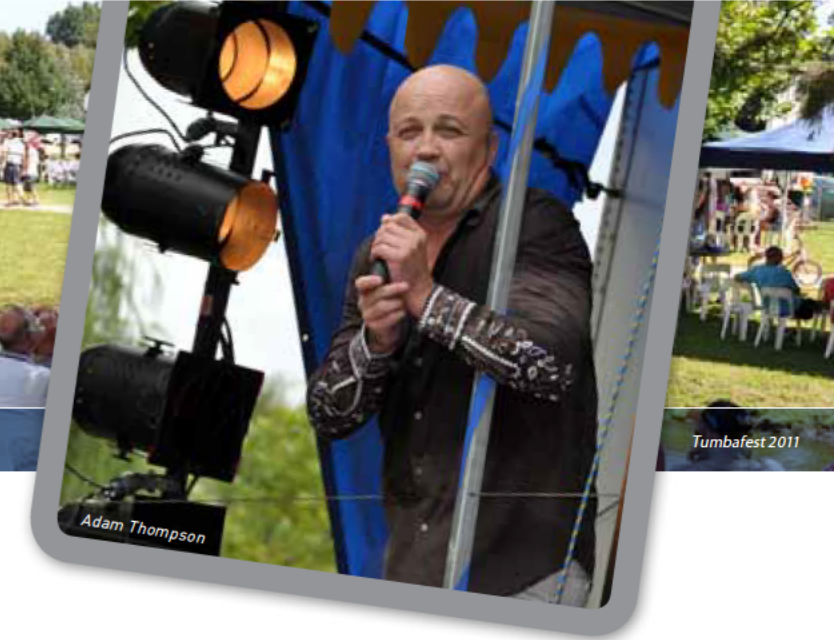
The survey work included one-on-one interviews with members of the community and phone surveying of households, all selected randomly, in the communities of Cooma, Jindabyne, Tumut, Khancoban, Corryong, Tumbarumba, Talbingo and Adaminaby, with over 500 people freely participating in the feedback process.

The feedback project has demonstrated that Snowy Hydro's relationship with the local community is strong and the work Snowy Hydro currently does in the community is generally very well received which was very pleasing. However, there are still areas for improvement and some great suggestions from the community on what we can do better to further improve understanding of our business and broader awareness of our community partnerships.

We thank the community for your participation; we value your comments and we are currently working through your feedback to identify even further improvement opportunities so we can continually strengthen our relationship with the community and the region in which we live and work.



Snowy Hydro SouthCare



Tumbafest 2011

Governor General thanks Snowy Hydro SouthCare supporters

Tracy Crowe
Community Liaison & Education Program Coordinator

Her Excellency, Governor General, Quentin Bryce AC recently hosted the Annual Snowy Hydro SouthCare Awards Ceremony at the Snowy Hydro SouthCare Helicopter Base.

"The support of Her Excellency as Chief Ambassador is a huge show of support for the region's local Aero-Medical Rescue Helicopter. To combine an afternoon with the Governor-General with recognition of contributors to the service makes for a very proud moment".



As Patron of the Snowy Hydro SouthCare Helicopter Fund, the Governor-General visited the service's new base in Canberra to present awards to volunteers, pilots and medical personnel who have helped the Service complete over 4,000 missions.

"I'm thrilled to join you here today at Snowy Hydro SouthCare to participate in your campaign to raise public awareness about the vital community service you provide to communities in the ACT and southeastern NSW," Ms Bryce said.

"I warmly congratulate medical and other professionals who are receiving awards today. You are our heroes and I salute you."

Snowy Hydro SouthCare CEO Stephen Gregory said "This event is the highlight of this year's Snowy Hydro SouthCare Awareness Week."

Join in the fun at the Snowy Hydro SouthCare Base Open Day!

Snowy Hydro SouthCare is once again holding their Base Open Day on Sunday 27 March 2011. This Open Day is the biggest annual event organised by Snowy Hydro SouthCare with over 8,000 people attending in 2010.

The Snowy Hydro SouthCare Helicopter Base is located on the Monaro Highway, 2kms south of Hindmarsh Drive and all are encouraged to attend this great event with activities and fun for the whole family. Come and see the Snowy Hydro SouthCare Rescue Helicopter, enjoy live music, food and refreshments while learning more about this essential service that provides a second chance at life.

Record numbers experience the best of the region at Tumbafest

Heath Redstone
Visitor Centres Coordinator

On the last weekend in February since 1997, the township of Tumbarumba is host to "Tumbafest", a celebration of music, wine and food.

Snowy Hydro was once again proud to support such a great community driven event. Lesley Barlee and Michelle Gate from Snowy Hydro manned the Snowy Hydro display at Tumbafest and were on hand to talk to people about the ongoing evolution of Snowy Hydro, how we are maintaining the Scheme, Cloud Seeding and water information.

We congratulate the Tumbafest organising committee, Tumbarumba Shire Council and other sponsors who made the 2011 event the success it was.

Tumbafest 2011 showcased a dynamic festival for the region and for a full re-cap of the weekend visit their website at www.tumbafest.com.au



This two-day festival is a true celebration of the region and offered something for everyone.

Attractions included a jam-packed schedule of entertainment on the Snowy Hydro Main Stage including fantastic performances from star of the stage and country music sensation Darren Coggan and the a cappella group Suade, sublime regional wines, lots of arts and craft vendors, extensive food stalls, wine tasting, a farmer's market, as well as numerous activities designed especially for kids.

Tumbafest continues to grow each year and has become a fixed event on many local and visitor's calendars.

Even though the weather on Sunday was a little wet, record numbers came through the gates, to enjoy all that was on offer.



The a cappella group, Suade, wow the crowd.

What's on in the region...

In future editions of Snowy Hydro NEWS we will be including a calendar of local events to help outline upcoming community initiatives and events.

If you have an initiative or event that you would like included, email us a short outline of what is happening and the date to communityfeedback@snowyhydro.com.au

March

| DATE | |
|---------------|---|
| 14 March | Snowy Hydro Young Driver Training - Yr 12, Snowy Mountains Grammar School |
| 19 March | Tumbarumba Annual Show, Tumbarumba |
| 24 & 28 March | Snowy Hydro Young Driver Training - Yr 12, Jindabyne Central School |
| 25 March | Starlight Outdoor Cinema, Banjo Patterson Park, Jindabyne |
| 27 March | Snowy Hydro SouthCare Base Open Day, Hume ACT |
| 31 March | Man From Snowy River Bush Festival, Corryong |

April

| DATE | |
|--------------|---|
| 1-3 April | Man From Snowy River Bush Festival, Corryong |
| 7 & 28 April | Snowy Hydro Young Driver Training - Yr 12, Corryong College |
| 9 April | Rotary Markets, Wynyard St, Tumut |
| 15-17 April | Thredbo Jazz, Funk & Groove Festival, Thredbo |
| 17 April | High Country Markets, Cooma |
| 18 April | Tumba Markets, Murray St, Tumbarumba |
| 23 April | Adaminaby Easter Fair, Adaminaby |
| 22-25 April | Jindabyne Lake Light Sculpture, Jindabyne |
| 22-25 April | Easter Long Weekend |
| 26 April | Anzac Day |
| 29-30 April | Tumut Festival of the Falling Leaf, Tumut |

May

| DATE | |
|--------|---|
| 5 May | Snowy Hydro Young Driver Training - Yr 12, Tumbarumba High School |
| 7 May | Snowy Hydro SouthCare Gala Ball, National Convention Centre, Canberra |
| 15 May | High Country Markets, Centennial Park, Cooma |
| 16 May | Tumba Markets, Murray St, Tumbarumba |