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WICCNews

WICC Newsletter June - July 2022



Makuru

Season of fertility
More frequent gales and storms



Australasian Grebe photo courtesy of Georgina Steytler

WICC is buying a wetland!!





Nestled between Denmark and Albany on the south coast of Western Australia, these remarkable wetlands provide a unique opportunity to preserve endangered wildlife. Learn more [HERE](#)



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Eungedup Wetlands photo courtesy of Georgina Steytler



Australasian Bittern photo courtesy of DBCA

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Farmer in focus





Colin Stonehouse with a section of his custom designed pipe

WICC recently caught up with Denmark farmer and engineer Colin Stonehouse to chat about his pump hydroelectric microgrid solution under development in Walpole. Spending an hour with Colin we left convinced that these systems are going to revolutionise our power grid forever.

WICC: Colin, tell us about pump hydroelectric and how it can minimise impact on our natural resources?

Colin: Firstly, this is by storing renewable electricity at times of surplus when the grid can't take it, then later to supply the electricity back into the grid when it is needed, instead of burning fossil fuels. Secondly, building our Walpole facility needs very little natural resources, mainly we have farm dams with grass stabilised earth walls, a buried fibreglass pipe between the dams and a pump made from steel. Our Walpole facility is the equivalent to the batteries for three thousand households, which are commonly around 10kWh each to be able to store solar power for overnight. So that is a lot of chemicals and rare metals for batteries that are now not needed.

WICC: Colin how does the system work in Walpole?

Colin: In simple terms, in Walpole we have designed a lower dam in a farm paddock with floating solar panels that can power a grid-connected pump. The water is pumped to a second nearby dam on a hill when there is excess or low-cost electricity. When power is needed the water is allowed to flow back down the pipe from the top dam to turn a hydroelectric generator connected to the electricity grid. There is involvement of some sophisticated technologies and power electronics from world-class suppliers that together can generate, store, and supply electricity to and from the grid when needed. It is a closed system, the same water is cycled up and down, and we try to minimise losing any water by lining the ponds and preventing some evaporation by the solar panels shading the water, for example.

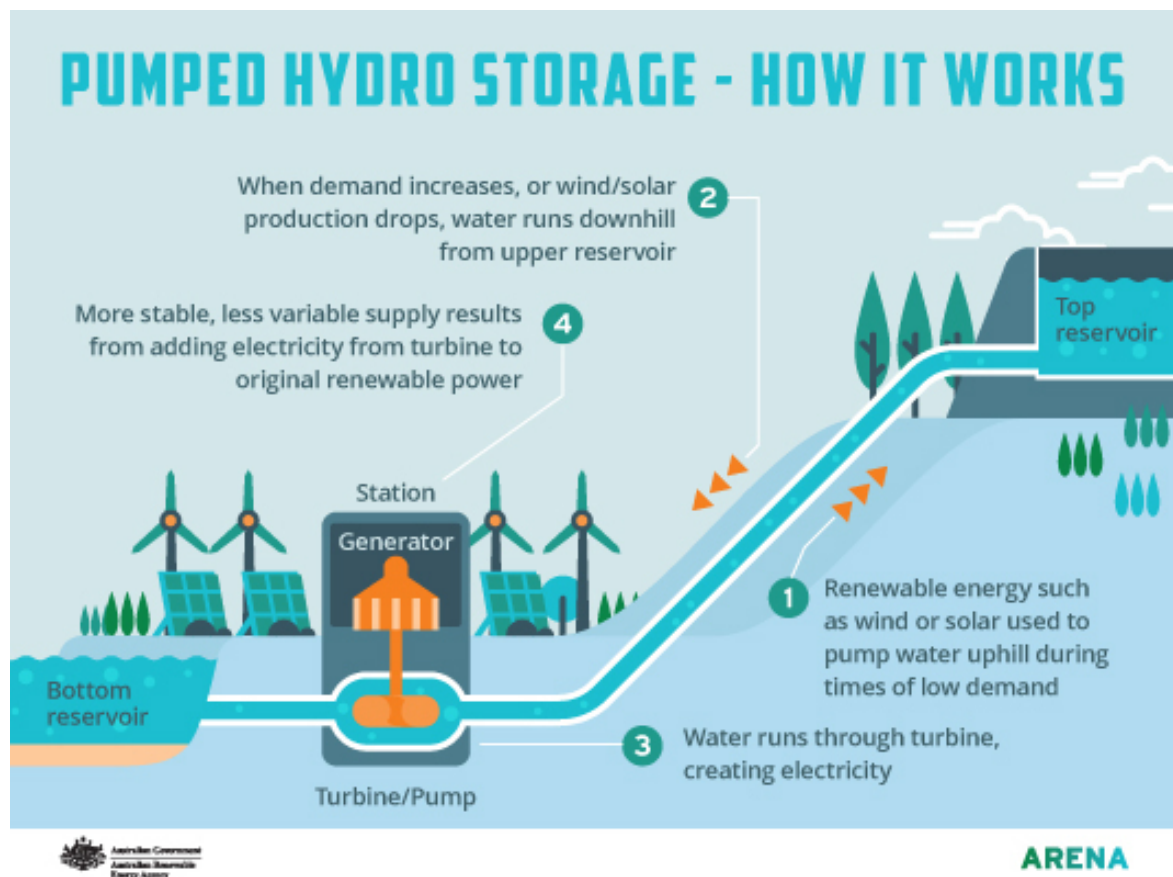
WICC: How can your system reduce power outages?

Colin: People in regional areas don't get reliable electricity services because of many reasons. Like damage to powerlines, but there are also times when the electricity demand is higher than what the grid can provide. Regional farms and businesses often can't grow because there are limits to what small powerlines in rural areas can transmit. By having renewable energy and storage systems close to where people need it, it can be a backup supply or enable using more clean energy. Our Walpole facility is designed to continue supplying power to the Walpole township even when the supply from the grid is out of service, so long as there isn't a powerline outage within the town a

supply from the grid is out of service, so long as there isn't a powerline outage within the town at the time. In addition to reducing outages, we can also avoid building larger powerlines across the region.

WICC: How does your system in Walpole enable more renewable energy?

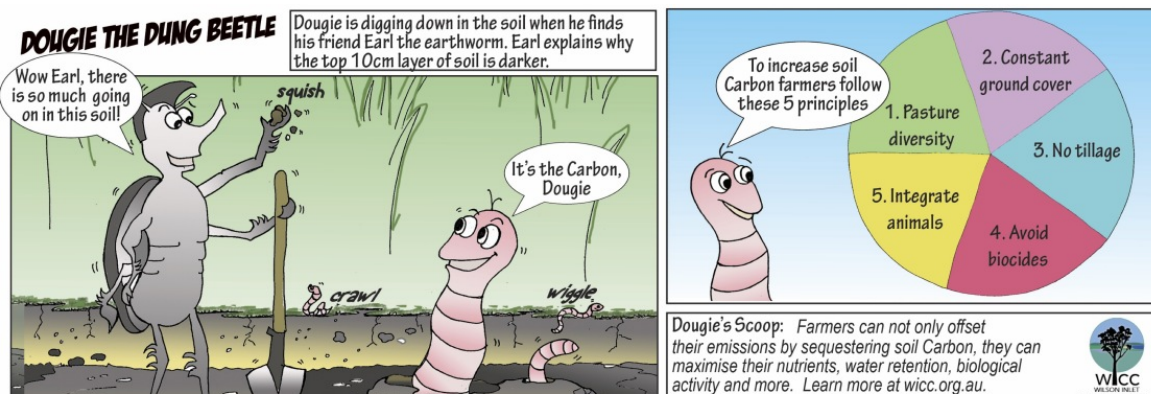
Colin: Electricity networks in regional areas were not designed to have large renewable energy systems along them. Storage is needed to make the best use of existing powerlines and excess electricity from solar systems on sunny days, and wind farms during windy times day or night. Our storage allows installation of other forms of renewable energy that are often lower cost options than what we have now in regional areas. It can also supply peaks in local power demand to enable rapid charging of electric vehicles in regional areas with poor electricity networks, or even along roads that don't have any electricity services at all.



WICC: How about the scale, cost, and benefits of the systems in regional areas?

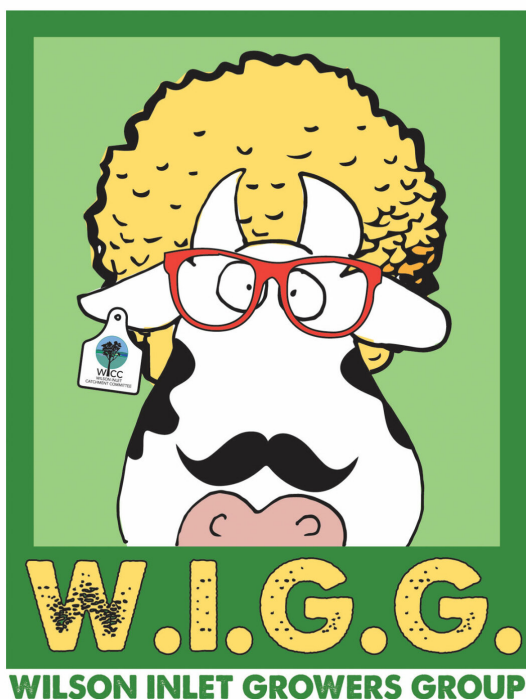
Colin: The systems largely look no different to paddock farm dams. The costs of the system are paid for over time with income from wholesale energy markets by providing reliability services in Walpole, and also from offering storage services at scales around 1.5 Megawatts and 30 Megawatt hours. Since the services are wholesale there is no direct cost to power consumers, also these markets are on a competitive basis and our services are a lower cost than current alternatives, so we are providing increased competition that we think in time can be a driver for reducing wholesale costs. Instead of everyone in Walpole needing to buy a home battery or backup diesel or petrol generator for power outages, it allows a place to share a storage system that more efficiently meets their expectations of a reliable, affordable, clean electricity supply. We need more clean energy in WA, and our system can avoid spending more on the network and lower the total cost to our communities of improving the quality and sustainability of electricity we use.

WICC talks microbes



INVISIBLE HELPERS IN OUR SOIL

Discovering microbes with impacts on soil health



Wilson Inlet Growers Group met in April to discuss soil biology with microbiologist, Dr Ash Martin from Microbiology Laboratories Australia.

Ash explained how a healthy community of soil microbes can improve the drought resistance, disease resistance and nutrient use of agricultural soils. Local farmers are using microbial soil testing to gain insight into the invisible micro-organisms that are present in their soil, with big effects on soil health, productivity and profitability.

Most microscopic organisms live in the root zone. They have a big effect on how plants absorb nutrients. Generally, microbes prefer higher plant diversity and lower chemical use. "Above-ground diversity results in below-ground diversity" says Dr Martin – a broad range of plant

species is good for soil biology and microbes. Applying herbicides and fertilisers can reduce the number of microbes in the soil, but they will re-colonise over time. There are also products available to inoculate the soil with microbes, helping them to become re-established.

As microbial communities are so varied, maintaining a high diversity of microbes means that soils can recover quickly if one type of microbe declines temporarily due to farming practices. Some practices can have mixed results for micro-organisms depending on the scenario. For example, tillage in compacted, degraded soil may benefit soil microbes by increasing aeration, while in healthy soils which already have a good structure repeated tillage can be harmful to soil microbe communities.

Soil health is influenced by many soil properties – physical, chemical and biological. Soil biology includes all things living in the soil – both plants, animals, things you can see and microscopic. Each soil property is in turn influenced by four soil processes – residue digestion, nutrient cycling, soil structure maintenance and pest and disease regulation. “The living part of the soil is driving the four soil processes,” says Dr Ash Martin.

Microbe testing will be available to all members of the Growers Group, with soil sampling carried out in spring when the activity of microbes is at its highest.

WIGG is funded in part by the Western Australian Government’s State Natural Resource Management Program.

Inlet update

We are well into Makuru and the sandbar is still open! This is now the **longest opening on record**, and with river flows already increasing there’s a high likelihood that the bar will stay open this year.

Dr. Elke Reichwaldt from the Department of Water and Environmental Regulation says that this presents us with an amazing opportunity to monitor how the inlet’s water quality and seagrass is affected. It will also be interesting to see when it will close - the channel is unlikely to be as deep and wide as with an artificial opening.

[Click HERE to see the latest inlet monitoring data](#)

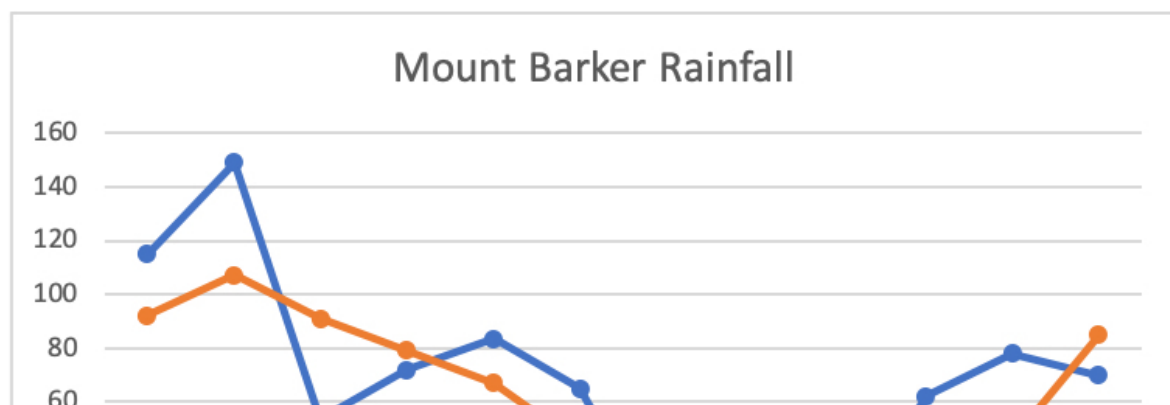
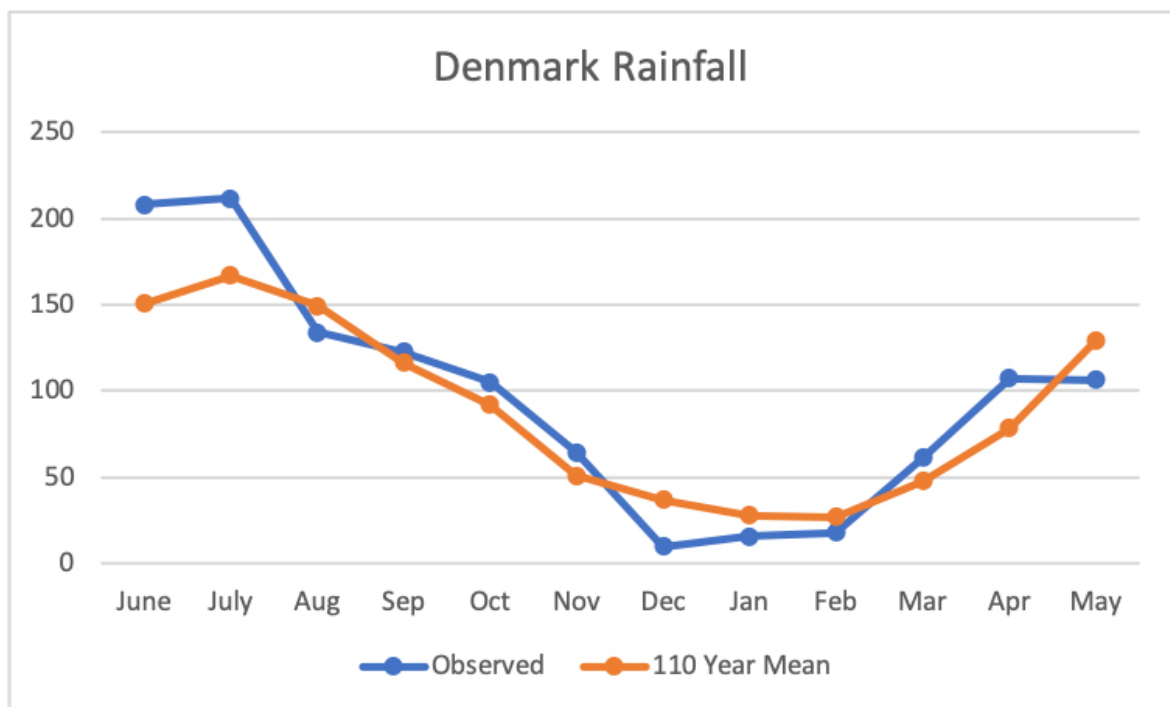


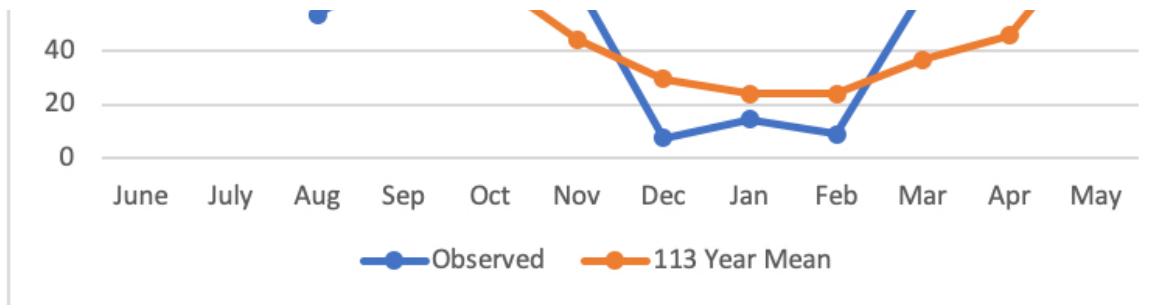


Wilson Inlet June 2022 photo courtesy of DWER

Rainfall update

We had a wet and early break of season in April however May has been a return to slightly below average rainfall throughout the catchment. The Bureau is still predicting average to below average rainfall for July and August due to a Southern Annular Mode that is expected to trend positive. This prevents storms off the Southern Ocean reaching the South Coast. The Indian Ocean Dipole is returning to neutral and will have little bearing on our rainfall over the winter months according to the Bureau. The outlook for the eastern states looks much wetter than average. Special thanks to Alison Smith who continues to monitor the Mount Barker rainfall data :)





Upcoming Events



28th July 2022

Feral Trapping Workshop with Gavern House of Alpha Pest Animals Solutions
 Youngs Hall - 10 AM to 12PM [RSVP HERE](#)



29th July 2022

Wilson Inlet Growers Group with Di Haggerty on Natural Intelligence Farming
 Denmark Riverside Club 9:30AM to 12PM [RSVP HERE](#)

Wilson Inlet Catchment Committee is endorsed as a Deductible Gift Recipient.

Your donation will go to help these initiatives.

Wetlands Initiative
 WICC is raising funds to purchase Eungedup Wetlands. Nestled between Denmark and Albany on the south coast of Western Australia, these

Biodiversity Initiative
 Work with landowners to restore and maintain the natural biodiversity in the catchment through

Waterways Initiative
 We implement work programs in coastal waterways to further establish native vegetation, minimise

Sustainable Agriculture Initiative
 We source and distribute funds and expertise to assist landowners to

On Western Australia, these remarkable wetlands provide a unique opportunity to preserve endangered wildlife.

Invasive species control, preservation of remnant native revegetation and weed control.

vegetation, minimise erosion and strip nutrients.

Implement environmentally sustainable practices that reduce nutrient loads in the catchment.

Donations of \$2 or more to WICC are tax deductible in Australia.

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