

Energy Factsheet - Hydropower

Introduction - Our lives are dependent on energy and electricity. Consider the role of energy in reading this: energy was required to create the computer that this article was written on. Energy is needed to keep the lights on and to keep the air warm (if you have the heater on) or cool (if you have the air-conditioner on). The materials and construction building you're in required energy to be built. If you're thinking of eating a snack while you're reading then chances are energy was needed to create, store or transport your snack. The clothes you're wearing needed energy to be made and will need energy later to be cleaned.

Evidence of our dependency on energy is all around us. And because we need it for so much in our lives, it makes sense that we should be using a form of energy that is best for us and best for our planet, both now and in the future. This is what we call 'sustainable energy'.

- **Energy** - Scientists describe energy as the ability of a body or system to do work. Energy is all around us and is constantly changing. When you feel the warmth of the sun on your back you're enjoying the heat energy from the sun. When you cook over a campfire you're using heat energy converted from the stored energy in the wood you're burning. There is energy in the food that we eat. This energy comes from plants who used the energy from the sun. And there is the energy we use for making electricity.
- **Electricity** - Electricity is a form of energy. We use this energy in almost every aspect of our lives: heating and cooling, cooking, lighting, charging phones and computers, watching TV and listening to music, and even for charging (some of) our cars.

About hydropower - If you've ever been dumped by a big wave you'll understand the power of water. The power of the water isn't just about getting dumped and eating sand. We've been using moving water to get us around in boats (and on surfboards) for quite some time. More recently in human history we've been using running water to power mills for grinding things like seeds and grains. And even more recently than that we've been using the power of water to make electricity.



The Snowy Mountain Scheme (NSW) is a hydroelectric scheme that's been going for more than 35 years, and has been operating as the largest renewable energy generator in Australia, providing up to 3.5% of the mainland grid's power. The idea of hydroelectricity schemes like the Snowy Mountains Scheme is that power is produced through the gravitational force of falling or flowing water. The bad news is that in some places, constructing the dams and diverting the rivers to get the most amount of water possible to produce the electricity can lead to environmental damage, both through construction but also through reduced water flows to the environment.

However, we also have two other forms of water power: tidal power and wave power. Tidal power is a form of hydropower that converts the energy of tides into electricity. The good thing about tides is that they are easy to predict so tidal energy is far more reliable than wind energy or even solar.

Wave power is the transport of ocean surface waves and the capture of the energy that drives those waves to do something useful for us, like generate electricity. The beautiful thing about wave power is that it's a genuinely renewable source of energy.