

## All about Hydroelectricity

### Why we need clean energy

Australia's stationary energy sector, which includes electricity derived from coal-fired power, is responsible for around 50 percent of our greenhouse gas emissions. Australia's environmental, economic and energy security is at risk from climate change unless we can compete in a low carbon world. Any successful climate change solution must first target the energy sector specifically.

Australia has some of the world's best clean energy sources, many of which are already powering Australian homes and businesses. Our superior clean energy resources, like hydro power, have the capacity to meet Australia's growing energy needs while providing a clean powered, sustainable economy.

### Hydroelectricity – how it works

Hydroelectricity, also known as 'hydro' uses the energy of flowing water to spin a turbine connected to a generator, which produces electricity. The amount of electricity generated depends on the volume and height of the water above the turbine.

Large hydroelectric power stations use dams to store the water needed to produce electricity. These dams are often built for irrigation or drinking water and the power station is included in the project to ensure maximum value is extracted from the water.

Smaller mini and micro hydro power stations may not need dams but rely on naturally flowing water such as streams. These are often used as stand-alone systems not connected to the main electricity grid.

***Did you know?*** Hydro generators can start up and supply maximum power within 90 seconds.

### Greenhouse gas savings

Hydroelectricity is a zero-emission electricity source. One megawatt hour (MWh) of hydro-derived electricity avoids approximately one tonne of CO<sub>2</sub>.

### In Australia

With a long history of development in Tasmania and the Snowy Mountains Scheme in NSW, hydro delivers the majority of Australia's renewable energy. There are more than 100 hydroelectricity stations totalling around 8,400 megawatts (MW) of capacity which produced an estimated 13,800 gigawatt hours of electricity in the past year. This represents around 5.5 per cent of the nation's total electricity output.



Australia's major hydro electricity schemes are located in:

- Tasmania
- Snowy Mountains
- North East Victoria
- Queensland
- Ord River in Western Australia.

## Potential

Opportunities still exist in Australia for small hydro electricity generators on streams, in town water supplies and other places where there are regular water flows. The cost of producing electricity from small hydro where a new dam is not needed are similar to those of wind generation and remain a viable energy security option for communities around Australia.

## Global View

Hydroelectricity is the largest renewable energy source globally, generating 16 per cent of the world's electricity. Currently there are more than 800,000 MW of installed hydro energy worldwide producing 3 million gigawatt hours of electricity. The top four countries using hydro are:

- USA
- China
- Brazil and
- Canada.

## Current Issues

The ongoing drought in Australia is having an impact on hydro schemes across the country. Although generators of hydroelectricity have employed water conservation and recycling measures where possible to mitigate the reduction of water in dams and rivers, power generation has been affected.

## About the Clean Energy Council

The Clean Energy Council is the peak industry body in Australia, creating a united strategy built on strong policy and direction in the clean energy sector.

We aim to find solutions that deliver abundant and affordable clean energy and efficiency solutions to Australia, as quickly as possible. For more information please visit [www.cleanenergycouncil.org.au](http://www.cleanenergycouncil.org.au)



*Clean Energy Council*