

## How to be “Off the Grid” with Water

No matter whether you are wanting to save costs or do your bit for the environment, living off-grid, independent of local utilities, in an urban residential setting is possible.

In sunny Australia, it is easy to go off-grid with solar, harnessing the sun’s energy to provide us with power and hot water for free, but given that we live in a semi-arid country, how do we go off-grid with water?

### Water Sources

In order to go off-grid with water, you will need to have a source of water to tap into. This source can be a stream or dam on the property, groundwater, or rainwater. Not everyone has access to the former, especially in residential areas, but rainwater can be collected wherever rain falls from the sky.

Another benefit of collecting rainwater over the other options is its purity. Unlike freshwater sources above or below the ground, rainwater contains no harmful pathogens and therefore does not necessarily need to be purified before used as drinking water.

### Water Collection & Storage Options

Any home that has a roof surface can collect, harvest and divert rainwater, storing it for use later. This water can be used for any purpose, including household use, irrigation, watering livestock or pets, washing cars or topping up swimming pools. Rainwater harvesting systems can vary in size and in the complexity of design, but all systems consist of the following basic components:

- **Catchment surface** - usually a roof
- **Conveyance or diversion system** that channels the water to the storage system
- **Storage system** - rainwater tank/s or cistern that safely stores water for future use
- **Distribution system** that delivers water to the home, garden, pool, etc.
- **Treatment system** where water is filtered or treated.

When choosing a rainwater storage system it is essential that you find a solution that is safe. The storage tank should be securely sealed to prevent children or pets from accidentally falling into it, and it should be made from food grade quality materials that will not leach harmful chemicals into your water supply.

## Option 1. Rainwater Tanks

[Rainwater tanks](#) are popular in residential areas. They come in a wide range of shapes and sizes enabling them to fit into any corner of your garden. They also come in a variety of aesthetically pleasing natural colours that blend in well with vegetation or the backdrop of a brick wall.

## Option 2. Cisterns

Cisterns offer a good solution for storing very large volumes of water both above and below ground. Above ground cisterns are usually smaller, lighter and portable to facilitate moving them around easily, while below ground cisterns are bulkier and can store larger volumes of water, but because they are buried under the ground, don't take up valuable space in urban gardens.

## Water Treatment

If you are going to be using the rainwater you have collected for drinking, it is best to treat it to ensure it is free of any contaminants. While these are likely to be minimal compared to other sources of water, bacteria and chemicals from the roof surface can still potentially contaminate the water if the water is not treated accordingly, and particulate matter, sediments and debris can wash into the water if not filtered out.

## Water Conservation in the Home

With Australia being quite a dry country, many states and local councils encourage installation of rainwater tanks when building new homes. If you are wanting your home to be completely off-grid with water and not rely on back-up water supplied via your local utility, you will need to ensure that you have sufficient water to supply your household water needs.

In addition to rainwater, you can also harvest stormwater (water running off ground surfaces), and/or make use of recycled grey water which can be used for irrigating gardens and flushing toilets. See our article [Becoming Self-Sufficient with Rainwater, Stormwater and Recycled Grey Water](#).

## Hot Water Off-Grid

Heating water in a regular electric geyser is extremely energy-intensive, and the largest consumer of electricity in a home. Solar hot water systems offer an affordable and efficient alternative, and once installed will deliver hot water for free as long as the sun shines. In a sunny country like Australia, they are very efficient.

The simplest, cheapest, and most effective option is the evacuated tube solar hot water system. The solar evacuated tube system consists of a hot water tank connected to a series of glass tubes, which vary in number depending on the size system you require. Water within the tubes is heated by the sun during the day, and as the water heats up it rises up the tubes into the holding tank. The hot water rises to the top of the tank, while cooler water at the bottom of the tank is displaced, flowing out into the tubes where it is heated up by the sun—a cycle that is repeated throughout the day. When hot water is drawn out of the top of the

tank for household use, cold water flows into the bottom of the tank, and then into the tubes where it is heated by the sun. No pumps or electricity are required to run the system, although a backup electrical thermostat is an option to ensure hot water when the sun doesn't shine for long periods of time.

## Other Considerations

If you decide to go completely off-grid in an urban residential area, you may still have to pay for services (water and/or electricity) even if you do not connect to these services, which you are not obliged to do.

Although you will not be charged for using the service – that is, you will not be charged for the water you use – many councils will still include a service/infrastructure fee in your monthly rates for making such accessible to you. You could also legally require a water connection, and you will still need access to sewerage disposal, so it may not be possible to go completely off the grid. It is still possible though to be self-sufficient with your water supply as well as electricity.

Living on your own water supply can result in huge savings in the home while conserving valuable water resources in the process. [Water storage tanks](#) are an important part of being sustainable with your own water. Clark Tanks are one of the most trusted brands in the country and provide a variety of tank styles and sizes at competitive prices. Contact us to about your water storage needs.

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