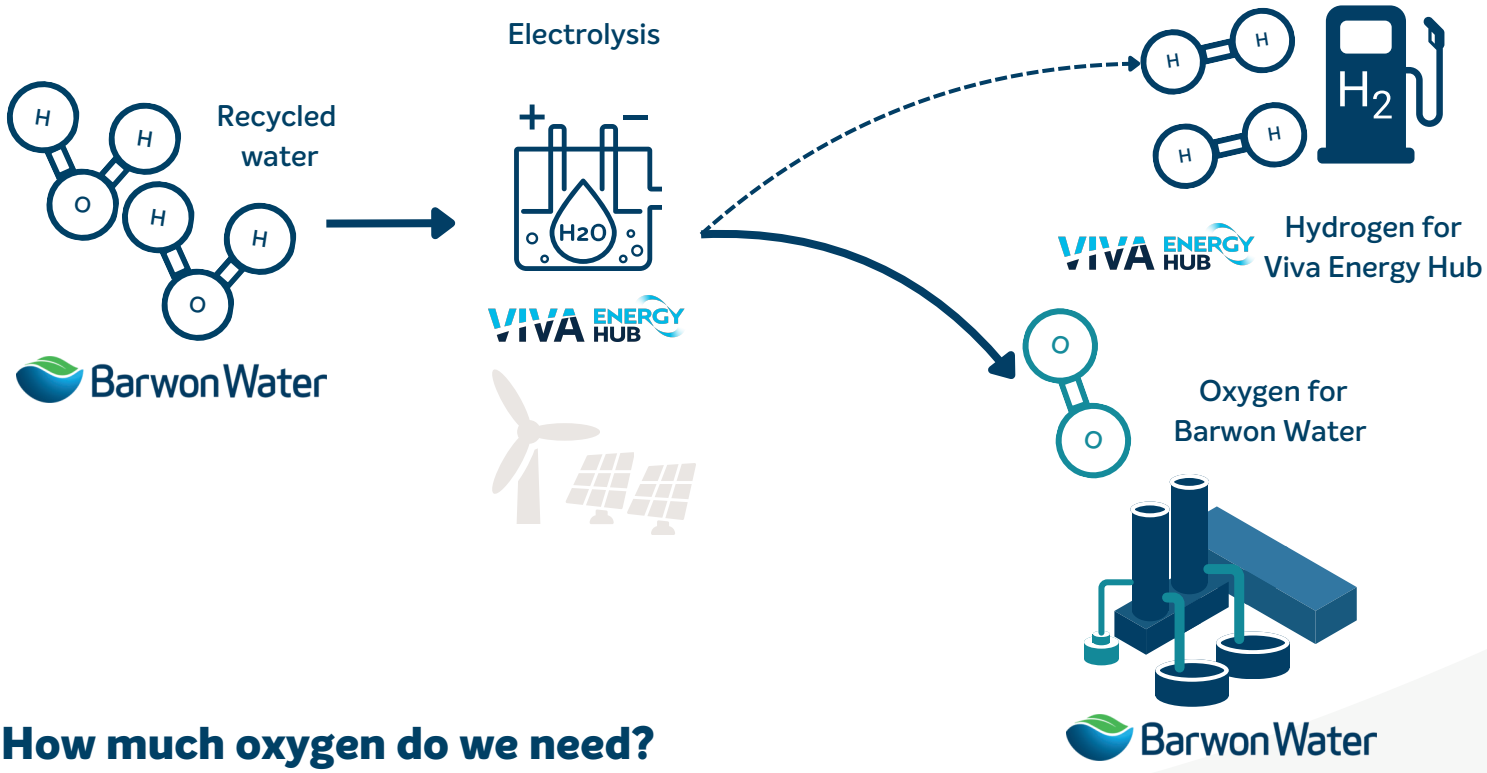
Water, hydrogen and oxygen

Overview

The Green Oxygen for Wastewater Treatment project is a partnership between Barwon Water and Viva Energy Australia to explore how oxygen enriched air can be used in wastewater treatment at the Northern Water Plant in Geelong.

Water (H_2O) is a molecule composed of two atoms of hydrogen (H_2) and one atom of oxygen (O_2). Using a process called electrolysis, an electric current is passed through water to separate the positive charged hydrogen atoms and the negative charged oxygen atoms. Each of these atoms then naturally bond in pairs to form molecules and are generated as hydrogen (H_2) and oxygen (O_2) gases.

For every two molecules of water via electrolysis, two molecules of (H_2) and one molecule of (O_2). gases are produced.



How much oxygen do we need?

- The Viva Energy Hub electrolyser can produce more than 8,000 kg O_2 per day – which is sufficient to treat wastewater at the Northern Water Plant with the enriched air.
- If we increase the oxygen concentration in the air supplied to the process, this could result in 50% potential energy savings with a significant reduction in CO_2 and nitrous oxide emissions.

DID YOU KNOW?

When producing hydrogen from water, oxygen is a natural byproduct currently not captured or used.

Barwon Water

Green Oxygen for Wastewater Treatment