

# PORTLAND: 24 x 7 RENEWABLE ENERGY WITH CARBON CAPTURE AND STORAGE



## OPPORTUNITY

Glenelg Shire seek to replace their natural gas fired hot water system and purchased electricity with a low emission, low cost alternative. Various options were considered including solar, wind and wood chip boilers.

## PROPOSED SOLUTION

ECHO<sub>2</sub> the Australian developed and manufactured biomass to energy & biochar technology currently undergoing commercial implementation at nearby Tantanoola, South Australia, was proposed. Rainbow Bee Eater and SDA Engineering, the developers of ECHO<sub>2</sub>, were requested by Council to prepare a Feasibility Study which was completed in June 2019. The Study proposes an ECHO<sub>2</sub> module using local biomass residues such as from plantation forestry to provide renewable energy for the pool and six public buildings, Stage 1 heat, Stage 2 electricity.

## EXPECTED RESULTS

Glenelg Shire will produce energy from local renewable resources that are currently burned, landfilled or unused.

Biochar and wood vinegar by-products assist farmers, graziers, foresters and land-care projects to increase soil carbon, increase animal health, reduce chemical inputs, reduce nitrogen emissions and assist soil & food health. Biochar replaces up to 30% of imported bitumen in roads.

Glenelg Shire energy costs will be close to zero as the by-products pay for the owning and operating costs. Every year another three years' worth of previous CO<sub>2</sub> emissions are removed from the atmosphere and sequestered in the biochar.

ECHO<sub>2</sub> technology is developed and manufactured in Australia by Rainbow Bee Eater and SDA Engineering.

## Customer

Glenelg Shire  
Heat and Electricity for public pool and six public buildings

## Location

Portland, Victoria



## ECHO<sub>2</sub> Module

biomass 9,000 tonnes/yr  
heat 10,400 GJ/yr  
electricity 2,200 MWh/yr (Stage 2)  
biochar 3,200 tonnes/yr  
wood vinegar 500 tonnes/yr  
carbon capture 9,600 tonnes/yr  
local jobs on-going 4 FTE  
project jobs 8 FTE  
capex stage 1 & 2 \$5M +/-10%  
ROI of each Stage 6 years  
ROI with Puro CO<sub>2</sub> Credits 4.5 years

## Applications

Waste to Energy  
Biochar & Wood Vinegar Production  
Carbon Capture & Storage

<https://www.rainbowbeeater.com.au>