

# Sustainable Housing

<b>INDUSTRY FOCUS AREA:</b>	New Energy, Advanced Manufacturing
<b>VICTORIAN CURRICULUM LINKS:</b>	Science, Digital Technologies, Personal & Social Capability, Critical & Creating Thinking
<b>TECHNOLOGY USED:</b>	IR Cameras, Sustainable housing kits, Thermometers, Rapid proto-typing
<b>YEAR LEVEL:</b>	7-10
<b>DURATION:</b>	One day
<b>LEVEL:</b>	Intermediate
<b>MAX STUDENTS:</b>	50

## Introduction

The face of energy in the Gippsland region is undergoing change. This has been seen with the closure of the Hazelwood Power Station and the increase in solar, wind, and geothermal energy generation. There is a world-wide pressure to reduce emissions and move towards a greener future. Household energy use is a significant contributor to global carbon emissions. International policy is firmly moving towards technology-rich, low- and near-zero-energy homes. That is, buildings designed to reduce the need for additional heating, cooling and lighting. They use efficient or renewable energy technology to reduce the remaining energy use. The Victorian government has set a target of 25% renewable energy production by 2020, increasing to 40% by 2025<sup>5</sup>.

## Program Summary

Students will be introduced to the various heat loss mechanisms from buildings and look at design features to keep energy consumption to a minimum. They will investigate the application of different insulating materials, conducting experiments with each material type. They will use this learning to plan, design, build, and test a “zero energy” home. Students, at the end of the day, will present their design to the group highlighting their energy reduction strategies and design features.

## Taking part in this program, students will collaboratively:

- Conduct experiments to understand heat loss mechanisms
- Design, build, and test a prototype
- Collect data and analyse results
- Reflect on learning and present their findings

## Career Links:

Artisans: builders, electricians, carpenters,  
Designers: architects, interior designers, draftspersons, civil engineers

<https://www.fya.org.au/wp-content/uploads/2016/11/The-New-Work-Mindset.pdf>

<sup>5</sup> <https://www.energy.vic.gov.au/renewable-energy/victorias-renewable-energy-targets>

