

# Renewable Energy and Environmentally Sustainable Design Case Studies

## Riddells Creek - SHW

### Award Winning Project:

This project won the 2009 Clean Energy Council award for *Best Design and Installation of a Solar Hot Water System*.

*"We've been very satisfied with our dealings with Going Solar and are pleased with the operation of our system. We had expected to need our gas booster occasionally in spring or autumn, but we haven't ... since the beginning of August 2008. So our hot water has cost us nothing since then. Even so close to the winter solstice, on sunny days we are getting good solar contribution. Boosting from the slow combustion stove gives us the satisfaction of having heating, cooking and hot water all from the one energy source."*

- Lyn 20/6/09

### Site:

Riddells Creek, Victoria

### Dates:

- System Design: April 2008
- System Installation: June 2008
- System Commissioned: June 2008

### Client:

Lyn

### Project Goals:

Design, supply and install a domestic solar hot water service.

### Project Features:

- Rinnai Beasley Close Coupled Unit:
  - 330L stainless steel tank;
  - 2 x Excelsior frost tolerant collectors;
  - Internal Infinity 26 LPG booster with settings preset to 60°C fixed for solar.
- Jindara wood heater/oven with a stainless steel flue water jacket.
- Tedson heat exchanger and expansion tank.

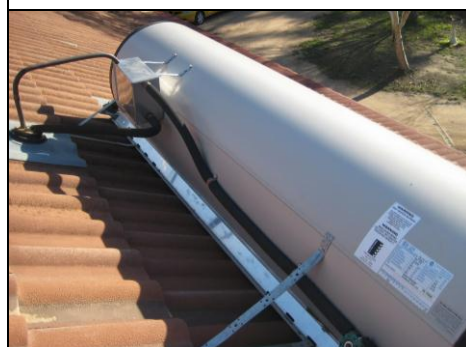
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SHW system on roof



Detail of insulated pipes, valves and roof penetration



Rear of storage tank showing expansion tank (centre left)

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The special features of this system are the use of:

- A heat exchanger to provide wood stove back-up while still allowing mains-pressure hot water delivery.
- LPG instantaneous booster to deliver water at safe temperatures.
- Special frost tolerant collectors (warranted to -6°C) to provide protection without the need for pumps, frost valves or glycol.

One special aspect of this installation is the provision of mains pressure hot water while the primary supplementary heating is from a wood stove. This is achieved by the innovative use of a heat exchanger.

An LPG gas booster was also installed to ensure that water is always heated to appropriate levels for health and safety. Special care was taken in both design and installation to ensure a neat and tidy job.

#### Project Team:

- Mark Donaldson, System Designer, Going Solar
- Scott Magrath, Plumber

#### Further Information:

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**Solar hot water system  
(with wood stove flue above it)**



**Inside the roof showing the  
Tedson heat exchanger (centre  
left and the wood stove flue  
(centre right)**

**Wood  
stove  
with  
oven.  
Flue  
water  
jacket is  
at base  
of flue**



**The house with the solar hot water system**



**Back-up gas booster**