

# HIDEAWAY MOTOR INN

ARMIDALE, NSW

## CASE STUDY

### PROJECT DESCRIPTION

The Hideaway Motor Inn is a 22 room Motel located in the City of Armidale. The Motel is located just 5 minutes from the University of New England and has a 4.4 Star review on Google. The Hideaway Motor Inn has a wide range of amenities that make it a favourite with Armidale visitors.

### PROJECT REQUIREMENTS & CHALLENGES

With an aging gas boiler that was both becoming unreliable and expensive to run, the 22 room motel required a reliable and energy efficient hot water solution to deliver hot water to the entire complex including bathrooms, kitchens, laundries and more.

Given the temperature in Armidale can drop below  $-5^{\circ}\text{C}$  during the winter months the new system would need to be able to deliver  $60^{\circ}\text{C}$  hot water in temperatures in cold conditions.

### MHIAA'S SOLUTION

After discussions between Optimus Plumbing and our technical sales department and after taking into consideration the hotel's daily water volume and temperature requirements it was agreed that Mitsubishi Heavy Industries' Q-ton, CO<sub>2</sub> air-to-water hot water solution accompanied with a 1,000L tank would be perfect for the application.

### PROJECT DETAILS

Hideaway Motor Inn  
Armidale, NSW

### COMPLETION DATE

August 2019

### PRODUCTS INSTALLED

1 x Q-ton air-to-water heat pump.

### MHIAA REPRESENTATIVE

Trent Miller - 0487 800 606

### CONTRACTOR

Optimus Plumbing - 0457 779 888



[mhiaa.com.au](http://mhiaa.com.au) | 1300 138 007

Mitsubishi Heavy Industries Air-Conditioners Australia, Pty. Ltd.



HOT WATER SOLUTIONS



## MHIAA'S SOLUTION CONT.

The Q-ton is an industry leading air to water heat pump that utilises CO<sub>2</sub> as a natural refrigerant to deliver a reliable and highly efficient hot water solution in even the coldest environments. The Q-ton heat pump draws air through an evaporator containing CO<sub>2</sub> refrigerant, which absorbs the heat in the air and a two-stage compressor then compresses the refrigerant to raise its pressure and its temperature, while an on-board heat exchanger (gas cooler) transfers this heat from the refrigerant to the incoming water to generate high temperature hot water, which can then be stored in tanks. The Q-ton can deliver great performance at low outdoor temperatures down to -25°C, making it perfect for colder climates and allowing it to deliver accurate, set point heated water, all year round.

Achieving an industry leading COP (coefficient of performance) of 4.3 by delivering 30kW of output power from only 7 kW input<sup>1</sup>, the Q-ton is much more efficient than the hotel's existing water heater. As a result of being more energy efficient, the Q-ton is much cheaper to run; delivering huge reductions in running costs, with the Hotel reporting a reduction of \$1,600 in gas bills and only a \$100 rise in electricity costs. In addition to this, the Q-ton's remote-control scheduling functions allows it to produce hot water during off peak electricity periods and store this in tanks for later use, offering even further cost savings.

Consuming 76% less energy than an electric line storage heater and 46% less energy than a gas boiler, the Q-ton generates 74% less CO<sub>2</sub> emissions (47 tonnes) than an electric heater and 48% less emissions (23 tonnes) than a gas boiler, making it much more environmentally friendly<sup>2</sup>.

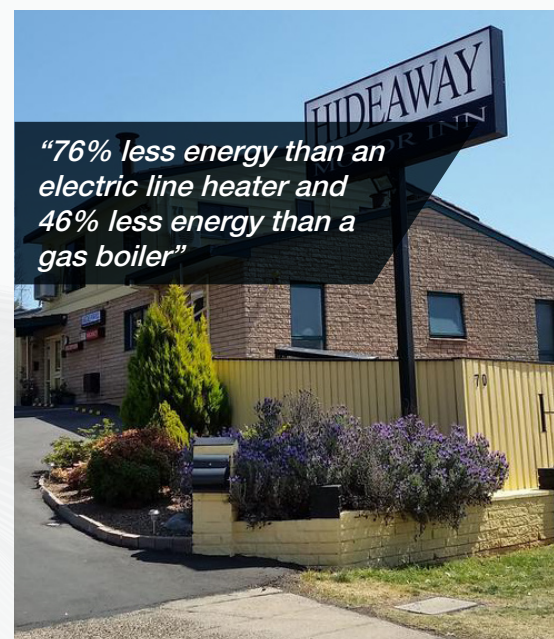
The Q-ton can be configured as a stand-alone unit or operate with up to 16 units in modular configuration, providing 3,000 to 100,000 litres of sanitary hot water daily and can be easily controlled from the simple touch screen control panel. This enables programmability and flexible operation not possible with a conventional hot water system such as an electric line storage heater.

By working closely with Optimus Plumbing, MHIAA was able to deliver a reliable hot water solution that will significantly reduce the motel's energy costs and deliver reliable hot water, even throughout Armidale's colder winters.

<sup>1</sup>Intermediate season, Outside Air on at 16°C, Feed Water inlet temperature at 17°C, Hot Water setpoint temperature at 65°C.  
<sup>2</sup>Operation conditions: senior care home, 80 persons, 8000L/day, 60°C conversion. The above figures have not been issued from a real site and should be considered as an indication only.



*"Great performance even under outdoor temperatures as low as -25°C"*



*"76% less energy than an electric line heater and 46% less energy than a gas boiler"*



## Q-TON'S KEY BENEFITS



### High Performance

- 60°C to 90°C water supply in -25°C ambient temperature
- Maintain 100% capacity down to -7°C



### High Efficiency

- High coefficient of performance (4.3 in intermediate season)
- Massive reductions in both running costs and CO2 emissions



### Easy Operation

- Easy to use touch screen control with advanced functions
- User friendly scheduling options and one-touch fill up



### Environmentally Responsible

- 48% less emissions than an electric heater
- 74% less emissions than a gas boiler

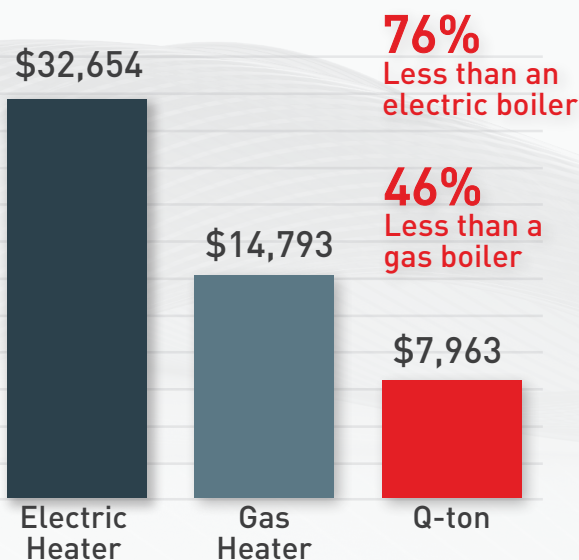


### Long Term Reliability

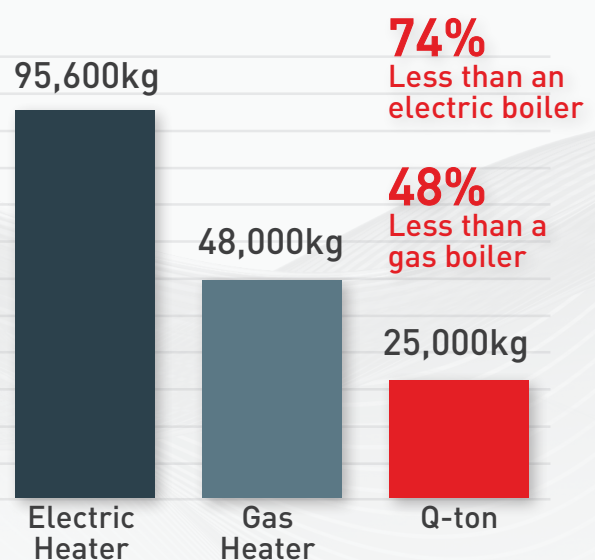
- High quality, robust technology and components
- Regular maintenance = long life expectancy

<sup>1</sup>Intermediate season, Outside Air on at 16°C, Feed Water inlet temperature at 17°C, Hot Water setpoint temperature at 65°C.

## ANNUAL RUNNING COSTS



## ANNUAL CO2 EMISSIONS



Senior care home, 80 people, 8,000 L/day, 17°C conversion. The above figures have not been issued from a real site and should be considered as an indication only.