

## Household energy bills for Wagga Wagga residents

This document provides the findings of an analysis of how energy efficiency, solar and electrification impact energy bills for Wagga Wagga residents.

Renew has conducted this independent analysis by simulating the energy needed for homes with a range of energy efficiency features and appliances using our in-house energy modelling platform *Sunulator*.

The analysis uses detailed local climate data for Wagga Wagga and retail energy tariffs offered for Wagga Wagga residents by Red Energy as at 25 February 2023.

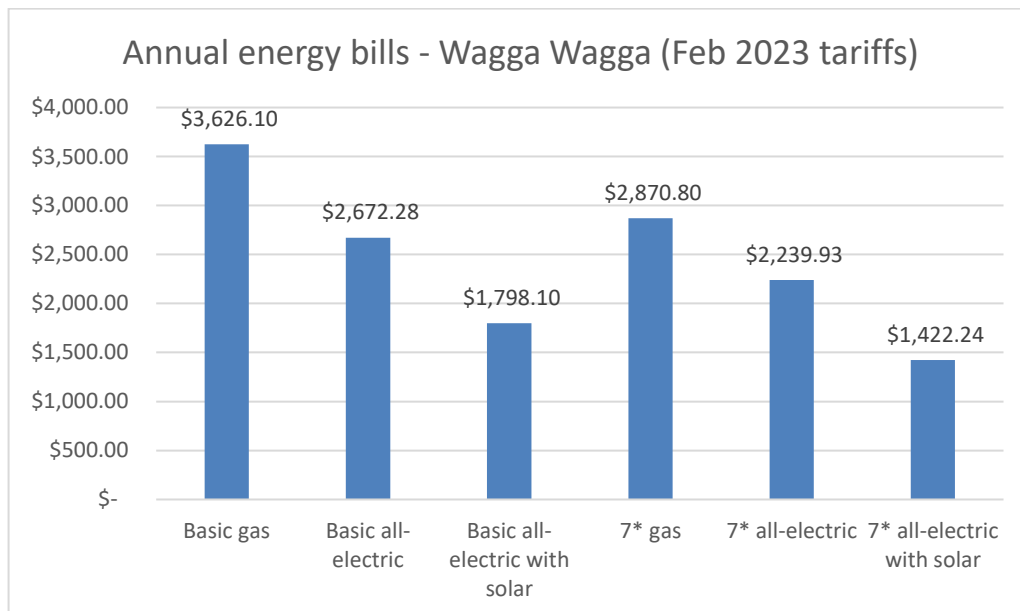
The Wagga Wagga findings follow methodology established in Renew's analysis of capital city locations in [Limiting energy bills by getting off gas: all-electric homes after the 2022 energy crisis](#). Further details on methodology and assumptions are available in this report.

## Annual energy bills for Wagga Wagga households

We analysed the energy use and total annual energy bills of a 200m<sup>2</sup> detached home in Wagga Wagga.

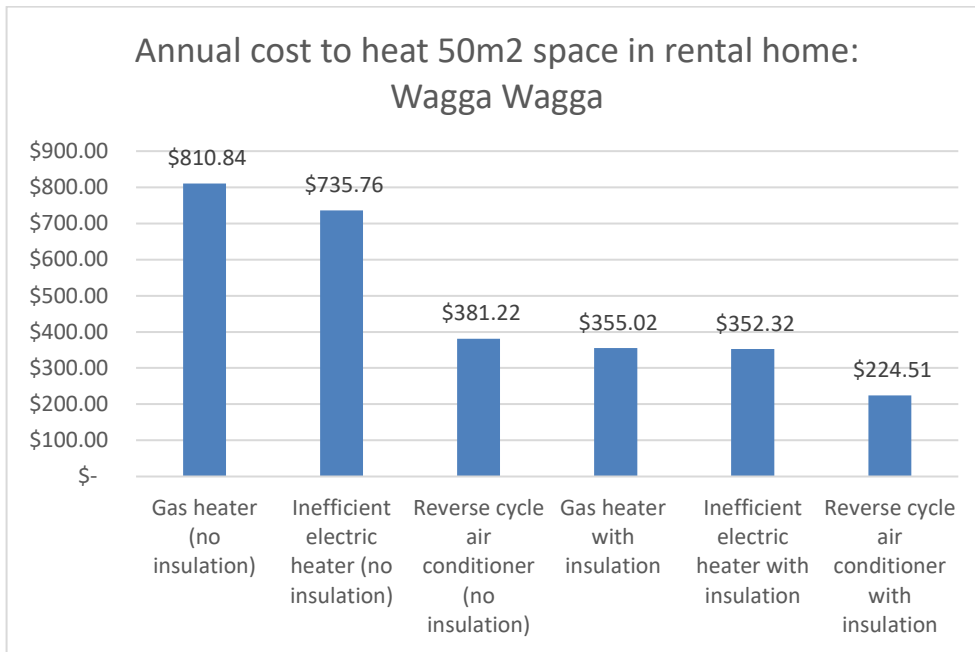
We compared homes across six scenarios that compared the impacts of energy efficiency, all-electric appliances, and rooftop solar. The first three scenarios had a NatHERS thermal efficiency rating of 3 Stars out of 10, while the second three scenarios had a NatHERS thermal efficiency rating of 7 Stars – soon to be the minimum standard for new homes in the National Construction Code. The scenarios with rooftop solar are assumed to have 3kW systems.

Our findings on annual energy bills were as follows:



## Cost of heating for Wagga Wagga renters

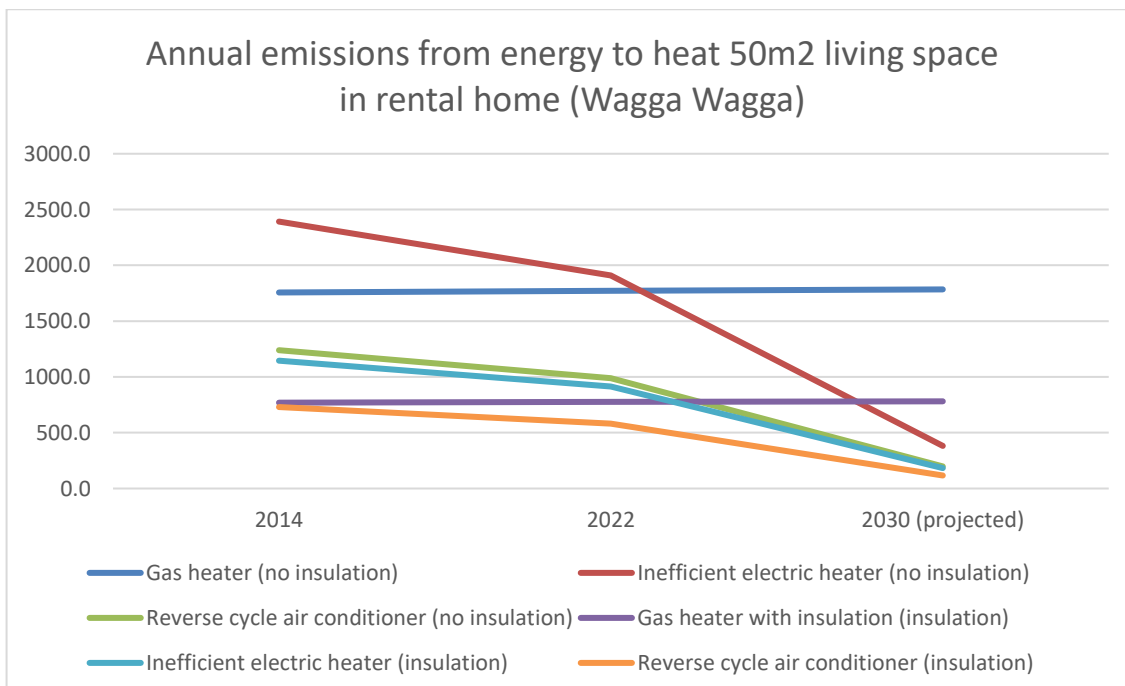
We furthermore analysed the cost of heating for a 50m<sup>2</sup> living space in a typical rental home. We compared the cost of heating for homes with and without insulation; and according to whether the home uses a gas heater, an inefficient panel electric heater, or an efficient reverse cycle air conditioner.



Replacing a gas heater with an efficient reverse cycle air conditioner and installing insulation was found to reduce the cost of heating by 72% \$586 a year.

## Emissions from energy used for heating

Using the same scenarios as considered for heating a typical rental home above, we analysed the annual greenhouse gas emissions produced by energy used for heating. We assume here that energy is imported from the electricity grid or from gas networks, rather than rooftop solar.



Because the electricity grid is decarbonising through the growth of renewables but the emissions intensity of gas remains constant, the relative emissions of electric appliances are falling. Efficient reverse cycle air conditioning with insulation is already the lowest-emission heating option; with renewables growth in line with the AEMO 'Step Change' scenario, emissions from electric appliances will continue to fall.

## Assumptions and data

We applied flat tariffs offered to Wagga Wagga residents through the Red Energy 'Living Energy Saver' pack as at 25/2/23. These rates were as follows:

Gas daily supply charge: \$1.078

Gas per MJ usage: 2.96c

Electricity daily supply charge: \$1.6302

Electricity per kWh usage (import): 30.45c

Electricity per kWh feed-in tariff: 7c

The daily average energy use in our annual household energy bill scenarios were as follows:

Scenario	Gas MJ	Electricity kWh (import)	Electricity kWh (export)
Basic gas	126.55	11.43	
Basic all-electric		18.69	
Basic all-electric with solar		12.22	6.07
7-Star gas	73.82	9.76	
7-Star all-electric		14.8	
7-Star all-electric with solar		8.99	6.73

The daily average energy use for our rental home heating scenarios was calculated as:

- 1) Gas (no insulation): 75.05 MJ
- 2) Inefficient electric (no insulation): 6.62 kWh
- 3) RCAC (no insulation): 3.43 kWh
- 4) Gas (insulation): 32.86 MJ
- 5) Inefficient electric (insulation): 3.17 kWh
- 6) RCAC (insulation): 2.02 kWh

Further information on modelling methodology is available in Renew's December 2022 report, [Limiting energy bills by getting off gas: all-electric homes after the 2022 energy crisis](#).

**Renew – 28 February 2023**