



Energy efficient cooktop & oven appliance factsheet

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Cooktop & oven appliance factsheet

Cooking accounts for approximately 5%¹ of the total energy consumed by a residential property. The main cooktops installed in residential properties are either a single unit (countertop mounted) or an integrated unit combined with an oven as a freestanding unit. Households can reduce their energy bills by converting their natural gas cooktop and oven with a high efficiency induction cooktop and electric convection oven.

Technology overview

Induction cooktops

Induction cooktops use electromagnetic current to directly heat cookware rather than transferring heat to the cookware before cooking can start, as with traditional gas cooktops. Induction cooktops offer several advantages to their gas-powered counterparts, including:

- cooking up to 50%² faster than conduction or natural gas cooktops, saving time and energy
- magnetic energy generated by the induction cooktop is directed almost immediately to the cookware, cooking faster and more evenly heating the base of the cookware
- most induction cooktops automatically switch off when a pot or pan is taken off the cooktop surface, leading to further energy savings.

Please note that induction cooktops only work with specific cookware with magnetic or ferrous bases. Most modern cookware is compatible with induction cooktops. Cookware compatibility can be tested by pressing a magnet to the base of the pot or pan, if it sticks, then the pan should be compatible with induction cooktops.

Ovens

In addition to being faster and more energy efficient when compared to conventional gas fired ovens, modern fan forced oven technology offers the following benefits:

- fan forced technology evenly circulates heat throughout the oven, cooking food quicker, evenly, and at lower temperatures
- cooking with a fan forced oven is approximately 20%³ more energy efficient than traditional gas fired ovens.
- value-add features like easy-to-clean enamel walls, 'cool to touch' doors and rapid heat functions.



LPG versus electric equivalent appliance

When choosing between converting a natural gas appliance to electric or LPG, consumers will often have a preference based on familiarity with an appliance type and previous user experiences, but you should also consider the energy efficiency, bill impact and operational benefits. When reviewing your options, you should also consider advancements in technology. Modern, electrically powered appliances can often deliver the same or improved user experience compared to a gas equivalent. Table 1 summarises an electrical equivalent technology and some user benefits compared to a gas equivalent.

Table 1: Most efficient appliance quick facts

LPG appliance	Electric equivalent	Electrification benefits
LPG cooktop	Induction cooktop	<ul style="list-style-type: none"> • Cooking time: cooks up to 50% faster than average cooking times • Precision: more accurate temperature control and heat distribution • Cleaning: Simple and easy to clean
LPG oven	Convection oven	<ul style="list-style-type: none"> • Cooking time: cooks up to 25% faster than traditional ovens • Precision: internal fans ensure an even distribution of heat throughout the oven space

When evaluating electric appliances, you should also consider other factors, including energy bill savings, only having a single supply charge (not paying a supply charge for both LPG bottle and electricity connections), safety, and air quality. Table 2 provides a comparison of the annual operating costs of different LPG appliances compared to electricity for an average household.

Table 2: Comparative annual costs of LPG and electric appliances

LPG appliance	LPG annual costs	Electric equivalent	Electric annual costs	Potential annual energy cost savings
LPG cooktop	\$287	Induction cooktop	\$156	\$131
LPG oven	\$168	Convection oven	\$95	\$73

*The above comparison considers a medium household of 3-4 people; higher savings are expected for larger households.

**Costs are based on the average cost of a 45kg LPG tank from local Esperance suppliers, and the average household electricity A2 tariff in Esperance as of 31st March 2022.

¹ EnergyConsult, Residential Energy Baseline Study: Australia, < www.energyrating.gov.au/sites/default/files/2020-06/report-residential-baseline-study-for-australia-2000-2030.pdf >

² Energy Australia, What's cooking? Choosing between gas and electric, < www.energyaustralia.com.au/blog/better-energy/whats-cooking-choosing-between-gas-and-electric >

³ Hi-Tech Appliance, Benefits of Convection Ovens, < www.hitechappliance.com/convection-ovens-are-more-energy-efficient/ >

Greenhouse gas emissions savings

A great benefit of converting from natural gas cooktops to electric induction cooktops is the reduction in greenhouse gas (GHG) emissions. The annual GHG emissions savings of converting a four-burner natural gas cooktop is equivalent to turning an LED light bulb on for 2.3 years. These reductions in GHG emissions mean the households of Esperance are making a meaningful impact on climate change.

Installation considerations

Before the selection, purchase, and installation of an induction appliance, you should consult with a registered electrician to determine which model is most suited for your kitchen. Other things to consider include:

- Confirm the overall cooktop's nominal size and compare with the cut-out size on the benchtop as the cooktop will need to fit in the available cavity space.
- Ensure the depth of unit below the kitchen benchtop is sufficient to accommodate the cooktop, and that the allocated cabinet space will accommodate the new oven.
- Installation of a safety switch.
- Consult with a registered electrician to determine whether the existing electrical infrastructure can support the cooktop and seek advice on any potential wiring requirements and switchboard upgrades required, in consideration of the manufacturers' recommendations.
- When removing a natural gas cooktop or oven, a certified gasfitter will be required to make the redundant natural gas fittings safe.



Government of **Western Australia**
Energy Policy WA

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