

List of Electrification Studies

Cost savings

Residential

1. 2023 - Climate Council - Smarter Energy Use: How To Cut Energy Bills & Climate Harm - Report models the bill savings from electrifying residential cooking, heating and hot water, plus basic EE upgrades like insulation and draught sealing for various capital cities for an average 1.5 star home. Total bill savings from electrifying appliances for Sydney are \$898/year, Total savings from thermal efficiency upgrades for Sydney are \$539/year, Total: \$1436/year.¹
2. November 2023 - Lane Cove Council²
 - a. Developers save around \$2,000 per dwelling by avoiding the gas distribution pipework needed for a gas service, based on council research.
 - b. Residents save money because they avoid the daily gas connection charge, which is around 65.8c per day (in Lane Cove), or \$240/year.
 - c. The gas disconnection fee is around \$1170. Based on this figure, if 1,000 new dwellings in Lane Cove were built without a gas connection, the cumulative avoided gas disconnection fee would be over \$1m
3. 25 October 2023 - modelling by Monash University's Climate Change Communications Research Hub shows that electrifying all existing homes across the country would save a total of \$4.9 billion annually, or \$450 per household per year. The gas network fees alone cost Australian households \$1.3 billion per year alone, excluding any gas usage. Electrifying all homes across NSW would save households a total of \$751.1 million, according to the research.³
4. August 2023 - research commissioned by 350 Australia shows that, if every NSW council currently connected to the gas network banned new residential gas connections from financial year (2023/24), the average annual bill savings would total \$3.7 billion in today's dollars compared with business as usual.⁴
5. July 2023 - a report by Energy Consumers Australia and the CSIRO found that households that go fully electric, which includes the uptake of electric vehicles, would save up to \$2,250 per year on their annual energy bills compared with typical, fossil-fuelled homes.⁵

¹ Tilderman, T., Bradshaw, S., Rayner, J., and Arndt, D. (2023). *Smarter Energy Use: How To Cut Energy Bills & Climate Harm*, Climate Council.

² Lane Cove Council. (2023). *DCP Sustainability Amendments: Introducing requirements for all-electric buildings*.

³ Monash Climate Change Communication Research Hub. (2023). *Switching On: Benefits of Household Electrification in Australia*, Monash University.

⁴ Harrington, P., Strategy Policy Research, modelling the impact of banning gas to new homes in NSW, August 2023, commissioned by 350 Australia.

⁵ Energy Consumers Australia and CSIRO. (July 2023). *Consumer impacts of the energy transition*.

<https://energyconsumersaustralia.com.au/news/governments-must-step-up-to-ensure-a-consumer-focused-energy-future#:~:text=CSIRO's%20research%20also%20shows%20that,a%20less%20utilised%20gas%20network>.

6. July 2023 - this report shows that homes in Melbourne that switch gas heaters for electric, heat pump heaters could save up to 75% of on their winter heating bills⁶
7. 2023 - this report commissioned by South Australian Council for Social Services compared the heating and cooling costs for different sized homes in Adelaide, finding that households that switch from gas to efficient electric heaters/coolers can save up to \$556 per year for a three bedroom home.⁷
8. 2022 - Victorian Government's Gas Substitution Roadmap shows that, switching from a dual fuel home to an all-electric home (excluding solar PV) produces annual bill savings of around \$1020/year. Add solar panels and the savings are \$1250/year. These savings exclude energy efficiency upgrades, which would make the savings higher.⁸
9. October 2022- Australian Sustainable Built Environment Council report shows that electrifying all homes (existing and new) in NSW would generate \$91.82 billion in operational energy cost savings by 2050 compared with BAU.⁹
10. 2022 - the Victorian government found that all-electric homes with solar could save up to \$720 per year on their energy bills compared with gas connected homes, and \$1,020 per year for all-electric homes with solar.¹⁰
11. 2022 - modelling shows that homes in Sydney could save \$924 per year on their energy bills if they switched gas appliances like hot water units, heaters, ovens and stoves, for electric ones.¹¹
12. 2021 -Rewiring Australia report shows that households could save \$5,000 per year on their energy bills by replacing their fossil fuelled cars with electric vehicles, switching all gas appliances (water, heating, and cooking) with electric ones and adding rooftop solar.¹²
13. August 2021 - Renew modelled the energy costs savings of a 6 star homes connected to gas compared with 7 star, all-electric homes powered renewable energy with energy efficiency upgrades. The annual average energy bills for a 6 star, gas-connected home in Sydney was \$2,213, compared with \$1,221 for the 7 star, all-electric home. In other words, 7 star, gas-free homes were shown to be \$1,110 cheaper to run per year than gas connected homes.¹³

⁶ Renew and Environment Victoria, 'It's a Gas: How ditching gas this winter can cut heating bills by 75%: comparing the costs and emissions of gas and electric heating over winter demonstrates how Victorian households can benefit from phasing out gas', July 2023, <https://renew.org.au/research/its-a-gas-how-ditching-gas-this-winter-can-cut-heating-bills-by-75/>

⁷ Renew, 'Efficient heating and cooling in Adelaide homes An analysis of energy bills and emissions', 2023, <https://renew.org.au/research/adelaide-households-paying-too-much-to-heat-and-cool-homes/>

⁸ Gas Substitution Roadmap, Victorian Department of Environment, Land, Water and Planning, Melbourne, 2022.

⁹ Australian Sustainable Built Environment Council, Rapid and Least Cost Pathways for Decarbonising Building Operations – Final Report, December 2022, p.ix, <https://www.asbec.asn.au/wordpress/wp-content/uploads/2022/11/SPR2123-Final-Report-20221014.pdf>

¹⁰ Victorian Government, 'Embracing electricity to cut your bills at home', 2021, chrome-extension://efaidnbmnncnibpajpcgiclfefindmkaj/https://www.energy.vic.gov.au/_data/assets/pdf_file/0039/579882/Victorias-Gas-Substitution-Roadmap-Embracing-electricity-to-cut-your-bills-at-home.pdf

¹¹ Tidemann, C., Rayner, J., and Cheung, H., Switch and Save: how gas is costing households, Climate Council 2022, https://www.climatecouncil.org.au/wp-content/uploads/2022/10/CC_MVSA0323-CC-Report-Switch-and-Save-Gas-vs-Electricity-V6-FA-Screen-Single.pdf

¹² Rewiring Australia, Castles and Cars: Savings in the Suburbs through Electrifying Everything, Discussion Paper, 2022. .

¹³ Renew, Households Better Off: Lowering energy bills with the 2022 National Construction Code, August 2021.

14. 2020 - study for the ACT government found savings of up to \$593 for homes in Canberra with no solar, and between \$307 and \$985 for homes with solar¹⁴
15. 2018 - this report found that home owners in Victoria would be between \$9,000 – \$16,000 better off over 10 years if they built their new home with all-electric appliances powered by solar with no gas.¹⁵

Commercial

1. September 2023 - in a report commissioned by 350 Australia, energy consultants, Strategy Policy Research shows that, if NSW councils required all new commercial buildings to be all-electric, it would save businesses across the state \$1.3 billion from 2024-64.¹⁶
2. October 2022- Australian Sustainable Built Environment Council report shows that electrifying all commercial buildings (existing and new) in NSW would generate \$32.76 billion in operational energy cost savings by 2050 compared with BAU.¹⁷

Health benefits

Residential

16. Decades of scientific medical research demonstrates the alarming health impacts that gas pollution causes when used indoors. See Doctor's for the Environment's literature review¹⁸

Environmental benefits

Residential

17. 2022 - Victorian Government's Gas Substitution Roadmap shows that all-electric homes generate 16% less emissions than new homes connected to gas¹⁹

¹⁴ ACIL Allen Consulting, 'Households Energy Choice in the ACT', 2020, chrome-extension://efaidnbmnnnibpcajpcgiclfendmkaj/https://www.climatechoices.act.gov.au/_data/assets/pdf_file/0011/1784315/Household-energy-choices-in-the-ACT-Modelling-and-analysis.pdf

¹⁵ Renew, 'Household fuel choice in the National Energy Market', 2018, <https://renew.org.au/research/all-electric-solar-homes-save-thousands-over-gas-report/>

¹⁶ Harrington, P., Strategy Policy Research, modelling the impact of banning gas to new homes and businesses in NSW, August 2023, commissioned by 350 Australia.

¹⁷ Australian Sustainable Built Environment Council, Rapid and Least Cost Pathways for Decarbonising Building Operations – Final Report, December 2022, p.ix, <https://www.asbec.asn.au/wordpress/wp-content/uploads/2022/11/SPR2123-Final-Report-20221014.pdf>

¹⁸ Doctors for the Environment Australia, Home Gas Appliances and Your Health Fact Sheet, <https://dea.org.au/wp-content/uploads/2020/12/Home-gas-appliances-fact-sheet.pdf>

¹⁹ Gas Substitution Roadmap, Victorian Department of Environment, Land, Water and Planning, Melbourne, 2022.

Commercial

- “Air pollution is an ongoing concern and thought to contribute to the deaths of almost 5000 Australians each year”²⁰
- “Australian Retail Food Consultants, Brain and Poulter, have modeled capital and operational cost savings. Their analysis found AU\$20,000 per annum in savings when comparing a gas to electric food and beverage tenancy. Cost savings stemmed from factors ranging from reduced fit out costs on smaller exhaust hoods, to reduced labor costs associated with the greater ease of cleaning electric equipment.”²¹

Operational savings are significant. Commercial kitchens are notorious for their energy intensity, consuming approximately three times more energy per area than the average commercial building”²²

²⁰ Air pollution —what’s the situation?, (2019, July 19), <https://www.science.org.au/curious/people-medicine/air-pollution-whats-situation>

²¹ “Brain and Poulter: Cooking Without Gas.” Cooking Without Gas, Ti Food, Aug. 15, 2022, www.brainandpoulter.com.au/services/cooking-without-gas/. Accessed Oct. 11, 2022, in Global Cooksafe Coalition, The Future Of Cooking Is Electric. Why burning dangerous fuels in our kitchens will become a thing of the past.

²² “Decarbonizing the Commercial Kitchen.” Better Buildings Initiative, US Dept of Energy, betterbuildingsolutioncenter.energy.gov/technology-info-suite/decarbonizingcommercial-kitchen. Accessed Oct. 11, 2022. In in Global Cooksafe Coalition, The Future Of Cooking Is Electric. Why burning dangerous fuels in our kitchens will become a thing of the past.