

**Submission to the Australian Government's Department of Industry, Science
and Resources
Consultation on the Future of Gas
13 November 2023**

Introduction

Rewiring Australia welcomes the opportunity to make a submission to the 'Future of Gas' consultation. While this consultation covers the full range of issues around the future of fossil gas in Australia, in this submission we focus on the role electrification should play in delivering emissions reduction and climate targets while delivering cost-of-living relief to households.

Fossil gas is an unsustainable energy source both ecologically and financially. While there are some strategic uses of fossil gas for example industrial processes, there is no future for gas as a bulk energy supply for residential or commercial space and water heating, cooking nor electricity generation.

This submission advocates for a significant government investment in household electrification supported by the development of a national gas substitution roadmap, national coordination of electrification policy and regulatory reform and companion policies. These policies would help Australian households and businesses reduce the cost of energy by substituting expensive and polluting fossil gas with cheaper behind-the-meter electrification and powered by rooftop solar.

Such an approach would unlock hundreds of billions of dollars in private investment in solar, EVs and electric machines. It would reduce energy price inflation, improve energy affordability and eliminate carbon emissions from the energy sector. All governments (Australian, State, Local) have the opportunity to maximise the economic benefits of electrification by supporting households to electrify.

About Rewiring Australia

Rewiring Australia advocates for rapid electrification to address climate change, create jobs, green exports and save households money. Rewiring Australia is a non-profit research and advocacy organisation dedicated to representing the people, households, and communities in the energy system. We deliver practical climate progress by working with government, industry, and communities to electrify everything. We empirically demonstrate and communicate the cost savings, emissions reductions, and energy system benefits of electrification. The research of Rewiring Australia's chief scientist, Dr Saul Griffith, has been influential on energy policy in Australia and the United States of America. Rewiring Australia has reached millions of Australians with our work. Our work has four core pillars: education and communications, advocacy, data-driven research and deployment projects.

This submission draws on original research led by Dr Saul Griffith, which was first published in October 2021¹. Our research demonstrates that electrification reduces energy costs for households, accelerates emissions reduction, creates jobs, reduces the cost of abatement across the economy and increases energy security.

Electrification offers significant economic opportunities in Australia

We face a climate emergency and need to drastically reduce our emissions to maintain an inhabitable world. It is clear that we need to reduce emissions urgently, and it is well established that the energy system needs to move first.

The Australian Government has committed the country to reduce emissions by 43% by 2030 and increase renewable grid electricity to 82% by the same date. This is an interim step to reaching net zero. State, Territory and local governments across the country have also announced their own emissions targets. However, the pace of progress from the transition to renewables has started to fall behind due to the lengthy timelines that utility-scale renewable and infrastructure projects require. Build-out timelines of utility-scale is measured in years, compared to the electrification of households and businesses at the distribution level which can be measured in days and weeks.

Accelerating household, commercial, industrial and transport electrification is the fastest and lowest-risk pathway to deliver the Australian Government's 2030 energy and emissions targets, while also unlocking the economic opportunities of the clean energy transition. An electrification strategy optimises behind-the-meter solar generation by retrofitting inefficient and gas-fuelled appliances with efficient appliances. It is action that supports replacing coal and gas use and generation with renewable energy.

Through our modelling, Rewiring Australia has demonstrated that electrification is the fastest way to decarbonise our economy while unlocking a huge range of benefits for Australian households and businesses. It is estimated that millions of dollars would be kept in the community in an all-electric future where we generate half of our energy needs at the local level from small and medium-scale solar. It is money that households instead spend in the local government area.

The goal must be to make Australia a renewable energy powerhouse that generates several hundred per cent additional and ultra-low-cost electricity, that leverages new industries and enhances productivity across the economy. With vision, governments can make Australia a renewable energy superpower that generates several hundred per cent as much electricity as we currently consume, support new industries and improve productivity from lower energy input costs.

Rewiring Australia advocates for a coordinated electrification, gas substitution and retrofit strategy as the most cost-effective clean energy transition or, as we prefer, the opportunity to '*electrify everything*'.

¹ Griffith, S., (2021) *Castles and Cars. Savings in the Suburbs through Electrifying Everything*. Rewiring Australia. Retrieved from [Castles and Cars Rewiring Australia Discussion Paper](#)

Electrify Everything

We define electrification as upgrading homes and businesses by replacing fossil fuel machines with efficient electric equivalents powered by rooftop solar complemented by increasingly renewable energy from the electricity grid.

Electricity consumption in our homes and small businesses represents about 70% of our domestic emissions². In 2021, Rewiring Australia's research highlighted that full residential electrification could save households tens of billions of dollars annually by the early 2030s³. Since 2021, a number of additional studies have confirmed these findings⁴. Electrification is financially positive because renewable energy, EVs and other electric machines, such as heat pumps, are becoming cheaper than conventional technologies in both their purchase price and operating costs. That is a revolutionary breakthrough for policy and politics. It means technology cost trends will inevitably replace fossil fuels with clean, electric energy.

Role of Natural Gas in an Electrified and Renewable Energy Future

As the costs of gas continue to climb, it further contributes to energy affordability problems that Australian households and businesses are currently experiencing. Rooftop solar PV is now the cheapest form of electricity generation. As the costs of battery systems continue to decline, the rooftop Solar PV plus battery will be cheaper and cleaner than electricity and gas taken from the grid. There is an opportunity for governments to support households to electrify and to realise economic and emission reduction benefits.

The climate emergency and the steadily improving economics of electrification means business as usual for gas is over. The business model of gas retailers and gas network operators is facing a 'death spiral', consequently there is a clear role for the government in managing the transition not just for the electricity sector but for the gas sector as well.

Elements of an Australian Government Gas Subsidisation Roadmap

Natural gas is no longer economic nor plentiful and it has no role in an electrified and renewable energy future. As such, Rewiring Australia calls for the Australian Government to develop a gas substitution roadmap and commit to a rapid electrification strategy.

Victoria is more dependent on fossil gas than any other state. The Victorian Government has developed a gas substitution roadmap with the aim of navigating the path to net zero emissions while assisting energy consumers to electrify and thereby realise energy savings. This is made possible by the declining fossil gas reserves and the attractive economics of electrification compared to the more expensive option of fossil gas providing a clear role for government.

² Australian Government (2023), *National Greenhouse Gas Inventory*. Retrieved from [National Greenhouse Gas Inventory](#)

³ Griffith, S., (2021). *Castle and Cars. Savings in the Suburbs through Electrifying Everything*. Rewiring Australia. Retrieved from [Castles and Cars Rewiring Australia Discussion Paper](#)

⁴ Tidemann, C., Raynor, J., Cheung, H., (2022) *Switch and save: how gas is costing households*, 2022; Climate Council. Retrieved [Switch and save: how gas is costing households](#)

Wood, T., Reeve, A., Suckling, E., (2023). *Getting off gas: why, how and who should pay*. The Grattan Institute. Retrieved from [Getting off gas: why, how and who should pay?](#)

Rewiring Australia acknowledges and congratulates the Australian Government for including the environment in the National Energy Objectives and also the Energy Transformation Partnership agreement with the State. However, additional leadership from the Australian government is required with a focus on electrification and providing direction to the energy market bodies, such as the Australian Energy Regulator, that is consistent with an electrification and a gas substitution strategy.

Gas Substitution Strategy

We recommend that the Australian Government develops a gas substitution roadmap and clear regulatory policies on gas appliance phase-out. The development of a gas substitution roadmap is an opportunity to explore pathways to accelerate electrification while also making it accessible and equitable. Such a Gas Substitution Roadmap would include the following elements:

Gas Substitution Roadmap

1. Design and implement a national gas substitution roadmap and supporting governance arrangements.
2. Consumer information and guidance on the electrification process.
3. Removal of incentives for new gas appliances, equipment and industrial processes.
4. Policies to address the barriers to retrofitting gas appliances, equipment and industrial processes including finance and incentives.
5. No new residential gas connections.
6. Support for gas appliance manufacturers to transition to electrification manufacturing.
7. Align technical standards, investment financial incentives and planning to deliver gas substitution and rapid electrification.
8. Support the manufacturing and industrial processing to transition from gas to renewable energy-sourced steam and electrification.
9. Support for local and state governments in implementing gas substitution roadmaps for their jurisdictions.
10. Remove subsidies on gas appliances and introduce incentives for retrofit of gas appliances, equipment and processes.

Electrification Strategy

There is a role for the government in developing, and implementing an electrification strategy:

1. Implement a National Electrification Plan with supporting governance arrangements.
2. A place-based approach of electrification and degasification.
3. Balance the investment in Renewable Energy Zones into the equivalent to Community Energy Zones.
4. Issue a new Clean Energy Finance Corporation Investment Mandate Direction to enable the Household Energy Upgrade Fund (HEUF) to reach lower income households.
5. Deploy some HEUF loans via pilots of innovative funding models including on-bill financing and income contingent loans and use this to design options for a large-scale finance package to significantly accelerate electrification over 10 years, particularly among low and medium income households.

Address the upfront capital costs barriers to electrification

6. Support, coordinate and broaden state-based rebates, incentives, and 'Energy Efficiency Obligation schemes'.
7. Broaden the rebates and price incentives beyond solar PV and heat pumps to electrification equipment such as battery storage, induction cooking appliances that replace gas cooking, space heating that replaces gas heating and smart EV charging equipment.

Renters

8. Encourage states and territories to incorporate minimum energy performance standards (MEPS) into rental standards.
9. Introduce an instant tax write-off for landlords electrifying rental properties.
10. Support measures that increase transparency for renters around energy costs.
11. Work with states and territories to expand the Victorian government scheme that provides electrification funding for rental properties.

Social housing

12. Work with states and territories to electrify all social housing by 2030.

New builds

13. Update the National Construction Code standards for new builds to require electric appliances and no reticulated gas connections.
14. Move to a 7-Star Standard for new home construction, to take into account home energy appliances and drive greater energy efficiency from the point of design.
15. Introduce gas disconnection bonds to offset the cost of disconnecting from gas.

Strata buildings

16. Update the National Construction Code to ban gas connections to new apartment developments.
17. Provide targeted grants and tailored finance products to support the electrification of apartment buildings.

Appliance standards

18. Harmonise and update regulatory standards for appliances including GEMS Act, and Australian Standards technical standards to encourage electrification, DER integration and demand flexibility trading readiness.

Energy market design

19. Develop market design principles that support rapid decarbonisation.
20. Create a new market structure that is fit for purpose for the climate emergency.
21. Energy market reform and redesign to achieve permanent shift to renewable energy and not gas fired generation as an interim measure.

Consumer Information

22. Verified information and fact checking on appliance, equipment and building operating costs and performance.

Community Energy Zones

The fastest and lowest-risk pathway to deliver the Australian Government's 2030 targets for energy and emissions is to accelerate household and commercial electrification. The challenge of electrification is twofold. First, falling technology costs alone will not drive electrification fast enough to meet our 1.5-degree carbon budget. Second, upfront capital costs and other logistic barriers will make electrification harder for some households, including renters, apartment dwellers, and people on fixed, low or precarious incomes will be locked out of the financial benefits of electrification.

Current energy planning focuses on the supply side, large LNG facilities and large-scale renewable energy zones (REZ), rather than focus on the demand side. Without a demand side and an electrification focus, there will be an inevitable compounding of energy affordability problems. Therefore, Rewiring Australia calls on the Australian Government to place Electrification at the centre of its plans and commit the equivalent focus and funding to create “Community Energy Zones” (CEZ) as was done with “Renewable Energy Zones”.

The CEZ approach is a geographical-based approach and in coordination with state and local government to address the logistics of achieving aggressive electrification. The concept behind a CEZ is to unlock the benefits of electrification and the participation of the demand side at scale. It is argued the CEZ could enhance social licence to roll out smart grid technology to maximise medium to small-scale generation.

With a coordinated approach, CEZs would saturate solar and storage in suburbs and regional centres over a period of 5-10 years, thereby derisking the current ISP approach. The CEZ approach is an opportunity to accelerate the achievement of the Australian Government's 'Rewiring the Nation' aims and align ARENA's strategic direction in accelerating CEZs and demonstrations of community-scale electrification.

This would involve a multi-phase process starting with a small sample of households to test methodology and understand installation challenges and soft costs. It would quickly expand to at least 500 homes per suburb in the full electrification deployments. This would provide a living laboratory for household electrification and efficiency policies and programs. It will provide a granular understanding of the interaction between technologies, demographics, and behaviour. Pilot suburbs for electrification will develop the experience and knowledge of the social, economic and technology barriers that can be avoided at scale.