



**CONSERVATION
COUNCIL** ACT REGION

Submission to the Chief Planning Executive: Canberra Brickworks Redevelopment Environmental Impact Assessment 201900047

July 2021

The Conservation Council ACT Region is the peak non-government environment organisation for the Canberra region. Since 1981, we have spoken up for a healthy environment and a sustainable future for our region. We harness the collective energy, expertise and experience of our more than 40 member groups to promote sound policy and action on the environment.

We campaign for a safe climate, to protect biodiversity in our urban and natural areas, to protect and enhance our waterways, reduce waste, and promote sustainable transport and planning for our city. Working in the ACT and region to influence governments and build widespread support within the community and business, we put forward evidence-based solutions and innovative ideas for how we can live sustainably.

At a time when we need to reimagine a better future, the changes we need will only happen with the collective support of our community.

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Introduction

The Conservation Council ACT Region appreciates the opportunity to provide feedback on the Environmental Impact Assessment for the redevelopment of the Canberra Brickworks Precinct, located at Blocks 1, 7 and 20 Section 102 Yarralumla - EIS201900047.¹

While the ACT has demonstrated leadership by setting a target of net-zero emissions by 2045, sourcing 100% renewable electricity, and in May 2019 declaring a climate emergency, we must do more, sooner, regardless of how challenging this might appear. Leading cities around the world, such as Bristol, Glasgow and Copenhagen, have zero emissions targets of 2030 or earlier, including legislation governing sustainable commercial developments.

Well-designed buildings that mitigate and prepare for climate change can also have multiple other benefits for the environment, society and the economy. We must build resilience to deal with the environmental changes that are occurring, and ensure a just transition to a low-carbon economy. Government, commercial and community responses to the COVID-19 pandemic demonstrate that we can make rapid and previously unthinkable changes when the need is considered sufficiently dire.

Gas vs electricity

The gas used in Canberra's buildings for heating, hot water and cooking is a fossil fuel, responsible for approximately 22 per cent of the ACT's direct greenhouse gas emissions. On the other hand, 100 per cent of the ACT's electricity comes from (or is offset by) renewable energy sources, making electric appliances clean to run, whereas gas appliances will always produce carbon emissions. A 2018 report found that "to continue to promote reticulated gas to new Class 1 dwellings is to lock most of those new home buyers into significantly higher energy costs for the medium to longer term", due to the energy efficiency of all-electric homes compared to dual-fuel homes and the capital cost implications of gas reticulation.²

Electric appliances (particularly heat pumps for water and space heating) are more efficient in their use of energy than any form of gas^{3,4}, and can be powered by locally-installed rooftop solar photovoltaic panels. When coupled with energy-efficient design (such as passive solar orientation and thermal insulation and glazing) they can lower both energy demand and carbon emissions and be very low-cost for residents to operate.^{5,6} A solar-powered all-electric home

¹ ACT Government Environment, Planning and Sustainable Development Directorate, n.d., [Canberra Brickworks Redevelopment](#)

² Alternative Technology Association, 2018, [Household fuel choice in the National Energy Market](#), p6

³ Heerema, D, 2017, [Gas vs electricity? Comparing home heating costs in BC](#), Pembina Institute

⁴ Savickas, R, 2021, [Hydrogen vs heat pumps: comparison for heating](#)

⁵ Lingard, J, 2021, [Residential retrofit in the UK: the optimum retrofit measures necessary for effective heat pump use](#), Journal of Building Services Engineering Research and Technology, vol 42, no 3, pp 279–92.

⁶ Cho, R, 2019, [Heating buildings leaves a huge carbon footprint, but there's a fix for it](#), Columbia Climate School

can save a new-home buyer up to \$18,000 over 10 years compared with installing both electricity and gas (and no solar power).⁷

Electric heaters and cooktops also avoid the health and safety hazards that gas and wood-fired appliances introduce into homes and suburbs, particularly the impact of indoor and outdoor air quality on respiratory health.^{8,9} Reverse-cycle heat pumps can also be used to cool homes in summer and protect indoor air quality during bushfire and controlled burning smoke events, mitigating future climate change and air quality risks identified in Section 12 of Umwelt's Environmental Impact Assessment¹⁰ (the EIA). Additionally, induction cooktops include features such as automatic cut-out and no flames or fumes to pose health and safety hazards for children and the elderly.

ACT Government policies and strategic direction

The ACT Government has a legislated target of net-zero greenhouse gas emissions by 2045. The Parliamentary & Governing Agreement for the 10th Legislative Assembly for the Australian Capital Territory commits to:

- phasing out fossil-fuel-gas by 2045 at the latest,
- introducing legislation “to prevent new gas mains network connections to future stages of greenfield residential development in the ACT in 2021–22”,
- “Working with industry and other stakeholders to advance all-electric infill developments, with a goal of no new gas mains network connections to future infill developments from 2023”, and
- Reforming the ACT's building and planning systems to transition to best practice climate-ready and environmentally sustainable buildings, including phasing out gas in new buildings.

The ACT Government has set a clear strategic direction to phase out the use of gas in buildings, with commitments to prevent new connections to the gas network within the next two years.

All-electric buildings are already viable, energy-efficient and attractive to residents and occupants. Examples in Canberra include the Ginninderry residential estate, the Margaret Hendry School and a growing number of privately owned sustainable homes¹¹. The ACT Government has additionally committed to making the expansion of the Canberra Hospital and all current and future greenfields developments (such as Jacka and Whitlam) all-electric.

⁷ Alternative Technology Association, 2018, [Household fuel choice in the National Energy Market](#), p6

⁸ UCLA Fielding School of Public Health, 2020, [Effects of residential gas appliances on indoor and outdoor air quality and public health in California](#)

⁹ Irga, P, Oliver, B, & Torpy, FR, 2020, [‘Like having a truck idling in your living room’: the toxic cost of wood-fired heaters](#), The Conversation

¹⁰ Umwelt, 2021, [Canberra Brickworks Precinct: Environmental Impact Assessment](#)

¹¹ Sustainable House Day [ACT homes](#), and Taulaga, J, 2020, [The Canberra homes featured in this year's Sustainable House Day](#), Allhomes

Existing gas infrastructure

The EIA finds that “there are no known gas utility assets within the Proposal Area” apart from “a 63mm diameter gas main in Bentham Street and a 40mm diameter main in Denman Street”.

Evoenergy’s revised gas network plan for 2021–26 “exclude[s] market expansion capex for and associated gas demand from [new ACT land] developments” and also excludes “market expansion capex for ACT infill developments after 2023”, consistent with the ACT Government’s commitments and strategic direction.¹²

Given the absence of gas mains at the Brickworks site, extension of gas infrastructure to the site may not be included in Evoenergy’s network expenditure forecasts and costs may therefore fall to the developer / future homeowners.

Doma’s intentions

Doma’s Estate Development Plan includes “water and gas connections and reticulation throughout the development”.¹³

Part 6.4.1.4 of the EIA notes

“Some gas services may be provided to the Proposal Area, however, this is likely to be limited to houses/townhouses, commercial cooking and fireplaces where no viable electrical alternative exists. This will be further investigated and assessed during the development application (DA) phase of the project.”

while Table 12.1 indicates the

“Use of gas has been minimised such that it is only provided for commercial cooking and fireplaces where no viable electrical alternative exists.”

Indication of proposed gas infrastructure is notably absent from Doma’s March 2021 Community Information Night presentation¹⁴, suggesting that Doma is open to the possibility of not installing any gas.

Appendix F18 Greenhouse Gas Technical Memo prepared by Arup describes the measures Doma has incorporated into the design of the precinct to minimise the greenhouse gas emissions associated with the construction and operation of the development.¹⁵ These measures include orienting residences to optimise passive solar energy and the use of LED lighting. Part 2.4 notes that

“the two most common sources of greenhouse gas emissions for buildings are purchased electricity and direct consumption of natural gas for heating and cooking”.

The memo then states that

¹² Evoenergy, 2020, [Revised GN21 plan: response to the draft decision for the ACT and Queanbeyan-Palerang gas network 2021–26](#), Submission to the Australian Energy Regulator, p11

¹³ DomaGroup, n.d., [Yarralumla Brickworks](#), community presentation

¹⁴ DomaGroup, 2021, [Canberra Brickworks: Community Information Night](#), presentation

¹⁵ Arup, 2021, [Memorandum: Brickworks redevelopment, Yarralumla – GHG technical input for EIS](#)

“in private dwellings where active systems can not be directly controlled, consideration of incentives for the purchase of more energy efficient appliances, in the form of residential incentive discounts may be applied, reducing overall site energy consumption and associated GHG emissions”.

An all-electric precinct

The Conservation Council contends that Doma should indeed directly influence the choice of energy-efficient appliances for heating and cooking in both private dwellings and commercial spaces and achieve greater ongoing emissions reductions from the precinct by simply not installing gas infrastructure to the precinct. Viable alternatives to gas appliances, for both residential and commercial applications (including commercial kitchens^{16, 17} and fireplaces¹⁸), are readily available, efficient and cost-effective.

Installing gas infrastructure and appliances in the Brickworks precinct now would be in direct contradiction with the ACT Government’s clearly stated intention to phase out fossil gas. It would result in a significant cost burden on home buyers both in the immediate future for running costs and at some point in the medium term future to replace any gas appliances with electric as the phase-out of the gas network proceeds. There is an even greater imperative to ensure that all commercial and communal kitchens and large-scale heating, ventilation and air conditioning (HVAC) systems are all-electric from the outset, as these facilities are significantly more energy-intensive to operate and would require significant investment to retrofit in the future.

In contrast, the Brickworks redevelopment offers Doma an excellent opportunity to demonstrate industry leadership in sustainable building, if it commits to going gas-free. Doma should take the initiative to educate potential buyers about the advantages (health, safety, efficiency, cost-savings and greenhouse gas emissions reductions) of all-electric homes, and capitalise on the marketing potential of aligning the development and the company with the Territory’s sustainable development goals.

Climate change is the most significant threat to the global community and the impacts of a changing climate are well upon us. Responding to climate change requires both adaptation (actions to adjust to changes that have happened and are predicted) and mitigation (actions to avoid and minimise further emissions). The ACT’s per capita’s emissions are nearly three times the global average^{19, 20} and we have an obligation, consistent with the ACT’s parliament’s declaration of a climate emergency, to ensure a fast and efficient transition to clean energy. Any new substantial developments that persist in connecting to the gas mains and thereby locking in consumption of fossil gas are at odds with this obligation, and should not be approved.

¹⁶ Young, R, 2020, [Electrification of commercial kitchens](#), Frontier Energy and California Energy Wise

¹⁷ Jacobson, B, Shell, S, Schroeder, T, Young, R, Galarza, C, & Janssens, H, 2019, [All electric commercial kitchens](#), presentation

¹⁸ [Modern Flames](#) electric fireplaces

¹⁹ Office of the Commissioner for Sustainability and the Environment, 2020, *ACT State of the Environment 2019*, Canberra, p. 134.

²⁰ World Bank 2020, ‘CO2 emissions (metric tons per capita)’, accessed 8 May 2020, <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC>

Recommendations

- To ensure consistency with the ACT's Climate Strategy and the global climate science, DomaGroup should develop the Brickworks as an all-electric precinct and not install gas infrastructure
- DomaGroup's marketing of the Brickworks precinct should include education about the benefits of all-electric buildings

Other considerations

While the focus of this submission is to discourage Doma from installing gas, the Conservation Council also recommends that Doma ensures a high standard of energy efficiency and sustainable sourcing of materials used in the construction of all buildings.

Additionally, the Council recommends that Doma prioritise the incorporation of permeable surfaces, biodiverse urban greenery and water-sensitive landscaping and stormwater management, that considers climate resilience.

The precinct should also provide infrastructure (such as separated cycleways, street lighting, easily accessible bike racks and end-of-trip facilities for visitors, prioritisation of pedestrian access to all facilities) to encourage safe walking and cycling and connection to public transport services. Buildings should incorporate electric vehicle charging stations.

Waste management should include onsite composting of organic materials and the full range of source-separated recycling. Doma could also incorporate communal resources, such as a tool library, shared laundry and community food garden, that encourage reduced material consumption consistent with circular economy principles and reduction of scope 3 (embodied) emissions.

Finally, the Conservation Council supports the Friends of Grasslands in their call for a strategic approach be taken with regards to the conservation of species and representation of ecological communities across the ACT, rather than the piecemeal site by site consideration. We also share their concern that when offset sites cannot be found in the ACT, the impacts should be avoided. Offset credits should be clearly identified on the ACT Government's Offset Register.