

DANGEROUS FUELS & THE BUILT ENVIRONMENT

“The electrification of kitchens in our assets reduces the use of fossil fuels by our tenants, and subsequently their customers, which plays a role in bringing us all closer to a 100% renewable energy future.”

- Steve Ford, Head of Sustainability and Energy at GPT

The built environment sector has a crucial role to play in the transition to electric cooking

Key Facts

- Many figures on fuel use in the built environment sector do not factor in all building types, which may range from huts to high rises. Nonetheless, according to the IEA, cooking remains the activity most dominated by fossil fuels in buildings today.¹
- Using dangerous fuels to cook our food, including wood, charcoal, dung, coal and gas, harms our health and the climate.
- Gas is the dominant fuel used for cooking. Despite decades of scientific, peer-reviewed research demonstrating that cooking with gas is bad for our health and the climate, gas use in buildings is growing globally.
- Though electric cooking solutions are better for our health and the climate, built environment leaders are going electric for financial reasons. For both commercial and residential builds, electric cooking saves money in construction and operations.
- Because renewable energy provides the cheapest power in history, electric cooking solutions are also increasingly affordable for new builds in low- and middle-income countries.



What is the Global Cooksafe Coalition?

The Global Cooksafe Coalition (GCC) is an unprecedented alliance of public health, climate, aid and development organizations, billion-dollar property developers and leading chefs, joining forces to call for universal access to safe, sustainable cooking. GCC founding members and corporate partners support the phase-out of dangerous fuels from our kitchens, and urgent action to ensure low-income communities around the world benefit from the renewable energy revolution.

Cooking is the activity most dominated by fossil fuels in buildings today.²

“All-electric kitchens not only potentially present financial savings in new developments on the gas reticulation perspective, but they also contribute to inclusive and resilient growth and protect businesses and assets from the risks associated with transitioning to a renewable economy.”

- Dale O'Toole, The GPT Property Group.

1 What are the current energy trends in the built environment sector?

The World Health Organization (WHO) [estimates](#) that 50% of the global population currently relies on gas, including LPG, as their primary cooking fuel, representing nearly 70% of all urban dwellers and 30% of rural populations.² In low- and middle-income countries, the situation is starker, with [3.2 million premature deaths each year](#) from illnesses attributable to the household air pollution caused by cooking with solid fuel and kerosene.³

While renewable energy is the fastest-growing energy source from 2010-18, gas use is also on the rise, expanding by 8% during the same period.⁴

This demand drives new gas pipelines and developments that are projected to support a lifetime increase in oil and gas CO₂ emissions of 170 gigatons (GT). That's nearly as much as the projected lifetime CO₂ emissions of all current global coal plants.⁵



2 Why should the built environment sector reconsider the use of dangerous fuels for cooking?

Cooking is the activity most dominated by fossil fuels in buildings today.⁶ The International Energy Agency (IEA) estimates that cooking resulted in 498 megatons of CO₂ emissions in 2020.⁷

[Research from Stanford University](#) in the US shows that methane leaking from gas stoves, especially when the stoves are turned off, is an underestimated climate threat. In fact, in the US, methane leakage from more than 40 million gas stoves is comparable to the climate pollution from half a million cars on the road.

According to property developers and leasing agents, consumer demand for cooking gas is a primary driver of new gas connections. Gas cooking has a multiplier effect that results in outsized negative impacts on the climate.



3 Electric cooking solutions powered by renewable energy are an increasingly affordable option for households in low- and middle-income countries.

Expansion of gas pipeline infrastructure is costly for low- and middle-income countries. Electric cooking is also cheaper and more energy-efficient than LPG in many regions.

According to the IEA Africa Energy Outlook 2022, five million people were no longer able to afford cooking fuels such as LPG at the beginning of 2022. However, recent price spikes are making LPG “unaffordable for 30 million people across Africa.”⁸

Modern Energy Cooking Services (MECS), based at Loughborough University and with funding from UK AID, have used data and fuel prices from Africa and Asia to compare energy consumptions and costs. Their expert analysis found that, on average, LPG used four times the energy and was three times the price of cooking with an electric pressure cooker.⁹ This was before recent price spikes in LPG, which have only made electric pressure cookers more competitive.

4 Is electric cooking an affordable option in OECD countries?

Energy-efficient electric appliances also have the potential to alleviate energy poverty in higher income countries like the UK and US, where gas prices have more than tripled and analysis shows all-electric single-family homes in all regions of the US have lower energy bills than comparable mixed fuel-homes (i.e., electricity and gas).¹⁰

These savings are transforming decisions by property developers in the commercial retail sector. Industry modeling shows all-electric kitchens save significant amounts in construction and operations, and secure against stranded assets.

Modeling for California by [Food Service Technology Center](#) found US\$3,935 a year in fuel cost savings (based on October, 2020 gas prices) when comparing a basic efficiency gas kitchen to a high-tech electric kitchen with advanced energy efficiency.¹¹

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.¹²



Removing dangerous fuels from kitchens is a crucial step in the urgent energy transition required to avoid worsening climate change and keep kitchens safer.

Consumer demand for gas for cooking is a primary driver of new gas connections, according to real estate developers.



“Electricity access has expanded rapidly over the last 5 years in many emerging markets, yet electricity is still rarely used for cooking. Electricity has the power to transform safe cooking for communities in low- to middle-income countries where 3.2 million people per year are dying from illnesses related to indoor air pollution from cooking with solid fuels and kerosene.”

- Nyamolo Abagi, Senior Manager
from CLASP East Africa

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Sources

- 1 “IEA (2021) World Energy Outlook 2021.” International Energy Agency, Paris. Figure 3.24 CO₂ emissions by end-use and final energy consumption by fuel in the buildings sector in the Announced Pledges and Net Zero Emissions by 2050 scenarios
- 2 “Population with Primary Reliance on Fuels and Technologies for Cooking, by Fuel Type (in Millions).” World Health Organization, May 1, 2022, www.who.int/data/gho/data/indicators/indicator-details/GHO/population-with-primary-reliance-on-fuels-and-technologies-for-cooking-by-fuel-type.
- 3 “Household Air Pollution and Health.” Newsroom, World Health Organization, July 2022, www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health.
- 4 “The 2019 Global Status Report for Buildings and Construction.” International Energy Agency, 2019. Accessed July 27, 2022. https://iea.blob.core.windows.net/assets/3da9daf9-ef75-4a37-b3da-a09224e299dc/2019_Global_Status_Report_for_Buildings_and_Construction.pdf
- 5 Browning, James, et al. “Tracking Global Oil and Gas Pipelines - Global Energy Monitor.” Global Energy Monitor, 2021, <https://globalenergymonitor.org/wp-content/uploads/2021/02/Pipeline-Bubble-2021.pdf>.
- 6 IEA (2021).
- 7 IEA (2022).
- 8 Ibid.
- 9 Scott, Nigel; Leach, Matt. “Comparing energy consumption and costs – from cooking across the MECS programme.” April, 2022,
- 10 Laurie Stone, “All-Electric New Homes: A Win for the Climate and the Economy,” RMI, March 2, 2022, rmi.org/all-electric-new-homes-a-win-for-the-climate-and-the-economy/.
- 11 Young, Richard. “Electrification of Commercial Kitchens.” Center for the Built Environment, 2020. cbe.berkeley.edu/wp-content/uploads/2020/10/Young-2020-Oct-electricification-kitchens.pdf.
- 12 “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.

