# Canada Struggles to Meet Emission Reduction and Housing Targets, Google Faces Emissions Hike with AI Integration



### Canada Faces Challenges Meeting Emission Reduction and Housing Targets, Study Reveals

Research from the University of Toronto's Faculty of Applied Science & Engineering highlights a significant challenge for Canada: meeting its 2030 emission reduction targets while addressing a pressing need for new housing. Published in **Environmental Research: Infrastructure and Sustainability**, the study reveals that homes constructed in 2030 will need to produce 83% fewer greenhouse gas emissions compared to 2018 levels to align with national climate goals.

In 2018, the construction sector was responsible for 90 megatonnes of CO2, representing about 8% of Canada's total emissions. To restore housing affordability, the construction rate must triple by 2030, according to Shoshanna Saxe, an associate professor at the University of Toronto and the study’s senior author. Canada's greenhouse gas emissions target for 2030 mandates a 40% reduction from 2005 levels, equating to 443 megatonnes.

The study, conducted by researchers including Hatzav Yoffe, Keagan Rankin, Daniel Posen, and Christian Bachmann, utilized an environmentally extended input-output model to quantitatively analyze the construction sector's carbon footprint. Residential construction accounted for 42% of total construction emissions.

The researchers propose that changing construction practices and strategic urban planning could help reconcile the country's housing and emissions goals. Building densely and optimizing the location of new housing units are suggested measures to reduce the need for additional infrastructure.

### Google's AI Expansion Increases Emissions, Complicates Sustainability Goals

Google's rush to integrate artificial intelligence (AI) into its core services has significantly increased its greenhouse gas emissions. According to the company's latest environment report, Google's emissions have surged by 48% since 2019, primarily due to higher energy consumption in data centers needed to support AI systems.

Google's commitment to achieving net-zero emissions by 2030 now faces challenges due to the unpredictable future environmental impact of AI. Data centers, which house the powerful computing equipment required for AI, demand significant energy and cooling, contributing to the company's growing carbon footprint.

The International Energy Agency estimates that a Google search requires 0.3 watt-hours, while a ChatGPT query uses about 2.9 watt-hours. A study by Dutch researcher Alex de Vries suggests that Google's AI systems could eventually consume as much electricity as Ireland if adopted at full scale.

Despite these challenges, Google continues to invest in clean energy solutions, including wind and geothermal power, to offset the rising energy demands. The company aims to replenish 120% of the freshwater it uses in data centers by 2030 and is exploring ways AI can aid climate action, such as predicting wind power availability and optimizing fuel-efficient driving routes on Google Maps.

These developments shine a spotlight on the growing tension between technological advancements and sustainability efforts, underscoring the complexity of mitigating climate impact while pursuing innovation.