



Sustainability and Innovations

MEMORANDUM

To: Brett Lenart, Planning Manager

From: Missy Stults, Sustainability and Innovations Director

Date: October 23, 2022

Subject: Integration of Electrification into Unified Development Code

CC: Derek Delacourt, Community Services Administrator
Zach Waas Smith, Community Engagement Specialist

The Office of Sustainability and Innovations (OSI) is aware of and wants to note its full support for the proposed revisions to the Unified Development Code (UDC) to integrate the electrification of future buildings. Specifically, the Office wants to note its support for the integration of a proposed new section into the UDC: 5.27 which includes the requirement that all new buildings built after January 1, 2023 must not have any natural gas connection.

This proposed change is in full alignment with the City's A²ZERO Carbon Neutrality plan, which was unanimously adopted by City Council on June 1, 2020. Strategy 2 within A²ZERO calls for "Switch[ing our] appliances and vehicles from gasoline, diesel, propane, coal, and natural gas to electric," with the first action under this strategy being the "promot[ion] of home and business electrification." Under this action, the plan highlights that "natural gas for heating space and water, as well as cooking in buildings represents over 25% of our community's greenhouse gas emissions. Transitioning away from natural gas to electric, especially given our work to ensure that all electricity is powered with renewable energy, is a pivotal component of A²ZERO." Strategy 2 is a one of 7 core strategies necessary for the City to advance if it is going to achieve its goal of a just transition to community-wide carbon neutrality by 2030.

And just as important, this proposed change to the UDC has significant benefits for public health. Research in the last several years shows the significant and detrimental impacts of natural gas combustion on public health.

Research by the Harvard T.H. Chan School of Public Health¹ found that “gas appliances like stoves and ovens can be a source of hazardous chemicals in our homes even when we’re not using them,” including being a major source of volatile organic chemicals which are known to be toxic, linked to cancer, and can form secondary health-damaging pollutants such as particulate matter and ozone. This adds to the growing body of research showing that natural gas combustion leads to dangerous levels of indoor air quality, especially small particulate matter (PM2.5), which leads to asthma exacerbation, heart attacks, airway irritation, difficulty breathing, coughing, and premature deaths for those with heart or lung-related conditions.² Moreover, homes and business that are not properly ventilated (which is most) can have dangerous levels of nitrous oxides, levels so high that they can exceed EPA guidelines for 1-hour exposure limits within a matter of minutes.^{3,4} Put another way, research from the U.S. Environmental Protection Agency concluded that indoor pollutant levels may be 2 to 5, and as high as 100 times higher indoors than what would be legally allowable outdoors (since EPA only regulate outdoor air quality). In addition, homes with gas stoves regularly have 50-400% higher NO₂ emissions than homes with electric stoves.⁵

In recognition of the very real public health, safety, and climate implications of natural gas consumption and combustion, the City Council, the City’s Planning Commission, and the City’s Energy Commission, among other bodies, have been asking developers to embrace full building electrification. These requests are having mixed results, with some developers supporting the transition in full, others in part, and some completely disregarding. This creates new layers of complexity as City staff strive to establish standard requirements and expectations for developers, being as straightforward, transparent, and supportive as possible of what our expectations for new developments are.

Under current city operations and policy, we are unable to provide clarity, consistency, and certainty for developers, staff, elected leaders, planning commissioners, or the public.

Considering this, the proposed addition of 5.27 to the UDC are welcomed. The language as drafted is direct and clear. It’s supportive of the City’s work to protect public health and address the climate crisis – which is a public health crisis as well.⁶

As such, the Office of Sustainability and Innovations supports the Planning Department and Planning Commission in their work. We are standing by to help in whatever way is necessary, including finding ways to assist developers with integrating deep energy efficiency and renewable energy into the future all-electric builds. For now, though, the Office formally registers its support and appreciation for the Planning Department and the City’s Planning Commission for moving this important policy opportunity forward.

¹ Home is Where the Pipeline Ends: Characterization of Volatile Organic Compounds Present in Natural Gas at the Point of the Residential End User: <https://pubs.acs.org/doi/10.1021/acs.est.1c08298>

² A decade of the U.S. energy mix transitioning away from coal: historical reconstruction of the reductions in the public health burden of energy: <https://iopscience.iop.org/article/10.1088/1748-9326/abe74c>

³ Climate and health impacts of natural gas stoves: <https://earth.stanford.edu/news/climate-and-health-impacts-natural-gas-stoves>

⁴ Indoor air pollution: the link between climate and health: <https://rmi.org/indoor-air-pollution-the-link-between-climate-and-health>

⁵ Gas stoves: Health and air quality impacts and solutions: <https://rmi.org/insight/gas-stoves-pollution-health>

⁶ Climate Change and Health: <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health#:~:text=Climate%20change%20affects%20the%20social,malaria%2C%20diarrhoea%20and%20heat%20stress.>