Dear Chair Reineke, Vice Chair McColley, Ranking Member Smith, and Members of the Senate Energy and Public Utilities Committee,

As a Young Environmental Leader with Sierra Club Ohio, I am writing to express my concern about HB308, which would redefine natural gas and nuclear energy as "green."

According to the Intergovernmental Panel on Climate Change, our world will have to cut greenhouse gas emissions by over 40% to meet the goals outlined in the Paris Agreement (UNEP). Ohio has a crucial role to play in contributing to these climate goals and ensuring a sustainable future.

While natural gas is a cleaner energy source than coal or oil, burning fewer emissions of nearly all types of air pollutants and carbon dioxide (CO_2), its production can result in large amounts of greenhouse gas emissions, such as methane. (EIA; Jia et al., 2024). Methane is a powerful greenhouse gas; it has 28 times greater global warming potential than CO_2 and is about 84 times more potent than CO_2 over a 20-year period (UNEP).

Additionally, drilling for natural gas is destructive. Not only does digging a natural gas well require clearing an area, disturbing natural vegetation and soil, it can produce air and water pollution that can be harmful to both people and wildlife. Fracking is even linked to noise and light pollution, radiation releases, ecosystem damage, and earthquakes (Landrigan, 2019). In some places, if it is unfeasible to transport or sell the natural gas produced, it ends up being flared, releasing CO_2, carbon monoxide, sulfur dioxide, nitrogen oxides, and many other compounds into the air (EIA).

The transportation and storage of natural gas can be dangerous; one or more natural gas pipeline explosions occur annually in the United States. In September 2018, a series of pipeline explosions in the Merrimack Valley in Massachusetts resulted in over 80 fires and explosions,

damaging 131 homes, forcing the evacuation of over 30,000 people, and injuring 25 people, including two firefighters. This event even killed an 18-year-old boy (MassLive; Landrigan, 2019)

While natural gas is not the solution to our clean energy needs, neither is nuclear power. Nuclear energy may have the potential to reduce greenhouse gas emissions in a similar way to renewable energy sources and boasts relatively low environmental impact during its operation. However, these benefits are overshadowed by the significant sustainability challenges nuclear power presents, particularly when considering its environmental, social, and economic risks. One of the most glaring environmental issues is the long-lived radioactive waste generated by nuclear power, which poses a persistent risk to both human health and the environment for thousands of years (Pieńkowski, 2021; Pearce 2012). This waste problem alone undermines the claim that nuclear power is a truly sustainable solution.

Socially, nuclear energy fails to meet the key sustainability criteria that are typically associated with renewable energy sources, such as safety, decentralization, and public engagement. The centralized nature of nuclear plants, combined with the high risks of accidents and the long-term management of nuclear waste, creates significant public opposition. Public opinion on nuclear energy remains largely negative, especially when considering the high cost and long-term commitment required for nuclear investments (Pieńkowski, 2021). This lack of social acceptance further challenges nuclear power's claim to sustainability.

Economically, while nuclear energy is often presented as a solution to achieving a clean energy transition, its cost-effectiveness is highly questionable. Achieving clean energy goals with less reliance on nuclear power is certainly possible, as acknowledged by the International Energy Agency, but this would require greater investment in other, more sustainable methods of

reducing emissions. The economic analysis of nuclear power rarely includes social costs associated with risks of catastrophic accidents, environmental degradation, and managing nuclear waste. Without accounting for these externalities, nuclear energy's purported economic advantages are overstated. Moreover, the rapid advancement of renewable energy technologies, which are increasingly cost-competitive and less risky, further diminishes the need for nuclear power in a sustainable energy future (Pieńkowski, 2021; Pearce 2012). Thus, despite its low emissions during operation, nuclear energy fails to meet the broader criteria of sustainability and should not be considered a true "green" solution.

Instead of rushing to nuclear and natural gas, we should focus on investing in cleaner, greener energy sources, such as solar. Solar is cheap, clean, and plentiful, making it a great option for the future. The argument for using nuclear and natural gas as energy sources assumes we've already run out of other options, but that's not the case. We haven't fully invested in renewables like solar yet.

The problem isn't that we can't produce enough solar energy to meet our needs—it's that there are economic and regulatory barriers in the way. For example, we can't fully take advantage of community solar programs, which allow people to share solar power. If these obstacles were removed, solar energy could easily supply much more of our demand.

Instead of finding shortcuts in our transition to a sustainable future, we need to eliminate the regulatory barriers and make the necessary investments to fully support renewable energy. By doing so, solar and other renewables could easily meet our energy needs, reducing or eliminating the need for nuclear power altogether.