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Senators, thank you for inviting me to speak on this important issue. Hydrogen policy has the dangerous potential to be a taxpayer-subsidized, greenwashing exercise for continued proliferation of the toxic fossil fuel industry.

Any hydrogen subsidy that embeds or expands fossil fuel assets, including the blending of methane gas and hydrogen in pipelines and buildings, especially places of residence, should be rejected. The planetary climate and our communities cannot afford to subsidize any new or ongoing fossil fuel projects. Toxic human sacrifice zones and climate catastrophes cannot be accepted as options. Make no mistake, the act of permitting for-profit, fossil fuel projects with known correlations to avoidable, increased rates of morbidity and mortality is an act of state-sanctioned violence.

Hydrogen Blending Harms Households

Pennsylvania is ranked second in the United States for oil and gas production and annually over one million tons of methane are already emitted. Hydrogen and methane burning together can exacerbate lung conditions such as asthma and chronic obstructive pulmonary disease. This “blending” poses health and climate risks. Healthcare professionals advocate for the individuals they serve at the local, state and federal levels. Communities and patients deserve accessible and accurate documentation of the serious health risks posed to Pennsylvanians by the unconventional shale gas industry.

What Is Hydrogen and What Other Chemicals Are in Our Homes?
Hydrogen production uses large amounts of energy and contributes to our global climate crisis because of greenhouse gasses that are emitted during production. Hydrogen is highly flammable and increases the risk of the explosion of methane. The burning of hydrogen produces nitrogen dioxide which is another health harming air pollutant that contributes to greenhouse gasses in the atmosphere. Hydrogen

perpetuates reliance on methane which increases risk of accidents, fires and health inequities. Inside our homes, the blending of methane and hydrogen increases indoor air pollution prevalence from the use of gas stoves. Brown, Grey, and Blue hydrogen, derived from methane and coal, have high rates of greenhouse gas emissions which produce Nitrogen Dioxide–therefore worsening our health. The chemicals that are already present in our homes are: nitrogen dioxide, carbon monoxide, and benzene. The more hydrogen that is present in our homes, the more fracking there will be, which leads to climate change and health inequities across the US. If hydrogen continues to be emitted now, it will lead to the build up of methane in the atmosphere in the years to come.

Health Risks Associated with the Production and Burning of Hydrogen:
Not only does hydrogen harm our health, it also harms our climate. Fossil fuel derived hydrogen poses health harms specifically relating to respiratory health. The release of nitrogen oxides can increase up to six-fold when combined with methane compared to burning solely methane. Specifically, nitrogen oxides are a trigger for asthma exacerbation, COPD exacerbation and can be the likely cause of new COPD and asthma cases. The blending of methane and hydrogen will perpetuate pollution of communities by the oil and gas industry, increasing disease prevalence for future generations.

Dangers of Transporting Hydrogen:
Hydrogen is more explosive, burns hotter than methane gas, causes embrittlement, which increases the risk of ruptures, and is more prone to leakage. Hydrogen blending into gas distribution systems should not be permitted at any level because of the increased risk of explosion in buildings. Downstream gas pipeline systems and most gas transmission systems feeding into distribution systems, are not designed to carry hydrogen and should not be allowed.

Residents That Are Impacted:
In the United States, almost 18 million individuals live within one mile of an active oil or gas drilling site. Nearly 1.5 million Pennsylvanians live or work within a half mile of an active oil or gas well which predisposes residents to harmful emissions. Individuals in rural, low income, and vulnerable populations are more likely to have these environmental injustices present. Oil and gas compressor stations in these communities disproportionately increase the negative health and safety risks.

Both hydraulic fracturing and conventional drilling cause water contamination and toxic air pollution, leading to serious public health harms, such as cancer, asthma, and

preterm birth, as our own state-funded studies through the University of Pittsburgh have demonstrated.

In Washington County, Pennsylvania there is a higher prevalence of cancer deaths when compared to the state of Pennsylvania. Washington County currently has more than 2,600 active drilling sites that are closeby to where people live, work and go to school. According to the CDC in 2016 the PA Cancer Prevalence was: 152 deaths per 100,000 and was the second highest leading cause of death. In the United States, Cancer prevalence is 144.1 deaths per 100,000, slightly higher than the Pennsylvania average. The high prevalence of cancer is associated with exposure to volatile organic compounds such as carbon, hydrogen, and benzene which are present at oil and gas drilling facilities.

Pennsylvania healthcare professionals urge policy makers to make purposeful efforts to reduce greenhouse gasses in the Commonwealth of Pennsylvania. Our legislators must be held accountable to: prohibit hydrogen and methane blending, reject hydrogen where electrification is more efficient, refuse hydrogen produced by fossil fuel, and to advocare for community members affected by the oil and gas industry by informing them of the dangers and voting and legislating in ways that protect residents from the morbidity and mortality associated with the proliferation of the fossil fuel industry.

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Suggested Further Reading:

Hydrogen Giant's Money Problems Show Industry Growing Pain

Food & Water Watch - The Good the Bad and the Ugly

The Hydrogen Hubbub

A Clean Energy Pathway for Southwestern Pennsylvania

Real Zero Instead of Net Zero: Prioritizing Care Work Can Unlock a Just Transition for All