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To: erda.sm.scopingplan
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Hydrogen has been posed as a climate-friendly solution that can be produced from a variety of resources, like natural gas, nuclear power, biogas, and renewable power like solar. Framed as an alternative to methane, or natural gas, green hydrogen is hydrogen generated by renewable energy from low-carbon power. As long as the hydrogen comes from a renewable source like solar then it is considered "green" hydrogen. However, green hydrogen doesn't come without consequences. Green hydrogen is very wasteful, eating up more than half of the renewable electricity used to create it. Creating it is a dirty process that generates NOx, a pollutant linked to smog, acid rain, asthma, pulmonary disease, lung cancer, stroke, and heart disease. Green hydrogen is also very expensive—four times more expensive than natural gas—and requires all new infrastructure and appliances to use it safely. Because of this, green hydrogen must only be used as a last resort for decarbonization. It may serve as a zero-emission replacement for some electricity and building heating but it must not be considered as a fully reliant solution for decarbonizing New York in the final scoping plan. In reality, green hydrogen is an extremely wasteful, difficult-to-use, pollution-heavy, and expensive way to cut emissions from these sectors, especially compared to the alternatives: wind, solar, and heat pumps.

Relying on green hydrogen in New York's electricity sector would require three times more wind and solar power and would worsen air pollution in disadvantaged neighborhoods. Why rely on green hydrogen when we will need renewable energy to produce it already? To throw away two-thirds of the renewable electricity that is already available only to convert it to hydrogen and then burn it to create electricity makes no sense. That amount of energy could be used to build three solar farms rather than relying on old facilities and methods that only further contribute to incentivizing the use of fossil fuels. The pollution from green hydrogen production not only harms the planet; it directly impacts our health with NOx pollution that would be emitted from home stoves and chimneys and into our neighborhoods. Retooling gas plants to burn hydrogen won't produce less NOx—it would produce up to six times more NOx n the same communities that have already paid the price for our fossil fuel addiction.

As it pertains to buildings, we need to electrify building heating and shut down the natural gas network across New York over the next three decades. Opposition with vested interests insists that keeping our gas systems flowing and replacing 20% of it with green hydrogen is a viable solution moving us toward a clean energy future. But the reality is that these utilities have not been tested to ensure that the entire system (home appliances included) can be implemented and used safely, or that homeowners and renters would not bear the brunt of the bill. (Green hydrogen is currently four times more expensive than natural gas; using it for 20% of our energy would double or even triple New Yorkers' gas bills.) This proposal is as ineffective as it is expensive: it wouldn't even cut emissions by 20% because burning hydrogen produces less heat than natural gas. Reliance on hydrogen, let alone to heat entire buildings, would be stupendously expensive, difficult, risky, polluting, and wasteful. Furthermore, home appliances like furnaces, boilers, and stoves that use hydrogen don't yet exist. Green hydrogen is currently four times more expensive than natural gas; transitioning to it poses no viable financial benefit to those who would bear its financial costs—consumers. Utilities would not

be able to swap natural gas for hydrogen until every single home in an area has upgraded its appliances, which would greatly delay cutting emissions; more concerning is the fact that hydrogen leaks more than natural gas. It does not have a scent, it is highly flammable, and it would be capable of traveling back up the gas line, increasing the risk of explosions. This would require hydrogen alarms (with fresh batteries!) everywhere, and rigorous safety standards that just don't exist yet. The entire premise of using green hydrogen is wasteful and concerning when we could instead use heat pumps to heat buildings efficiently and directly use renewable electricity. We could also heat buildings by installing three to four times more solar panels and wind turbines and throwing away most of the power they produce in order to create and burn green hydrogen. It will soon be cheaper to heat our homes with heat pumps than with natural gas, never mind with green hydrogen, which will be far more expensive. Heat pumps already heat entire cities, they can't explode, they don't pollute, and they can be installed home by home.

We can not fully and completely rely on green hydrogen for a clean energy future. If it is produced it must only be for specified uses and in limited quantities. Mandates and regulations around its use and applications must be made apparent in the final scoping plan to protect consumers, families, personal health, and the health of our collective environment.

Sincerely,

Kathleen Quandt