

10/16/2024

Technical Advisory Group members,

Leakage rates from gas distribution and transmission have been historically undercounted. Given the assumption that biomethane and hydrogen will in part run through this infrastructure, accurate lifecycle emissions calculations from these measures must include up-to-date leakage rates.

[A National Estimate of Methane Leakage from Pipeline Mains in Natural Gas Local Distribution Systems](#) -2020

“Our national methane emissions estimate is approximately 5× greater (95% cr int: 1.7×, 8.7×) than the U.S. Environmental Protection Agency’s current greenhouse gas inventory estimate for pipeline mains in local distribution systems due to both a larger estimated number of leaks and better characterization of the upper tail of the skewed distribution of emission rates.”

[US oil and gas system emissions from nearly one million aerial site measurements](#) -2024

“Current US government emissions estimates are generally based on coarse emission factors, often relying on incomplete data. This approach has been found to undercount emissions by up to 40%, as estimated by ground measurement studies at up to around 1,000 sites.”

New data shows that leakage from biomethane and biogas supply are similarly undercounted.

[Methane emissions along biomethane and biogas supply chains are underestimated](#) -2022

“Methane emissions could be more than two times greater than previously estimated, with the digestate handling stage responsible for the majority of methane released.”

[At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates](#) -2020

“Anticipated leakage is climatically significant: literature estimates for methane leakage from biogas production and upgrading facilities suggest that leakage is in the 2%–4% range (mass basis), up to as much as 15%.”

Blending hydrogen into the pipeline provides significant concerns considering hydrogen is a potent indirect greenhouse gas and is especially prone to leaks.

[Climate consequences of hydrogen leakage](#) -2022

“We find that hydrogen leakage may have the potential to considerably undermine any near- and mid-term climate benefits when replacing fossil fuel systems with zero- and low-carbon hydrogen applications. Additionally, the climate benefits from 465 avoided CO2 emissions are far less than what is currently assumed based on GWP-100-derived assessments. In fact, if leaks are moderately high, even green hydrogen may initially yield more warming than would the use of the fossil fuel system it replaces.”

Please consider the most recent research on leakage rates from infrastructure as crucial in your calculations for biomethane and hydrogen.

Sincerely,
Eva Morgan