

19. Dezember 2024, 16 ct - 18 Uhr
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Methane emissions from abandoned oil and gas wells and natural gas appliances

Methane is a potent greenhouse gas, and reducing methane emissions is a fast and cost-effective way to slow global warming in the near term.

To implement mitigation strategies and reduce methane emissions, there is a need to accurately quantify emissions at the source level. Here, I focus on two methane sources for which national inventory estimates remain highly uncertain: abandoned oil and gas wells and natural gas appliances.

One reason for the uncertainty in methane emissions from these two sources is the lack of available measurements. There are hundreds of thousands of abandoned oil and gas wells in Canada, yet only ~500 direct measurements. As for natural gas appliances, there are tens of millions of natural gas appliances and end users in Canada alone but no published measurements.

In this presentation, I will present an overview of available methane emission measurements, including the different methodologies employed. I will also provide estimates of methane emissions from these sources for Canada and the U.S., including a discussion of data sources and limitations. I will end with the implications of these results on methane emissions from these two sources outside of Canada and the U.S.