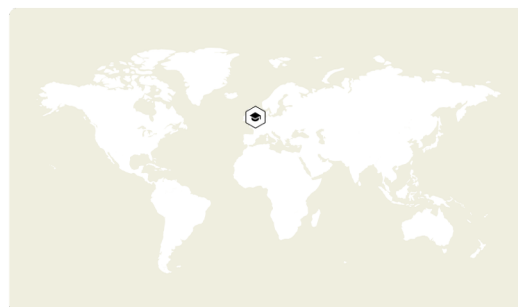


NORTH SEA OFFSHORE EMISSIONS: UNITED KINGDOM & NETHERLANDS

Independent facility-level study showing how operators can measure and report offshore methane emissions, while accounting for intermittent emission sources.



DONOR:
Oil and Gas Climate Initiative (OGCI)



BENEFITTING COUNTRIES OR REGIONS:
United Kingdom, Netherlands



SECTOR:
Oil & Gas



Subsector, if applicable:
Offshore

STATUS: Published

TIMELINE: Measurements 2018 to 2019; latest publication 2026



IMEO SCIENCE OBJECTIVE:

→ **Advance reconciliation and data integration approaches for multi-scale emissions data**



KEY FINDINGS

The study compares measurement-based emissions estimates to a global gridded inventory, which breaks down emissions into a grid based on national emission totals reported to the UNFCCC. It finds the UNFCCC inventory substantially underestimates emissions from the observed UK and Netherlands offshore facilities, underscoring the limitations of global inventories for field-specific characterization. The study also compared emissions to the UK national point source inventory, finding some platforms emitted more than an order of magnitude higher than what was reported. However, operator-reported emissions for the specific survey days aligned more closely with the study measurements. The median flaring combustion efficiency of 98.4 per cent was close to industry and government assumptions, but less efficient than in the Norwegian North Sea ([Shaw et al., 2023](#)).

RATIONALE

This study characterized methane emissions from several UK and Netherlands offshore production sites in the North Sea. Prior to IMEO's offshore studies, few measurement-based estimates existed for methane emissions from international oil and gas offshore infrastructure.



RELATED PUBLICATIONS

Methods paper ([France et al., 2021](#)); flaring efficiencies ([Shaw et al., 2023](#)); Southern North Sea (British & Dutch facilities) ([Pühl et al., 2024](#)); oil loading at floating platforms ([Purvis et al., 2026](#))



CATALYZING ACTION

The results of this study have been widely used in meetings with oil and gas operators worldwide to demonstrate and promote the use of aircraft and fixed-wing drones to measure and report offshore methane emissions.



SIGNIFICANCE FOR DECISIONMAKERS

For Industry: Oil and gas industry operators need to conduct facility-level measurements to reconcile inventories' bottom-up approach to methane reporting, which is shown to underestimate emissions. These inventories may not account for all major emission sources and operating states, which may be the underlying cause for their underreporting. Representative repeat measurements by the oil and gas industry will be useful to address this issue.

For Policymakers: The new European Union (EU) methane regulation calls for global monitoring tools to increase the transparency of methane emissions, including from oil and gas imports into the EU. This study shows that the quality of current reporting used in the UK national environment and emissions monitoring system is insufficient for this purpose. The facility-level inventory, which is largely based on generic emission factors, has been shown to consistently underestimate emissions. Efforts by operators in the UK are underway to measure their platforms at the facility level. Enhancing these efforts and incorporating these data into annual inventories would improve national-level emissions accounting.



STUDY APPROACH/ACTIVITIES

The study team used airborne instruments to measure individual offshore platforms at a safe distance downwind; these measurements were then used to quantify emission rates. The team also measured carbon dioxide and other trace gases to directly quantify the combustion efficiency of flares.

The UN Environment Programme's International Methane Emissions Observatory (IMEO) exists to provide open, reliable, and actionable data to the individuals with the agency to reduce methane emissions. IMEO does this by integrating and reconciling data across sources, including its global methane science studies. IMEO supports measurement and research studies around the world to close the knowledge gap on methane emissions and provide policy-relevant insights to decisionmakers.