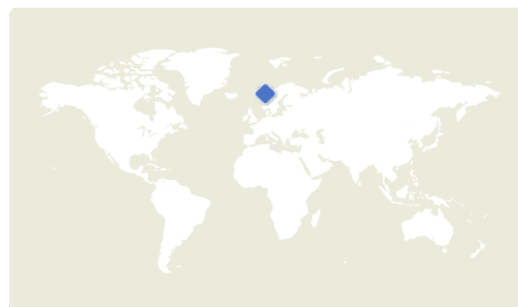


# NORTH SEA OFFSHORE EMISSIONS: NORWAY



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



**DONOR:**  
Oil and Gas Climate Initiative and European Commission



**BENEFITTING COUNTRIES OR REGIONS:**  
Norway



**SECTOR:**  
Oil & Gas



Subsector, if applicable:  
Offshore

**STATUS:**  
Published

**TIMELINE:**  
Measurements 2019; Latest publication 2022



**IMEO SCIENCE OBJECTIVE:**

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



## KEY FINDINGS

The measurements align with the data reported by the oil and gas operator. However, they are more than 40 per cent larger than a widely cited, globally gridded fossil fuel methane emission inventory based on United Nations Framework Convention on Climate Change (UNFCCC) country-level reports.

## RATIONALE

Prior to the UNEP's International Methane Emissions Observatory (IMEO)'s offshore studies, there were few estimates of methane emissions from international oil and gas offshore infrastructure based on empirical data. Since offshore facility-level emissions can vary substantially over time, large and representative sampling is needed for meaningful comparisons with reported emissions. Such comparative data is necessary to build robust and comprehensive measurement, reporting and verification frameworks such as the one set up through UNEP's Oil and Gas Methane Partnership 2.0 (OGMP 2.0). This study characterizes methane emissions from several offshore production sites in the North Sea. The IMEO team selected Norwegian infrastructure because the country is a major European oil and gas producer. It accounts for about 45 per cent of European oil and natural gas production over the past decade and its share of production is increasing.



### RELATED PUBLICATIONS

► [Norwegian offshore platform measurements \(Foulds et al., 2022\)](#)



### SIGNIFICANCE FOR DECISIONMAKERS

#### For Industry:

Facility-level reporting of methane emissions needs to account for intermittent sources. This study shows the extent to which methane emissions from offshore platforms can vary over time, and how this variation requires repeat measurements to derive representative emission rates.

#### For Policymakers:

At the time of this study, methane emission reporting in Norway ranked exceptionally high in terms of quality, as shown by the alignment between study results and Norwegian emission factors. This illustrates the significance of facility-level reporting for offshore assets in national inventories as a key element for accurate emission reporting.



### STUDY APPROACH/ACTIVITIES

The research team used a light aircraft equipped with sensors to circle individual offshore platforms at a safe distance to quantify emission rates. Repeat measurements on different days allowed the team to capture temporal variability of emissions. Overall, the team surveyed 21 different platforms to cover the breadth of Norwegian offshore infrastructure.



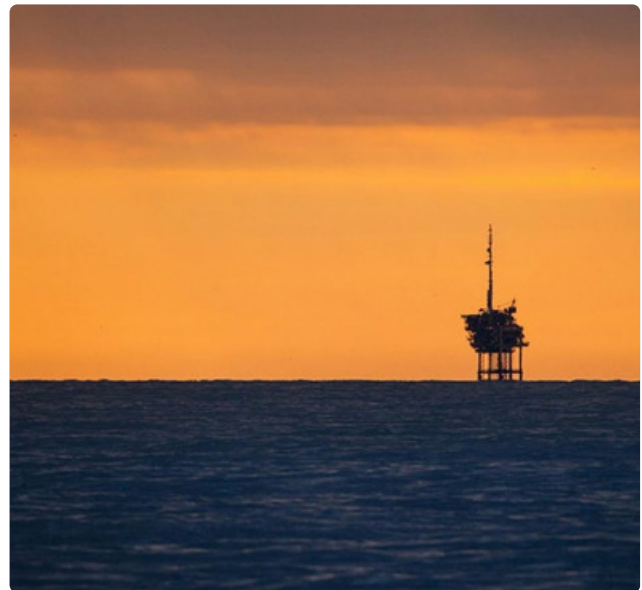
### CATALYZING ACTION

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. The results were also used in a follow-up paper by IMEO analyzing the southern North Sea to compare the levels of methane emissions across that region, Norway and the Gulf of Mexico of the United States to underline the importance of facility-level reporting.

### OTHER SUPPORTERS/STAKEHOLDERS

Principal Investigator: **Royal Holloway and Bedford New College; University of Manchester.**

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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.