

# Methane Emissions: Experience from the NCS

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## Near-zero methane intensity

Technology Specific local factors Regulation







# Facility level measurements confirm low methane emissions

CCAC methane science study collected data from 21 offshore O&G installations

#### From the Abstract:

 The operator-reported facility-level emissions largely agreed with total measured fluxes (within 1σ error) for all facilities measured, with mean measured fluxes 16% lower than those reported

**2**. In contrast, comparisons of facility-level measured emission rates with estimates from Scarpelli et al. show large discrepancies, with total measured emissions being **40% higher** than total inventory emissions estimates for all facilities surveyed (in aggregate).



**16% lower** than

operator reports

Mean measured fluxes

Measured emissions 40% higher than total inventory emissions estimates

Articles / Volume 12, issue 1 / ESSD, 12, 563-575, 2020		Sea	Search		
Earth Syns, Sci. Dese, 12, 363–575, 2020 https://doi.org/10.5194/earch 12.563-2020 @ Author(s) 2020. This work's is distributed under the Creative Commons Attribution 4.0 License.					
©	Article	Assets	Peer review	Metrics	Related articles
Data description paper					11 Mar 202
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#### Theoretically modelled emissions

- Emissions per field modelled from total emissions for O&G production reported by Norway to the UNFCCC



Annual data from operators to the authorities - Field-specific emission data Norway's national inventory report to the UNFCCC - Total O&G emissions (based on the field specific data reported from operators)



# MRV | Norwegian Regulatory framework a collaborative effort with industry

### Legislative act <u>M-107</u>

- obligation to report emissions to air, including methane emissions
- all operators must submit an annual report to the Norwegian Environment Agency

### Industry guidelines ensure consistent reporting and quantification:

- Guideline 044 <u>Recommended guidelines for emission and discharge reporting</u>
  - developed by the Norwegian Oil and Gas Association (NOROG) in cooperation with the authorities
  - ensures consistent emission and discharge reporting from all licenses
- Appendix to Guideline 044 <u>Handbook for quantifying direct methane and NMVOC\* emissions</u>
  - models for calculating direct methane and NMVOC emissions
- Optical Gas Imaging (OGI) "Leak/no-leak" method for quantification of small leaks and fugitive emissions
  - industry template
  - describes how LDAR can be used to quantify emissions, not only reduce

\* non-methane volatile organic components (NMVOC)

### Summing up from our activities on the Norwegian shelf

- Strict regulations on flaring and emission of unburnt natural gas already from the 1970'ies
- Strong focus on gas emissions for safety reasons most low hanging fruits are harvested
- CO2 tax on venting of natural gas from offshore installations
- Good dialogue with the authorities during establishment of the new reporting regulations for methane and nmVOC
- Complete identification of gas leakage sources on all installations
- State of the art calculation methodologies for methane emission estimates
  - ✓ Fugitive emission estimated with IR cameras and OGI/ Leak-no leak



### Methane Emissions: Experience from the NCS

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