

Emissions to air

Innholdsfortegnelse

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Published 19.11.2014 by the Norwegian Environment Agency

The most important components of emissions to air are carbon dioxide (CO₂), nitrogen oxides (NO_x), methane (CH₄) and non-methane volatile organic compounds (NMVOCs). Offshore oil activities are an important source of emissions of all these gases.

STATE

Significant contributor to emissions to air

With the exception of NMVOC, emissions to air from the oil and gas industry have risen since 1997 and have been relatively stable the past few years despite the measures that have been taken to reduce them. Many of the fields on the Norwegian continental shelf have grown older, and more energy is needed to extract the remaining oil and gas. Moreover, there is now more gas and less oil in the reservoirs, and producing gas is more energy intensive than producing oil.

Emissions of CO₂ and NO_x are mainly generated by combustion of natural gas in turbines for electricity production and by flaring, which is a safety system on the platforms. Offloading of oil, particularly at loading buoys on the oil fields, is the main source of nNMVOC emissions.

IMPACT

Contributes to climate change and regional pollution

Emissions of CO₂ and CH₄ contribute to climate change. NO_x emissions contribute to eutrophication and acidification and result in higher background concentrations of NO₂. NMVOC emissions combined with NO_x emissions result in the formation of ground-level ozone.

PRESSURE

Large emissions to air

The offshore oil and gas industry accounts for about 25 per cent of Norway's total CO₂ emissions and 31 per cent of its total NO_x emissions. About 23.5 per cent of the country's total NMVOC emissions are also generated by oil and gas activities. The total emissions of NMVOC from oil and gas activities have however dramatically decreased since 2001.

RESPONSE

Efficiency and coordination in focus

CO₂ emissions can be reduced by more efficient energy production. Energy efficiency can be improved by coordinating energy production on several platforms. The installation of combined heat and power plants (CHP) can also raise efficiency and reduce emissions per unit produced. Both these measures will also reduce NO_x emissions. So far there is little coordination of energy production between platforms, but combined heat and power plants are becoming more widely used.

The use of cold flare offshore, which means that the pilot flame can be extinguished and continuous flaring ceases, is another means of reducing CO₂ and NO_x emissions. NO_x emissions can also be cut by installing low-NO_x turbines and/or treatment equipment. NMVOC emissions can be reduced by installing vapour recovery equipment for use during offloading of crude oil. This has been done on many of the platforms and has resulted in a significant reduction of NMVOC emissions.