

# Understanding Air Emissions from Offshore Oil and Natural Gas Operations in the United States

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## Abstract

The technologies used during oil and natural gas exploration, production and processing from offshore installations contributes to emissions of: **(a) combustion by products** such as oxides of carbon (CO<sub>2</sub> and CO), oxides of nitrogen (NO, NO<sub>2</sub> and N<sub>2</sub>O), oxides of sulfur (mainly SO<sub>2</sub>), methane (CH<sub>4</sub>) and other volatile organic compounds (VOCs) due to incomplete combustion; **(b) vented and fugitive** hydrocarbons comprised of CH<sub>4</sub> and VOCs resulting from process vents and process equipment leaks to the atmosphere; and **(c) atmospheric releases** of halons and other chlorinated and fluorinated gases and foams that are used for firefighting and refrigeration systems.

This paper will focus on the first two categories of atmospheric emissions addressing both the contribution of these emissions to local air pollution, including as precursors for the formation of photochemical smog, as well as their impact on global emissions of greenhouse gases. The presentation will discuss available data from operations in the Gulf of Mexico and the Outer Continental Shelf in California and compare it with data from other parts of the world. The discussion will center on lessons learned and the potential importance of instituting a formal reporting system to track these emissions from installation in the Israeli territorial waters and its EEZ in addition to onshore installations.