Environmental Studies Program: Studies Development Plan | Ongoing Study

Field	Study Information
Title	Onshore Energy System's Greenhouse Gas Calculation Methodology and Results (NT-25-x14)
Administered by	Office of Environmental Programs
BOEM Contact(s)	Eric Wolvovsky (eric.wolvovsky@boem.gov), Holli Wecht (holli.wecht@boem.gov)
Procurement Type(s)	Contract
Conducting Organization(s)	Research Triangle Institute (RTI)
Total BOEM Cost	$257,606
Performance Period	FY 2025–2026
Final Report Due	March 2027
Date Revised	April 9, 2026
Problem	BOEM needs to replace the data that formerly came from the U. S. Environmental Protection Agency's annual U.S. Greenhouse Gas Sources and Sinks publication, to run our in-house greenhouse gas model, Greenhouse Gas Energy Emissions Model (GLEEM), in support of the National Environmental Policy Act and the Outer Continental Shelf Lands Act analyses.
Intervention	BOEM needs a methodology to replace this annual data, as well as calculations for 2024.
Comparison	Comparing the new 2024 data to the existing 2023 EPA data to assist with QA/QC.
Outcome	A methodology to generate the needed data to be used in the future by either a contractor or managed in-house as part of our annual GLEEM updates. In addition, using this newly established methodology to calculate emissions data for 2024.
Context	All planning areas

BOEM Information Need(s): Because of the U.S. Environmental Protection Agency's (EPA's) reconsideration of the Greenhouse Gas Reporting Program, BOEM needs a methodology to estimate the greenhouse gas emissions from onshore oil and gas processing, transport, storage, and consumption in support of BOEM's oil and gas (O&G) activity on the Outer Continental Shelf (OCS) for required impact assessments under the National Environmental Policy Act (NEPA) and the Outer Continental Shelf Lands Act (OCSLA) and to generate baseline inputs for BOEM's Greenhouse Gas Energy Emissions Model (GLEEM) which evaluates life cycle greenhouse gas emissions from OCS oil and gas production (BOEM 2024).

Background: In March 2025, the EPA announced the reconsideration of the mandatory Greenhouse Gas Reporting Program. BOEM used the greenhouse gas data collected by this program in its life cycle analysis, specifically the onshore oil and gas processing, transport, storage and consumption data from the oil, natural gas, coal and biofuel sources.

Therefore, BOEM needs a methodology to estimate the greenhouse gas emissions from onshore oil and gas processing, transport, storage, and consumption and will use this methodology to calculate greenhouse gas emissions data for 2024. This data will replace the data which had historically been collected and published by the EPA's Greenhouse Gas Reporting Program (EPA 2025) through their Inventory of U.S. Greenhouse Gas Emissions and Sinks (EPA 2024) which is published annually.

Objective(s): This study consists of three objectives:

1. Develop a methodology to estimate the greenhouse gases, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), from the following oil, natural gas, coal, and biofuel activities nationwide:
    - Oil: fuel transportation and refining
    - Natural Gas: processing, transmission and storage, distribution, and post-meter
    - Coal: post-mining underground and surface
    - Biofuel: processing, and distribution
2. Compare the new 2024 data to the existing 2023 EPA derived data for QA/QC.
3. Apply this methodology to calculate greenhouse gas emissions for these sources for 2024

Methods: The contractor shall review existing EPA historical approach and categorization. Based on this analysis, the contractor shall recommend alternative approaches that would provide the most accurate data. After approval from BOEM, the contractor shall apply the approved methodology to the 2024 energy emissions and compare this data to historical data noting the similarities and differences. If necessary and based on BOEM approval, the contractor shall revise the data (and methodology) based on this comparison analysis.

Specific Research Question(s):

- What methodology can BOEM use to estimate the specified oil, gas, and biofuel operations?
- What are the estimated emissions for the specified oil, gas, and biofuel operations in 2024?
- How do these 2024 emissions compare to past historical data?

Current Status: This study was awarded in March 2026 to Research Triangle Institute. The post-award meeting was conducted, and Peer Reviewers are on contract. BOEM is awaiting the final Project Management Plan. In the near future, BOEM will receive the development of the methodology document to review.

Publications Completed: N/A

Affiliated WWW Sites: Inventory of U.S. Greenhouse Gas Emissions and Sinks

References:

[EPA] Environmental Protection Agency. 2025. Greenhouse gas reporting program. Washington (DC): Environmental Protection Agency; [accessed 2025 Jul 30]. https://www.epa.gov/ghgreporting.

EPA. 2024. Inventory of U.S. greenhouse gas emissions and sinks: 1990-2022. 919 p. Report No.: EPA 430-R-24-004. [accessed 2025 Aug 8]. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022.

Wolvovsky E. 2024. The Greenhouse gas life cycle energy emissions model (GLEEM) 2024 version. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. 22 p. Report No.: OCS Report BOEM 2024-029. [accessed 2025 Aug 8]. https://www.boem.gov/sites/default/files/documents/environment/GLEEM_2024_Technical_Paper.pdf.