

Environmental Studies Program: Ongoing Studies

Study Area(s): Western, Central and Eastern Gulf of Mexico

Administered By: Gulf of Mexico Region

Title: Empirical Analysis of the OCS Pipeline Network in the Gulf of Mexico

BOEM Information Need(s) to be Addressed: BOEM is responsible for overseeing safe and environmentally sound offshore development in the federal waters of the United States. The pipeline infrastructure in the OCS transports over 95% of the oil and gas production in the GOM and is an integral component of efficient, economic, reliable, safe and environmentally responsible operations. To effectively manage and understand these infrastructure systems, it is important to expand and improve our current understanding of likely future configurations and trends. BOEM subject matter experts have discovered that there are several information gaps related to nearshore and offshore pipelines. This is information that is needed to support ongoing environmental impact analysis as required by the National Environmental Policy Act.

Total Cost: (in thousands) \$219,678

Period of Performance: FY 2014-2017

Conducting Organization(s): Coastal Marine Institute

BOEM Contact(s): [Victoria Phanuef](#)

Description:

Background: Pipelines serve a critical role in linking OCS oil and gas production with processing facilities along the Gulf Coast and play an important role in the safe and cost effective development of hydrocarbon resources. The GOM has developed an extensive oil and gas pipeline grid over several decades and the system is the largest and most complex offshore pipeline network in the world. There are no public reports on OCS pipeline statistics and few public analyses on activity data and trends. This study will expand upon our understanding of OCS developmental trends, how pipeline networks and landings impact coastal regions, and the growing role of subsea completions. As deepwater developments continue to progress and activity in the shallow water OCS declines, the nature of pipeline installations and requirements and coastal impacts will change.

Objectives: The primary objective of the study is to address information gaps that currently exist in the physical and economic structure and trends of the GOM OCS pipeline network and to develop primary analysis in support of BOEM environmental studies.

Methods:

Task 1: Tabulate pipeline activity statistics in the OCS GOM, including:

- a) Historic installation and removal activity by pipeline type, diameter, function, water depth, regulatory jurisdiction and planning area.
- b) Active and idle pipeline inventory by type, water depth, regulatory jurisdiction and planning area.
- c) Geographic distribution of the pipeline network and empirical relationships.

Task 2: Describe the main pipeline operators and role of hub and pipeline junctions in the deepwater GOM, and the construction and installation firms that lay pipelines, flowlines and umbilicals.

Task 3: Construct cost functions of offshore pipeline installation and describe the service market of pipelay vessels.

Task 4: Develop models to quantify pipeline installation and removal activity and the number of coastal transitions by planning area and development scenario.

Task 5: Model issues identified by BOEM personnel arising from EIS and legislative requirements.

Task 6: Summarize and analyze OCS pipeline tariffs based on a review of public contracts between 2001-2011.

Current Status: Research is completed. Several draft chapters have been submitted as interim deliverables. Technical review has been ongoing and editorial review will begin soon.

Final Report Due: May 31, 2018

Publications Completed:

Kaiser, M.J. U.S. Gulf of Mexico deepwater pipeline construction – a review of lessons learned. *Marine Policy*. (2017) 86:214-233. doi:10.1016/j.marpol.2017.08.022

Kaiser, M.J. A review of deepwater pipeline construction in the U.S. Gulf of Mexico- Contracts, cost and installation methods. *J. Marine. Sci. Appl.* (2016) 15:288. doi:10.1007/s11804-016-1373-7.

Affiliated WWW Sites:

Revised Date: March 8, 2017