

Outer Continental Shelf

# Gulf of Mexico OCS Oil and Gas Scenario Examination: Pipeline Landfalls

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# GULF OF MEXICO OCS OIL AND GAS SCENARIO EXAMINATION: PIPELINE LANDFALLS

A mature pipeline network exists in the Gulf of Mexico to transport oil and gas production from the Outer Continental Shelf (OCS) to shore. Virtually all Federal OCS production is transported to shore via pipelines, with the exception of a relatively small amount that is barged from shallow water. While there is still significant pipeline construction, most new OCS pipelines connect to existing pipelines offshore. The number of new pipeline construction projects resulting in new landfalls, where a pipeline crosses a State's shoreline, continues to decline.

The Minerals Management Service (MMS) projected the number of new pipelines landfalls that may result from a proposed lease sale in order to analyze the potential impacts to wetlands and other coastal habitats. The final environmental impact statement (EIS) for the proposed Western and Central Planning Area 2007-2012 lease sales, published in April 2007, stated that up to one (i.e., zero to one) new pipeline landfall is projected per proposed lease sale (USDOJ, MMS, 2007a), meaning that some individual sales may result in no new landfalls.

The information presented in this report was obtained from MMS's Technical Information Management System (TIMS) (USDOJ, MMS, 2007b). Only pipelines that originated offshore, transported Federal OCS production, and crossed a State's shoreline were considered Federal OCS pipeline landfalls. If a Federal pipeline was constructed that connected with an existing State pipeline that made landfall, it was not considered as a Federal OCS pipeline landfall. Existing or proposed pipelines that transport imported gas from offshore LNG terminals were also not considered Federal OCS pipeline landfalls. The date of a pipeline's initial hydrostatic test was used for the date of installation.

As existing infrastructure ages or is damaged, there is a possibility that some existing pipelines may be replaced. Depending on market conditions, a pipeline may be replaced along the same route or an alternate route may be selected. The MMS does not anticipate a large number of replacements, or that replacements would noticeably increase future pipeline landfall construction.

## Historical Trend of Federal OCS Pipeline Landfall Installations

The busiest decades for OCS pipeline landfall installations were the 1960's and 1970's, when 31 percent and 37 percent of all OCS pipeline landfalls were installed, respectively (Figures 1 and 2). As the OCS pipeline network became more established, the number of new Federal OCS pipeline landfalls decreased. Federal OCS pipeline landfalls installed in the 1980's accounted for 15 percent of all OCS pipeline landfalls installed to date, while the remaining 9 percent were installed in the 1990's and 5 percent since 2000. Since the mid-1980's, the long-term trend is for new Federal OCS pipelines to tie into existing systems rather than creating new landfalls. Since 1986, the 5-year moving average of new Federal OCS pipeline landfalls has been below two per year. The last Federal OCS pipeline landfall was installed in 2005. Over the 10-year period, 1996-2005, there was an average of one new OCS pipeline landfall per year. During this same 10-year period, there were about 2,300 OCS pipelines installed. Of those, only 10 (0.4%) resulted in new pipeline landfalls (Table 1). The remaining pipelines (95.6%) connected to the existing infrastructure in Federal or State waters.

Table 1  
OCS Pipeline Landfalls Installed Since 1996

Segment Number	Year of Installation*	Product Type	Size	Company	State
10631	1996	Oil	24"	Equilon Pipeline Company LLC	Louisiana
12470	1996	Oil	24"	Manta Ray Gathering Company LLC	Louisiana
11217	1997	Gas	30"	Enbridge Offshore	Louisiana
11496	1997	Oil	12"	ExxonMobil Pipeline Company	Louisiana
11952	2000	Oil	18-20"	ExxonMobil Pipeline Company	Texas
14470	2004	Oil	10"	Chevron USA Inc	Louisiana
13972	2004	Oil	24"	Manta Ray Gathering Company LLC	Texas
13987	2004	Oil	24"	Manta Ray Gathering Company LLC	Texas
13534	2005	Oil	30"	BP Pipelines (North America)	Louisiana

\*Year when the initial hydrostatic test occurred was used for the year of installation.

Source: USDOJ, MMS, 2007b.

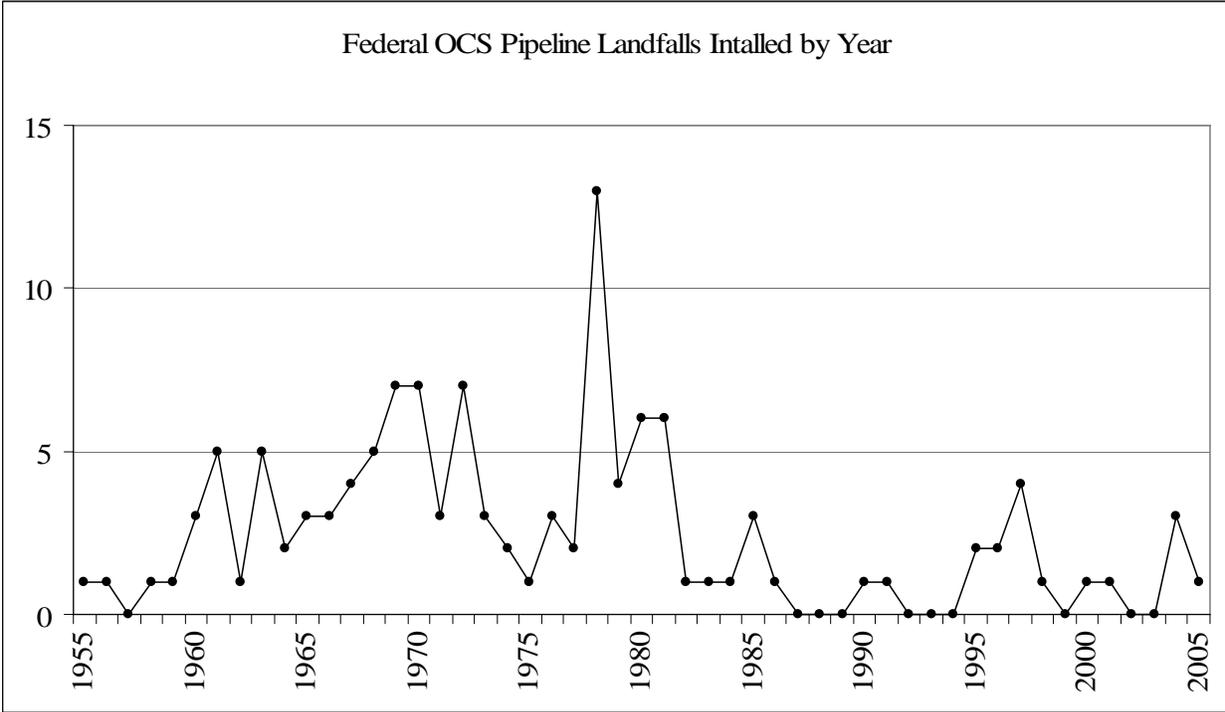


Figure 1. Number of Federal OCS Pipeline Landfalls Installed per Year in the Gulf of Mexico.

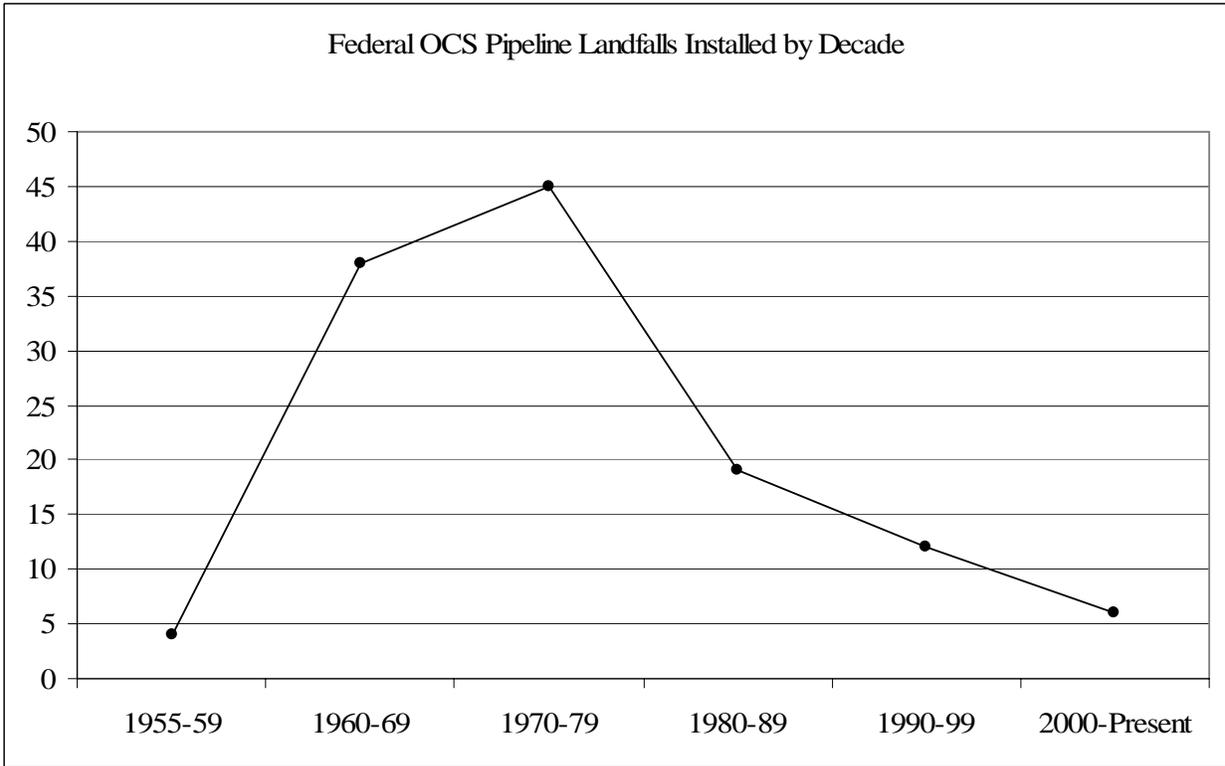


Figure 2. Number of Federal OCS Pipeline Landfalls Installed by Decade in the Gulf of Mexico.

### Location of Federal OCS Pipeline Landfalls

The oldest pipeline systems are in Louisiana, where some date back to the 1950's. Currently, about 90 percent of OCS pipeline landfalls are located in Louisiana (Figure 3). Of the pipeline landfalls installed during the 10-year period, 1996-2005, 70 percent are located in Louisiana. This shows a new trend of shifting more delivery of OCS production to Texas due to the capacity limitations of onshore pipelines and refineries in Louisiana. The Cameron Highway pipeline system (pipeline segments 13972 and 13987) is an example of production from offshore Louisiana being transported to Texas onshore facilities. This trend will also help minimize the shutdown time from future impacts, similar to those experienced after Hurricane Katrina, by having the flexibility to redirect to different areas of the Gulf of Mexico outside Louisiana.

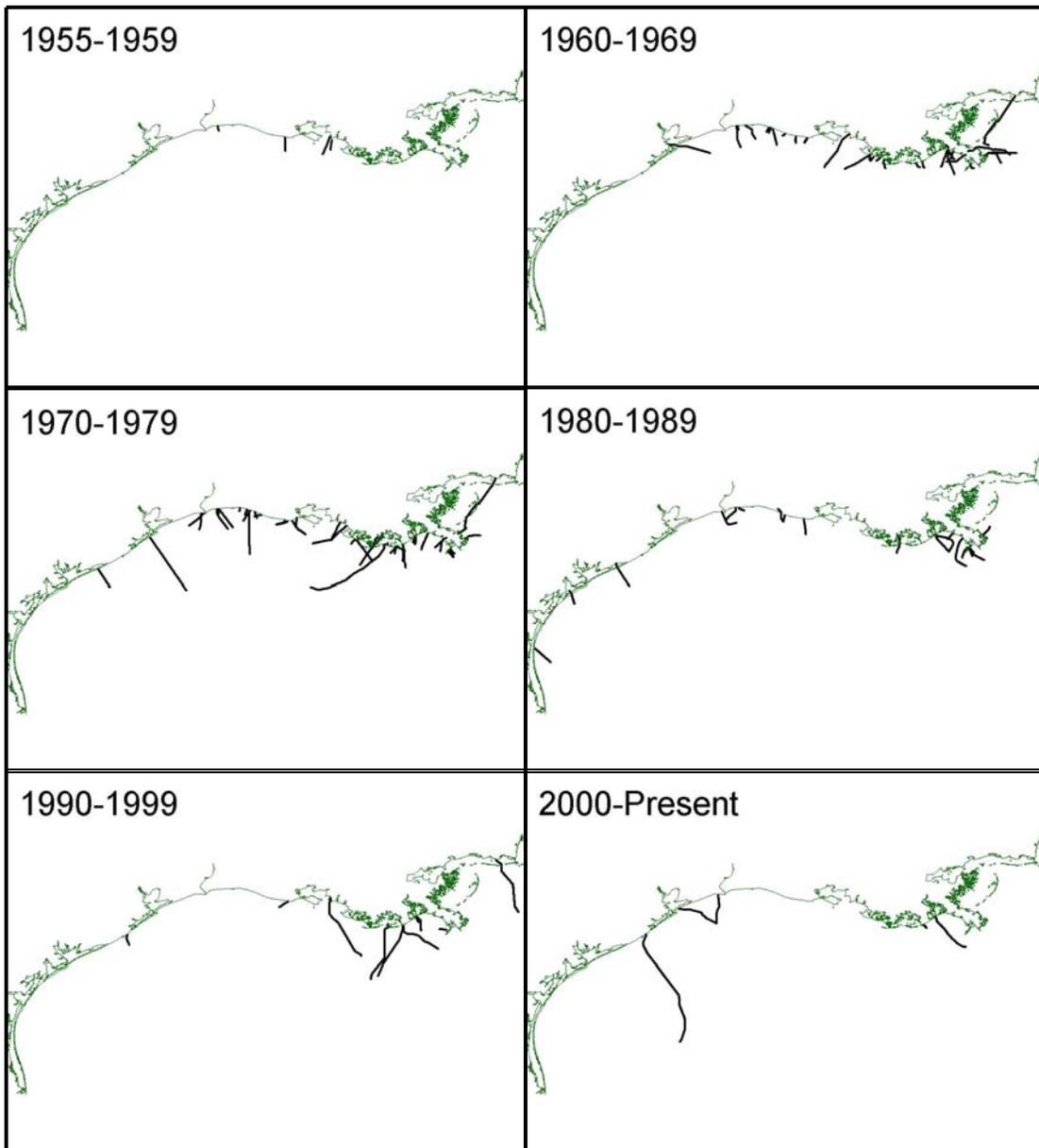


Figure 3. Location of Federal OCS Pipeline Landfalls in the Gulf of Mexico by Year of Installation.

## **Federal OCS Pipeline Landfalls Resulting from an Individual Lease Sale**

Most Federal OCS pipeline landfalls in the Gulf of Mexico transport production resulting from more than one lease sale; therefore, an OCS pipeline landfall could rarely be attributed to a single lease sale. For example, the 10 OCS pipeline landfalls installed in the Gulf of Mexico since 1996 transported production resulting from 32 different lease sales. Each of these landfalls transported production related to as few as one lease sale and as many as eight lease sales, with an average of four lease sales related to one landfall. The average is slightly higher in the WPA and slightly lower in the CPA. Since 1996, MMS has held 26 lease sales; however, only 6 of the 26 lease sales contributed to usage of pipeline landfalls installed during the same period.

Since 1996, while MMS has held two to three lease sales per year, there has only been an average of one new OCS pipeline landfall installed per year.

## **Other Explanations for the Decline in Federal OCS Pipeline Landfalls**

Besides the maturity of the Federal OCS pipeline network, there are other reasons for fewer new OCS pipeline landfalls. The most significant issue is that companies have very strong financial incentives to reduce their costs by designing and utilizing pipeline systems to their fullest extent possible, therefore minimizing the number of new pipeline miles and new landfalls. When a pipeline company designs a pipeline, they consider existing as well as future production potential that could be transported. Also, in some cases, the throughput of an existing pipeline can be increased by the addition of compressor or pump boosting stations along a pipeline system. The cost of installing pipelines offshore ranges from \$540 thousand per mile in water depths less than 60 meters (197 feet) to \$3.8 million per mile in water depths greater than 900 meters (2,953 feet). Therefore, a company will try to interconnect its production to existing underutilized systems whenever possible to reduce construction costs and avoid duplication of infrastructure. Companies take advantage of “economies of scale” in pipeline transportation, maximizing the amount of product moved through a constructed pipeline to decrease the long-run, average cost of production. When evaluating new pipeline landfalls, companies must also consider mitigation costs for any new wetland and environmental impacts, as well as various landowner issues at the landfall point. Overall, these are strong incentives to move new production into existing systems rather than create new ones.

Furthermore, producers want flexibility and options in the markets they serve, and each pipeline system offers different options. Some of these systems extend far into the Gulf and terminate at market centers as far as New York and other places in the northeast. Because different pipeline systems can provide different netbacks for producers, in some instances, producers would optimally prefer to have access to several pipeline systems in order to take advantage of some of those arbitrage opportunities (Dismukes, personal communication, 2007).

Given the fact that the existing systems are, at best, designed to meet certain area/location peak production capabilities in particular regions and that oil and gas are both exhaustible resources, the production volumes from these regions will start to fall over time, holding other factors constant. If production volumes fall, the pipelines receive less transportation volumes (and thus less revenues), and without new volumes, will either (a) have a difficult time covering their large fixed costs or (b) have a difficult time continuing to extract value from a long-lived asset. In order to continue to receive revenues on those assets and expand their future use, utilities will try to tie new production into those systems. In fact, there is considerable competition for linking up new customers in many offshore areas of the Gulf of Mexico, and that is exactly what marketing staff in the various Field Services units is hired to do for natural gas companies (e.g., Spectra, formerly Duke; El Paso; Williams; NiSource (Columbia), and Enterprise) (Dismukes, personal communication, 2007).

## **Conclusion**

The MMS projected the number of Federal OCS landfalls that may result from proposed lease sales in order to analyze the potential impacts to wetlands and other coastal habitats. In the last few lease sale EIS's, MMS assumed that the majority of new Federal OCS pipelines would connect to the existing infrastructure in Federal and State waters and very few would result in new pipeline landfalls. Therefore,

MMS projected up to one pipeline landfall per lease sale; however, this analysis showed that even one landfall as a result of an individual lease sale may be unlikely. Although there will be some instances where new pipelines may need to be constructed or existing pipelines replaced, there is nothing to suggest any dramatic shifts in the trends in new Federal OCS landfalls given the current outlook for Gulf of Mexico development, particularly in coastal Louisiana (Dismukes, personal communication, 2007). While there are some opportunities for new pipeline landfalls from increased production activity, many of those will be limited due to a number of factors associated with basic pipeline economics.

## References

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### **The Department of the Interior Mission**

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



### **The Minerals Management Service Mission**

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Minerals Revenue Management** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.