

# LOUISIANA REFINERY OVERVIEW

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Louisiana is a primary energy producing state with an estimated 69.1 million barrels in crude production (2011), ranking it 7<sup>th</sup> among the states (2<sup>rd</sup> if the Louisiana portion of the federal outer continental shelf (OCS) is included). The Louisiana OCS territory is the most extensively developed and matured OCS territory in the United States. The Louisiana OCS territory produced approximately 88.1% of the 17.3 billion barrels of crude oil and condensate produced in the U.S. through the end of 2008.

The discovery of these large quantities of crude oil led to the development of the refining and petrochemical industry in Louisiana. Louisiana's refining capacity grew with oil production until about 1970 when Louisiana's oil production peaked and began to decline. Refinery capacity continued to grow by processing more foreign oil and oil from other states as well. Approximately 60 percent of refinery input is foreign crude.

Not all refineries and refining companies are created equal. There are small refineries and large ones. Some are quite complex, while others are relatively simple. A number are part of major, integrated oil companies, and some are independent. In addition to refining, integrated oil companies are engaged in all other aspects of the petroleum industry, which range from the exploration of crude oil to the marketing of finished petroleum products.

Independent refiners, on the other hand, purchase most of their crude oil on the open market rather than producing it. Refiners such as Placid Refining Co. and Calcasieu Refining Co. are examples of independent refiners.

Major oil companies dominate the refining industry. The top 10 U.S. refiners, all of them major, integrated oil companies, account for about 75% of the total domestic refinery charge capacity. Most of these have operations in Louisiana, either as wholly owned facilities such as the Baton Rouge ExxonMobil refinery or as part owners or joint ventures such as Motiva Refineries in Norco and Convent. Many refineries are primarily fuels refineries, some are lube stock refineries, and others are petrochemical refineries. Besides the level of vertical integration of a refiner and the product mix of a refinery, industry analysts also look at capacity and complexity.

A "complexity factor" is assigned to each process unit of a refinery based on its relative construction cost. The atmospheric crude distillation unit is assigned a value of one. For example, the cost of a fluidized catalytic cracker is six times greater than an atmospheric crude distillation unit of the same capacity, so its unit complexity factor is six.

Greater complexity does not necessarily go hand-in-hand with larger capacity. Some of the smaller facilities in Louisiana are the most complex. For example, the smaller lube and wax producing refineries of North Louisiana are quite complex when compared to some very large refineries in the state.

EIA statistics show total U.S. petroleum consumption in 2011 dropped 1.8% to 18.835 million barrels per day (bpd). Finished motor gasoline dropped 2.9% to 8,736 thousand bpd, jet fuel dropped 0.5% to

1,425 thousand bpd, and overall distillate fuel increased 1.3% to 3,849 thousand bpd in 2011.

According to DNR’s survey, the Louisiana refinery operating rate was 89.69% for this survey period with little idle capacity, about 3 percent total. The operating capacity for Louisiana refineries was 3,311,020 barrels per calendar day (bcd). Regular gasoline accounted for 31% of Louisiana refinery production.

The table below shows the 17 active refining facilities in Louisiana, ranked by crude capacity.

<b>REFINERY</b>	<b>CAPACITY (bbls/day)</b>
ExxonMobil -Baton Rouge	502,500
Marathon Petroleum – Garyville	490,000
Citgo Petroleum - Lake Charles	425,000
Valero Refining -Norco	250,000
Phillips66 - Belle Chasse	247,000
Phillips66 – Westlake	239,000
Motiva Enterprises – Convent	235,000
Motiva Enterprises – Norco	233,500
Chalmette Refining - Chalmette	192,500
Valero Refining – Meraux	135,000
Alon Refining - Krotz Springs	80,000
Calcasieu Refining -Lake Charles	80,000
Calumet Shreveport– Shreveport	65,000
Placid Refining - Port Allen	58,500
Shell Chemical - St. Rose	55,000
Calumet Lubricants -Cotton Valley	13,020
Calumet Lubricants – Princeton	10,000

### Operating Refinery Recent Changes

Valero Refining acquired the Meraux refining facility from Murphy in October 2011. Organizational change within ConocoPhillips has rebranded the facilities at Belle Chasse and Westlake as Phillips66 refineries.