We are ExxonMobil Joliet Refinery

ExxonMobil

Taking on the world's toughest energy challenges.™

Refinery in the Heartland

ExxonMobil's Joliet Refinery is a key supplier of refined petroleum products to the Midwest. The Joliet Refinery employs more than 600 people and is a leader in energy efficiency among U.S. refineries.

Refinery Products

The Joliet Refinery is equipped to handle 250,000 barrels of crude per day and produces approximately nine million gallons of gasoline and diesel fuel every day. That's enough to drive an average car around the world more than 7,000 times. These fuels and other refinery products are transported from the refinery to consumers primarily across the midwest.

Gasoline and diesel are not the only products refined here. Nearly every molecule of crude processed at the Joliet Refinery is converted into a useful commercial product. The largest demand for energy produced at the refinery is in the form of fuels for transportation. About 90 percent of the products that come out of a barrel of crude refined at the Joliet Refinery are diesel and gasoline. The remaining 10 percent consists of a wide range of products, including propane, butane, industrial fuels and asphalt.

How It Works

The Joliet Refinery is ideally located to receive and process Canadian crude delivered by pipeline. The characteristics of Canadian crude require specialized refinery equipment and processes, and the Joliet Refinery was designed with this purpose in mind. As a result, each unit in the refinery plays a specific role in the efficient conversion of crude oil to the refined products we use every day.

The major units in the Joliet Refinery are:

- The crude unit. Also known as the distillation unit, this is the first step in refining. In the crude unit, crude oil is heated to more than 700°F, at which point the crude separates into fractions based on boiling point. Because different components in the crude boil at different temperatures, as the crude heats, the lighter components rise and the heavier components settle in the distillation tower.
- The fluid catalytic cracker (FCC). The FCC takes the heavier products from the distillation tower and "cracks" hydrocarbon molecules into smaller molecules using a catalyst. These smaller molecules make up the majority of crude products we use today, so the FCC's job is to break apart large, complex molecules into smaller, more useful molecules.

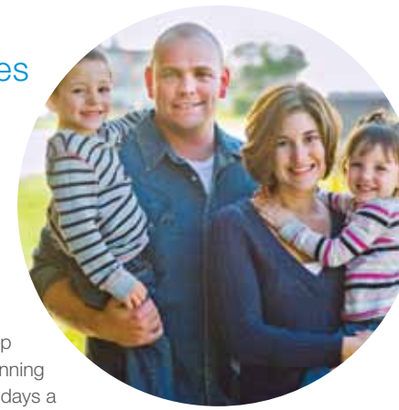
- The coker. Like the FCC unit, the purpose of the coker is to break apart large hydrocarbon molecules and make them into smaller molecules. However, unlike the FCC unit, the coker unit handles the heaviest crude components that the FCC unit cannot, and turns these hard-to-manage molecules into valuable products. The heaviest product that this unit yields is coke, which the refinery sells as fuel for industrial applications such as cement production, steel milling and power generation.
- The reformer. Once products have left the FCC, they're in a more recognizable form than they were when they came to the refinery as crude. They're still not quite ready to be used by consumers, though. The reformer takes lighter products from the crude and FCC units and further treats them, removing sulfur and converting lower octane products like naphtha into high-octane gasoline. A byproduct of this process – hydrogen – is used elsewhere in the plant to remove sulfur from gasoline and diesel fuel.
- Catalytic hydro-desulfurization unit. This unit removes sulfur from fuel to produce ultra-low-sulfur diesel. This unit is so effective that it can modify diesel until it contains fewer than 15 parts per million of sulfur. Along with newer engines, this unit is responsible for a dramatic decrease in emissions from trucks running on this fuel.
- The wet gas scrubber. In 2008, this unit was constructed at the Joliet Refinery to decrease emissions and improve air quality. The wet gas scrubber acts like a giant washing machine, scrubbing sulfur oxides (SOx) from refinery exhaust using heated water and caustic (lye). As a result, SOx emissions from two main point sources have been reduced by 97 percent. The technology used in the wet gas scrubber was evaluated by the Environmental Protection Agency (EPA) and determined to be the best available control technology for this purpose. This unit represents a significant environmental investment by the refinery.
- Wastewater treatment. Water is used throughout the refinery as part of daily operations, and this water is treated once it is no longer needed. The Joliet Refinery's wastewater treatment system is similar to most municipal treatment plants, but with a few refinery-specific tools. The refinery's wastewater treatment technology includes a unit called an activated sludge aerator, in which millions of microbiological organisms live and feed off impurities in the water. This means that simply by surviving, these organisms improve water quality. By the end of the entire wastewater treatment process, water coming from the Joliet Refinery adheres to all EPA quality standards.

Energy Efficiency

Completed in 1972, the Joliet Refinery is one of the newest refineries in the United States. It uses a host of modern technologies to process crude safely, reliably and efficiently. The Joliet Refinery is the most energy-efficient refinery of its size in the country, and is striving to be on par with European standards for energy efficiency.

The refinery's energy efficiency comes in part from two key technologies. Through cogeneration, energy produced in the course of refining is captured and converted into electricity, heat or steam to be used as power. Using heat integration, units at the refinery collect heat and recycle it back into the refining process to ensure smooth operations. Running an energy-efficient refinery results in lower operating costs and significantly reduced emissions.

People and Communities



The refinery operations that create so many of our day-to-day products would not be possible without the hundreds of employees and contractors who keep the Joliet Refinery running 24 hours a day, 365 days a year. Each of our employees is highly trained in his or her specialty and is committed to safety in the workplace, ensuring that "Nobody Gets Hurt."

ExxonMobil employees at the Joliet Refinery are also heavily invested in their community. The Joliet Refinery is historically the second-highest contributor to the Will County United Way. As regular volunteers for a wide variety of charitable organizations, employees give their time and share their talents through employee-driven, corporate-supported Volunteer Involvement Program grants. Annual donations to local non-profit organizations exceed $600,000.

The Joliet Refinery is proud to play a part in making our community a great place to live and work.

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