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Harvey's Lessons for America's Stretched Energy Infrastructure

Hurricane's impact shows how dependent U.S. is on a small number of refineries and pipelines



The Marathon Petroleum Corp. refinery before the hurricane hit in Texas City, Texas. PHOTO: BLOOMBERG NEWS

By Spencer Jakab

Aug. 28, 2017 3:06 pm ET

For more than 40 years, the U.S. has worried about the security of its oil supply. Hurricane Harvey is another reminder that the infrastructure that processes and delivers oil is in many ways more important.

After the Arab oil embargo, the U.S. began filling its Strategic Petroleum Reserve, which holds enough oil to offset 94 days of imports, according to the Energy Department. Yet it is a case of the generals fighting the last war. The U.S. imports about 25% less oil than it did a decade ago and exports over a million barrels a day, up from virtually nothing.

Harvey's hitting the Gulf Coast of Texas highlighted another potentially significant change.

The U.S. relies on fewer facilities, run closer to their physical limits, to turn that crude into fuel and get it to consumers.

The U.S. has 141 operable oil refineries today, which is 79 fewer than 30 years ago. Those refineries have nearly 30% more capacity and are used much more heavily, about 90% on average over the past 12 months. The heaviest concentration is along the Gulf Coast where the industry has deep roots and has been allowed to expand. Harvey has temporarily knocked out about 15% of U.S. refining capacity.

Moving the refined product to customers also falls disproportionately on a few pieces of infrastructure. The Colonial Pipeline carries over 2.5 million barrels a day, or about half the refined product consumed along the entire East Coast. Last year saw severe disruptions to gasoline supply in the Southeast due to construction accidents along one of its sections.

Natural gas, America's main heating and power-generation fuel, is prone to disruption too. In the aftermath of hurricanes Rita and Katrina, it was discovered that storm surges had damaged key treatment plants along the Gulf Coast. Prices hit an all-time high a few months later, in December 2005, and supplies weren't back to normal until six months after the storm.

There is good news, too. Greater trade in oil, motor fuels and natural gas means that the market can respond more quickly to disruptions. European and Asian refiners already are scrambling to take advantage of Northeastern U.S. gasoline price spikes. Meanwhile, vulnerable offshore facilities produce a much smaller share of American oil and natural gas than a decade ago, as a result of the fracking revolution.

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Yet these are all happy side effects of market and geological developments, not by design. The profit motive mostly means that, in the interest of efficiency, more energy passes through fewer, busier pieces of infrastructure. Building more redundancy into the system might be costly, but failing to do so will seem foolish if a truly epic catastrophe leaves America with empty tanks and in the dark.

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Appeared in the August 29, 2017, print edition as 'Hurricane's Lessons for U.S. Oil.'