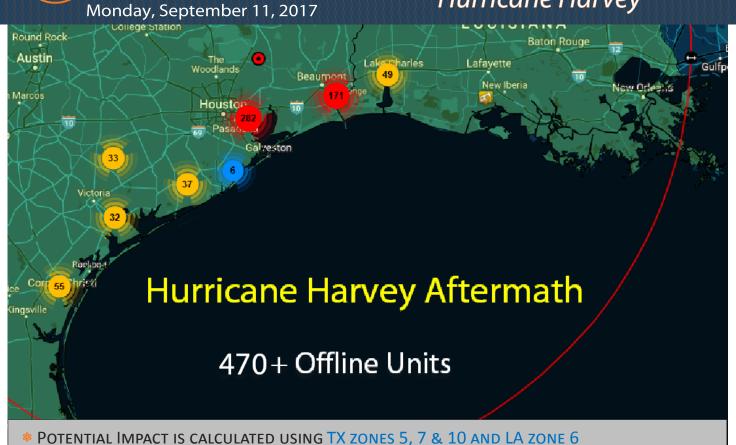
Disaster Impact Summary

Hurricane Harvey



Refining Market Impact Analysis

Summary Description	Plant Count	Crude Capacity	
Potential Impact *	27	5,504	kbd
Actual Impact	5	1,720	kbd
% of Capacity Offline		31%	
% of Capacity Online		69%	

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Ethylene Market Impact Analysis

Summary Description	Plant Count	Ethylene Capacity	
Potential Impact *	31	47,726	M lbs/yr
Actual Impact	9	16,780	M lbs/yr
% of Capacity Offline 35%		6	
% of Capacity Online 65%		6	

Power Market Impact Analysis

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Summary Description	ription Plant Power Count Capacity	
Potential Impact *	57	35,896 MW
Actual Impact	0	0 MW
% of Capacity Offline	0%	
% of Capacity Online	100%	



Gas Market Impact Analysis

Summary Description	Plant Count	Gas Processing (MMSCFD)	Fractionation (KBD)
Potential Impact *	56	12,122	3,693
Actual Impact	11	2,420	1,184
% of Capacity Offline	2	20%	32%
% of Capacity Online		80%	68%



Key Market Updates Hurricane Harvey

Click links to access detailed results related to the impact of Hurricane Harvey.



Potentially Impacted Refining Plants

Crude Offline Events

Cat Cracker Offline Events

PetChem Saved Searches

Potentially Impacted PetChem Plants

Ethylene & PDH Offline Events

Other Priority PetChem OfflineEvents

Power Saved Searches

Potential Power Plant Impact

Power Offline Events



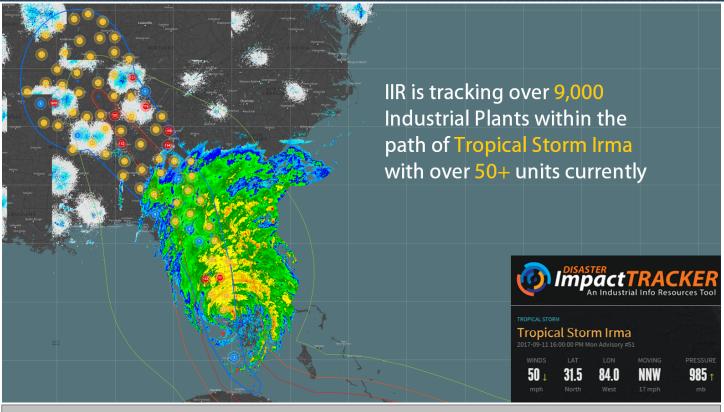
Potentially Impacted Gas Plants

Potentially Impacted Gas Units

Gas Processing Offline Events

Fractionation Offline Events

Disaster Impact Summary Hurricane Irma



* POTENTIAL IMPACT IS CALCULATED USING IIR'S DISASTER IMPACT MAP

A	Refining	Market	Impact <i>I</i>	Analysis
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Summary Description	Plant Count	Crude Capacity	
Potential Impact *	6	499,500	Bbl/d
Actual Impact	0	0	Bbl/d
% of Capacity Offline		0%	
% of Capacity Online		100%	

Ä	Ethylene Market Impact Analy
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Summary Description	Plant Count	Ethylene Capacity	
Potential Impact *	0	0	M lbs/yr
Actual Impact	0	0	M lbs/yr
% of Capacity Offline			0%
% of Capacity Online	100%		100%

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Power Market Impact Analysis

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Summary Description	Plant Count		
Potential Impact *	610	79,260	MW
Actual Impact	8	13,966	MW
% of Capacity Offline	18%	†	
% of Capacity Online		82%	ó

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Oil & Gas Market Impact Analysis

Summary Description	Plant Count	Gas Processing (MMSCFD)	Fractionation (bbl/d)	
Potential Impact *	3	66	107	
Actual Impact	0	0	0	
% of Capacity Offline	е	0%	0%	
% of Capacity Online		100%	100%	



Key Market Updates Hurricane Irma



Power

Potential Power Plants Saved Search

Hurricane Irma caused damage to electrical infrastructure to leave 5.8 million customers without power. Much of the damage is to the transmission and distribution system with one Florida Power & Light official predicting in a Tweet that "a wholesale rebuild" of the electrical grid on the Florida Coast will possibly be the longest restoration in US history. On the generation side IIR Energy is tracking over 7.4-Gigawatts in ongoing unscheduled outage activity. Plants on the list include Marathon, Riviera Beach, Sanford, Turkey Point and others. Damage assessments are ongoing to reveal the full scope of work needed to restore plants and other infrastructure.

Q **Industrial Manufacturing**

Potential Industrial Manufacturing Plants Saved Search

With the worst of Irma having past, all manufacturing, rail, ports and airports in Florida remain closed. Airport operations will begin very limited operations early on Tuesday. Over half the state is without power and flooding concerns will hamper efforts at damage assessment, repair and cleanup for several days. Given that some portions of the state may not have power restored for weeks, it will be difficult for full manufacturing to resume.

Pharma

Potential Pharma Plants Saved Search

With Irma now downgraded to a tropical storm, the focus will turn to damage assessment as flood waters recede, power is restored and roads open again. Only then will the true effect Hurricane Irma on the pharmaceutical industry be known. Many drug manufacturing plants and laboratories have emergency generators for plant safety although this is not sufficient long term for operations.



Oil & Gas

Potential Oil & Gas Plants Saved Search

Preparations to the natural gas pipeline network were made in advance of Hurricane Irma making landfall by testing generators and satellite communications thus allowing the compressor stations to be operated remotely. Demand is expected to be weak while power generators reinstate the electrical grid system.

Food & Beverage

Potential Food & Beverage Plants Saved Search

The Food and Beverage plants in the path of Irma reflect the entire cross-section of the industry's sectors from meat and poultry to agribusiness and beverages, among others. Florida's citrus processing industry and large sugar cane processing plants are at risk of damage. There are numerous large distribution facilities in the current storm path that serve regional and export markets that are likely to experience operational disruptions.



Pulp & Paper

Potential Pulp & Paper Plants Saved Search

There are ten pulp and paper mills currently in Irma's trajectory. A handful of them are among the largest in the country with respect to their output of products, including cellulosic fibers, tissue and towel grades as well as linerboard. In addition to pulp and paper products, seven of these mills generate electricity from more than two dozen generating units with an aggregate of approximately 512 megawatts.