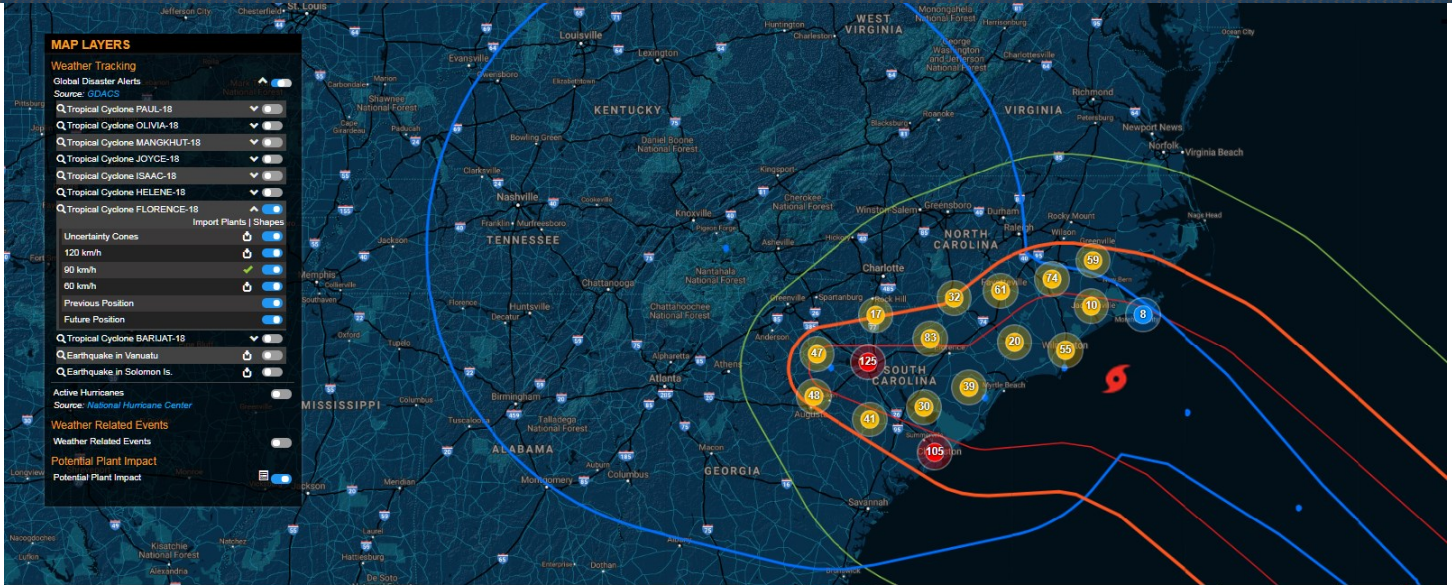




Friday, September 14, 2018



| Industry Impact Analysis | | PetChem Impact Analysis | | Refining Impact Analysis | |
|---------------------------|-------------|------------------------------|-------------|-----------------------------------|-----------------------|
| Industry | Plant Count | Summary Description | Plant Count | Summary Description | Plant Count |
| Power | 122 | Potential Plant Impact | 0 | Potential Plant Impact | 0 |
| Terminals | 33 | Actual Plant Impact | 0 | Actual Plant Impact | 0 |
| Oil & Gas Pipelines | 4 | % Capacity Offline | | % Capacity Offline | |
| Production (Oil & Gas) | 2 | % Capacity Online | | % Capacity Online | |
| Alternative Fuel | 7 | Power Impact Analysis | | Gas Market Impact Analysis | |
| Petroleum Refining (HPI) | 1 | Summary Description | Plant Count | Summary Description | Plant Count |
| Chemical Processing (CPI) | 61 | Potential Plant Impact | 70 | Potential Plant Impact | 1 |
| Metals & Minerals | 102 | Actual Plant Impact | 1 | Actual Plant Impact | 0 |
| Pulp, Paper & Wood | 64 | % Capacity Offline | | % Capacity Offline | |
| Food & Beverage | 165 | % Capacity Online | | % Capacity Online | |
| Industrial Manufacturing | 251 | Summary Description | Plant Count | Gas Processing (MMSCFD) | Fractionation (BBL/d) |
| Pharmaceutical & Biotech | 42 | Potential Plant Impact | 70 | Potential Plant Impact | 5 |
| | | Actual Plant Impact | 1 | Actual Plant Impact | 0 |
| | | % Capacity Offline | | % Capacity Offline | |
| | | % Capacity Online | | % Capacity Online | |
| | | Power Capacity (MW) | 19,357,749 | | |
| | | | 1,858 | | |
| | | | 9.60% | | |
| | | | 90.40% | | |



Hurricane FLORENCE

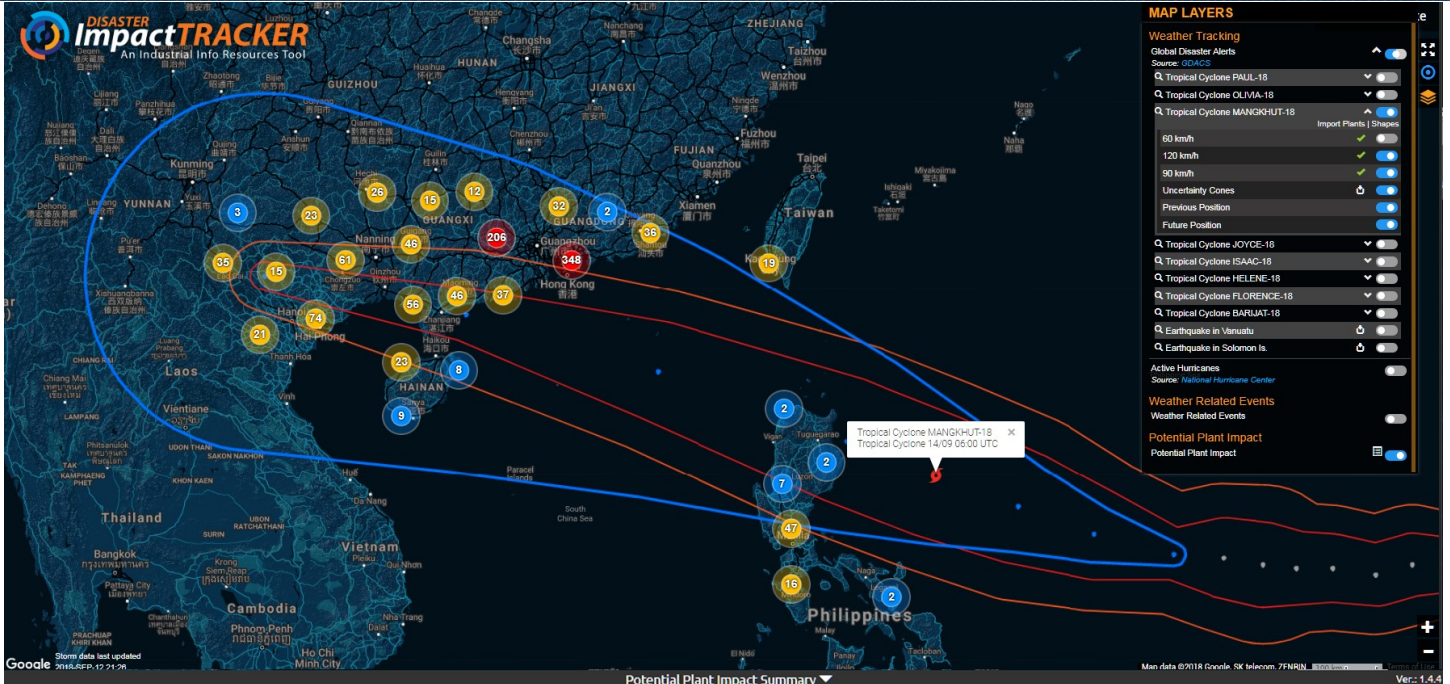
[Click to see Potentially Impacted Plants](#)

Hurricane Florence Makes Landfall Near Wrightsville Beach, NC as Cat 1 Hurricane, Power Outages Mount

Hurricane Florence is expected to skirt along the coast line for the remainder of today and into the weekend as it drops potentially record levels of rain. The slow movement of the storm is expected to result in inland rainfall of as much as 20 to 25 inches, causing rivers to rise out of their banks and resulting in severe flash flooding across a very large area. North Carolina Electric Membership Corporation's Buxton Peaking Plant on the Outer Banks is damaged to an unknown extent. Duke Energy has indicated damage to at least five solar plants. Duke's Marshall, Allen, Sutton and Weatherspoon plants in North Carolina are all secure with no damage, but the company idled both units at its Brunswick Nuclear plant in North Carolina on Thursday. Duke Energy was reporting more 340,000 customers without power as of Friday morning, but said in a tweet it anticipates 1 million to 3 million outages across the Carolinas. U.S. military bases in the region are utilizing their microgrid systems at this time. The number of potentially impacted industrial plants remains much the same, with more than 850 industrial plants at risk of tornados, high winds and flood waters. More than 40 pharmaceutical plants are in the immediate area of the storm, and major drug companies have shifted production of critical drugs to non-impacted plants to ensure no shortage of critical products. Fuel and oil terminals have been idled in the affected areas, and this could influence gas prices across the region. Ports in South Carolina remain closed through tomorrow, and those in North Carolina will be closed today with word of tomorrow's status expected later in the evening. Ports in Georgia have limited their operations. Industrial Info's research teams will immediately begin assessing which industrial plants suffered damage, and once the flood waters have receded, determine which plants remain offline. Check the Disaster Impact Tracker frequently for updates.

POTENTIAL PLANT IMPACT IS CALCULATED USING [IIR'S DISASTER IMPACT TRACKER](#)





| Industry Impact Analysis | | PetChem Impact Analysis | | Refining Impact Analysis | | | | |
|---------------------------|-----|-------------------------|-------------|------------------------------|------------------------|-------------|-------------------------|-----------------------|
| Power | 283 | Summary Description | Plant Count | Ethylene Capacity (M Lbs/yr) | 2,204 | | | |
| Terminals | 75 | Potential Plant Impact | 1 | Summary Description | Plant Count | | | |
| Oil & Gas Pipelines | 10 | Actual Plant Impact | 0 | Potential Plant Impact | 6 | | | |
| Production (Oil & Gas) | 2 | % Capacity Offline | | Actual Plant Impact | 0 | | | |
| Alternative Fuel | 11 | % Capacity Online | | % Capacity Offline | | | | |
| Petroleum Refining (HPI) | 8 | | | % Capacity Online | | | | |
| Chemical Processing (CPI) | 198 | Power Impact Analysis | | Gas Market Impact Analysis | | | | |
| Metals & Minerals | 370 | Summary Description | Plant Count | Power Capacity (MW) | Summary Description | Plant Count | Gas Processing (MMSCFD) | Fractionation (BBL/d) |
| Pulp, Paper & Wood | 48 | Potential Plant Impact | 262 | 70,662.875 | Potential Plant Impact | 0 | | |
| Food & Beverage | 131 | Actual Plant Impact | 1 | 132 | Actual Plant Impact | 0 | | |
| Industrial Manufacturing | 309 | % Capacity Offline | | 0.19% | % Capacity Offline | | | |
| Pharmaceutical & Biotech | 48 | % Capacity Online | | 99.81% | % Capacity Online | | | |



Typhoon MANGKHUT

[Click to see Potentially Impacted Plants](#)

Typhoon Mangkhut Remains a Dangerous Category 5 Storm

The Philippines, Taiwan and southeastern China have issued emergency alerts and halted all shipping as Super Typhoon Mangkhut remains a Category 5 storm. The biggest threat are the extreme winds that have been measured in excess of 180 miles per hour. In the Philippines, major industrial concerns center on damage to agricultural crops, windfarms and hydro-power generating stations. The storm's current path takes it across 64 industrial plants in the Philippines, including 37 power plants producing 3,137 megawatts. As it progresses, Mangkhut could damage a high number of power plants, along with steel mills and petroleum refinery complexes, in Kaohsiung, Taiwan and China's Guangdong Province. The typhoon is projected to continue toward the southern provinces of China, where it will intersect with an estimated 1,400 industrial plants. In the Chinese energy sector, there are at least six (6) petroleum refineries in the storm's current path that process more than 860,000 barrels per day (BBL/d) of crude oil, along with a 2,200 million-pound-per-year naphtha ethylene plant. More than 90 power plants producing more than 18,000 megawatts lie in the projected path of the storm's most extreme wind. Industrial Info's research team will continue to monitor the storm closely and report which plants have the greatest likelihood of being impacted by Mangkhut.

POTENTIAL PLANT IMPACT IS CALCULATED USING [IIR'S DISASTER IMPACT TRACKER](#)

