



Hurricane Harvey

Event Report (Update #5)

| | |
|--------------------------------|---------------------------------------|
| REPORT TIME & DATE: | 8:30 AM EDT Monday, August 28, 2017 |
| INCIDENT START DATE: | Friday, August 25, 2017 |
| PRIMARY LOCATION(S): | Gulf Coast (Texas and Louisiana) |
| REPORT DISTRIBUTION: | Public |

EXECUTIVE SUMMARY

Harvey continues to produce heavy rain across southeastern Texas and Louisiana, which has led to significant flooding. Harvey will continue to impact the region through middle of the week with an additional 15 – 25 inches of rain expected through Friday. Harvey made landfall around 11:00 PM EDT on Friday, August 25 between Port Aransas and Port O’Connor, Texas as a category 4 hurricane. Harvey was the strongest hurricane to impact Texas since 1961 and the first category 4 storm to make landfall in the United States since Hurricane Charley impacted Florida in 2004.

As of 7:30 AM EDT Monday, there were 291,181 customer power outages across Texas and no significant power outages in Louisiana. Impacted utilities have issued statements that they are expecting power outages to last several days. Restoration efforts cannot begin until weather conditions are safe. High rainfall total and flooding could extend restoration times in many affected areas. Before equipment in flooded areas can be reenergized, waters will need to recede and equipment at substations will need to dry out and be inspected for damage. Additionally, before customers can have electricity restored to homes or business impacted by flooding, customers need to have electrical equipment inspected.

As of Sunday 22% of the oil production 25.7% of the natural gas production in Gulf of Mexico are shut-in as a precaution and most refineries were shutdown. Retail gas station outages have been reported in the impacted region; however, overall stocks of gasoline and distillate in the region are at or above the top-end of the 5-year range. DOE is working closely with the Energy Information Administration to further assess potential impacts at both a regional and national level.

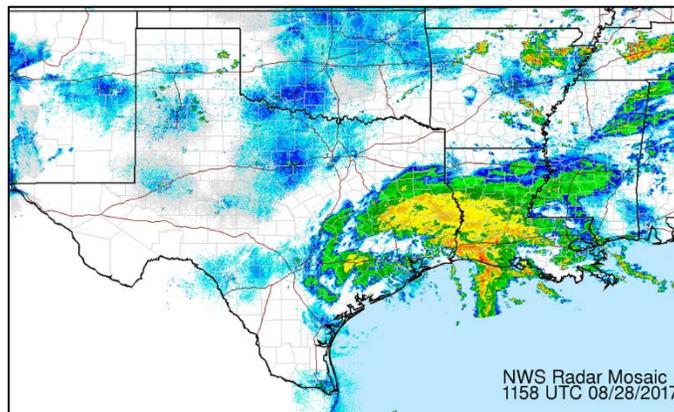
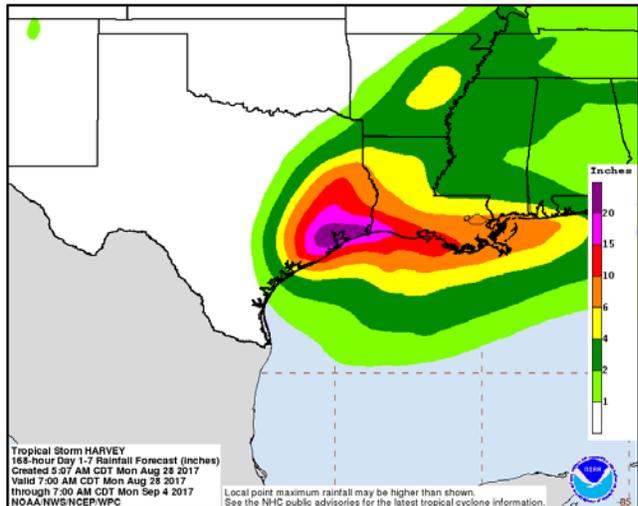
A federal major disaster declaration was approved for Texas on August 25. The U.S. Environmental Protection Agency, in consultation with DOE approved a request made by Texas to waive requirements for reformulated gasoline, Reid vapor pressure, and Texas Low Emission Diesel for select counties in Texas to help alleviate constraints on gasoline for retail stations due to the storm. The Federal Motor Carrier Safety Administration also issued a Regional Emergency Declaration in the States of Texas and Louisiana for an exemption from certain regulations, including hours-of-service, to ensure immediate transportation of supplies, equipment, and persons.

INCIDENT OVERVIEW

As of 8:00 AM EDT, Harvey was 25 miles northeast of Port O'Connor, Texas moving southeast at 3 MPH, with maximum sustained winds of 40 MPH (tropical storm). Tropical-storm-force winds extend outward up to 175 miles. The center of Harvey is emerging off of the middle Texas coast, and is expected to remain just offshore through Tuesday. A slow northeastward motion is expected to begin on Tuesday.

Harvey is expected to produce additional rain accumulations of 15 to 25 inches through Friday over the upper Texas coast and into southwestern Louisiana. Isolated storm totals may reach 50 inches over the upper Texas coast, including the Houston/Galveston metropolitan area. Elsewhere, Harvey is expected to produce total rain accumulations of 5 to 15 inches farther south into the middle Texas coast, farther west toward the Texas Hill Country, and farther east across south-central Louisiana. Storm surge of 1 to 3 feet is still possible throughout the coastal areas under a tropical storm warning.

A tropical storm warning is currently in effect from Mesquite Bay to High Island, Texas and flood and flash flood warnings have been issued throughout the region.



ELECTRICITY SECTOR

OVERVIEW

Impacted utilities, including Entergy, AEP Texas, and CenterPoint Energy have issued statements and are expecting power outages to last several days. Restoration efforts cannot begin until weather conditions are safe for workers. Sustained wind conditions must be below 34 miles per hour before bucket trucks can be deployed. High rainfall total and flooding could extend restoration times in many affected areas. Before equipment in flooded areas can be reenergized, waters will need to recede and equipment at substations will need to dry out and be inspected for damage. There are no unmet needs by any electric utility at this time. The Southeastern Electric Exchange and the Midwest Mutual Assistance Group are actively monitoring the need for mutual assistance and crew deployments to respond to power outages in Texas and Louisiana. A federal major disaster declaration was approved on August 25, 2017. The Electric Reliability Council of Texas (ERCOT) reports “normal” system status.

| ELECTRICITY OUTAGES AS OF 7:30 AM EDT 08/28/2017 Source: EAGLE-I and additional utilities not captured in EAGLE-I | | | |
|---|------------------------------------|--|-----------------------------|
| Impacted State | Current Confirmed Customer Outages | Percent of Confirmed State Customers without Power | 24-hr Peak Customer Outages |
| Louisiana | 1,415 | <1% | 8,215 |
| Texas | 291,181 | 2.5% | 306,058 |
| Total | 292,596 | | * |

**There is no sum of the Peak Customer Outage column because peaks for individual utilities occur at different times; a total would not reflect peak outages.*



- Louisiana
 - As of 7:30 AM EDT, August 28, the State of Louisiana has 1,415 customer outages. This represents <1% of customers in the state.
 - Entergy Louisiana has 528 customer outages
 - CLECO Power Inc. has 429 customer outages.
 - Southwest Louisiana Electric Membership Coop has 270 customer outages.
 - Beauregard Electric Coop (BECi) has 101 customer outages.
 - Entergy Louisiana is monitoring the storm and will respond as needed.
 - SWEPCO is sending 187 personnel to assist in AEP Texas restoration efforts.
 - Cleco Cooperative crews, along with contractor crews, are currently on stand-by and prepared to restore service. Cleco is monitoring the storm.
 - The Governor of Louisiana has requested a Federal Emergency Declaration for the state.
 - The Governor of Louisiana has declared a state of emergency.
 - The Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) has deployed two Emergency Management Assistance Compact (EMAC) Advance Team personnel to Texas in response to the storm. Texas made the request for personnel through the EMAC.

- Texas
 - As of 7:30 AM EDT, August 28, the State of Texas has 291,181 customer outages. This represents 2.5% of customers in the state.
 - AEP Texas has 147,124 customer outages. This is a 19.5% decrease from last report.
 - CenterPoint Energy has 82,060 customer outages. This is a 17% increase from last report.
 - Entergy Texas has 24,071 customer outages. Entergy Texas was not in last report's top four utilities with the most outages
 - Texas New Mexico Power has 18,244 customer outages. This is a 10.7% increase from last report.
 - AEP Texas projects that by 11 PM EDT Wednesday, crews will have restored power to 95% of the customers within the City of Corpus Christi and the Sinton area. Restoration for the majority of all other areas impacted by the storm is expected to reach the 95% by 11 PM EDT Saturday. Restoration dates and times are still to be determined for Rockport, Port Aransas, Fulton, Woodsboro, Port Lavaca, Lamar and Bayside. The damage in these communities is the most severe and will require the most amount of repairs.
 - AEP Texas reports approximately 3,000 personnel from outside the area have been called in to help in this restoration effort. This number is in addition to the 300 personnel normally located in the impacted zone. Those assisting are coming from Oklahoma, Louisiana, Arkansas, as well as east, west and other parts of south Texas.
 - Due to impassable roads in the city of Houston, restoration by CenterPoint Energy has been slowed. CenterPoint has called in external contract resources to aid in restoration efforts.



- Texas-New Mexico Power has changed their overall estimate of 100% restoration to Thursday, August 31 at 7:00 PM EDT, a difference of 72 hours from the previous estimate. TNMP crews are being severely impaired by flooding in the I-45 corridor.
- Entergy Texas personnel cannot access some of their electrical facilities that provide service due to debris and flooding. Within their service territory, they are reporting flooding in the cities of Beaumont, Dayton, Winnie, The Woodlands, Navasota, and Cleveland, which may result in slower restoration.
- On Saturday night, the Governor of Texas added 20 counties to the state disaster declaration, bringing the total to 50 counties.

OIL AND GAS SECTOR

OFFSHORE PRODUCTION

- As of 12:30 PM EDT, August 27, 378,633 b/d (21.64%) of the oil production and 827 MMcf/d (25.68%) of the natural gas production in the federally administered areas of the U.S. Gulf of Mexico are shut-in, according to estimates by the Bureau of Safety and Environmental Enforcement (BSEE).

| U.S. Gulf of Mexico Oil & Gas Production Status <i>as of 12:30 PM EDT 08/27/2017</i> | | | |
|--|------------------------|--------------------------|--------------------------|
| Production | Pre-Event | Shut-In (08/26) | Shut-In (08/27) |
| Crude Oil (b/d) | 1,750,000 | 428,568 | 378,633 |
| Natural Gas (MMcf/d) | 3,220 | 835 | 827 |
| Infrastructure | Pre-Event Count | Evacuated (08/26) | Evacuated (08/27) |
| Manned Platforms | 737 | 112 | 105 |
| Rigs | 31 | 6 | 6 |

Source: BSEE

PETROLEUM REFINERIES

- As of 08:00 AM EDT, August 28, all six refineries in the Corpus Christi area were shut down, although one refinery had begun startup operations, and four refineries in the Houston/Galveston area have begun the process of shutting down, according to public reports. These refineries have a combined refining capacity of 2,170,149 b/d, equal to 43.2% of total Texas Gulf Coast refining capacity and 11.8% of total U.S. refining capacity. In addition, two refineries in the Houston/Galveston region area and one refinery in the Beaumont/Port Arthur area were operating at reduced rates.



PORTS

- The U.S. Coast Guard has set the following conditions for ports and waterways in the U.S. Gulf Coast region as a result of Harvey.
- In addition, Louisiana Offshore Oil Port (LOOP) facilities are currently reporting normal operations. LOOP is executing its Inclement Weather Plan and will update Shippers accordingly.

| Status of Texas and Louisiana Gulf Coast Ports as of 8:00 AM EDT 08/28/2017 | | |
|--|--|-------------------|
| Port | Status | Date Stamp |
| Sector Corpus Christi | | |
| Brownsville | Open. | 08/26/17 |
| Corpus Christi | Port Condition Zulu. Closed. No reports of spills or damages to storage tanks. | 08/27/17 |
| Sector Houston and Galveston | | |
| Freeport | Port Condition Zulu. Closed. | 08/25/17 |
| Galveston | Port Condition Zulu. Closed. | 08/25/17 |
| Houston | Port Condition Zulu. Closed. | 08/25/17 |
| Texas City | Port Condition Zulu. Closed. | 08/25/17 |
| Sector Port Arthur and Lake Charles | | |
| Beaumont | Port Condition X-Ray. Open with restrictions. | 08/27/17 |
| Lake Charles | Port Condition X-Ray. Open with restrictions. | 08/27/17 |
| Orange | Port Condition X-Ray. Open with restrictions. | 08/27/17 |
| Port Arthur | Port Condition X-Ray. Open with restrictions. | 08/27/17 |
| Sabine Pass | Port Condition X-Ray. Open with restrictions. | 08/27/17 |

Source: U.S. Coast Guard

WAIVERS

- The U.S. Environmental Protection Agency (EPA) has approved a request made by the Texas Commission on Environmental Quality (TCEQ) to waive requirements for reformulated gasoline (RFG), Reid vapor pressure (RVP), and Texas Low Emission Diesel (TxLED) that apply in some counties covered by the Governor's Disaster Proclamation. The waiver was issued after consultation with the U.S. Department of Energy to address a fuel supply emergency caused by refinery shutdowns and evacuations associated with Hurricane Harvey.



| State Fuel Specification Waivers as of 8:00 AM EDT 08/28/2017 | | | | |
|---|--|-----------------|----------|--------|
| State | Waived Requirement | Effective Dates | | Status |
| | | Start | End | |
| Texas | RFG requirement waived in Houston-Galveston-Brazoria areas. Allows the sale or distribution of conventional gasoline. | 08/26/17 | 09/15/17 | Active |
| Texas | 7.8 psi RVP standard waived for gasoline sold in 20 counties where low-RVP gasoline is required and are also under the Governor’s Disaster Declaration. | 08/26/17 | 09/15/17 | Active |
| Texas | TxLED requirement waived in 29 counties that require TxLED and are also under the Governor’s Disaster Declaration. | 08/26/17 | 09/15/17 | Active |

Source: U.S. Environmental Protection Agency

- In response to Harvey, the Federal Motor Carrier Safety Administration (FMCSA) declared that an emergency exists that warrants issuance of a Regional Emergency Declaration in the States of Texas and Louisiana and an exemption from certain Federal Motor Carrier Safety Regulations (FMCSRs), including hours-of-service (HOS) regulations, to addresses possible emergency conditions creating a need for immediate transportation of supplies, equipment and persons into and from those States.
- Texas and Louisiana have declared state emergencies due to Harvey. These declarations automatically waive select FMCSRs, including hours-of-service (HOS) regulations, for motor carriers hauling resources to aid in restoration efforts. The declarations exempt FCMSR in every state along the motor carrier’s route as long as the final destination is with the declared disaster areas in Texas or Louisiana.

| State Emergency Declarations and HOS Waivers as of 8:00 AM EDT 08/28/2017 | | | | |
|---|---|-----------------|----------|--------|
| State | Details | Effective Dates | | Status |
| | | Start | End | |
| Regional (Texas & Louisiana) | Regional Emergency Declaration and FMCSR waiver issued by FMCSA. | 8/25/17 | 10/26/17 | Active |
| Texas | State of Disaster declared for Aransas, Austin, Bee, Calhoun, Chambers, Colorado, Brazoria, DeWitt, Fayette, Fort Bend, Galveston, Goliad, Gonzales, Harris, Jackson, Jefferson, Jim Wells, Karnes, Kleberg, Lavaca, Liberty, Live Oak, Matagorda, Nueces, Refugio, San Patricio, Victoria, Waller, Wharton, and Wilson counties. | 8/23/17 | TBD | Active |
| Louisiana | State of Emergency declared. | 8/23/17 | TBD | Active |

Sources: [U.S. Department of Transportation](#); Governor Office Websites; NOLA.com; Houston Chronicle

