



# Tropical Storm Harvey

## Event Report (Update #8)

|                                |  |
|--------------------------------|--|
| <b>REPORT TIME &amp; DATE:</b> | 4:00 PM EDT   Tuesday, August 29, 2017 |
| <b>INCIDENT START DATE:</b>    | Friday, August 25, 2017                |
| <b>PRIMARY LOCATION(S):</b>    | Gulf Coast (Texas and Louisiana)       |
| <b>REPORT DISTRIBUTION:</b>    | Public                                 |

### EXECUTIVE SUMMARY

Tropical Storm Harvey continues to produce heavy rain across eastern Texas and Louisiana, which has led to significant flooding. Harvey will continue to impact the region through middle of the week with an additional 6 to 13 inches of rain expected through Friday.

### Electricity Sector Impacts (as of 2:30 PM EDT)

- Texas: 274,086 customer power outages (2.3% of total customers)
  - AEP Texas is the most significantly impacted utility
  - AEP estimates 95% of outages in Corpus Christi area will be restored by late Wednesday and expects 95% of outages restored for most other areas by Saturday
  - AEP Texas estimates that at least 2,100 utility poles and 55 transmission structures were damaged or knocked down by the storm and crews have restored 21 substations of the 44 out of service
  - CenterPoint Energy has over 100 mutual assistance crews en route to aid restoration
  - Restoration in severely damaged or flooded areas will be delayed and utilities are reminding customers that before electricity can be restored to homes or business impacted by flooding, customers need to have electrical equipment inspected.
- Louisiana: 1,031 customer power outages (<1% of total customers)
  - Entergy has addressed potential flooding issues by relocating equipment in low-lying areas and installing flood protection measures where applicable

### Oil and Natural Gas Sector Impacts (as of 2:30 PM EDT)

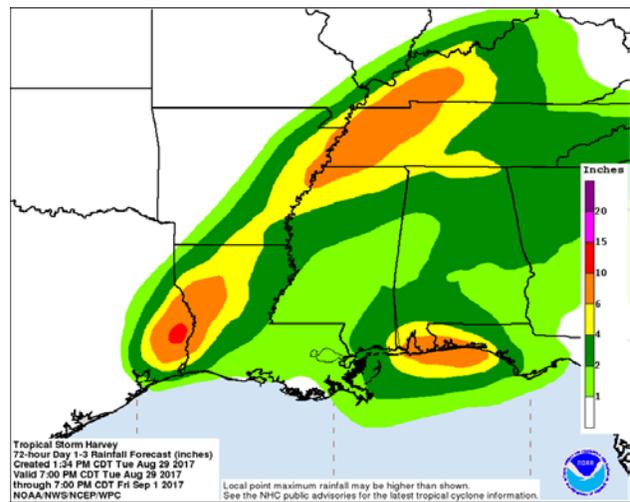
- Six refineries in the Corpus Christi area and seven refineries in the Houston/Galveston area are shut down. One refineries in the Houston/Galveston region area, two in the Beaumont/Port Arthur, and two in the Lake Charles area were operating at reduced rates
- DOE remains in close contact with oil and gas operators, industry representatives, and the Energy Information Administration to assess potential impacts at a regional and national level

**INCIDENT OVERVIEW**

As of 2:00 PM EDT, Harvey was 80 miles south-southwest of Port Arthur, Texas moving north-northeast at 8 MPH, with maximum sustained winds of 45 MPH (tropical storm). Tropical-storm-force winds extend outward up to 160 miles. Harvey is moving a little faster and this general motion is expected to continue today and tomorrow. On the forecast track, the center of Harvey is expected to move inland over the northwestern Gulf within the tropical storm warning area later tonight or early Wednesday.

Harvey is expected to produce additional rain accumulations of 6 to 12 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 additional rainfall amounts of 5 to 10 inches across portions of southern Louisiana into coastal Mississippi and Alabama. Rainfall associated with Harvey will spread north by mid to late week, with rainfall amounts of 4 to 8 inches spreading into portions of Arkansas and the Tennessee Valley.

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



**ELECTRICITY SECTOR**

**OVERVIEW**

Impacted utilities, including Entergy, AEP Texas, and CenterPoint Energy 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 Edison Electric Institute (EEI) is reporting that nearly 10,000 resources are being dedicated to the response effort. This includes crews, lineworkers, and support personnel from impacted companies and the industry's mutual assistance network. Mutual assistance crews from at least 19 states are responding. The Electric Reliability Council of Texas (ERCOT) grid continues to be in stable condition. However, several transmission lines remain out of service, including two major 345-kV transmission lines serving the Gulf Coast area.

| ELECTRICITY OUTAGES AS OF 2:30 PM EDT 08/29/2017 |                                    |  |                             |
|--|------------------------------------|--|-----------------------------|
| Impacted State                                   | Current Confirmed Customer Outages | Percent of Confirmed State Customers without Power | 24-hr Peak Customer Outages |
| Louisiana  | 1,031                              | <1%  | 4,483                       |
| Texas  | 274,086                            | 2.3%   | 312,698                     |
| <b>Total</b>                                     | <b>275,117</b>                     | -  | *                           |

*\*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 2:30 PM EDT, August 29, the State of Louisiana has 1,031 customer outages. This represents <1% of customers in the state.
    - Entergy Louisiana has 597 customer outages.
    - Beaugard Electric Coop (BECi) has 168 customer outages.
    - CLECO Power Inc. has 98 customer outages.
    - Southwestern Electric Power Co. (SWEPCO) has 60 customer outages.
  - Entergy Louisiana has addressed potential flooding situations by relocating equipment in low-lying areas and installing flood protection measures where applicable.
  - Entergy New Orleans is monitoring the storm’s progression and feeder bands.
  - CLECO Power Inc. crews, along with contractor crews, are currently on stand-by and prepared to restore service. CLECO is monitoring the storm.



- Texas
  - As of 2:30 PM EDT, August 29, the State of Texas has 274,086 customer outages. This represents 2.3% of customers in the state.
    - AEP Texas has 129,837 customer outages. This is a 1.7% increase from last report.
    - CenterPoint Energy has 103,859 customer outages. This is a 4.7% decrease from last report.
    - Entergy Texas has 25,142 customer outages. This is a 7.6% increase from last report.
    - Texas New Mexico Power has 8,709 customer outages. This is a 20% increase from last report.
  - AEP Texas is addressing nearly 4,400 hazard tickets throughout the Coastal Bend area and approximately 2,600 in Corpus Christi.
  - AEP Texas estimates that at least 2,100 utility poles and 55 transmission structures were damaged or knocked down by the storm. Crews had reactivated 40 circuit breakers by Monday afternoon, and approximately 146 circuit breakers remained off line.
  - AEP crews have restored service to 21 substations of the 44 out of service. Some transmission facilities will take longer than a week to restore.
  - AEP Texas has requested an additional 1,000 personnel in addition to the 3,600 already committed to the restoration of power in the Coastal Bend. Crews from Kentucky, Illinois, Missouri, and other states are working to restore power.
  - 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, September 2. Restoration dates and times are still to be determined for Matagorda County, 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.
  - Oncor Electric Delivery has sent nearly two dozen crews and more than 70 trucks Tuesday morning to assist AEP Texas's restoration efforts.
  - CenterPoint Energy is reporting over 100 mutual assistance crews are en route to aid in their restoration efforts.
  - CenterPoint Energy is unable to address impacted customers in downtown Houston until floodwaters have receded. Restoration times are being assessed.
  - Texas-New Mexico Power reported that new estimates of complete restoration would be published the morning of Tuesday, August 29. Those estimates have not yet been released.
  - Texas-New Mexico Power does NOT have plans to shut off power to the City of Dickinson or other portions of its service territory despite public speculation.
  - Entergy Texas expects the majority of its Texas customers to be restored by Saturday evening.
  - Entergy Texas personnel cannot access some of their electrical facilities that provide service due to debris and flooding.
  - The Governor of Texas released a proclamation authorizing utilities to make temporary connections at the distribution and transmission level.



## OIL &amp; GAS SECTOR

## OFFSHORE PRODUCTION

- As of 12:30 PM EDT, August 29, 319,523b/d (18.26%) of the oil production and 615.09 MMcf/d (19.1%) 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<br><i>as of 12:30 PM EDT 08/29/2017</i> |                    |                      |                      |
|---|--------------------|----------------------|----------------------|
| Production  | Pre-Event          | Shut-In<br>(08/28)   | Shut-In<br>(08/29)   |
| Crude Oil (b/d)   | 1,750,000          | 331,370              | 319,523              |
| Natural Gas (MMcf/d)  | 3,220              | 583.39               | 615.09               |
| Infrastructure  | Pre-Event<br>Count | Evacuated<br>(08/28) | Evacuated<br>(08/29) |
| Manned Platforms  | 737                | 98                   | 102                  |
| Rigs  | 31                 | 5                    | 5                    |

Source: BSEE

## ONSHORE PRODUCTION

- On August 26, the Texas Railroad Commission estimated that approximately 300,000 to 500,000 b/d of crude production had been shut-in in the Eagle Ford region from a pre-storm production estimate of 870,000 b/d. In addition, approximately 3.0 Bcf/d of natural gas production had been shut-in from a pre-storm production estimate of about 6.0 Bcf/d. The Commission had expected most idled production to come back online in the next few days.

## PETROLEUM REFINERIES

- As of 03:00 PM EDT, August 29, all six refineries in the Corpus Christi area, seven refineries in the Houston/Galveston area, and one refinery in the Beaumont/Port Arthur area were shut down or in the process of shutting down, according to public reports. These refineries have a combined refining capacity of 3,268,449 b/d, equal to 33.7% of total Gulf Coast (PADD 3) refining capacity and 17.6% of total U.S. refining capacity. In addition, one refinery in the Houston/Galveston region area, two refineries in the Beaumont/Port Arthur area, and two refineries in the Lake Charles area were operating at reduced rates. The refineries operating at reduced rates have a total capacity of 1,777,276 b/d, equal to 18.3% of total Gulf Coast (PADD 3) refining capacity and 9.6% of total U.S. refining capacity.



**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.
- As of August 28, 22 oil tankers carrying approximately 15.3 million barrels of imported crude oil near Texas ports are unable to offload due to port closures.
- 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.

| <b>Status of Texas and Louisiana Gulf Coast Ports as of 3:00 PM EDT 08/29/2017</b> |   |                   |
|--|---|-------------------|
| <b>Port</b>  | <b>Status</b>   | <b>Date Stamp</b> |
| <b>Sector Corpus Christi</b>   |   |                   |
| Brownsville  | Open.   | 08/26/17          |
| Corpus Christi   | Port Condition Zulu. Closed. Port is assessing damage. Working to restore normal operations by 9/4. | 08/28/17          |
| <b>Sector Houston and Galveston</b>  |   |                   |
| Freeport   | Port Condition Zulu. Closed. To remain at Zulu for next 48 hours.                                   | 08/28/17          |
| Galveston  | Port Condition Zulu. Closed. To remain at Zulu for next 48 hours.                                   | 08/28/17          |
| Houston  | Port Condition Zulu. Closed. To remain at Zulu for next 48 hours.                                   | 08/28/17          |
| Texas City   | Port Condition Zulu. Closed. To remain at Zulu for next 48 hours.                                   | 08/28/17          |
| <b>Sector Port Arthur and Lake Charles</b>   |   |                   |
| Beaumont   | Port Condition Zulu. Closed.  | 08/28/17          |
| Lake Charles   | Port Condition Zulu. Closed.  | 08/28/17          |
| Nederland  | Port Condition Zulu. Closed.  | 08/28/17          |
| Orange   | Port Condition Zulu. Closed.  | 08/28/17          |
| Port Arthur  | Port Condition Zulu. Closed.  | 08/28/17          |
| Port Neches  | Port Condition Zulu. Closed.  | 08/28/17          |
| Sabine Pass  | Port Condition Zulu. Closed.  | 08/28/17          |

Source: U.S. Coast Guard

**NATURAL GAS UTILITIES**

- On August 27, CenterPoint Energy (Houston metropolitan area) reports that its natural gas system is functioning normally. The company has responded to leak calls in areas of the city that our crews have been able to safely access.



## 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. This waiver was expanded on August 26 to include additional counties in Texas.
- On August 28, the EPA approved a waiver for diesel fuel sulfur standards in Texas. Under this waiver, the EPA will allow the sale, distribution and use of dyed non-road diesel fuel in the state, but the diesel fuel cannot exceed the 15 ppm standard.
- On August 28 the EPA approved a waiver for RVP and ethanol volume in Louisiana in designated parishes.

| State Fuel Specification Waivers as of 3:00 PM EDT 08/29/2017 |   |                 |          |        |
|---|---|-----------------|----------|--------|
| State   | Waived Requirement  | Effective Dates |          | Status |
|   |   | Start           | End      |        |
| Texas   | <b>RFG</b> requirement waived in Houston-Galveston-Brazoria areas. Waiver expanded to four-county Dallas-Fort Worth RFG area 8/26. Allows the sale or distribution of conventional gasoline.  | 08/25/17        | 09/15/17 | Active |
| Texas   | <b>7.8 psi RVP</b> standard waived for gasoline sold in 20 counties where low-RVP gasoline is required and are also under the Governor's Disaster Declaration. Waiver expanded to 98 counties required to use low-RVP fuel 8/26. Allows sale of gasoline up to 9.0 psi RVP. | 08/25/17        | 09/15/17 | Active |
| Texas   | <b>TxLED</b> requirement waived in 29 counties that require TxLED and are also under the Governor's Disaster Declaration. Waiver expanded to the entire 110-county area required to use TxLED 8/26.   | 08/25/17        | 09/15/17 | Active |
| Texas   | <b>ULSD</b> requirement waived in Texas. Allows use of dyed non-road diesel fuel meeting 15 ppm standard.   | 08/28/17        | 09/15/17 | Active |
| Louisiana   | <b>7.8 psi RVP</b> standard waived for gasoline sold in designated parishes where low-RVP gasoline is required. Allows sale of gasoline up to 9.0 psi RVP.  | 08/28/17        | 09/15/17 | Active |
| Louisiana   | <b>Ethanol volume</b> requirement waived. Allows gasoline with less than 9% ethanol to qualify for the EPA's "special provisions for alcohol blends" requirement."  | 08/28/17        | 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 <i>as of 8:00 AM EDT 08/29/2017</i> |   |                 |          |        |
|--|---|-----------------|----------|--------|
| 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

**DOE Strategic Petroleum Reserve Status (from the Office of Fossil Energy)**

| DOE Strategic Petroleum Reserve Site Status<br><i>(as of 8/29/2017)</i> |                    |                     |                |                  |
|---|--------------------|---------------------|----------------|------------------|
|   | Bayou Choctaw Site | West Hackberry Site | Big Hill Site  | Bryan Mound Site |
| <b>Commercial Power Availability</b>                                    | Available          | Available           | Available      | Available        |
| <b>Drawdown Capability</b>  | Drawdown Ready     | Drawdown Ready      | Drawdown Ready | Drawdown Ready   |

