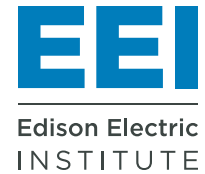


# From Superstorm Sandy to Today

## Lessons Learned and Applied



**T**his document highlights how EEd and the electric power industry have worked together and with government partners since Superstorm Sandy to streamline restoration efforts and to improve how the industry prepares and responds safely to major events that cause significant outages. As demonstrated last year in Hurricane Matthew and, most recently, in Hurricanes Harvey and Irma, industry investments, public policy changes, internal reorganization, and a strong industry-government partnership help support resilience, response, and recovery.

## Mutual Assistance Improvements

**F**ollowing Superstorm Sandy, EEd and our member companies established the National Response Event (NRE) framework to support the industry's Regional Mutual Assistance Groups (RMAGs) in the event of an incident that has national implications.



# Mutual Assistance Improvements

## Regional Mutual Assistance Groups

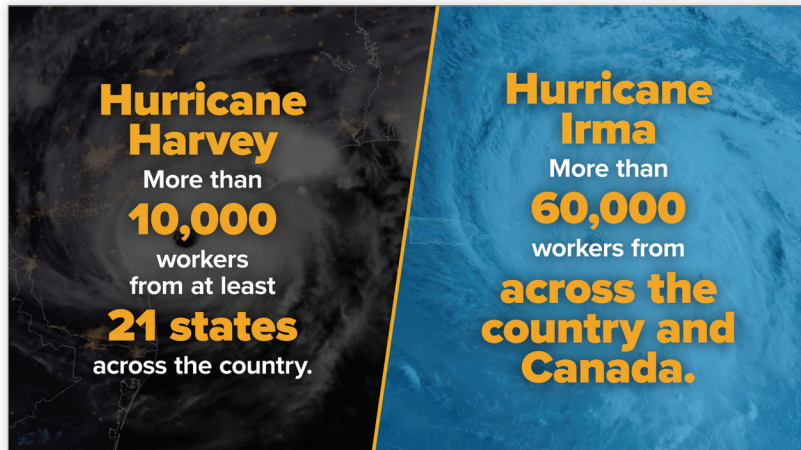
The industry's RMAGs quickly marshaled support for the companies and customers impacted by Hurricanes Harvey and Irma. More than 10,000 workers were dedicated to the Harvey response and recovery effort, and mutual assistance crews from at least 21 states provided support in Texas and Louisiana. More than 60,000 workers from across the United States and Canada were mobilized and dedicated to the Irma response and recovery efforts in Florida, Georgia, Alabama, North Carolina, and South Carolina. This army of workers came from affected companies and also included mutual assistance crews, contractors, and other support personnel.

The flexibility that is part of the RMAG process ensured that the affected companies in Texas and Louisiana would be supported following Hurricane Harvey, while also allowing crews along the East Coast to remain in place to respond to Hurricane Irma.

Although Harvey and Irma did not formally activate an NRE, the NRE framework provided a foundation for multi-RMAG communications and coordination, including daily

situational awareness calls that ensured all resource needs were being met. The National Response Executive Committee and leaders from the National Mutual Assistance Resource Team and Mutual Assistance/Emergency Preparedness Committee were engaged in monitoring the storms and providing support.

Member coordination through the RMAGs and EEI allowed impacted companies to obtain workers and other resources, including special high-water equipment, drones, and materials needed for restoration.



*“The RAMP-UP tool is an absolute winner. Saves so much time and streamlines processes. We were able to combine an SEE and Midwest RMAG call last night with great effectiveness. Really pays off.”*

### Tom Kirkpatrick

Vice President, Customer Services, Marketing, and Distribution Services, American Electric Power

### Resource Allocation Management Program for Utility Personnel

EEI's newly developed Resource Allocation Management Program for Utility Personnel (RAMP-UP) was a tremendous asset to the RMAGs in streamlining the coordination of mutual assistance resources across the impacted areas during Hurricanes Harvey and Irma. RAMP-UP, developed in partnership with member companies and the RMAGs, is now the standard resource allocation platform for all seven RMAGs.

# A Strong Industry-Government Partnership

Following Superstorm Sandy, industry and government officials requested a more formal structure to coordinate during national threats to critical infrastructure.

## Unity of Effort

During Hurricanes Harvey and Irma, the Electricity Subsector Coordinating Council (ESCC) led industry-government coordination and response among CEOs from affected companies and leadership from the Department of Energy (DOE) and Department of Homeland Security (DHS).



Official White House Photo by Shealah Craighead



President Trump, Homeland Security Advisor Tom Bossert, ESCC Co-Chair Tom Fanning, E-ISAC Member Executive Committee Chairman John McAvoy, and EEI President and ESCC Steering Committee Member Tom Kuhn met to discuss the value of the ESCC and the importance of industry-government collaboration in the face of a dynamic and escalating threat environment.

## Transportation Movement

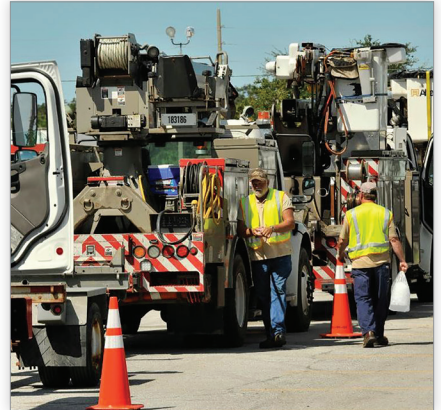
EEI leveraged strategic partnerships with the All Hazards Consortium's Multi-State Fleet Response Working Group to seek state regulatory waivers and gubernatorial emergency directives and to expedite the movement of restoration crews and heavy equipment through transportation systems in both impacted and "pass thru" states. EEI also leveraged relationships with the National Emergency Management Association and the National Governors Association to seek state emergency management and transportation agency support.



# Two Historic Storms, Two Historic Responses



# Two Historic Storms, Two Historic Responses



# A Strong Industry-Government Partnership

*“The Railway Alert Network gratefully acknowledges the sustained commitment and dedicated efforts throughout the electricity industry on multiple fronts, most notably power restoration in storm-impacted areas. The continuous information sharing and coordination across sectors have informed effective decision making and action on priorities for restoration of critical facilities across industries. By these means, the Electricity Subsector Coordinating Council, and utilities and industry organizations across the industry, have very much demonstrated the public-private partnership in action.”*

**Tom Farmer**  
Chairman,  
Partnership for Critical  
Infrastructure Security

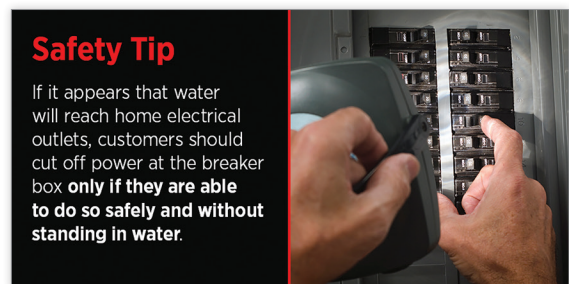
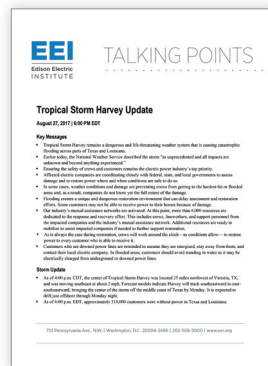
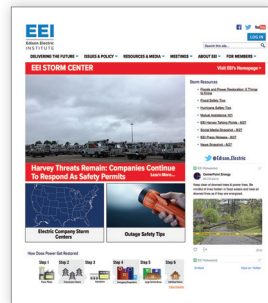
## Cross-Sector Coordination

The ESCC participated in daily cross-sector coordination calls led by DHS and the Federal Emergency Management Agency (FEMA) following both storms. These daily touchpoints provided a venue for each critical infrastructure sector to update the cross-sector community and to address issues of interdependency. In particular, delivering power to the oil and natural gas sector was a priority; coordination between electric companies and refineries helped to expedite restoration to this critical sector.

## Unity of Message

The ESCC and EEI engaged with DOE and FEMA and the highest levels of government to support restoration activities and public messaging. EEI worked throughout the storms to amplify these efforts and to reinforce company messaging around safety, the power restoration process, the challenges of responding during flooding, and mutual assistance. Through social media, radio placements, earned media, and targeted digital outreach, EEI magnified the message to various external stakeholders.

Close coordination across the sector and with government partners, as well as with other sectors, helped to ensure unity of message and to amplify the industry’s impressive efforts.



# Infrastructure Investments

Investing in a robust, flexible, dynamic, and secure energy grid is a multi-billion-dollar, multi-year effort. Our industry continues to make significant investments to harden the energy grid and to make our infrastructure more resilient.

## Smart Grid Investments

EEl's member companies invested an estimated \$52.8 billion in the energy grid's transmission and distribution infrastructure in 2016. This level of investment is more than twice what it was a decade ago. These investments in resilience and hardening paid off during Harvey and Irma.

## Technology Deployment

Electric company investments in smart grid technologies helped companies respond to major outages during Hurricanes Harvey and Irma. Digital infrastructure including smart meters, now deployed in more than half of all U.S. homes, helped impacted companies to identify where outages were occurring. During both storms, drones were deployed by companies to speed damage assessment and restoration.



**FPL Newsroom**  
@FPL\_Newsroom

Following

Gould: The investments we have made our benefiting our customers by speeding restoration. Less damage to grid seen now than from #Wilma.

11:38 AM - 13 Sep 2017



**CenterPoint Energy**  
@CNPalerts

Follow

CenterPoint Energy reduced power outages from Hurricane #Harvey in our Humble service area from about 160,000 to 61 with help from drones.



3:23 PM - 3 Sep 2017 from Houston, TX



**EEI** EEI  
@Edison\_Electric

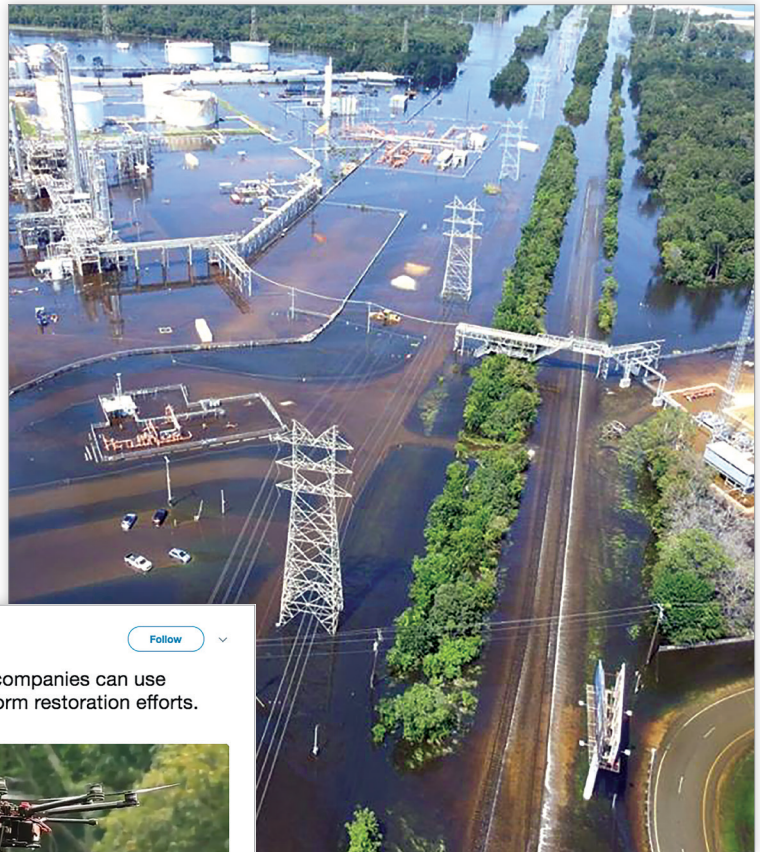
Follow

Learn how electric companies can use #drones to aid in storm restoration efforts. #Harvey



So potential issues are spotted

10:48 AM - 28 Aug 2017

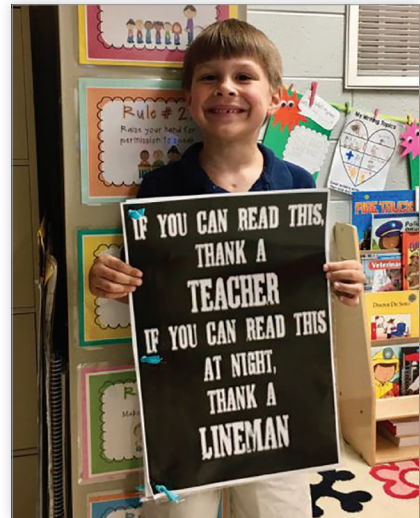


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THANK YOU TO THE

# Dedicated Men & Women of the Electric Power Industry

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October 2017