2017

Historic Storms, Historic Responses

Department of Energy Electricity Advisory Committee – February 21, 2018
About Edison Electric Institute

- The Edison Electric Institute (EEI) is the association that represents all U.S. investor-owned electric companies.
- Our members provide electricity for about 220 million Americans, and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States.
- In addition to our U.S. members, EEI has more than 60 international electric companies with operations in more than 90 countries, as International Members, and hundreds of industry suppliers and related organizations as Associate Members.
- Organized in 1933, EEI provides public policy leadership, strategic business intelligence, and essential conferences and forums.
EEI Member Company Mutual Assistance

- Regionally-based voluntary partnership of investor-owned electric companies across the country committed to providing resources to help restore power.
  - Some municipal and cooperatives participate in Regional Mutual Assistance Groups (RMAGs), but they also have their own mutual aid programs
- Mutual assistance is a force-multiplier.
Enhance Mutual Assistance Processes
Respond and Coordinate on a National Level

January 2013, the EEI Board meets and directs EEI to develop a new national-level mutual assistance framework. September 2013, EEI Board approves “National Response Event” Framework.

October 2012, Superstorm Sandy
8.2 million out, 14 days+

NASA Earth Observatory image by Robert Simmon with data courtesy of the NASA/NOAA GOES Project Science team.
Post Sandy Mutual Assistance Improvements

- Regional Mutual Assistance Group consolidation
- National Response Event framework
- Streamline and improve transportation and fleet movement
- Stronger Industry-Federal Government partnerships and coordination
- Enhancement of industry association capabilities and coordination
Regional Mutual Assistance Groups
National Response Event Framework

NRE Framework a foundation for the multi-RMAG response
National Response Event Overview

- A NRE is an event that:
  - Is expected to or has impacted two or more RMAGs; and
  - The resource requirements are greater than what the impacted RMAGs can provide; or
  - There are multiple events that create a resource constraint or competition between RMAGs.

- When an NRE is activated, all available EEI member emergency restoration resources (including contractors) will be pooled and allocated to participating utilities in a safe, efficient, and equitable manner.
NRE Addresses Allocation of Restoration Resources

- Workers
  - Line, Vegetation, Damage Assessment, Engineers, Others
- Equipment
- Coordinates resources
- All Hazards
- Would support the physical restoration in a cyber or transmission system incident
  - ESCC Cyber Mutual Assistance / Equipment Sharing programs would operate in parallel to NRE
Better Tools to Support Mutual Assistance

RAMP-UP
Resource Allocation Management Program for Utility Personnel
Support for Transportation Movement

- All Hazards Consortium’s Multi-State Fleet Response Working Group
- National Emergency Management Association
- National Governors Association
Industry-Government Partnership

ESCC
Electricity Subsector Coordinating Council
Operational Situational Awareness call with MA-EP Leaders

Unity of Effort/Situational Awareness call with DOE ESF-12

Unity of Message call with Industry PIOs and DOE PA

ESCC CEO Calls

DHS National Infrastructure Coordinating Center (NICC) calls

FEMA National Business Emergency Operations Center calls

Outcome: consistent effort and messages from industry and government
Unity of Effort

Federal Government

- DOE
- FEMA
- DHS

Cross-Sector

- Coordination with oil and natural gas sector for power restoration at refineries
Tropical Storm Harvey Update
August 28, 2017, 6:00 p.m. EDT

As of 6:00 p.m. EDT, approximately 318,000 customers were without power in Texas and Louisiana. There are 6 steps to the power restoration process:

1. **Power Plants**: Power plants provide the primary source of power production, often for large loads and critical infrastructure.
2. **Transmission Lines**: High-voltage transmission lines allow the thousands of customers per transmission circuit to receive power.
3. **Substations**: Substations are brought online in order for power to reach local distribution lines.
4. **Emergency Responders and Essential Services**: crisis and essential services and facilities critical to public health and safety, and for the supply, water, distribution plants, and service establishments.
5. **Large Service Areas**: Essential services are dispatched to repair transmission lines and areas for the largest number of customers and infrastructure in the largest number of customers and neighborhoods, industries, and businesses are generally restored.
6. **Individual Homes**: home major repairs are completed. Service calls to individual homes and smaller groups of customers are restored.
Amplification of Messages

What NOT to do after your home is flooded

Avoid standing water, as it could be electrically charged from underground or by downed power lines, warns Edison Electric Institute, which provides a wide array of online links to help people cope with power problems.

Forbes

Unsung Heroes of Harvey

While customers may not see electric company personnel in their neighborhoods, the energy grid is heavily interconnected and crews are working throughout the system to bring power back on quickly and safely when and where conditions are safe to do so,” said EEI President Tom Kuhn.
## Infrastructure Investments

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| $52.8 billion in T&D since 2016 | 1. Smart grid  
2. UAS  
3. Sensors  
4. Substation hardening |
2017 Hurricane Season

3 Major hurricanes – Harvey, Irma, Maria – hit the U.S.

4 other storms also made landfall
Hurricane Harvey
More than 10,000 workers from at least 21 states across the country.

Hurricane Irma
More than 60,000 workers from across the country and Canada.
Puerto Rico Power Restoration Efforts
Working together to restore power to the people of Puerto Rico.

One team one mission!
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Since 1933, EEI has provided public policy leadership, strategic business intelligence, and essential conferences and forums for the energy industry.

For more information, visit our Web site at www.eei.org.