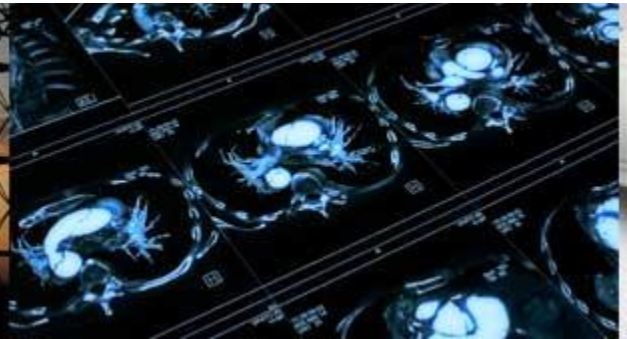
How to Prepare for Disasters and Rebuild Stronger After Them

Joseph Eaves
Director, Government Relations

NEMA

The Association of Electrical Equipment and Medical Imaging Manufacturers


Electrification and Resilience in Ports

- Electrification can be essential to time and energy efficiencies for port operations
  - Cranes
  - Storage and Refrigeration
  - Service Vehicles (trucks and boats)
  - Energy Storage
  - Ship to grid
  - Upgrades to Port Infrastructure

How to Keep Electrons Flowing

- Smart Grid Solutions
- Microgrids
- Energy Storage
- Distributed/Backup Generation
- Water-Resistant Wiring and Components
- Relocating Equipment
- Disaster Recovery Planning

Smart Grid Solutions

- Technologies
  - Smart Meters
  - Advanced Sensors
  - Reclosers/Circuit Breakers

- Functionality
  - Fault Location, Isolation, and Service Restoration (FLISR)
  - Demand Response

Microgrids

- Disconnect from the grid during a disaster to keep power flowing to critical loads

Energy Storage

- Backup power
- Reduce strain on grid during outages and startup
- Black start

Distributed/Backup Generation

- On-site generators can ensure reliable power supply during emergencies if they are properly sited and maintained

- During Sandy, some diesel pumps flooded, leaving generators without fuel

Water-Resistant Wiring and Components

- The New Jersey Seaside Park boardwalk fire was caused by saltwater-damaged wire, a year after Superstorm Sandy

Relocating Equipment

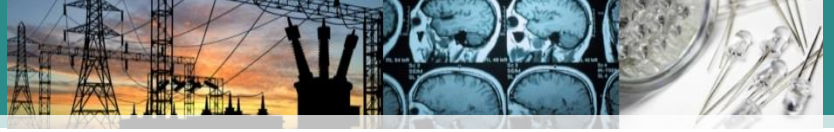
- Flooded basements can prevent generators and fuel pumps from functioning and can short-circuit other electrical equipment

Disaster Recovery Planning

- Restore critical services first
- Inspect electrical systems before re-energizing
- Conduct a pre-crisis risk mitigation audit
- Train facility managers
- Know where you can get replacement equipment and certified technicians
- Plan for the failure of communication systems
- Install surge protection, arc-fault protection, and ground-fault protection to reduce risk of equipment damage, fire, and electrocution
- **Upgrade equipment when replacing it**

Federal Solutions

- Diesel Emissions Reduction Act (DERA)
  - Funding can be used for electrification projects
- Disaster Recovery Reform Act (DRRA)
  - Pre-mitigation funding program, work with states to make upgrades to protect against future storm damage



For More Information

Download the NEMA storm reconstruction guide:

www.nema.org/storm-reconstruction

Joseph Eaves
Director, Government Relations
joseph.eaves@nema.org
703.841.3221