



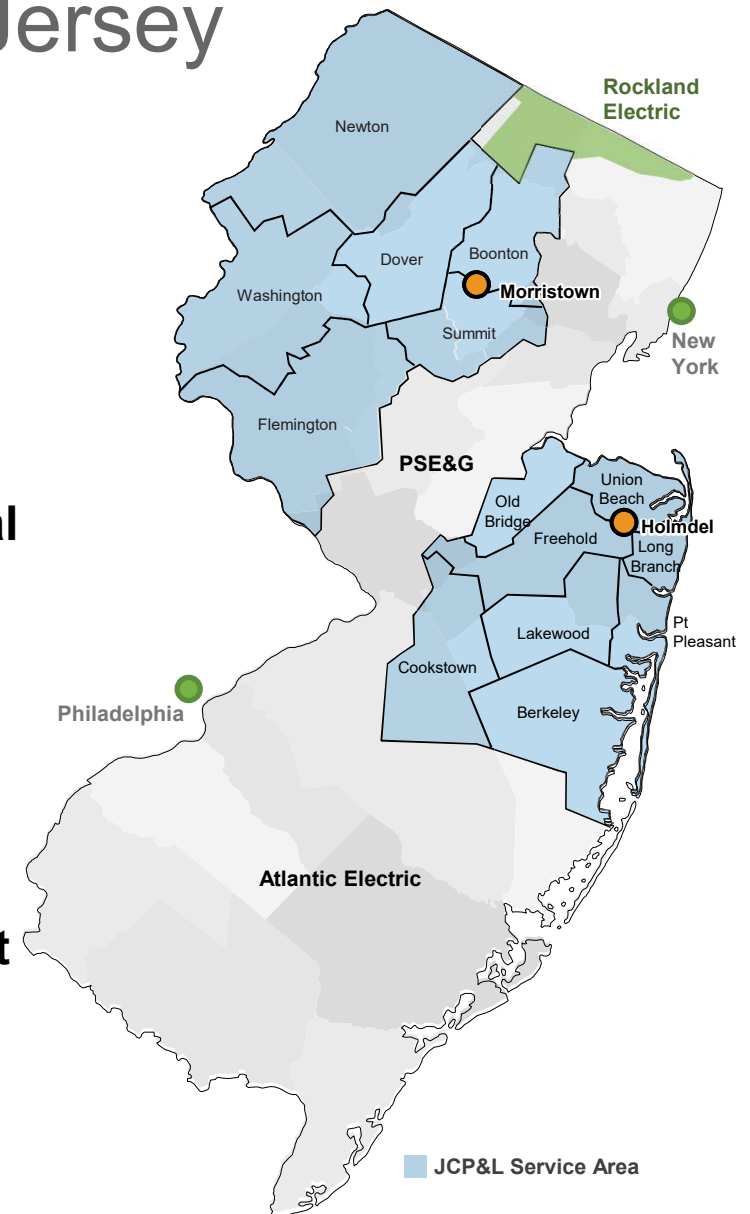
JCP&L Storm Restoration Process

April 2018

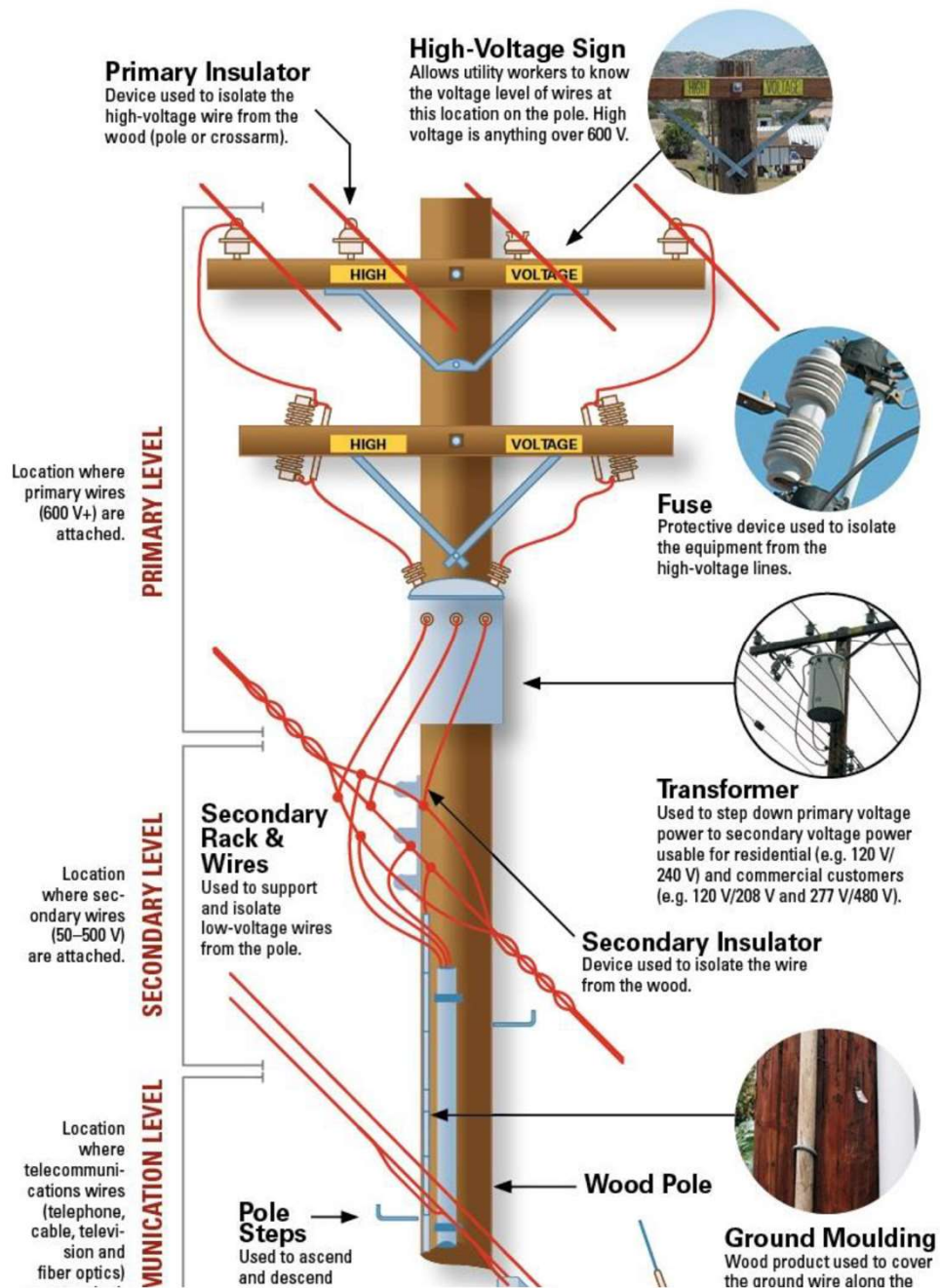


A Strong Presence in New Jersey

- **Regional headquarters in Morristown and Holmdel**
- **1.1 million customers in 13 counties**
- **1,550 employees**
- **More than \$110 million in purchases of local goods and services**
- **Over \$6.5 billion in current assets**
- **In the past 10 years, JCP&L has invested \$3 billion in capital projects**
- **Part of FirstEnergy Corp., one of the largest investor-owned electric systems in U.S. based on 6 million customers served**



All data as of Dec. 31, 2017.



Wood Poles Inspections

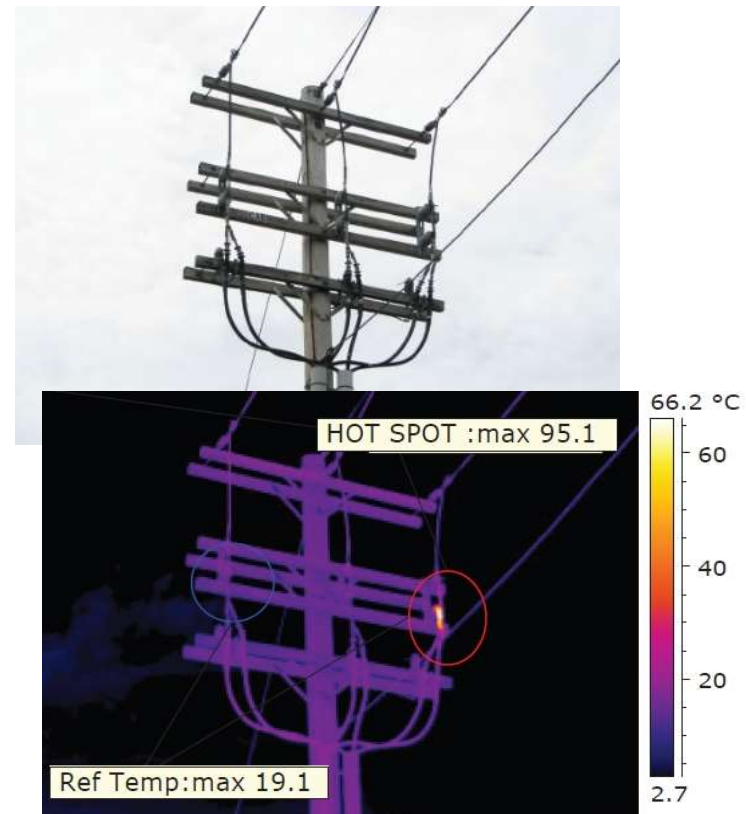
- **JCP&L wood poles are inspected on a 10 year cycle.**
- **JCP&L owns/maintains about 50% of wood poles in JCPL service territory.**
- **Phone Company owns/maintains the other 50% of wood poles in JCPL Service Territory.**
- **Each utility typically sets/maintains their wood poles.**
- **Each utility coordinates with each other during blue sky operations and during storm emergencies.**
- **JCP&L owned poles have a stencil at chest height that starts with either “JC” or “NJ”.**
- **Example – JC 450 CT.**

Stencil Example



Transmission & Distribution Line Inspections

- **Capture infrared images of distribution equipment to detect potential problems that cannot be observed during regular visual inspections.**
- **Four year inspection cycle.**



Recently Implemented Enhancements

■ **Vegetation Management**

- Overhang Removal
- Outage Reporting/Information
- 24/7 Power Center
- My Town Web Page

■ **Critical Facilities Database**

- Each Municipality has a Critical Facility Inventory

■ **Road Opening Process**

- High, Medium, Low Traffic

■ **Estimated Time of Restoration**

- System, User & Global

■ **Critical Care & Well Water Customers**

- IVR Message 48 and 24 hours ahead of weather event.

Vegetation Management Enhancements

- **Distribution circuits – Classified in three zones**
 - Zone 1 – Substation 3 phase to the first protective device
 - Zone 2 – Remainder of 3 phase main line
 - Zone 3 – Laterals

- **Rights-of-way limit what JCPL can remove or trim on private property**
 - Work with local shade tree commissions.
 - Need municipalities to help get needed clearances.

- **Emerald Ash Borer – Priority Tree Management**

Distribution Line with Tree Overhang



Distribution Line with Tree Overhang Removed



EAB Detections – Northern New Jersey

EAB Detections in New Jersey

www.emeraldashborer.nj.gov

SUSSEX

- 2017 Montague Twp
- 2018 Walpack Twp

WARREN

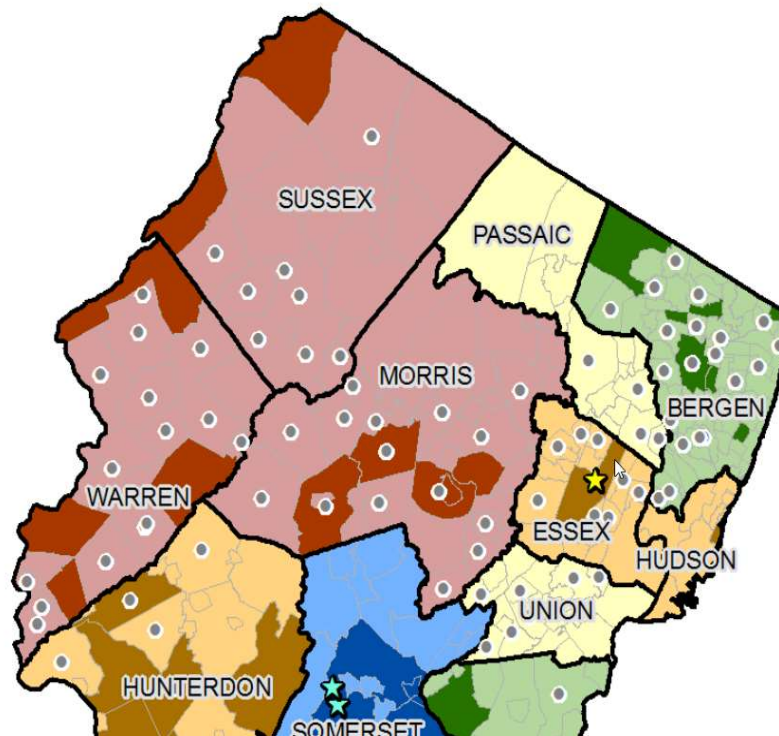
- 2017 Harmony Twp
- 2017 Hardwick Twp
- 2017 Greenwich Twp
- 2017 Mansfield Twp

HUNTERDON

- 2016 West Amwell Twp
- 2017 Alexandria Twp
- 2017 Delaware Twp
- 2017 Kingwood Twp
- 2017 Bethlehem Twp
- 2017 East Amwell Twp
- 2017 Franklin Twp
- 2017 Readington Twp

SOMERSET

- 2014 Bridgewater Twp
- 2014 Hillsborough Twp
- 2015 Franklin Twp
- 2016 Bound Brook Boro
- 2016 South Bound Brook Boro



BERGEN

- 2015 Hillsdale Boro
- 2016 Mahwah Twp
- 2016 Ho-Ho-Kus Boro
- 2017 River Edge Boro
- 2017 Paramus Boro
- 2017 Rockleigh Boro
- 2017 Leonia Boro

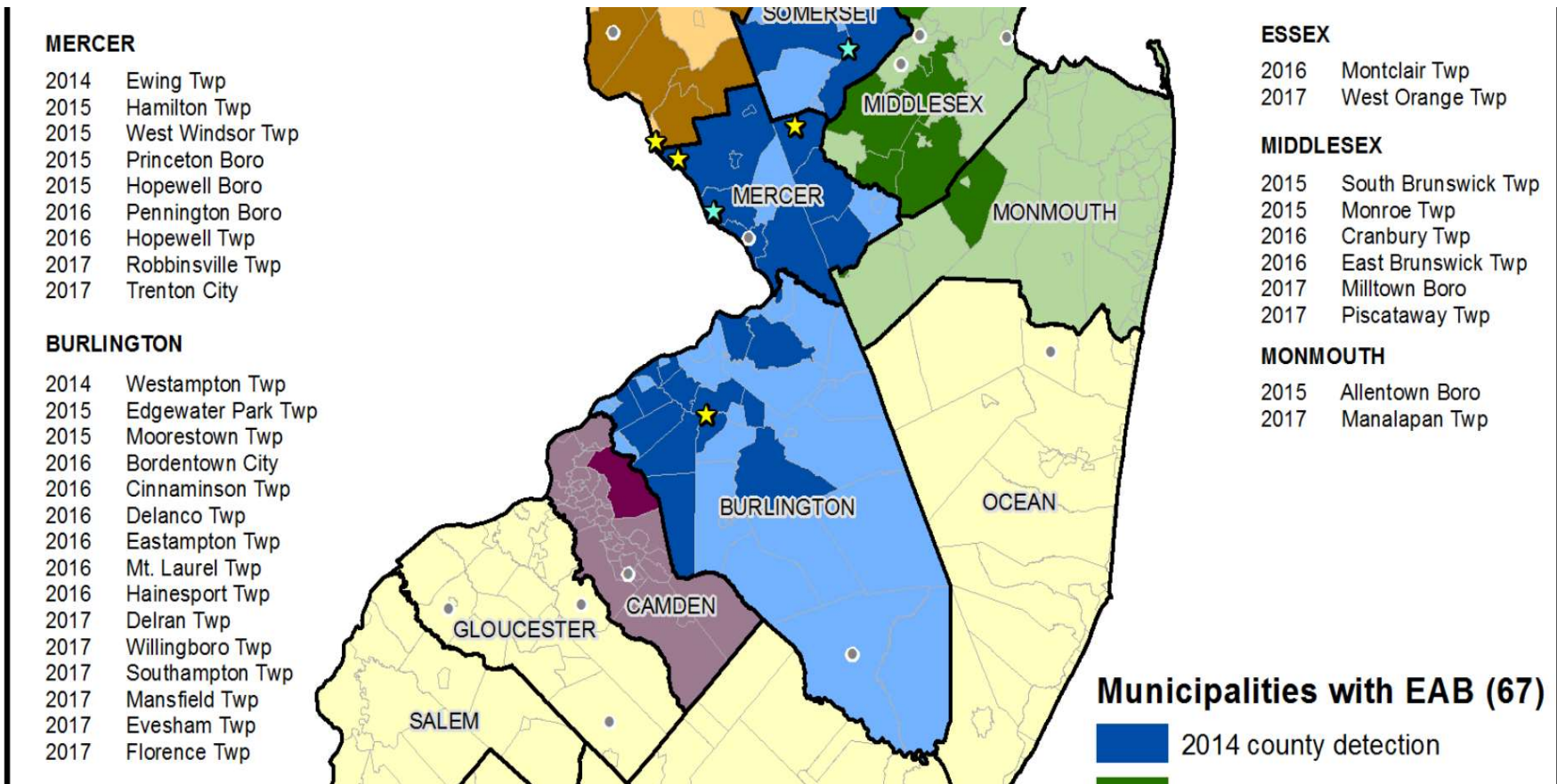
MORRIS

- 2017 Morris Twp
- 2017 Chester Twp
- 2017 Hanover Twp
- 2017 Randolph Twp
- 2018 Morristown

HUDSON

- 2016 Hoboken City

EAB Detections – Central New Jersey

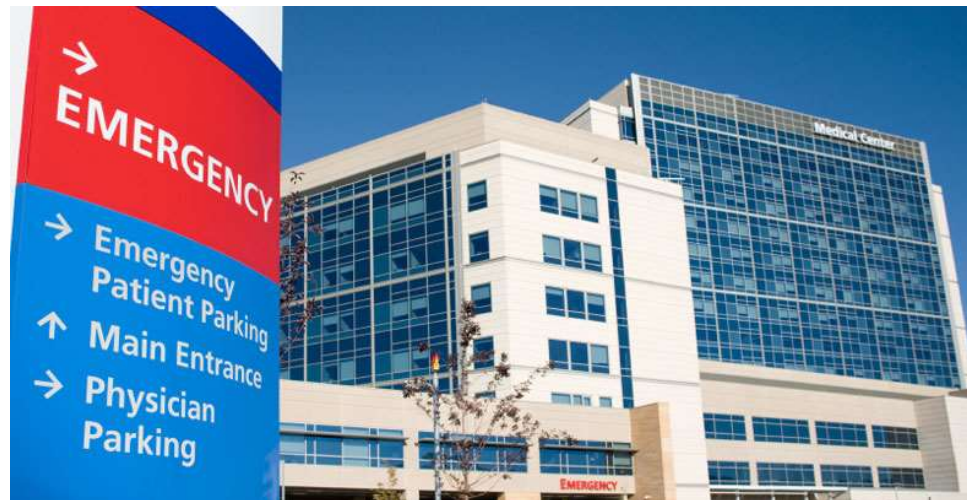


Ash Tree With Emerald Ash Borer



Critical Facilities Database & Management

- **JCP&L Maintains a Database of Critical Facilities by Municipality;**
 - Over ten different facility types, including Hospitals, Schools, etc.
- **List is shared Annually with Municipal and County OEMs**
- **Critical Care Customers & Well Water Customer Databases are Managed Separately**
- **Criteria for Critical Facility Is Determined by BPU**
 - Some “Critical Facilities” are NOT Critical Facilities.



Critical Facilities Types

- **JCP&L Maintains a Database of Critical Facilities by Municipality;**

- Hospitals
- Municipal Buildings
- Police & Fire Stations
- Public Schools
- Emergency Shelters
- Warming Centers
- Gas Stations on Evacuation Route
- Others

- **What MAY NOT be a Critical Facility;**

- Private Nursery Schools
- Senior Citizen Housing
- Traffic Lights
- Critical Care Customers – Work with Local OEM

Road-Opening Process – SAFETY DRIVEN

- **JCPL dispatchers direct JCP&L crews to reported road closers due to downed wires.**

- Hazard Responder
- Public Protector
- Trouble Shooter
 - Cut/Clear
- Tree Crew
- Line Crew



- **County & Municipal Support**

- Snow Plowing.
- DPW in certain cases. No downed wires are safe to work near.

Road-Opening Process – SAFETY DRIVEN

- **Road Closure Initially Reported by Municipal Agency**
- **Road Priorities Managed by JCPL or at the County OEM Level, depending on the size and scope of the event.**
- **Safety is paramount – Back feed from generators and solar installations is a real issue.**
 - DPW's Cannot Work Near Downed Wires, Even if Deenergized.
- **JCP&L Road Opening Priorities Are, Unless Otherwise Directed by County OEM;**
 - High Traffic – State Roads
 - Medium Traffic – County Roads
 - Low Traffic – Municipal Roads
- **Larger Storms - Daily List of Road Opening Priorities From County OEM;**
 - Need Work Order Number.
 - Single stream of data management, avoids duplication of effort.
 - Discussion If/When Priorities Change

Estimated Time of Restoration (ETR)

■ System ETR

- Automatic default at 2 hours
- Disabled in major storms

■ User ETR

- Custom ETR for that specific outage project

■ Global ETR

- 95% restoration complete for the entire storm event
- Restorations ongoing throughout the event
- Individual projects move from Global ETR to User ETR as the project is assigned to a crew.

IVR – Interactive Voice Response

- **For customers asking for restoration confirmation**
 - A tool for outage restoration management
- **Critical Care & Well Water Customers**
 - IVR Message 48 and 24 hours ahead of weather event.

Communicating with Our Customers

- **Updates provided to local emergency management agencies and 911 coordinators during storm emergencies**
- **Customer Contact Center, 1-800-662-3115**
 - Call center staffing increased to manage potentially high call volume
 - Provides information through interactive voice response (IVR), outage website and customer service
- **Twitter and Facebook provide continuous updates**
 - Power restoration progress
 - Water and ice availability
 - Shelter locations
 - Outage reporting via Facebook app



Internet and Mobile Tools for Outage Information

(Continued)

■ Mobile Website

- No sign-up or installation, just use smartphone to visit www.jcp-l.com or www.firstenergycorp.com
- Report outages, receive status, view outage map

■ Smartphone App

- Free app for Apple™ and Android™ devices
- Search for “JCP&L” or “FirstEnergy” in app store
- Report outages and view outage maps



Phone Number: 888-LIGHTSS
888-544-4877

“Apple” is a registered trademark of Apple Inc.
“Android” is a trademark of Google Inc.

Internet and Mobile Tools for Outage Information

■ 24/7 Power Center with MyTown pages for every community

- View outage maps, restoration updates and access other important outage information online

■ Alerts and Reminders

- Timely emails or text messages
- Customers can opt-in to topics related to power outages

■ Text Messaging

- Report power outage or request outage status using text messaging plan on mobile phone

The screenshot shows the FirstEnergy website's 'Current Outages' page. At the top, there's a navigation bar with links for Home, My Account, Service Requests, Customer Choice, Outages, Safety, Save Energy, Products, and Help. Below this is a search bar and social media icons. The main content area is titled 'Current Outages' and features a '24/7 Power Center' logo. A map of the region is displayed, with color-coded areas indicating outage locations. Below the map, there's a legend for different utility companies: Ohio (Ohio Edison, The Illuminating Company, Toledo Edison), Pennsylvania (Met-Ed, Penelec, Penn Power, West Penn Power), New Jersey (Jersey Central Power & Light), and West Virginia/Maryland (Mon Power, Potomac Edison). A 'Log In' button is prominently displayed. A sidebar on the left lists various utility services, and a right sidebar promotes a 'NEW Outage Status Feature' and includes a 'Stay connected' section with a mobile phone image.

JCPL Restoration Process

Strategic Objective

SAFETY

JCPL Restoration Process

Strategic Objective

... To respond to and manage all electric system disturbances, restoring service as SAFELY, quickly and effectively as possible, using all available resources ...

Storm Response Priorities

■ Issues are prioritized as follows;

- Life & Limb Emergencies
- Downed Live Wires
- Road Openings
- Critical Facility Restoration

■ General Restoration Begins



Weather Event Planning

Planning and Preparation

- **Company meteorologists monitor storm movement**
- **Conference calls to plan response**
- **Evaluate need for mutual assistance (RMAG), additional staffing and preparation of staging areas and supplies**
- **Communicate with employees, emergency management agencies, government officials, regulators and customers emphasizing safety**



Thunderstorms



Snowstorms



High Winds



Extreme
Temperatures



Hurricanes

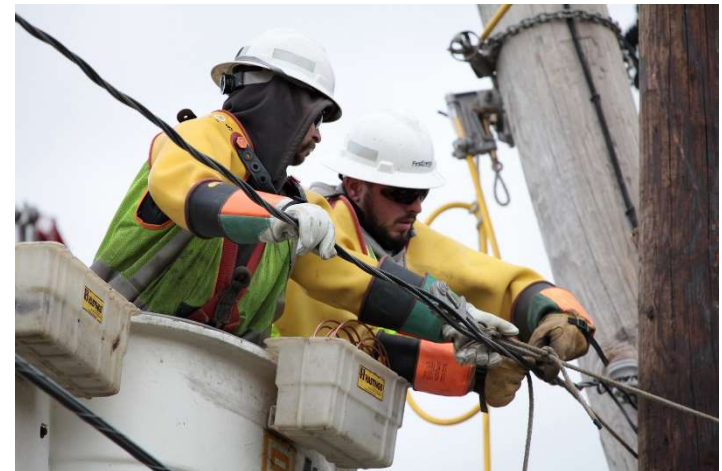


Tornadoes

Incident Command System

Incident Command System (ICS) is standardized, on-scene, all-hazards incident management approach that:

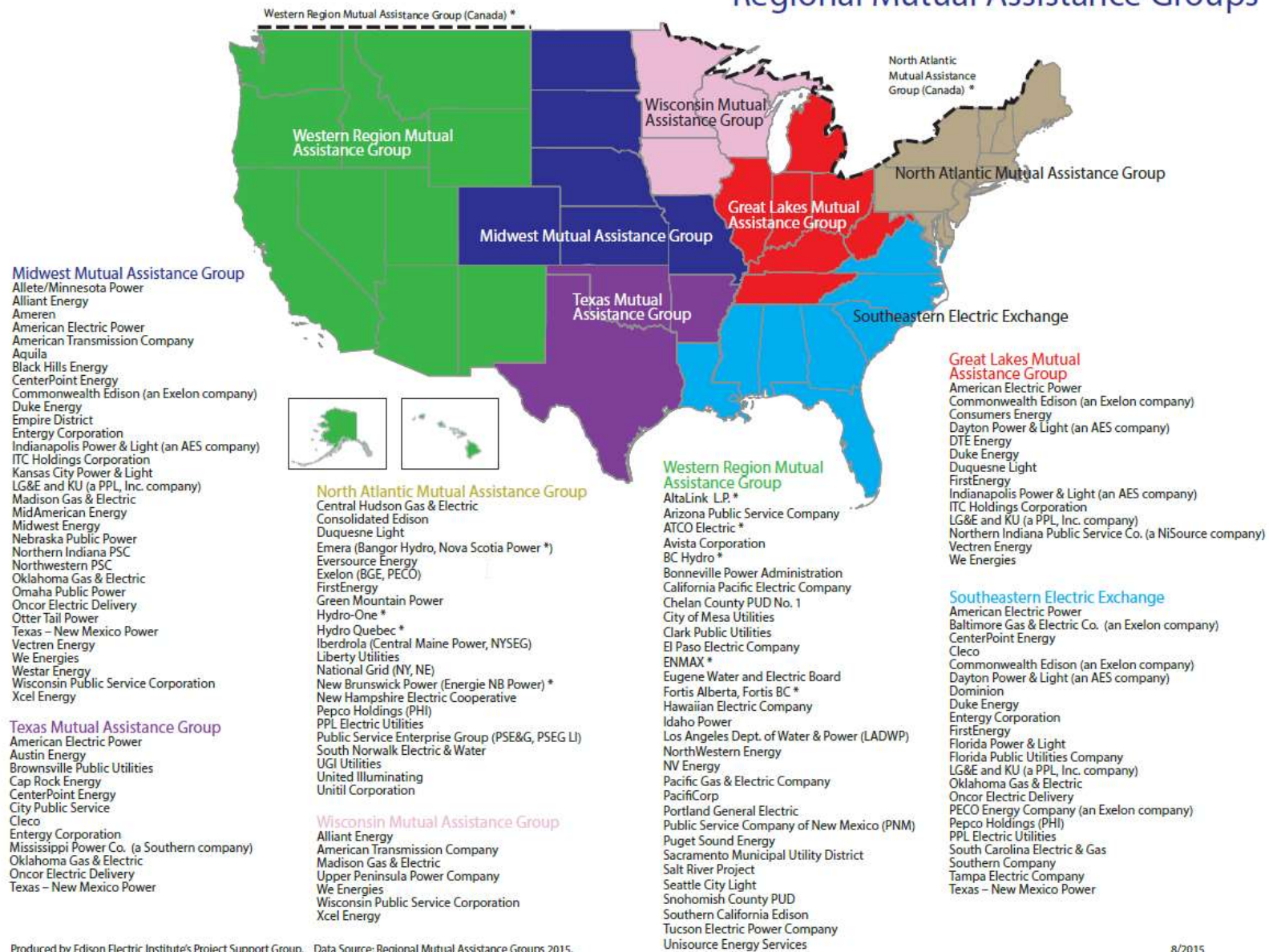
- **Allows for integration of facilities, equipment, personnel, procedures and communications operating within a common organizational structure**
- **Enables coordinated response among various jurisdictions and functional agencies, both public and private**
- **Establishes common processes for planning and managing resources**



Staffing & Mutual Assistance

- **During routine operations, JCPL has its compliment of internal staffing, in addition to any contractors that may be working on a project at JCP&L.**
 - JCPL/FirstEnergy–Belongs to multiple mutual assistance organizations across the United States. (7 Total in US)
- **When a weather event is large and/or more significant than predicted;**
 - FirstEnergy has ten utility companies that can support JCPL when needed
 - Adjacent utilities may hold their crews until the storm threat has passed
 - Once other utility and/or contractor crews are available, they may take several days to travel and start restoration activity at JCPL

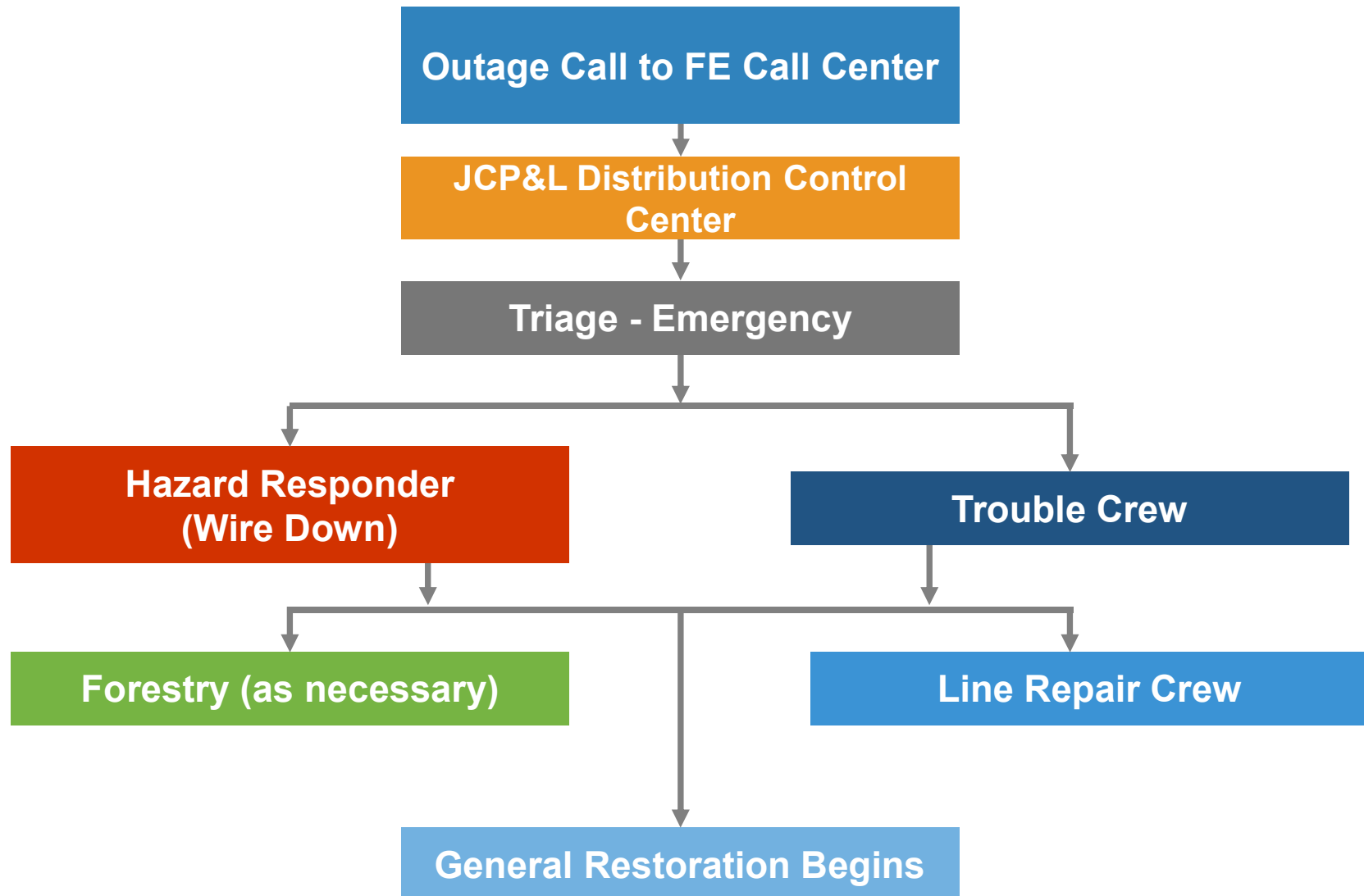
Regional Mutual Assistance Groups



Produced by Edison Electric Institute's Project Support Group. Data Source: Regional Mutual Assistance Groups 2015.

8/2015

Responding to Outages During a Storm



Glossary of Terms

■ Bulk Transmission Lines

- Moves electricity from generation stations to major substations.

■ Local Transmission Lines

- Moves electricity from major substations to neighborhood substations.

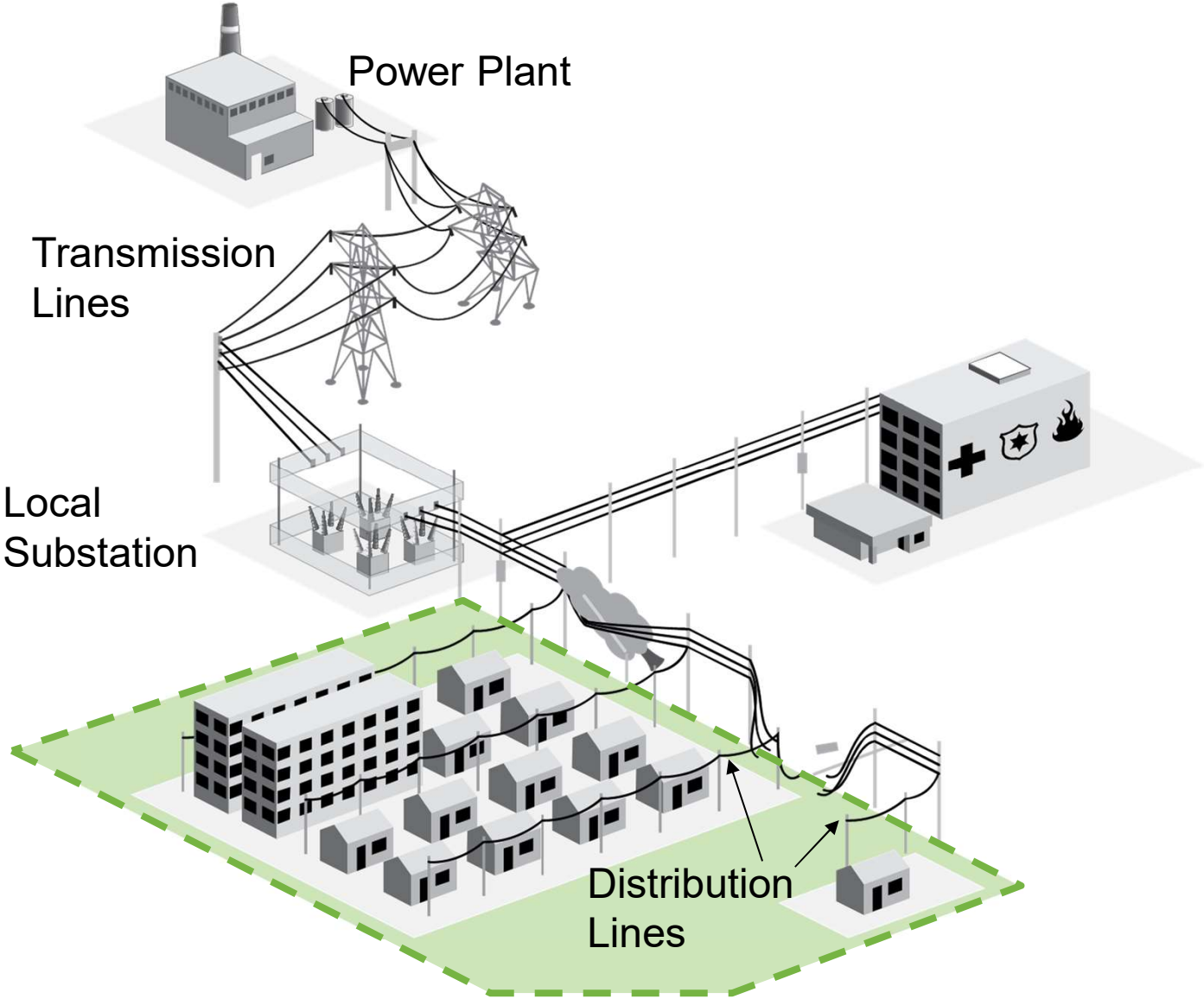
■ Distribution Lines

- Moves electricity from local substations to homes and businesses.

■ Service Lines

- Moves electricity from pole to structure

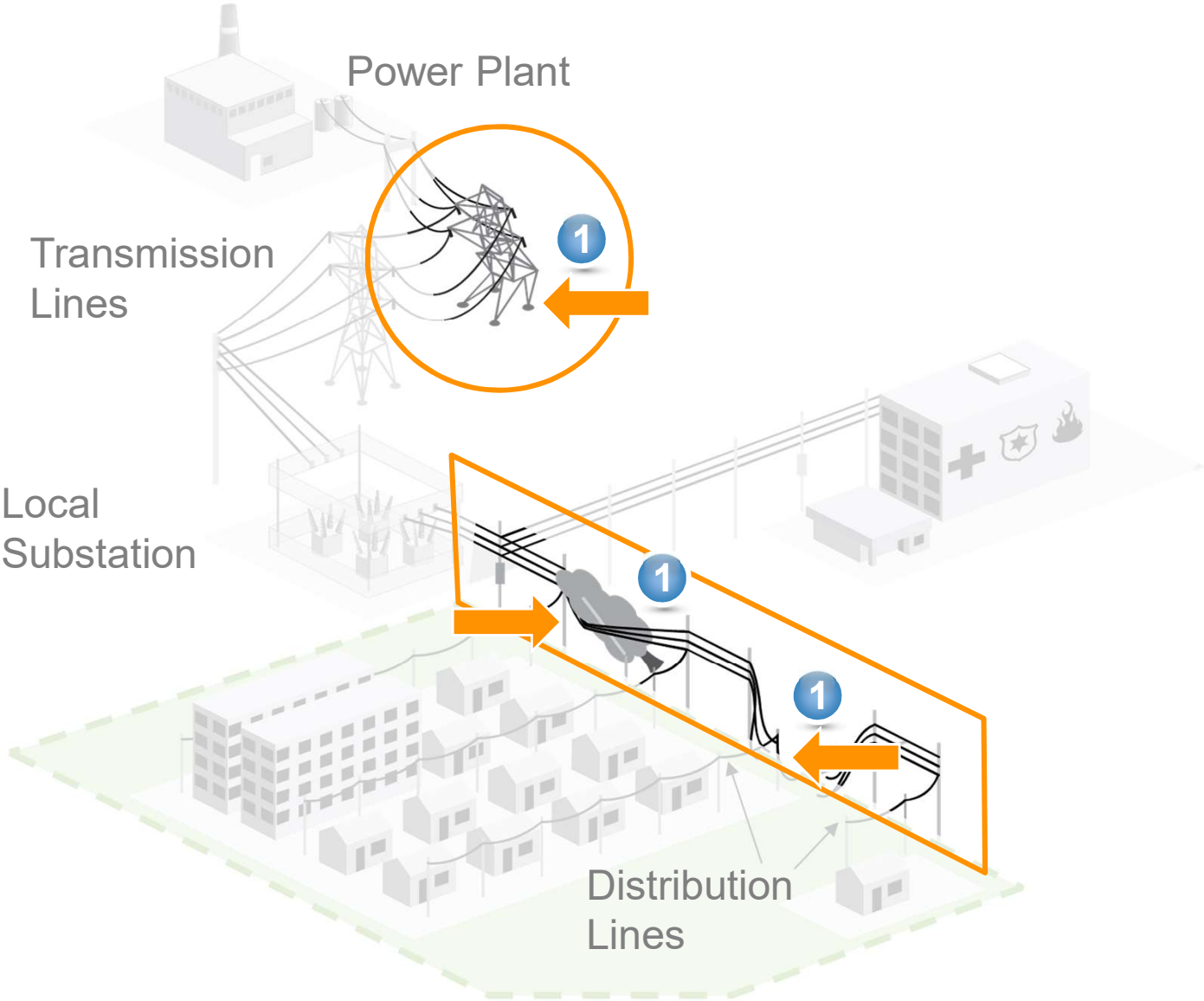
Service Restoration Process



Although this is the preferred process during major service restoration efforts, the order may change due to specific conditions.

Service Restoration Process

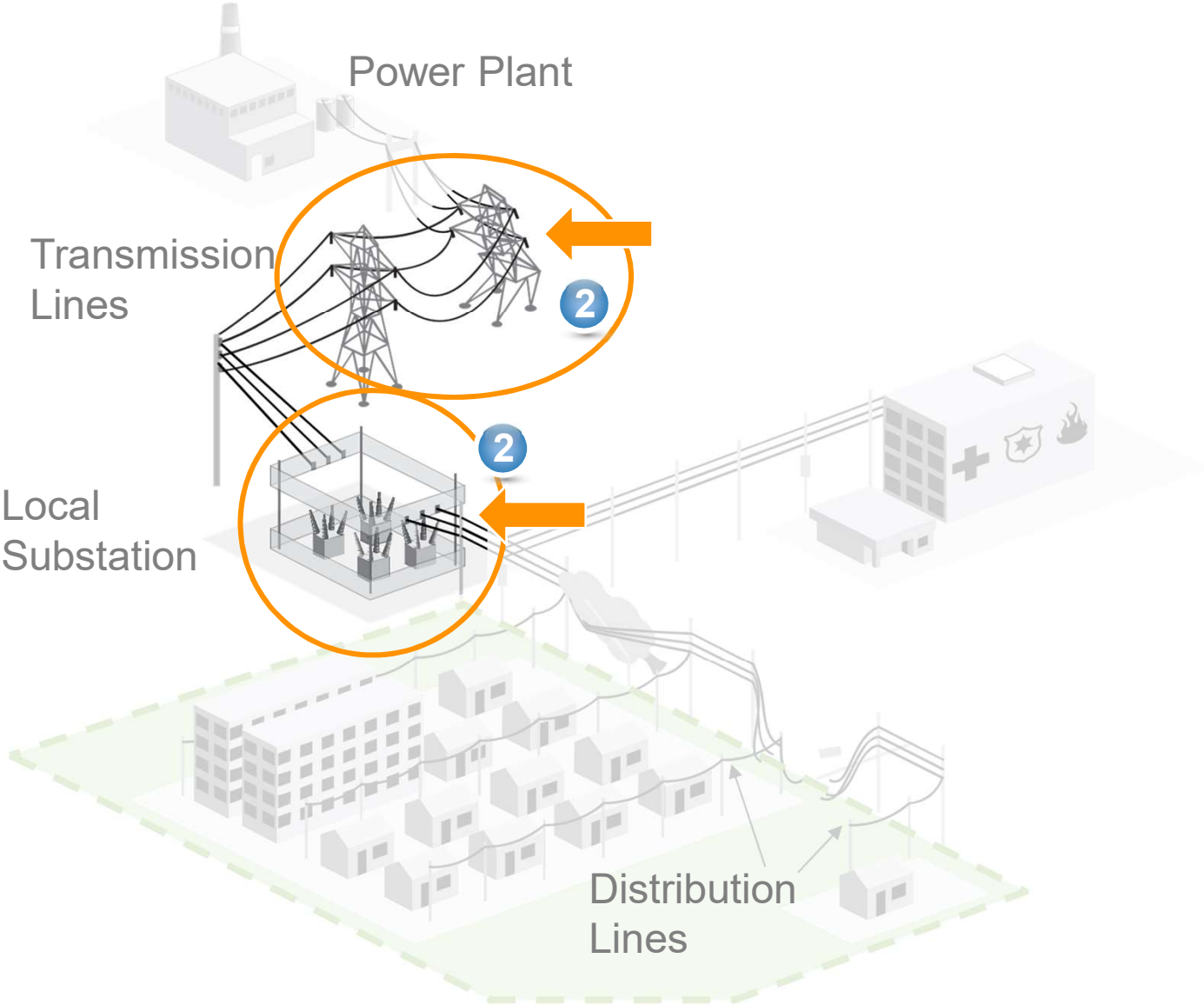
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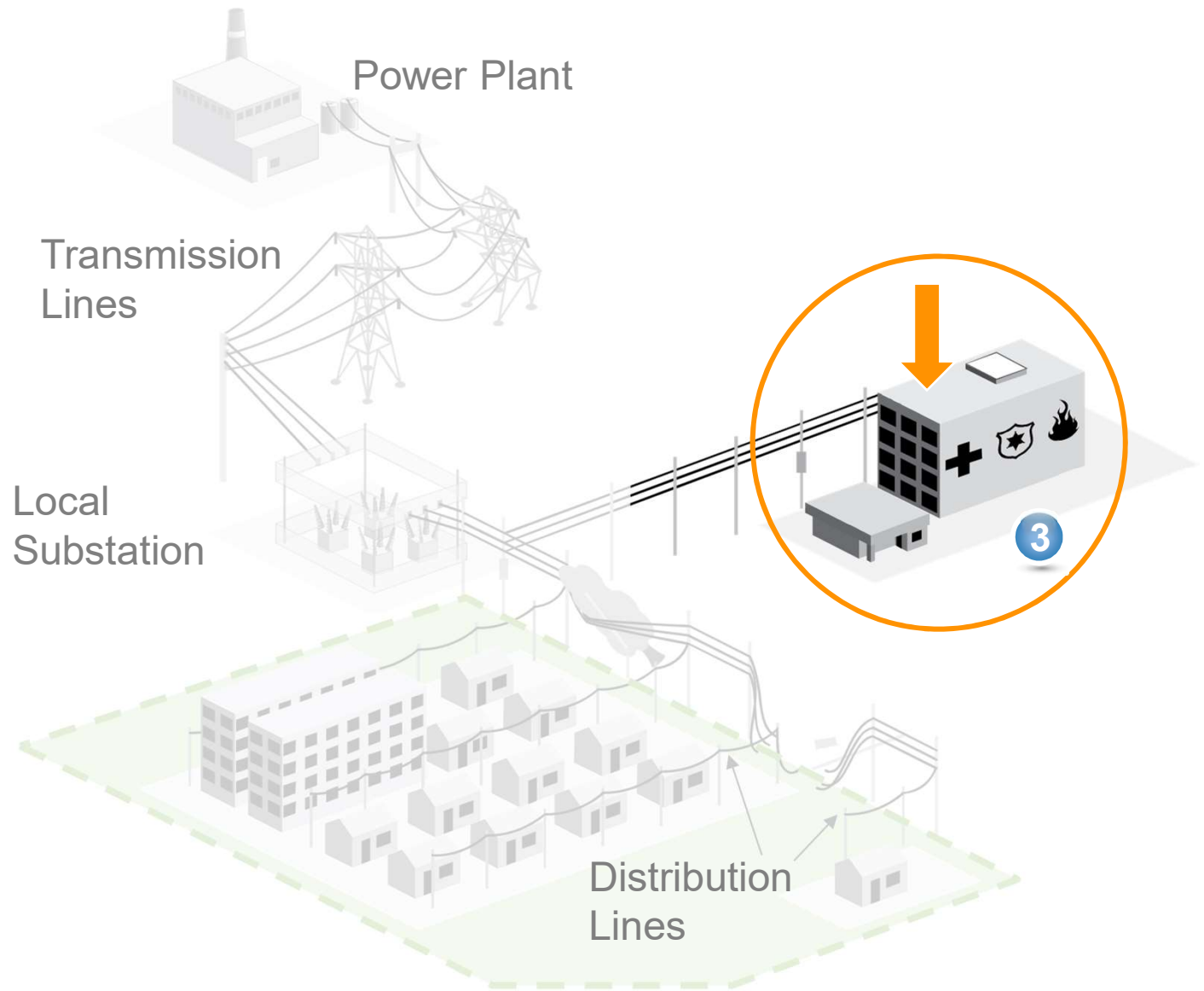
- 1. Isolate and make safe; assess damage
- 2. Repair high-voltage lines/restore essential functions



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Service Restoration Process

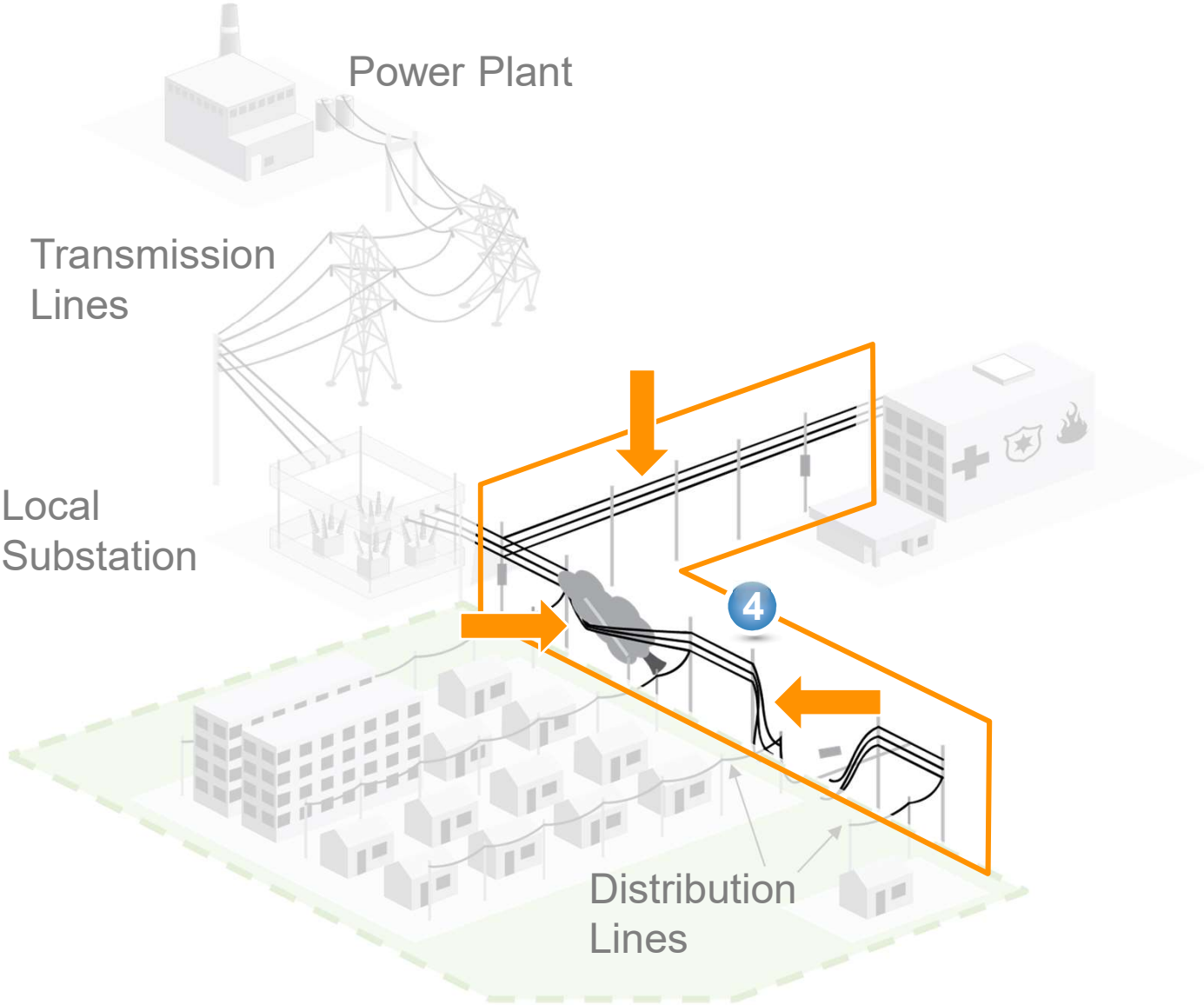
1. Isolate and make safe; assess damage
2. Repair high-voltage lines/restore essential functions
3. Restore hospitals and critical facilities



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Service Restoration Process

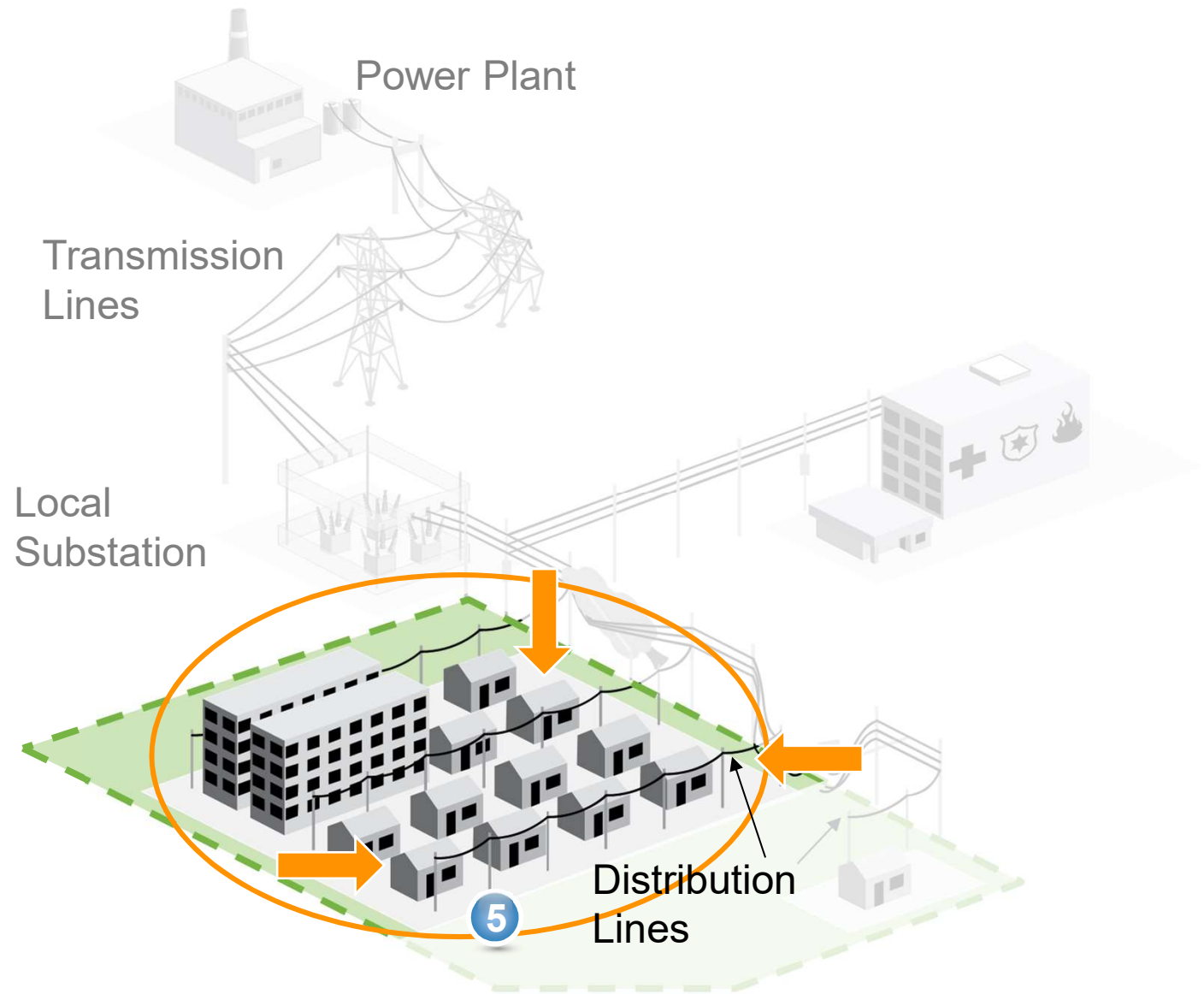
- 1. Isolate and make safe; assess damage
- 2. Repair high-voltage lines/restore essential functions
- 3. Restore hospitals and critical facilities
- 4. Repair main feeder/distribution lines



Although this is the preferred process during major service restoration efforts, the order may change due to specific conditions.

Service Restoration Process

1. Isolate and make safe; assess damage
2. Repair high-voltage lines/restore essential functions
3. Restore hospitals and critical facilities
4. Repair main feeder/distribution lines
5. Restore areas with largest number of customers

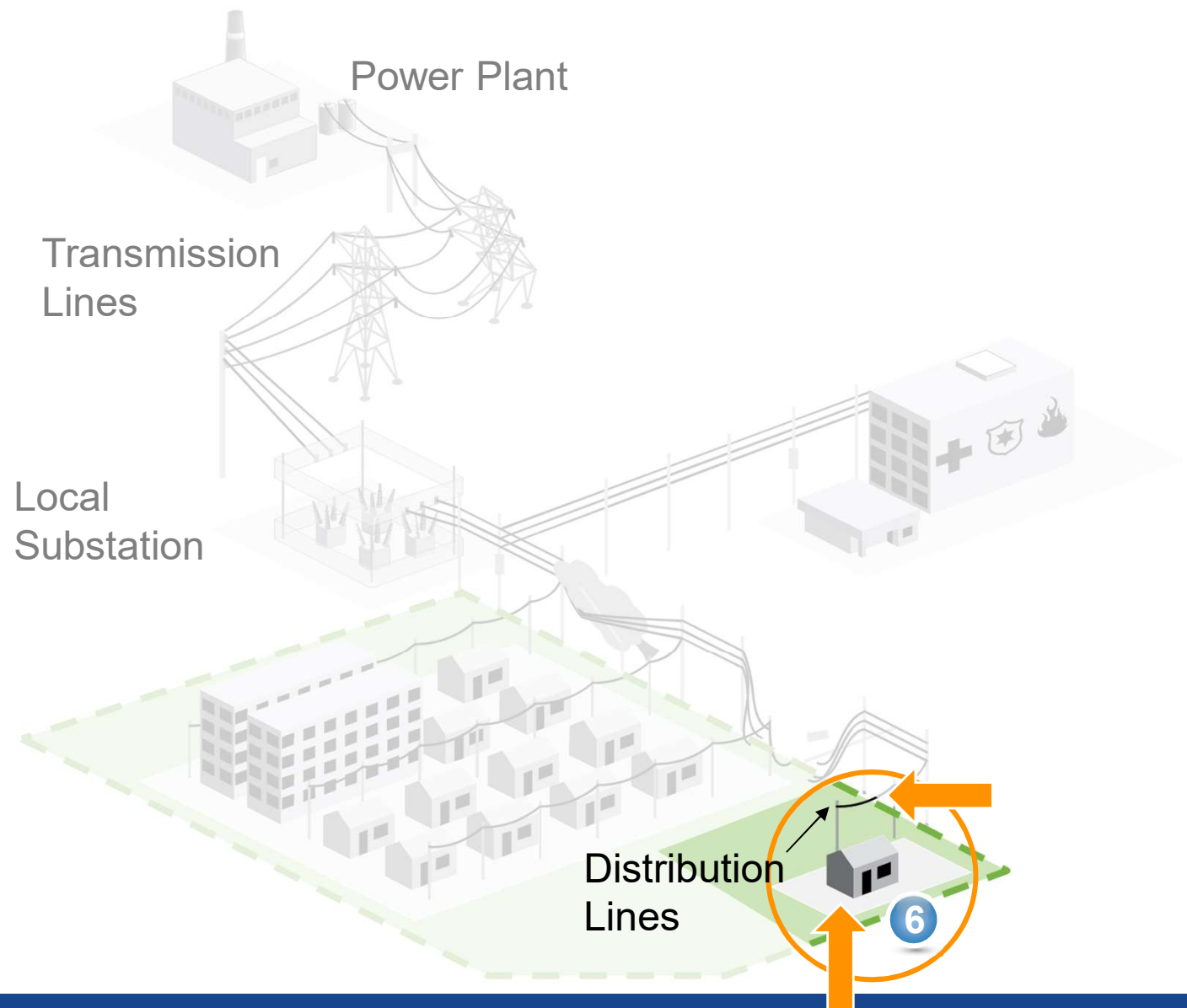


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Service Restoration Process

1. Isolate and make safe; assess damage
2. Repair high-voltage lines/restore essential functions
3. Restore hospitals and critical facilities
4. Repair main feeder/distribution lines
5. Restore areas with largest number of customers
6. Restore individual homes

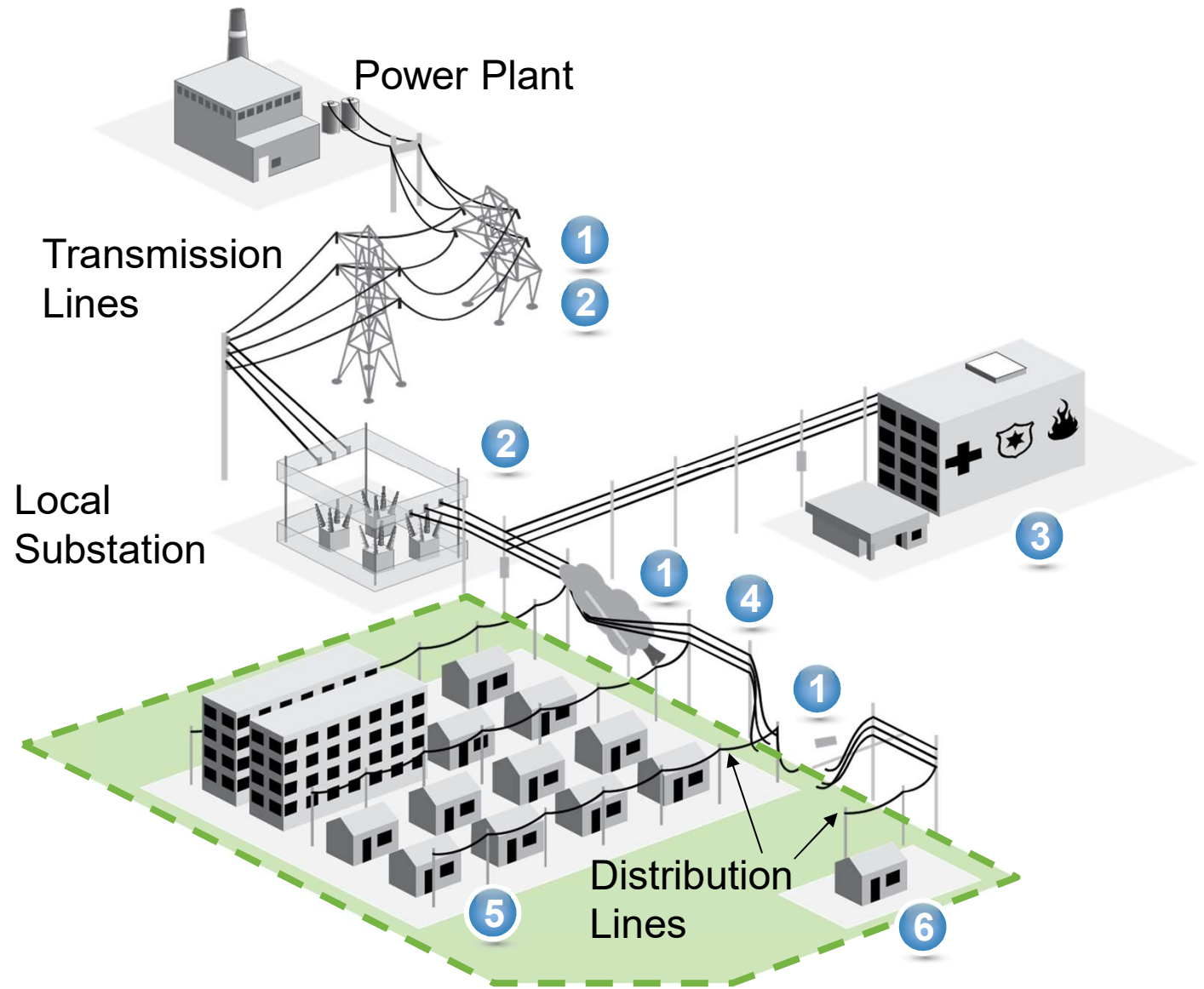
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Although this is the preferred process during major service restoration efforts, the order may change due to specific conditions.



Daily Elected Officials Call

■ What it's purpose is for;

- Provide a high level briefing of;
 - Public Safety Updates
 - General Storm Update
 - Storm Damage Footprint
 - Resource Deployments
 - Next Steps

■ What its purpose is NOT for;

- Reporting Individual Critical Facilities
- Reporting Individual Road Closures
- Reporting Individual Outages

JCP&L Retail Water and Ice Program

- **During extended storm outages, JCP&L provides free bottled water and ice to affected customers**
 - Available for pick-up at local grocery retail locations listed at our website and through social and traditional media

Northern New Jersey

- ShopRite
- Acme Supermarkets
- Weis Markets
- King Supermarket

Central New Jersey

- Food Circus Foodtown
- Saker ShopRite

- **During the recent storms, free ice and water were made available at about 70 locations**



How OEM/Public Officials & JCP&L Partner

■ Public Education

- Public Safety is Paramount – Stay Away from ALL Downed Wires
- Generators & Solar Arrays May Create Back Feed
- All Outages Should be Reported JCP&L
- JCP&L Does Not Know You Lost Power
- Be Prepared and Self Sufficient

■ Put links to JCP&L Website on Municipality Website.

- Report Your Outage to JCP&L

■ Follow OEM/ICS Process

- JCPL Representative in County OEM to provide updates on Critical Facilities and Road Openings
- JCPL Area Manager for Unique Issues.

FirstEnergy Website – Emergency Responders

■ www.firstenergycorp.com

- Bottom of home page – Under ‘Quick Links’
- Click ‘Safety’
- Click ‘Working Safely’
- Resources for fire, police, municipal employees and other emergency responders
 - Brochures
 - Presentations
 - Videos
 - Quiz

Thank You



QA