Who are we?

Headquarters - New Orleans

2.7 million electric customers

179,000 gas customers

Four States - Ark., La., Miss. and Texas

15,500 miles of transmission

100,000 miles of distribution

30 fossil & nine nuclear plants

115,000 square miles of service territory

14,700 employees
We’re experienced at restoration

- **Ike** (Sept 2008) 705,000 customers # 4
- **Gustav** (Sept 2008) 964,000 customers # 2
- Humberto (Sep 2007) 118,000 customers
- Rita (Sep 2005) 800,000 customers # 3
- Katrina (Aug 2005) 1,100,000 customers # 1
- Cindy (Jul 2005) 270,000 customers
- Lili (Oct 2002) 243,000 customers
- Dual Ice Storms (Dec 2000) 236,000 & 247,000
- Andrew (Aug 1992) 250,000 customers
- Ice Storm (Feb 1994) 240,000 customers
- Georges (Sep 1998) 260,000 customers
... and recognized at being good at it

- Received the Edison Electric Institute's Emergency Response or Emergency Assistance award every year for the last eleven years

- Only utility to win every year since the awards have been presented
Emergency Organization
Establish Emergency Organization

Incident Command System (NIMS)

Executive Team / BOD

Incident Commander

- Safety
- Corp. Communications
- External Liaison

Business Continuity
Planning
Resource
Logistics
Administration
Support

Branch (State/Region)

Division (District)

Unit

Planning
Resource
Logistics
Operations
Administration
Support
Protect Personnel and Equipment
Resource Evacuation, Relocation, Pre-Positioning

- Determine implementation trigger
  - Coordinate with government agencies

- Chain of Command and Unity of Command
  - Clear decision making process
  - Single “boss”

- Determine resources required to remain or relocate
  - Ensure safety of impact area locations, include logistics supplies

- Inform employees and families
  - Define employee and company roles and responsibilities
  - Review guidelines with employees
  - Mail brochures to employees homes
“Prepare for the Worst”

- Use creative scenarios:
  - May 2005 Entergy Drill Scenario: Cat 4 Hits New Orleans, 20’ flooding of city; Second storm hits SE Texas
  - May 2008 Entergy Drill scenario: Major hurricane impacting SE LA on Labor Day; Second hurricane making landfall in SE Texas less than 2 weeks late

- Coordinate with government agencies & media

- Incorporate lessons learned:
  ICS emergency organization, Web-based outage information, Crew Check-In procedures, Revised Logistics Plan, etc.
Anticipating Forced Outages
Active Threat Assessment

Good intelligence is the basis for good decisions

Have several info sources...
Is it our storm?
Threat severity?
Respond Quickly as Situations Change

Emergency Plans: Flexible and Scalable

Ike - small disorganized storm 9/9/08

Ike - very large powerful storm 9/12/08

Response Processes: Consistent and Clear
• Storm Damage Modeling
  – Scope of work
  – Manpower requirements
  – Logistics requirements
  – Material requirements
  – Estimated restoration times
  – Estimated customers impacted
  – Locations affected
  – Cost estimate
• Estimated Customer Outages
• Communicate with key decision makers
• Set customer expectations prior to landfall

• Estimated Restoration Goals:
  – External Communications
    • Day 3 – County / Parish
    • Day 3 to 5 – Area / Cities
    • Day 5 to 7 – Subdivisions
Establish process for restoration of critical infrastructure

Coordinate with Government Agencies

Communicate restoration of critical national assets

Restoring power timely shrinks event duration; reduces government burden

Report restoration status in terms meaningful to customers
2008 Tropical Storm and Hurricanes

TS Edouard Aug 5

Hurricane Ike Sep 13

Hurricane Gustav Sep 1
Acquiring Needed Resources
Mutual Assistance is Vital
Acquire Critical Resources in Timely Manner

Ike…
12,300 Tool workers
195 Companies from
34 States, DC & Canada
3,700 Support personnel

Hurricane Gustav Nationwide Response

Hurricane Ike Nationwide Response

Gustav…
14,900 Tool workers
165 Companies from
26 States & Canada
4,500 Support personnel
Regional Mutual Assistance Groups

9 RMAGs in USA, we are members of 3
Moving & Managing the Workforce

• Travel
  – Safe routing
  – Fueling/weigh stations/etc.
  – Check-In (Gateways)

• Pre-staging
  – Assessment Teams first
  – Crews and materials
  – Logistics Teams set up Staging Areas in advance
  – Crew orientations for Safety and Security

• Deployment
  – Local Jurisdiction dispatches
  – Credentialing by authorities as required
  – Minimize daily travel time

• Logistics
  – Food, water, shelter, sanitation, fuel, laundry – for thousands
### Entergy Response to Hurricane Gustav-Ike System

#### Total Restoration Tool Workers (Line and Tree)

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**Ramp Up, Back to Back Storms, Crew Call Backs**

Gustav Landfall 9/1

Ike Landfall 9/12

Restoration complete to customers who take take service

Gustav 9/20

Ike 9/25
System Tool Worker Adjustments

Storm impact to responding utilities & 2nd storm

Cumulative Tool Workers Recalled

# of Tool Workers Recalled

Ike Landfall

# of Veg Workers  # of DLine Workers  # of TLine Workers

0  500  1000  1500  2000  2500  3000  3500  4000


27 27 27 27 124 355 526 622 885 2694 2721 2834 2868 2929 2929 2980 3105 3170 3105 3170

# of Tool Workers Recalled
Plan for Alternative Logistics

• Rapid acquisition & deployment, timely support of restoration workers

• In competition with private business, government agencies and public

• Alternatives required
  – Multiple logistics vendors
  – Contracts in place
  – Mutual Assistance/Self-Contained crews
  – Non-conventional lodging options
Expectations - Our experiences

- Limited commercial lodging
- Alternate sites used more
- Lodging hierarchy
  - Commercial, Fixed, Trailers, then Tents
- Unity of Command
  - Who’s your daddy?
- Safety information
  - On-site safety support
- Communications
  - Workers want to know too!
Communications
Communication is Key

• In a crisis, speed isn’t everything. Speed is the only thing.

• Have detailed communications plans covering all kinds of crises and drill them.

• Make your own organizational decisions on issues like evacuation. Don’t wait for others – that may be too late.

• Assume all normal communications collapse, have back-ups ready.

• Enforce “One Voice” communications
Communication is Key

• Have lines of authority and approval processes set beforehand.

• Anticipate significant emotional strain.

• Employees are your most important audience.

• Good response and good communications go hand in hand – if one fails, they both fail.

• Take calculated risks – especially in dealing with the media. Abandon your conservatism.
Keeping customers informed
WWW.ENTERGY.COM View Outages
1/28/09
System Hardening
Transmission

• Meet or exceed applicable NESC Standards

• Concrete or steel poles vs. wood

• Increase design wind speeds by 20mph 0-50 miles of the coast and 10mph 50-90 miles of the coast
  – (based on 2002 NESC, no increase for 2007 NESC)

• Convert Interstate and coastal ingress/egress artery crossings from wood to steel

• Pursue creative funding for key national infrastructure upgrades
Not Recommended for Transmission

- Retrofits (replace existing facilities) economically unfeasible
- Under-grounding
- Increasing design wind speeds by more than 30 mph
- Widening Right of Way to reduce vegetation outages
Key Concepts
Identify/Confront Your Weaknesses
..and those of others

- Reluctance to accept reality of worst case scenarios

- Explore new technologies for expediting damage assessments

- **Understanding interdependence of infrastructure at national level, particularly energy**

- Address worst case business continuity scenarios
Identify/Confront Your Weaknesses ..and those of others

• Expand mutual aid concept to reduce competition for limited resources

• Improve Local/State/Federal govt./industry collaboration

• Better manage customer expectations/understanding of restoration process; particularly for “worst case” scenarios

• Plan for magnitude & duration of impact to business processes:
  – Cost accounting and recovery
Summary - Key success factors

• **SAFETY TRUMPS SPEED!!**

• **Plan** - Detailed advance planning for “worst case scenarios”

• **Practice** - Formal drills conducted

• **Perform** - Organization experience & culture

• **Focus** on communications, not just infrastructure repair

• **Clear command structure** - ICS, Chain of Command and Unity of Command, empowerment at “front lines”

• **Ability & willingness to make quick decisions, improvise, and take calculated risks**

• **Communicate** - Employees, workers, regulators and media