

***Entergy – Louisiana  
Hurricanes Katrina & Rita  
Restoration/Recovery  
Electric Operations***

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Manager, Engineering***

**Rebuilding Utility Infrastructure: Challenges and  
Opportunities Conference  
Louisiana State University, Baton Rouge  
February 21, 2006**



# We're experienced at restoration...

- Andrew (Aug 1992) 250,000 customers
- Ice Storm (Feb 1994) 240,000 customers
- Georges (Sep 1998) 260,000 customers
- Dual Ice Storms (Dec 2000) 236,000 and 247,000
- Lili (Oct 2002) 243,000 customers
- Cindy (Jul 2005) 270,000 customers



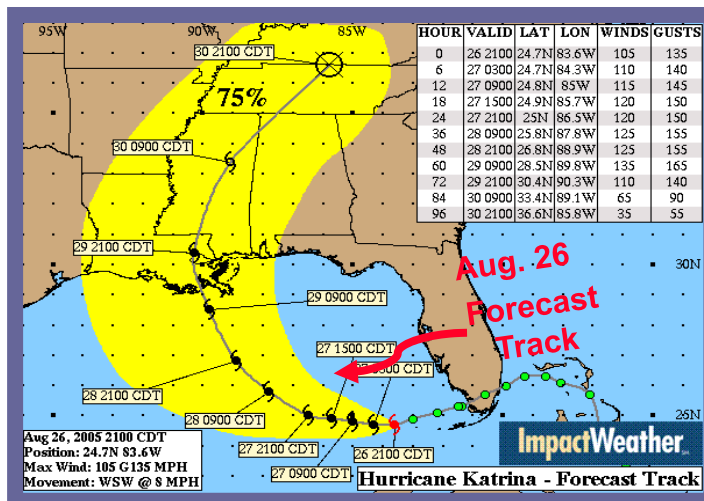
# Less than 3 Days Before Katrina's 2nd Landfall, Forecast Track Shifted 310 Miles to New Orleans

*While Entergy began tracking Hurricane Katrina on August 23 as tropical depression number 12, landfall was predicted well east of New Orleans until a few days before the storm came ashore for the 2<sup>nd</sup> time.*

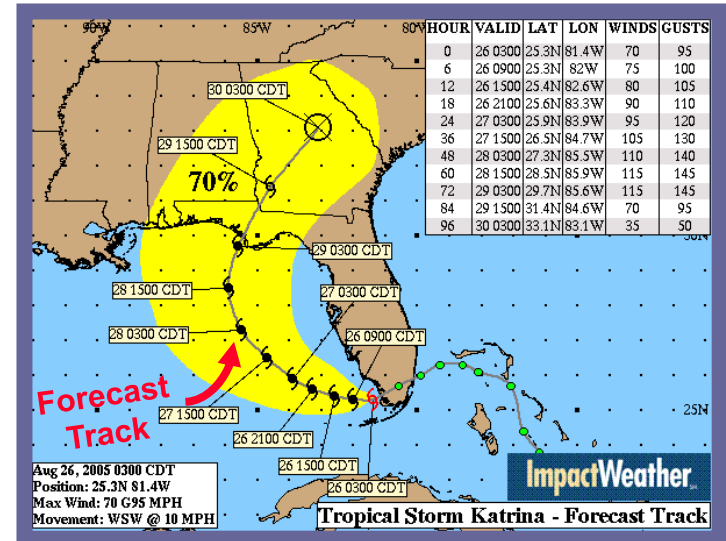
*On August 27, evacuations were ordered and Entergy's storm command centers commenced operations.*

**After crossing lower Florida peninsula, Panhandle hit was expected...**

**Forecast Track August 26 at 9:00 p.m.**



**Forecast Track August 26 at 3:00 a.m.**



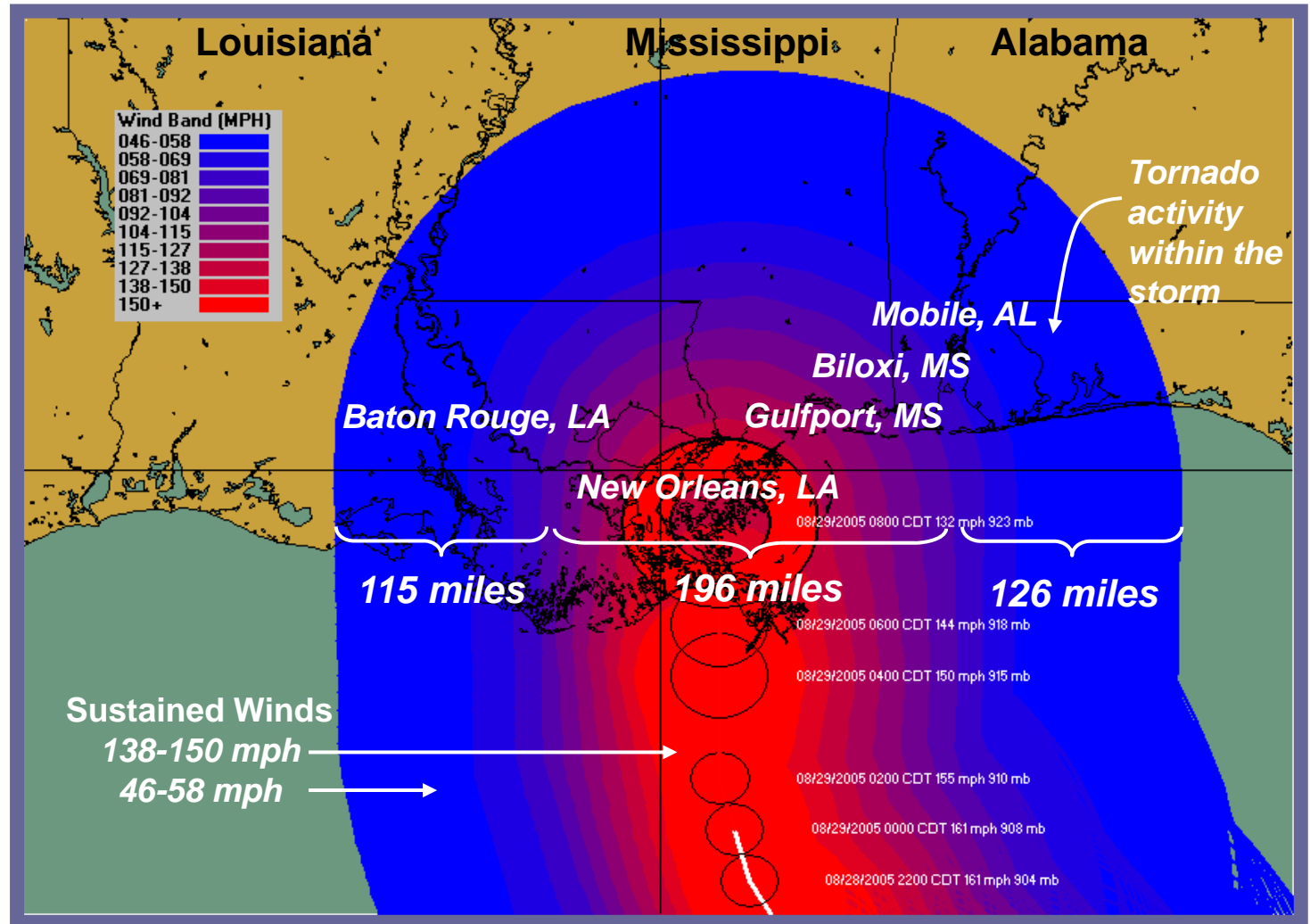
**...but track abruptly moved much farther west.**

# On August 29, Katrina Made Its Second Landfall as a Strong Category 4 Hurricane

## Wind Field Image Map August 29 at 4:00 a.m.

*Hurricane Katrina came ashore as a strong category 4 hurricane with winds extending out over 400 miles wide.*

*Before it passed through, the storm affected 41,000 square miles or over 35% of Entergy's service territory.*



# Unprecedented impact on Entergy 1.1 million customers out; severe flooding

## 1.1 Million customers out; severe flooding



**791,000  
Louisiana  
outages**

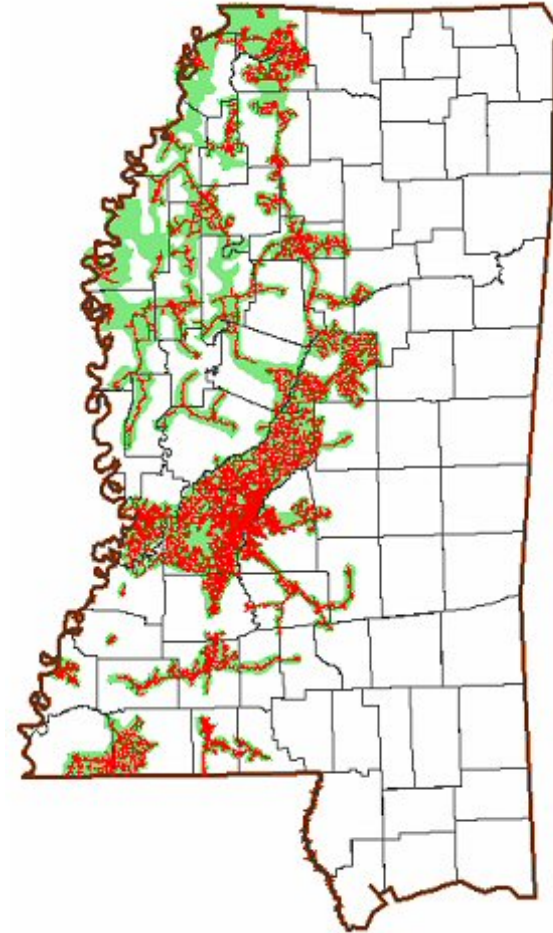
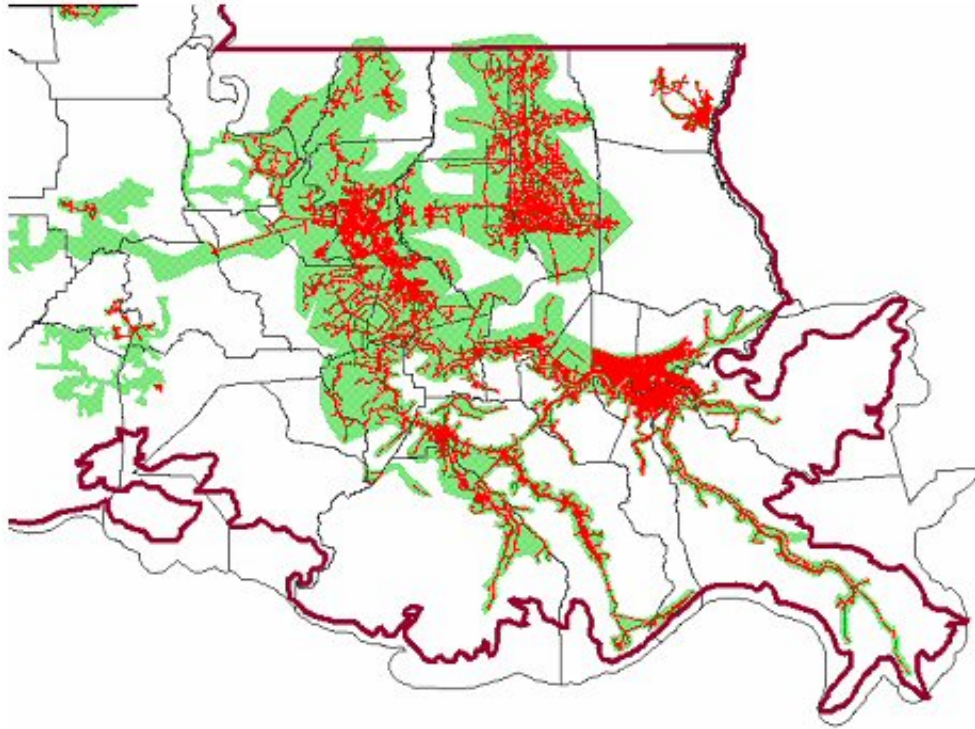
**Utility Poles Destroyed – 17,389  
Spans of Wire Replaced – 34,587  
Transformers Destroyed – 3,478  
Substations Off-line – 263  
Transmission Structures  
Damaged – 1,000  
Restoration Workers – 10,200**



**Katrina Storm surge approaches New Orleans**



# The destruction was widespread...

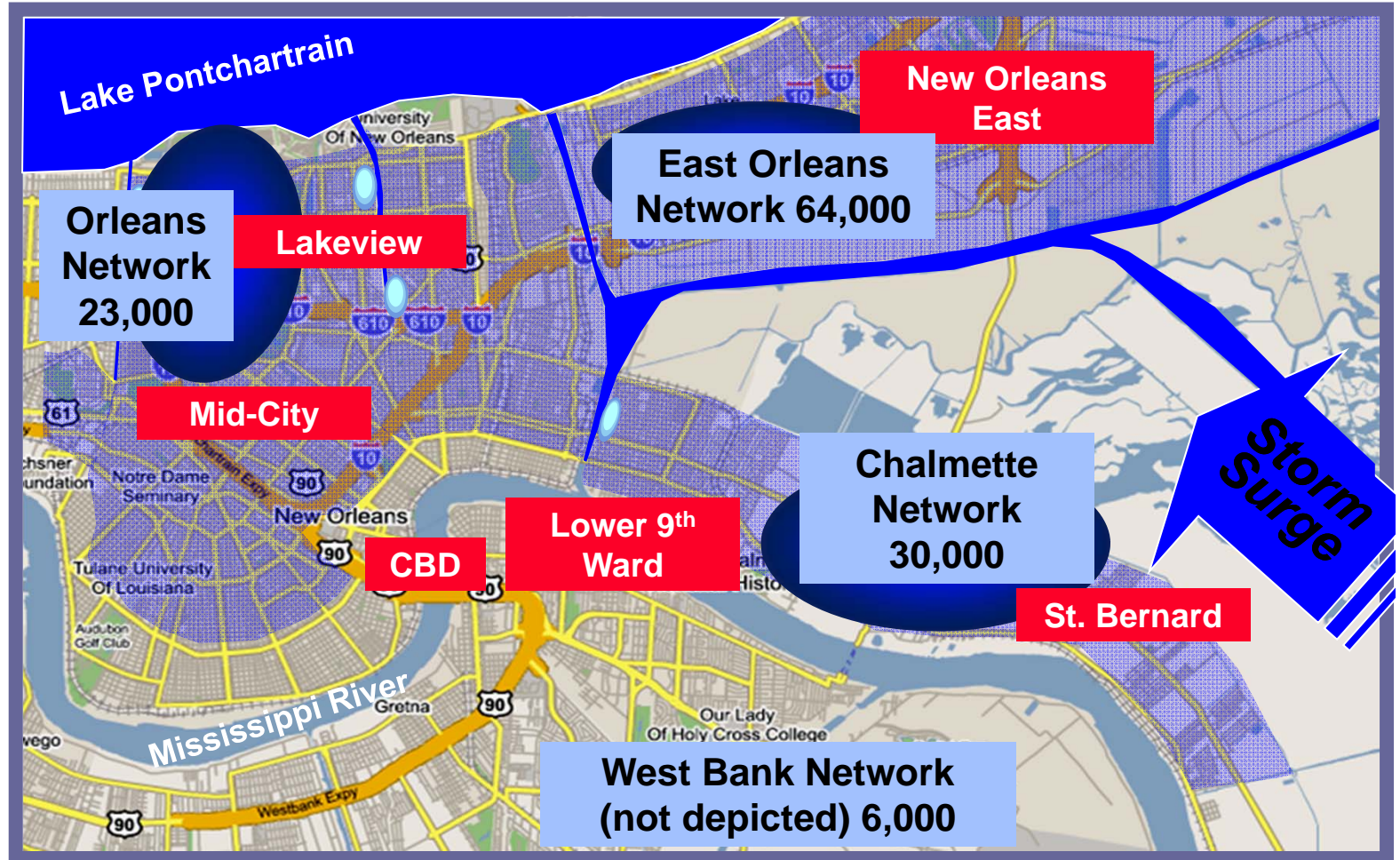


# Flood Destroyed Housing Stock Affecting a Significant Portion of ENOI's Customer Base

## Customers Affected by Floodwaters

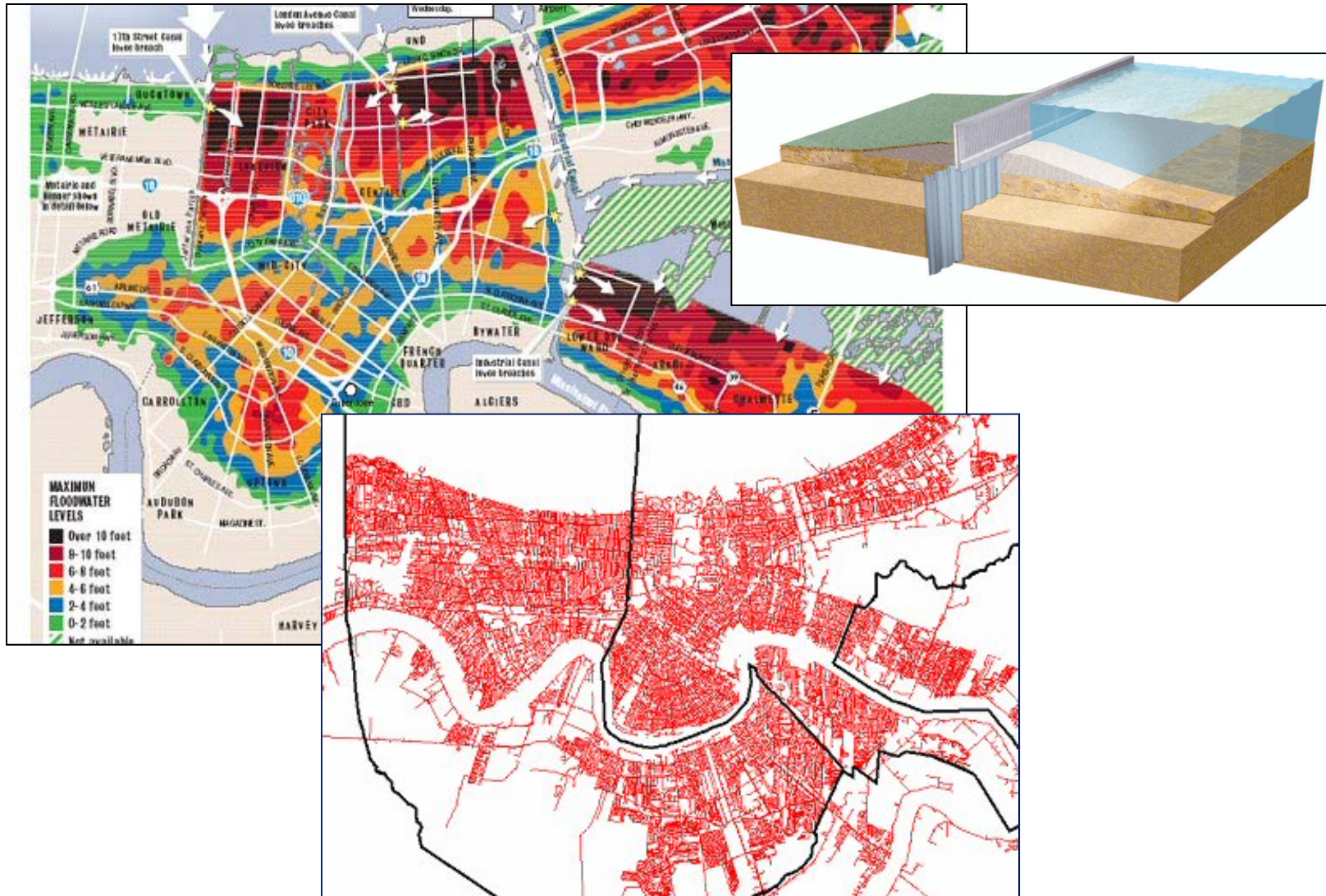
Several levee breaks caused flooding of up to 12 feet, with parts of New Orleans still flooded weeks after Hurricane Katrina.

Entergy projects 87,000, or nearly half of ENOI's customers, are unable to take service without demolition or significant reconstruction.





# New Orleans – Flood Water Depth Chart



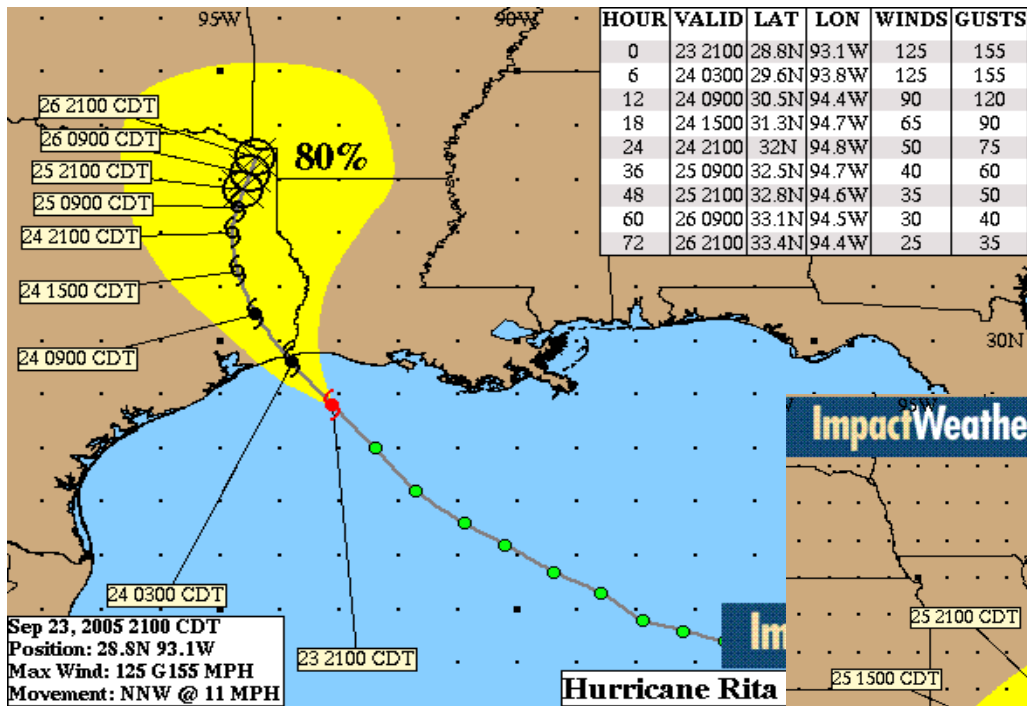


# Katrina's unique challenges...

- Corporate HQ evacuated
- Employees' homes destroyed
- Resources pre-dedicated to Florida
- Security threats in New Orleans
- Flooded gas facilities
- Contractors' bankruptcy fears
- Inoculations for workforce
- Severe substation flooding
- Communications knocked out
- Massive scale/logistics challenge
- Gasoline/Diesel shortages
- Inaccessibility
- DOE/DHS coordination & reporting

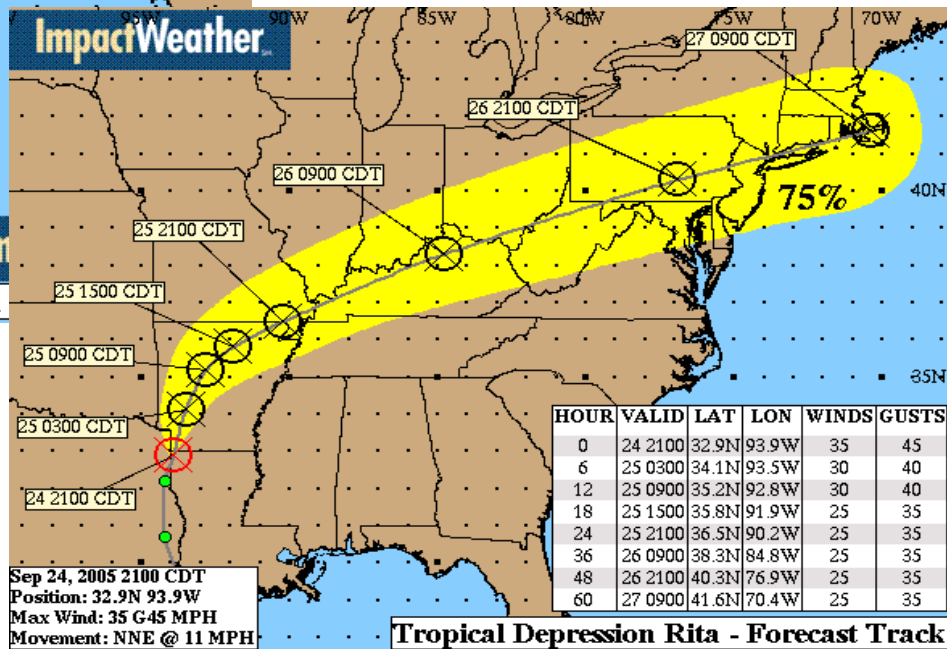


# ....were followed by Rita...



Initial landfall at TX/LA border as predicted...

...but tracked northeast after landfall, damaging all jurisdictions.



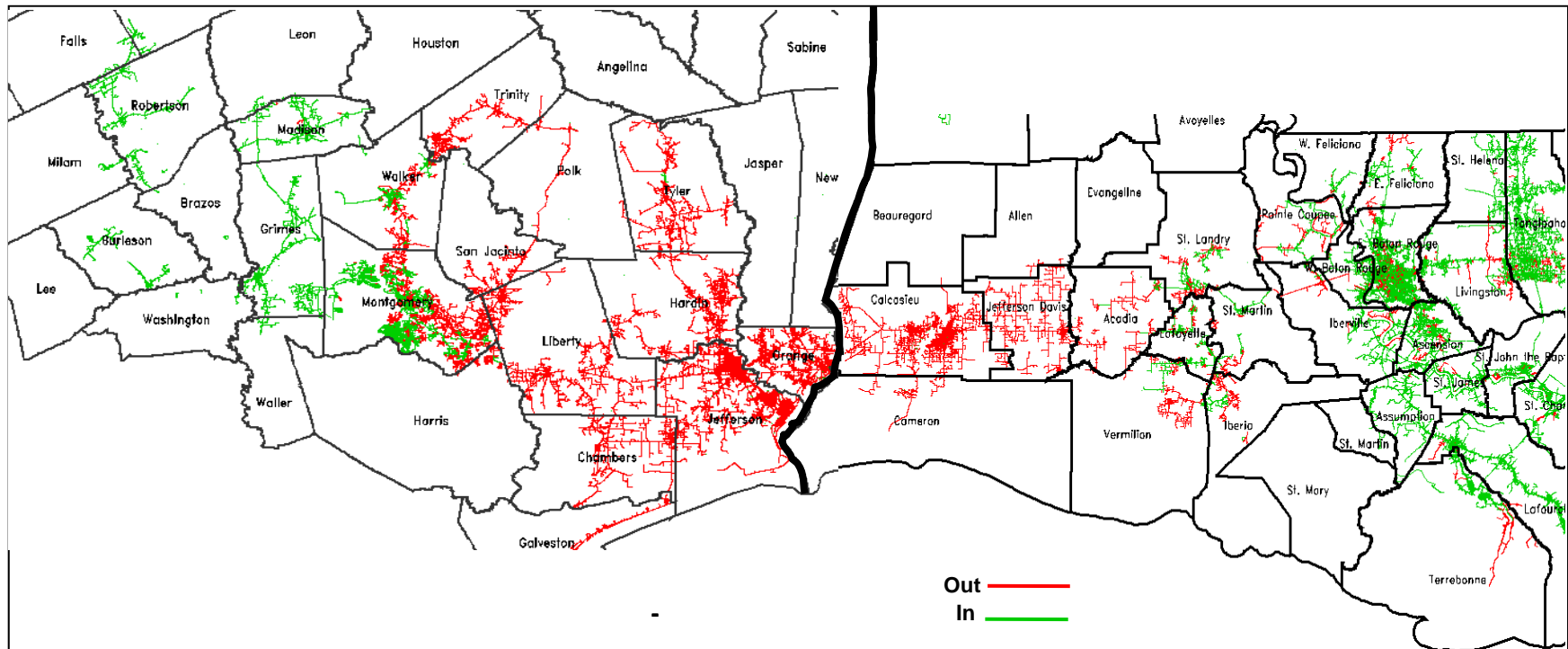
# ...and Rita's challenges.

- **Second worst storm in company's history - 800,000 outages**
- **Massive damage to transmission system; generation plants damaged & isolated**
- **Three days of rolling blackouts for 142,000 Texas customers**
- **Exhausted workforce**
- **Another huge logistical challenge**
- **Material shortages following Katrina**
- **Continued coordination with DOE**





# Rita hit southeast Texas & southwest LA hard, but impacted every Entergy jurisdiction.



# Rita's Toll



- Utility Poles Destroyed – 11,503***
- Spans of Wire Replaced – 18,585***
- Transformers Destroyed – 2,301***
- Substation Off-line – 443***
- Transmission Structures Damaged – 700***
- Restoration Workers – 13,000***

***387,000  
Louisiana  
outages***



***In addition to tremendous damage to the distribution system, virtually every transmission line between Lafayette and Conroe, Texas was knocked out of service by Hurricane Rita***

# Restoration

- “SAFETY TRUMPS SPEED”
- 1.87 million total electric customers
- 145,000 gas customers
- 28,900 Distribution poles replaced
- 522 Transmission lines out of service
- 715 Substations out of service
- 29 fossil/1 nuclear units shut down

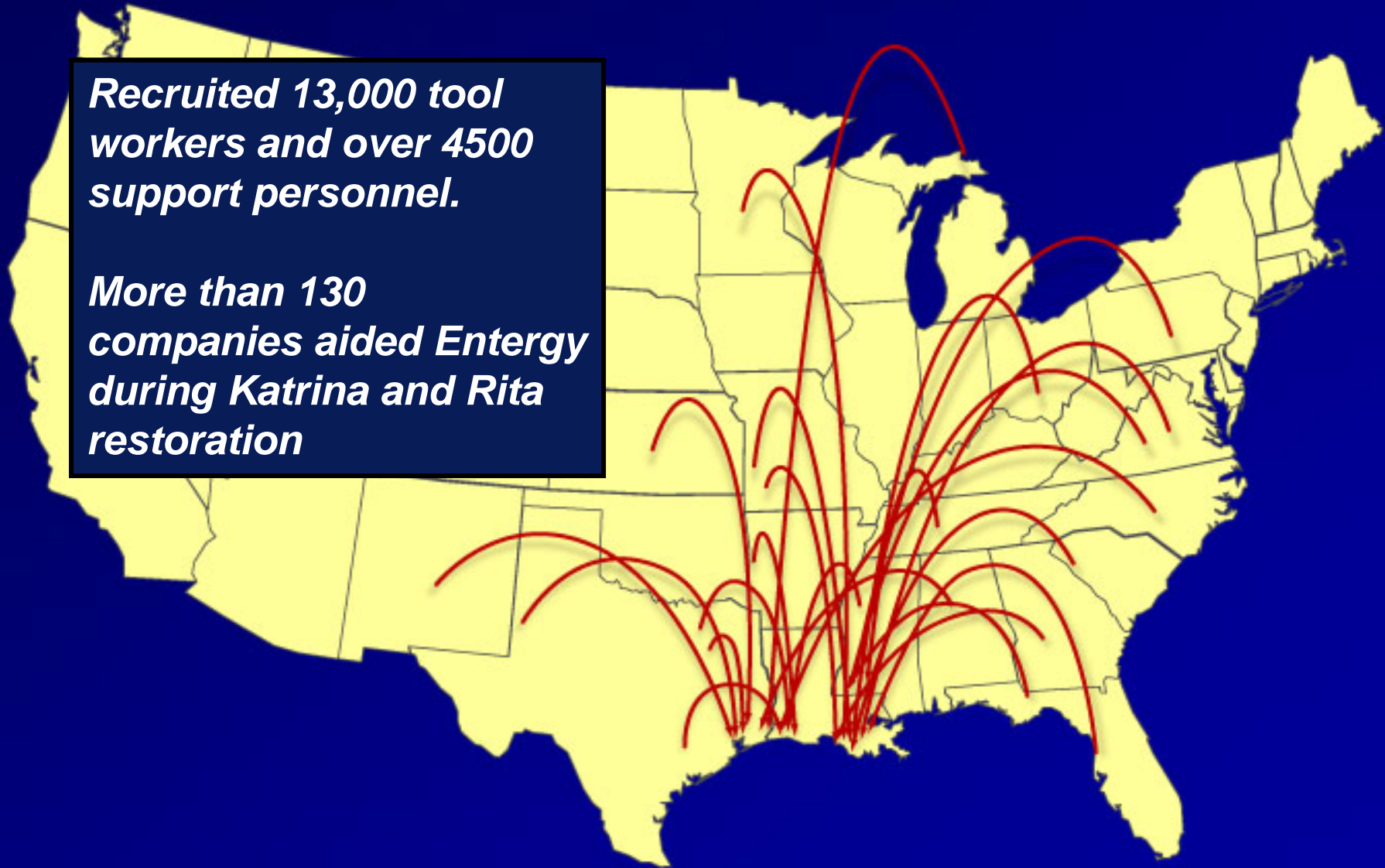




# A monumental support effort is launched

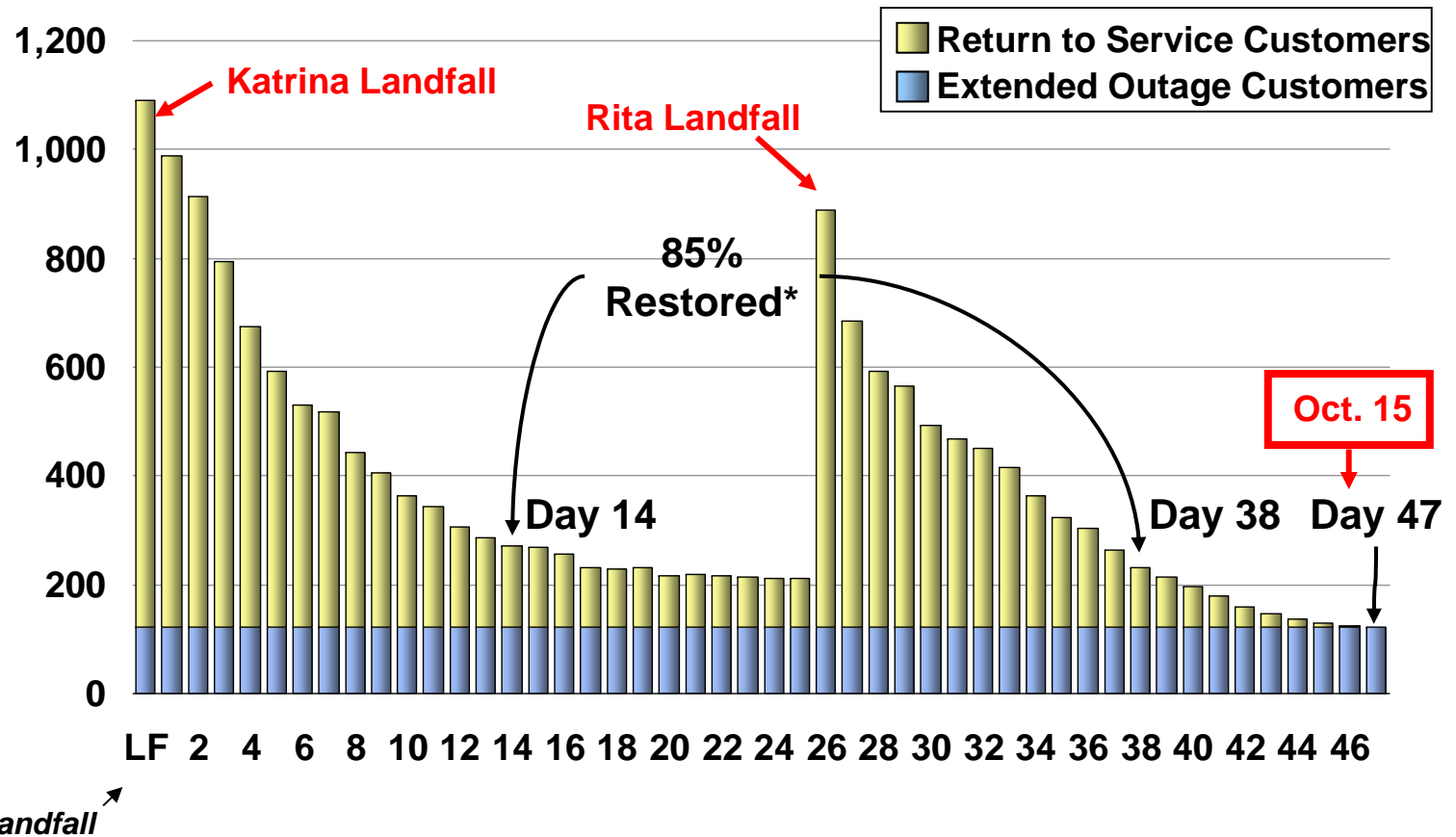
*Recruited 13,000 tool workers and over 4500 support personnel.*

*More than 130 companies aided Entergy during Katrina and Rita restoration*



# Within 14 days, Service Was Restored to the Majority of Customers Who Could Take Power

**Hurricanes Katrina and Rita Restorations**  
**Outage Profile by Restoration Days; thousands**



*Within two weeks, Entergy had restored to service to 820,000 customers.*

*Hurricane Rita temporarily interrupted restoration efforts.*

*Today, an estimated 123,000 customers in the greater New Orleans area are expected to be out for an extended period of time.*

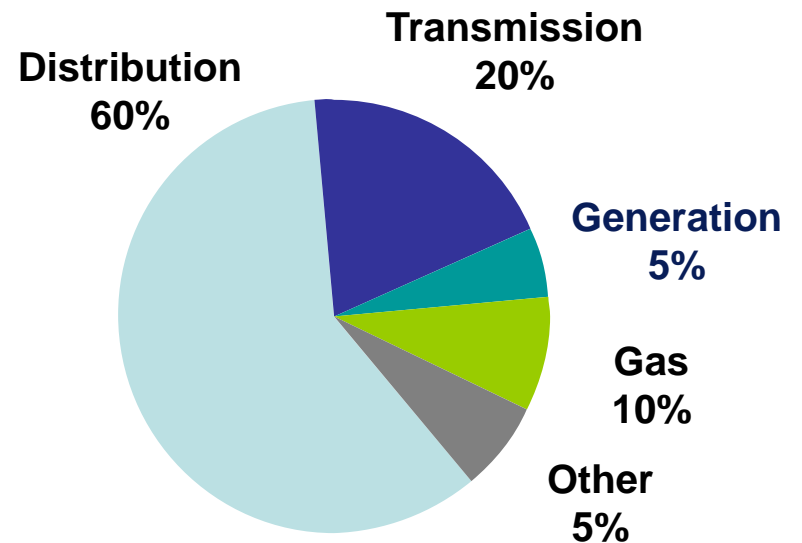
\*Percent of customers who can take power ("Return to Service Customers").

# Property Insurance Will Cover a Small Portion of the Losses

## Non-nuclear Property Insurance

Item	Description
Coverage	Up to \$400M per occurrence \$20M deductible per occurrence
Party	Utility property insured on system-wide basis
Covered Property	Generating stations, substations, gas distribution-related properties, owned and leased facilities and inventories of insured properties
Excluded Property	Above-ground transmission and distribution lines, poles, towers and the devices attached to them
Current Status	Adjusters are reviewing damages in affected areas; timing of payments could extend through 2007

## Estimated Restoration Costs % by type



**Total = \$1.1-1.4B**



# Legislative Relief Critical to Protect Customers from Severe Cost Burden

## Potential Legislative Assistance

Option	Description	Funded by	Prec- edent?
<b>Community Development Block Grants</b>	Provides relief to investor-owned utilities for restoration costs and incremental losses	HUD	Yes
<b>Tax Incentives</b>	Allows companies affected by Katrina to carry back certain losses for federal tax purposes	Department of Treasury	Yes
<b>Stafford Act</b>	Provides relief to investor-owned utilities for uninsured transmission and distribution restoration costs	FEMA	No
<b>Utility Stabilization Act</b>	Provides for relief to investor-owned utilities for restoration costs and incremental losses (if load <80% of pre-storm load through end of 2007)	Directly by President through DOE	Yes with Airlines
<b>Securitization</b>	Reduces rate impact of recovering storm restoration costs by spreading recovery over 10-15 years and utilizing low-cost financing sources	Capital markets following legislation	Yes (other states)

# Potential Funding Sources

- Federal legislation
  - ◆ Relief sought similar to White House action to award \$250 million to Con Edison after 9-11
  - ◆ Initial request unsuccessful
- Community Development Block Grants have created new opportunity for Entergy and others to recoup losses from the massive damage
  - ◆ Louisiana awarded \$6.21 billion
  - ◆ CDBGs will be administered by the State
  - ◆ Entergy will present its case to the state
- Insurance – (for the areas that are insured)
- Filed plan with LPSC to recover storm costs
  - ◆ Filed Dec. 2
  - ◆ Designed to save customers more money by helping to maintain credit ratings

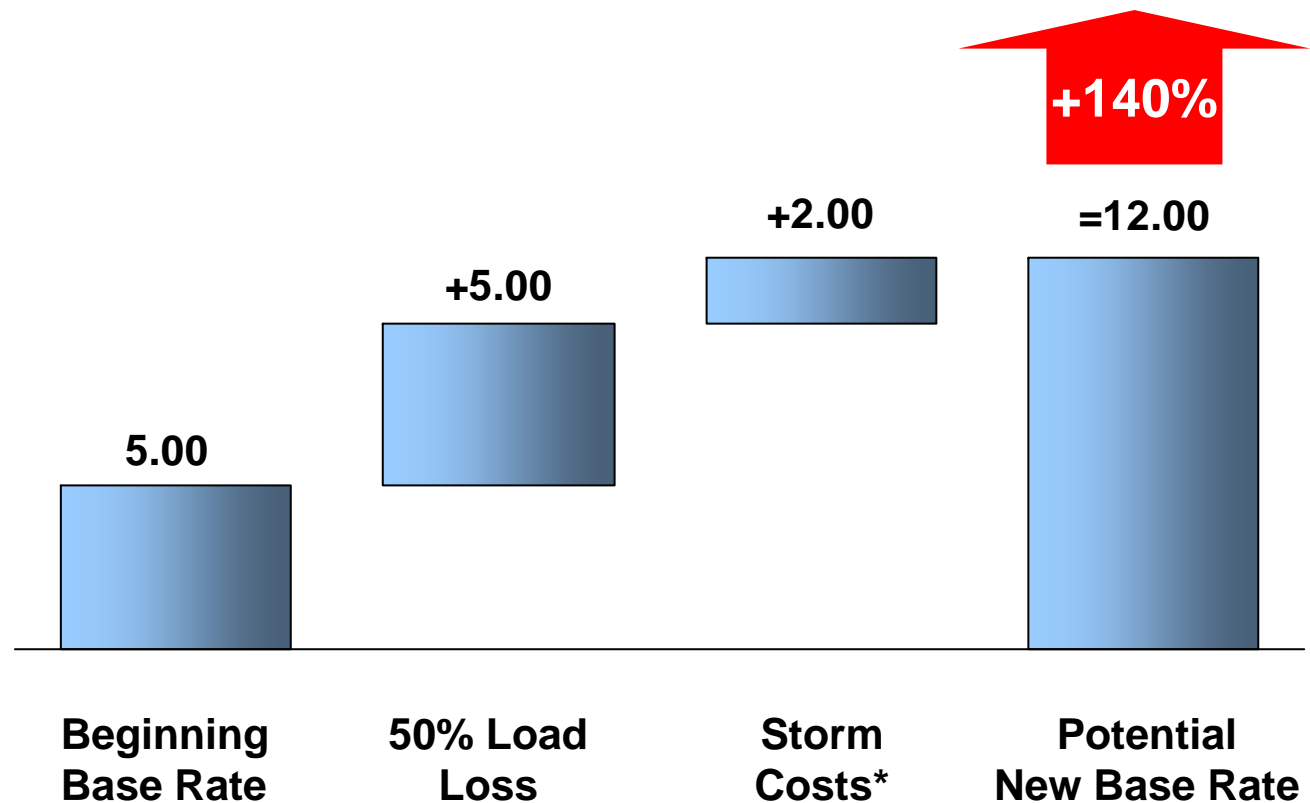
# Combination of Lost Load and Storm Costs Could Significantly Increase Electricity Rates

**Illustrative**

**ENOI Average Residential Rate (excluding Fuel)**  
Cents/KWh

*Absent legislative relief, ENOI's non-fuel base rates could theoretically increase by 140%.*

*This rate burden would be significant for New Orleans' low income customer base and would stifle economic redevelopment.*



\*Storm costs typically amortized for rate making purposes over a 5-30 year period.



# Key Takeaways

- 1** The first priority is the safe restoration of service following the destruction to infrastructure caused by Hurricane Katrina.
- 2** Massive restoration costs for Entergy New Orleans, Inc. (ENOI) and only partial return of customers could more than double electricity rates.
- 3** ENOI's customers, over 20% of which were below poverty-level before Katrina, cannot absorb higher rates of this magnitude.
- 4** Federal assistance is required soon to protect customers from this severe cost burden.
- 5** The level of rates required absent Federal assistance will stifle business development and the repopulation of New Orleans, which in turn will cripple the opportunity for economic recovery in this region.

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