

Storm Response: May 4 – May 8, 2006 After Action Report



May 18, 2006

Storm Response After Action Report

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Storm Response Storm Recap

- Four separate widespread storms directly hit the area Thursday, Friday, Saturday, and Sunday (May 4, 2006 – May 7, 2006).
- Winds between 20 – 74 mph
 - Category 1 Hurricane force winds
- Five inches of rainfall over four days

Storm Response Timeline of Actions

Thursday, May 4th

- 5:00pm Storms developing west/northwest of the City; moving west**
- 5:15pm Austin Energy (AE) begins to monitor storm track
- 6:00pm Office of Emergency Management (OEM) & Flood Early Warning System (FEWS) begin remote monitoring of storm track and forecast
- 8:30pm - AE Energy Control Center (ECC) contacts Impact Weather Service for update – notified storms could be in the area within 2 – 3 hours
 - AE begins to coordinate line crews at service centers
- 9:00pm OEM and FEWS personnel begin pre-planning activation of Emergency Operation Center (EOC)
- 9:30pm Storm shifted west/southwest and directly enters the City – wind gust of 74 mph (Category I Hurricane force winds: 74 – 95 mph)**
- 9:30pm Public Works – (8) Street and Bridge 2 - person crews on standby for tree and debris removal
- 10:00pm immediate storm impact – 52,000 customers lose power due to 23 feeder breaker lock outs impacted by down wires, transformer and fuse outages**
- AE mobilizes and dispatches crews
 17 Restoration Crews (40 persons)
 8 Contract Tree Trimming Crews
 4 System Patrollers
- FEWS personnel begin to close low water crossings
- Public Works begins tree and debris removal from roadways
- 10:30pm EOC fully activated – Public Safety, Public Works, Austin Energy, Parks, Watershed, and Travis County Sheriffs Office
- Fire and EMS experience very high call volume – mostly down trees and power lines
- (4) Park Forestry crews begin tree and debris removal from roadways and City facilities; including assistance to Public Works

- AE plotting all power outages and down wires/trees for restoration planning efforts

Heavy rain and sustained winds of 30mph – 55mph continue

Midnight
(Friday)

All work crews and Public Safety responders continue efforts
Power restored to approximately 10,000 customers

AFD requests standby assistance from Travis County Fire Responders due to call volume. In addition to tree and power lines down calls for service, AFD responded to a 2-alarm apartment fire and a single family structure fire simultaneously; these two incidents required response by 16 units (pumpers and ladders)

Friday, May 5th

1:00am OEM personnel begin to plot all reported debris and down trees for unified (Parks, Solid Waste Services, Public Works) removal planning efforts

3:00am AE issued media release estimating power to be restored to ALL customers by Friday evening

7:00am All 23 Feeder breaker lockouts repaired; power restored to additional 18,000 customers. Over 400 work orders remain outstanding (*final work orders completed: 2,300*); approximately 16,000 remain without power. AE crews assessing each work order.

- AE Restoration personnel:
20 Restoration crews (48 persons)
4 Contract Repair Crews
14 Contract Tree Trimming Crews
4 Patrollers

- Debris Removal Task Force begins citywide damage assessment

- Debris and Tree Removal personnel:
33 Parks Crews (69 persons)
40 Public Works Crews (100 persons)
20 Solid Waste Services Crews (48 persons)

- AE and Parks crews worked 24 hours through Monday afternoon

- Public Works crews worked straight through the first 24 hours of the storm response and then 12 hour days from Saturday through Monday

- Solid Waste Services worked 12 hour days from Friday through Tuesday

- 2:00pm - Debris Removal Task Force develops coordinated strategy for tree and debris removal
- 300 trees were down or damaged at Jimmy Clay/Roy Kaiser Municipal Golf courses.....City hosting State High School golf championships tournaments scheduled to begin Monday at same golf courses
- 3:00pm - AE Restoration crews expanded:
+ 12 Restoration crews / Total 32 crews
+ 5 Contract Tree Trimming Crews / Total 18 crews
+ 8 Patrollers / Total 12 crews
Contract Repair crews maintained at 4 crews
- AE issues media release estimating power to be restored to ALL customers by 8:00pm Saturday
- 4:00pm OEM issues media release on information regarding tree and debris removal efforts and guidelines to ensure expedited removal
- 10:00pm AE determines significant individual infrastructure repair at multiple locations; e.g. tree on wires, down poles, failed transformers, etc. Many worksites not accessible by repair trucks and require manual repairs, i.e. locate all necessary tools and equipment on ground, climb poles, use ladders, etc.
- AE request assistance from CenterPoint Energy (Houston) from existing mutual assistance agreement
- 11:00pm AE issues media release estimating power to be restored to ALL customers by Sunday evening
- Midnight**
(Saturday) **Storms developing to the north of the City**
- OEM and FEWS report to EOC to monitor storm; agencies placed on stand by for EOC activation
 - AE monitoring storm from ECC
 - AE updates map of outage and damage areas
 - AE develops coordinated work plan for CenterPoint restoration efforts
 - At this time approximately 13,000 customers remain without power

Saturday, May 6th

1:00am Crews required to stand down for safety reasons due to impending storm

2:00am **Second storm hits the area – heavy rainfall and winds over 20 mph**

Additional 3,000 customers lose power

7:00am - All crews remain deployed:
AE Restoration Teams
32 Restoration Crews
4 Contract Crews
32 Contract Tree Trimming Crews
12 Patrollers

Debris and Tree Removal Crews
12 Parks Crews
20 Public Works Crews
16 Solid Waste Services Crews

- At this time 15,000 customers remain without power
(increased from midnight)

12:30pm CenterPoint Energy mutual assistance arrives – deployed to Tarrytown and Pemberton areas
15 Restoration Crews (45 persons)
4 Patrollers
2 Superintendents
Trucks & Equipment

CenterPoint Energy crews +12 hour work days until 10:00pm

7:00pm At this time approximately 9,000 customers remain without power

7:30pm **Third storm hits the area – limited duration, however, heavy rainfall and strong winds**

Additional 2,300 customers lose power

Midnight
(Sunday) Updated maps of outage and damage areas

Sunday, May 7th

- 5:30am At this time approximately 3,500 customers remain without power
 AE issues media release estimating full restoration by end of day today
- 7:00am - All crews remain deployed:
- AE Restoration Teams
 40 Restoration Crews (inc. of 8 crews)
 4 Contract Crews
 32 Contract Tree Trimming Crews
 12 Patrollers
- CenterPoint Energy
 15 Crews
- Debris and Tree Removal Crews
 10 Parks Crews
 10 Public Works Crews
 Solid Waste did not have debris removal crews assigned Sunday
- At this time 3,500 customers remain without power
- 12:00pm At this time 1,900 customers remain without power
 Media notified that AE will determine estimated time for full restoration at 4:00pm
- 3:00pm - Reverse 9-1-1 notifying all homes in remaining affected area of special
 garbage pickup for spoiled food
- Media release issued regarding special garbage pickup
- 4:30pm Solid Waste Services begins special garbage pickup; all routes were
 covered twice
- 5:00pm Debris and Tree Removal Crews end emergency 24 hour work schedule
- 7:00pm AE has press conference reviewing current status, recap of efforts, and
 estimated times for completion
- 9:00pm At this time approximately 700 customers remain without power; estimate
 complete restoration by noon Monday. AE begins to call ALL customers
 that have reported an outage to confirm power has been restored or
 additional work is required

Monday, May 8th

1:00am 4th thunderstorm moves into area; limited duration of heavy rainfall and winds up to 24 mph.

Additional 2,100 customers lose power due to circuit failure; circuit and power restored within one hour.

7:00am - All crews remain deployed:
AE Restoration Teams
 40 Restoration Crews (inc. of 8 crews)
 4 Contract Crews
 32 Contract Tree Trimming Crews

CenterPoint Energy
 15 Crews

Debris and Tree Removal Crews
 12 Parks Crews
 8 Public Works Crews
 99 Solid Waste Services Crews

2:00pm - Less than 100 customers remain without power
- CenterPoint Energy crew released

5:00pm - Power restored to all customers
- AE contacts all customers to confirm power restoration

Storm Response Austin Energy Key Questions

Why did it take so long to restore power to all customers?

- First storm immediately resulted in lost power to 52,000 customers due to feeder breaker lockouts, down wires, broken poles, failed transformers and fuse outages
- Generally restoration of feeder breaker lockouts restores majority of all outages. Although all feeder breaker lockouts were restored within 8 hours of storm event, only 18,000 customers power was restored – Indication of more severe system damage
- Full restoration required repairs to over 2,000 individual locations; many of which required significant restoration efforts, e.g. new poles, restring power lines, replace transformers, etc.
- Significant efforts required for tree and limb removal prior to actual power restoration efforts
- Restoration efforts were regularly delayed / temporarily stopped due to three additional storms that moved into the area during restoration efforts. Additionally, new storms increased infrastructure damage, and increased number of customers losing power.
- Many locations not accessible to work trucks requiring tree/limb removal and restoration crews complete all tasks on a manual basis

What is the mutual assistance program?

The Texas Mutual Assistance Group, is a network of utilities primarily in Texas and includes AEP (CPL, Public Service Oklahoma, SW Electric Power Co., and West Texas Utilities), Austin Energy, CenterPoint Energy (Houston), City Public Service (San Antonio), CLECO (Central Louisiana Electric Co.), Entergy Services (East Texas and national), LCRA, OGE (Oklahoma Gas and Electric), TXU (Dallas), Texas New Mexico Power, Southern Company (Mississippi and national)

The primary objectives of the group are twofold - to facilitate effective response when an entity needs to call on others for assistance and an annual meeting to review events, response efforts and share lessons learned, best practices and develop a network to facilitate actual response.

We have participated in the network for 10 years and have had formal mutual assistance agreements in place with several of these entities.

What is the methodology for determining restoration work schedules?

- Priority to immediate Public Health & Safety facilities
 - Hospitals, Fire/EMS Stations & Systems, Police, Military
 - Water and Wastewater facilities (treatment and distribution)
- Very large manufacturing and commercial facilities
- Repair power distribution main lines with the highest number of impacted customers
- Repair fuses with the highest number of impacted customers
- Repair transformers with the highest number of impacted customers
- Repair single meters and individual service connections

Many customers were impacted due to multi- failures of the system and infrastructure, as well as private equipment failures.

What is the status of the tree trimming program?

Austin Energy has received from the Land Use and Transportation Subcommittee the recommendations of the Tree Task Force

Austin Energy has implemented or agrees to implement the following:

- Notify the Neighborhood Associations involved before any planned circuit vegetation maintenance work planning is begun
- Prepare and distribute a customer options sheet with every vegetation work plan
- Purchase flagging for marking trees that has Austin Energy logo on it
- On a tree by tree basis evaluate the selective removal of overhanging limbs on single phase primary wires using the hinge and miss evaluation technique
- Offer to redesign/relocate the lines if possible at the customer's expense
- Provide larger size utility compatible mitigation trees for trees to be planted on COA owned property and PARD will provide watering and care for the 2 year establishment period
- Re-contact all property owners on the FI01 (Fiesta 1 circuit that was being preplanned for trimming and postponed until recommendations of the task force)

Austin Energy recommends further investigation and evaluation of the following:

- Use of underground cable for rebuild of single phase overhead at customer expense
- Perform a tree re-growth study for predominate Austin tree species and make adjustments to clearances and/or cycles as appropriate
- Investigate and test the use of tree growth regulators and implement where appropriate

- Investigate and implement if appropriate a customer-directed and funded alternative trimming strategy
- Investigate and implement as appropriate the use of a voucher system instead of individual tree delivery for mitigation trees.

Other recommendations require further time to study and analyze costs. We will bring our findings back through the Land Use and Transportation Subcommittee to the City Council.

The utility will continue trimming trees using the new revised procedures. We will be working closely with the residents and the Neighborhood Associations, re-notifying the residents in Hancock, Hyde Park and Eastwoods about our trimming plans. Austin Energy is committed to offering options to our recommended tree trimming, such as allowing the customer to assume the extra costs to trim more frequently on their property, but reduce the amount of tree pruned. Should the neighborhood/customer choose to pay for the burial of power lines in their area, the utility is willing to reduce the amount of pruning while the "undergrounding" is being planned and constructed.

Storm Response Commendable Efforts

Our technical, operational response was solid. This kind of emergency results in some very labor intensive, slow work. Crews were literally walking through back yards, identifying fallen lines, removing trees and restringing lines. As you can imagine—this kind of house by house work can take time.

1. Hard-working personnel responding to incident. Most of initial crews worked 24 hours straight; after initial shift, all worked 12 to 16 hour shifts.
2. Dedicated employees working in dangerous environment, including *during* peak storm event.
3. Professional and industrious personnel facing very difficult operating conditions ensured thorough, accurate and safe restoration and removal efforts.
4. All personnel remained focused on citizen safety, customer service and minimizing disruption to community.
5. Coordinated and strategic planning efforts resulted in efficient and effective operations.
6. Cooperative and 'Team' approach between all responding departments; especially during peak of storm event all agencies engaged in on-going communications.
7. Maintained updated and accurate data on incident status, resource deployment, workload and damage assessment within the Austin Energy - Energy Control Center (ECC) and the City Emergency Operations Center (EOC). Including utilization of existing information services and equipment, i.e. Impact Weather Service, National Weather Service, weather radar, GIS systems, computer aided dispatch, reporting systems, etc.
8. Previous planning efforts and systems were in place to ensure a prompt, effective and efficient operational response; i.e. deployment strategies, updated resource availability, call-back and standby systems, reporting/mapping systems, etc.
9. Previously established participation (10 years) in the Texas Mutual Assistance Group provided a systematic and establish process to readily request and receive assistance for power restoration.
10. Previous cross-training efforts provided expanded personnel resource availability.
11. Constant communication to the media regarding status of power outages.

Storm Response Areas for Improvement and Enhancements

Improvement is needed in two major areas: 1) Communications must be tailored to address individual household situations/status. People wanted basic information to make family decisions (i.e. spend the night at home or at friends/in a hotel) 2) Outside resource assistance could have been mobilized earlier.

Communications

1. Customers should have been provided constant information specific to the individual customer's situation.

Enhancements:

- a. To ensure the most updated neighborhood specific information is available to all customer service representatives, a team of call center supervisors will be assigned to the ECC.
- b. Customer service representatives will have the data to provide clear information on what is happening in the field, better estimates on when individual homes/neighborhoods would get power back, and safety notices regarding down wires, poles, etc.
- c. Media releases will provide neighborhood by neighborhood updates

Future Enhancements:

- d. Proposed Mobility Project - AE proposes to purchase software, GPS and lap top computers for field trucks so that field crews and patrollers can send in location-specific data (cause of outage and estimated time of repair) via wireless computer. This will aid in getting more accurate information into the system quicker for customers and tactical planning and in better organizing and dispatching of crews to their next location -- speeding up slightly, the restoration process. But most importantly, it would put information into the system more quickly that would be available to callers/customers. This upgrade and field process will require approximately two years for complete implementation.
- e. ETR via Interactive Voice Response (IVR) - Through the purchase and use of additional software, customer calls AE to report a power outage, will be programmed to do a real-time "dip" into AE's outage system to determine if the customer has an outage. An automated voice could then inform the customer if AE is aware of the outage and include any information the system has from repair crews or patrollers on equipment which serves that customer. Research indicates that many customers call just to make sure the electric utility knows they have a power outage.

2. **Customer service call center staffing levels should have been further maximized to provide increased access**

Enhancements:

- a. The contract for customer service representatives will be expanded to provide increased staffing levels during critical incidents

3. **Power outages limited access to home phones, television and radio, which made it difficult to reach customers**

Enhancements:

- a. Develop Neighborhood outreach teams – Teams of City staff, city volunteers, such as those from the Community Emergency Response Team (CERT), as well as neighborhood volunteers will be organized and deployed to impacted areas.
 - Canvass neighborhoods with information. Canvass neighborhoods with information – distributing door hangers and fliers to targeted areas. Team members would be deployed when customers are impacted by a critical incident, e.g. a power outage, for more than 24 hours. Information would include any neighborhood specific information that is available as well as citywide information. The initial flyers would explain current efforts being undertaken as well as information related to their individual neighborhood, e.g. explain the procedure involved in restoring power to customers and how the Utility prioritizes and what is involved in restoring power to individual homes.
 - Good will teams. These teams would be tasked with providing—in addition to good will—water, snacks and other helpful commodities depending on conditions (dry ice). In addition, this is the teams that listens to the neighborhoods, also noting any critical health and safety situations; and help coordinate any necessary assistance. They will have information regarding that particular area of town and a contact at the EOC or ECC where they can relay the specific neighborhood questions.
 - Neighborhood “Town Hall” Meetings. Team members will utilize City facilities including libraries, fire stations, and recreation centers to provide updates on the situation status. Through ‘pre-work’ with the neighborhoods a site (s) may be determined for each neighborhood in advance so customers know where to stop for information and possible services as necessary.
 - Focus outreach in high-traffic neighborhood areas. Team members will target information distribution to grocery stores, schools, daycares, coffee shops with daily updates should there be a prolonged incident such as a power outage in particular areas.

- b. CodeRed - City staff will propose the purchase (May 18th Council Agenda) of an advanced Emergency Notification system capable of making 60,000 calls per hour. The notification system can be activated and calls can begin within minutes of initiation. This system can be initiated for specific geographic areas, as well as citywide. Additionally this system allows citizens to add or change phone numbers to be contacted through during a notification; this feature allows citizens to enter home, office and cell phone numbers. The CodeRed system also has an automatic call back feature which attempts multiple calls if the initial call is not answered. Call status reports are available to staff immediately which allows staff to know which homes/numbers have been reached.
- c. Roadway Sign boards - Placing sign boards in heavily-impacted neighborhoods that can be updated during peak drive times will provide targeted messaging for motorist going home.
- d. Community Registry - The Community Registry database managed by the Public Information Office is a list of Neighborhood Association Presidents citywide that can assist in providing updates at the neighborhood level. Zip-code specific updates can be provided to Presidents who then can distribute to key contacts at the neighborhood level.
- e. Web site - Ensure that the City's main homepage has the most updated and accurate information regarding situation status, information, critical phone numbers, etc. The Austin Energy website which has a direct link from the City's homepage, will include enhanced features to reflect updates – including a map of the community, color coded to indicate restored areas and areas still impacted; locations of AE crews; estimated times of restored service by neighborhoods.

Outside Resource Assistance

1. The request for outside assistance should have been initiated sooner

Enhancements:

- a. AE will increase the number of patrollers to send in data via computer on areas to which crews may not yet have been dispatched. Between repair crews and patrollers -- this will provide the greatest possible information flow at all times. All info would be automatically sorted by the system and applied to customer account screens to be provided when customers call in. *Patrollers will also begin leaving door hangers with information that the damage has been assessed in their area.*
- b. To improve AE's ability to better define the total affected area and the total estimated time of restoration, more personnel will be assigned to the Situational Analysis Team as well as expanding the role of this team. Team members will have direct and improved access to all data from crews and patrollers. This team will be tasked with providing an ongoing overview to decision makers and the media and will also be a point of information for AE Community Outreach Teams (discussed below). Additionally, the team will provide additional neighborhood-level information on AE's Web site.