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BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI

FILED  
March 20, 2015  
Data Center  
Missouri Public  
Service Commission

In the Matter of an Investigation of )  
Union Electric Company, d/b/a ) Case No. EO-2008-0218  
AmerenUE's Storm Preparation and )  
Restoration Efforts )

FINAL REPORT OF STAFF INVESTIGATION OF  
THE JANUARY 2009 SOUTHEAST MISSOURI ICE STORM

COMES NOW the Staff of the Missouri Public Service Commission (Staff) and for its  
*Final Report Of Staff Investigation Of The January 2009 Southeast Missouri Ice Storm*,  
respectfully states to the Missouri Public Service Commission (Commission) as follows:

1. On April 30, 2009, the Commission issued its *Order Directing Staff To File An Additional Report (Order)*. Staff was directed to investigate Union Electric Company, d/b/a AmerenUE's (AmerenUE or Company) preparation and response improvements implemented after the 2007 ice storm, by evaluating the Company's response during the January 2009 ice storm. Staff was directed to file its report of investigation on or before September 1, 2009.
2. Attached is Staff's Memorandum entitled *Missouri Public Service Commission Staff's Report on Electric Utility Restoration Efforts for the January 2009 Ice Storm Which Severely Affected Southeast Missouri (Staff's Report)*.
3. Attachment A is a graph that shows the percentage of AmerenUE, local cooperative and municipal customers restored by day. Not only did AmerenUE restore service faster, the Company provided expertise and help to other electric providers.
4. On March 26, 2009, the Staff requested the Company provide detailed information about its experiences during this particular storm to the Director of Utility Operations. On April 14, 2009, the Company provided the response labeled as Attachment B. The

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Date 2/20/15 Reporter RB  
File No. ER-2014-0258

response included a Storm Restoration Summary and performance data from the Company's Customer Contact Center.

5. The Commission's *Order* also directed Staff to investigate Entergy Corporation (Entergy), an out of state corporation that owns transmission lines that cross through Missouri. Attachment C is a letter from the State of Missouri Emergency Management Agency, describing Entergy's performance during the outage. *Staff's Report* is in direct contrast to SEMA's observations of Entergy's responsiveness in Southeast Missouri. The summary of Staff's investigation of Entergy is included on pages five (5), six (6), and seven (7).
6. This report is Staff's fifth storm report involving AmerenUE's restoration efforts in the last five (5) years. In summary, Staff's overall conclusion is that AmerenUE has applied the lessons it learned from previous storm restoration efforts to this ice storm, evidenced by the faster restoration times.

**WHEREFORE**, the Staff respectfully files its *Final Report Of Staff Investigation Of The January 2009 Southeast Missouri Ice Storm* with the Commission.

Respectfully submitted,

/s/ Jennifer Hernandez

Jennifer Hernandez

Legal Counsel

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### Certificate of Service

I hereby certify that copies of the foregoing have been mailed, hand-delivered, e-mailed or transmitted by facsimile to all counsel and parties of record this 15th day of June, 2009.

/s/ Jennifer Hernandez

Report on  
AmerenUE's Storm Outage Restoration  
Following the Ice Storm  
On January 26 – 28, 2009



Case No. EO-2008-0218  
Missouri Public Service Commission Staff  
June 15, 2009

# **Missouri Public Service Commission Staff's Report on Electric Utility Restoration Efforts for the January 2009 Ice Storm Which Severely Affected Southeast Missouri**

## **Executive Summary**

This report is in response to the Commission's Order of April 30, 2009 in Case No. EO-2008-0218, In the Matter of an Investigation of Union Electric Company, d/b/a AmerenUE's (AmerenUE or Company) Storm Preparation and Restoration Efforts. The Order directed the Missouri Public Service Commission Staff (Staff) to investigate the effectiveness of Union Electric Company, d/b/a AmerenUE's storm preparation and power restoration efforts following the January 2009 ice storm in Southeast Missouri. The Order also directed the Staff to investigate the conduct of Entergy Arkansas, Inc. (Entergy) following the January 2009 ice storm in Southeast Missouri.

This storm report is the Staff's fifth storm report involving AmerenUE's restoration efforts in the last 5 years. AmerenUE applied the lessons it learned from previous storm restoration efforts in response to this ice storm and brought its customers up faster than the rural electric cooperatives and municipal utilities. Attachment A shows the percentage of customers restored for these utilities by day. Not only did AmerenUE restore service faster, the Company provided expertise and help to other electric providers. During the restoration process and in the months that followed, the Staff observed numerous examples of individuals, municipalities, utilities, and other government organizations assisting each other during this emergency event.

While restoration to Missouri utilities from Entergy was hampered by communication problems and therefore was slower than the response from Missouri utilities, Staff found that the communities are finding ways to prevent this problem in future events.

## **January 26-28, 2009 Ice Storm**

A Canadian cold front with a lot of Gulf moisture pushed into Missouri on Monday, January 26, 2009, bringing with it snow, sleet and freezing rain. These initial conditions were concentrated in Southeast Missouri, with sleet that also went north to Central and Eastern Missouri. The winter storm continued with another round of snow,

sleet and freezing rain all day Tuesday and into Wednesday. The icy conditions made highway travel hazardous, with numerous accidents reported. Over two and one-half inches of ice covered most of the southeast portion of the state. Heavy ice accumulation loading on lines caused over 3,800 AmerenUE transmission and distribution poles to break. (One measure of the severity of the damage to an electric utility system is the number of poles replaced per 1000 outages. For this ice storm, over 100 poles per 1000 outages was experienced from this ice storm. In contrast, the summer storm of 2006, which affected approximately 645,000 AmerenUE customers, had a 2 pole per 1000 outages average.)

On Monday, January 26, 2009, the National Weather Service predicted the strong possibility of a major ice storm for the southern portion of Missouri. AmerenUE began mobilizing its contractor resources and line crews from the Missouri Valley Division to the Cape Girardeau area. By Monday evening, the Company had staged approximately 250 workers, one Mobile Command Center and three Storm Material Trailers in Southern Missouri in preparation for anticipated restoration activities.

The State Emergency Management Agency (SEMA) activated its Emergency Operations Center (EOC) on January 27, 2009. The first Situation Report was issued by SEMA on January 27, 2009 and Situation Reports continued to be issued through February 18, 2009.

The Company provided detailed information about its experiences during this particular storm to the Director of Utility Operations in a letter dated April 14, 2009. The letter was in response to Staff's request on March 26, 2009, for information related to AmerenUE's storm restoration efforts. This information included a Storm Restoration Summary and performance data from the Company's Customer Contact Center. The complete response from the Company is attached as Attachment B.

In addition to the detailed information pertaining to its storm restoration efforts, the Staff also asked the Company to comment on the progress of its implementation of the recommendations contained in the KEMA Report. In January 2007, AmerenUE management engaged an outside consulting firm, KEMA, to conduct a study of the adequacy of the Company's ability to prepare for and respond to severe weather events. On January 11, 2008, the Staff was provided with a copy of the KEMA Report as well as

the Company's responses to the recommendations. The Staff has been provided with updates on the Company's progress in the past. This was another opportunity to update progress made on these KEMA recommendations and to determine whether this ice storm event had an effect upon the pending projects initiated by the Company in response to the KEMA report. This information was also included in the Company's response to the Director of Utility Operations.

In addition to AmerenUE, the storm also devastated facilities belonging to the municipal and electric cooperative systems in Southeastern Missouri and Northern Arkansas, and transmission line operators Entergy and Southwestern Power Administration (SWPA), which deliver power to some municipalities in Southeastern Missouri.

### **AmerenUE Restoration Efforts**

Over the last seven years, the Company has experienced repeated severe weather occurrences that caused major outages over wide sections of their service area. The Staff has completed reports evaluating the Company's restoration efforts occurring in June 2002, July 2004, August 2005, July 2006, and December 2007. AmerenUE has applied its past experiences to improve its storm response procedures.

Several issues within this severe weather event presented AmerenUE with challenges that it had not encountered previously. The intensity and geographical concentration of the outages was more extensive than what the Company had experienced in the past. While the Company has detailed plans that address the provision of food, fuel and housing for its workers, the widespread damage of this outage and the extreme amount of ice accumulation brought unique conditions regarding an absolute unavailability of resources within the area. Typically, AmerenUE is able to find some vendors in the immediate area that still have electricity, but in the aftermath of this storm, there were whole counties without power. Vendors were utilized from outside of the stricken area to provide food, housing and fuel necessary to maintain the work crews.

The severity of the damage to the sub-transmission and distribution systems required a concentration of resources specifically assigned to substations and circuits restoration. AmerenUE's restoration plan is structured to restore the greatest number of

customers in the minimum period of time. Typically, the sub-transmission system is designed to withstand more severe conditions than the distribution system and therefore the damage to the sub-transmission is not as severe. Often, a relatively minor repair can be made to the sub-transmission system that literally restores power to thousands of customers. However, since the line loadings from this ice storm was well beyond the design limits, the majority of the 34.5 KV sub-transmission system sustained severe damage and had to be repaired first.

AmerenUE had a total of approximately 4000 individuals engaged during the restoration effort. This included 2400 linemen, 555 tree trimming personnel, 161 field checkers, and several hundred people providing logistical support and supervision.

AmerenUE noted that it utilized diesel generators at two substations to restore service to two communities until AmerenUE could restore transmission to the communities. This strategy has not been used by AmerenUE in previous storms. The 34.5 KV circuits supplying these two communities were severely damaged and took days to completely repair. The use of these generators allowed the Company to provide service to those customers more quickly and to apply its resources in other areas while the sub-transmission was being rebuilt for these communities.

#### **Staff Contact With County Officials**

Staff contacted individuals responsible for emergency operations in several of the small towns devastated by the storm to discuss their experiences and look for lessons learned that may improve response to future storms. The specific individuals contacted were:

- Randy Baker - City Clerk of Campbell
- David McClarty - New Madrid County Emergency Operations Coordinator (EOC)
- Dennis "Rowdy" Walker - Portageville, Water & Wastewater Operator and former Alderman

All three individuals were willing to discuss their experiences during the outages. When questioned about the response of the electric utilities, they were very

complimentary of AmerenUE's efforts and its willingness to assist the other providers, where possible, in restoring customers. The Electric Cooperatives' participation in the emergency management process, especially in response to issues raised during the daily SEMA conference calls, was also noted positively.

The Staff was impressed with the planning efforts taken by these counties and their quick action to handle issues on their own. In some cases, such as in the City of Campbell, city officials actually had developed prior arrangements with vendors to provide them generators in the event of such disasters. When the weather forecast was confirmed, a call was made to the vendor and city officials transported generators from Illinois to Campbell. These generators were used to keep the water and sewer systems running during the storm and then these generators were shared with the neighboring town of Gideon to supply power to their water treatment systems.

Through Staff's work at the State Emergency Operation Center and calls to Commissioner Davis during the restoration process, it is the Staff's impression that there was a lack of communication with and a delay in restoration to cities in Missouri that receive energy through Entergy transmission and sub-transmission lines. In initial contacts, Entergy stated that it did not have any lines in or through Missouri. Subsequent calls with Entergy from the Staff, State Emergency Operation Center management and local cooperatives resulted in conflicting commitments of who would make repairs and when such repairs would be completed. This was in direct contrast to a copy of the letter dated April 27, 2009 that the Missouri State Emergency Management Agency (SEMA) sent to Entergy regarding their "outstanding assistance". This letter is Attachment C to this report. In the letter, Paul Parmenter, SEMA Director, praised Entergy crews for going "above and beyond normal disaster duties for residents of Portageville in southern Missouri." The letter went on to state that "[Entergy] staff isolated and removed the line so that treatment operations could resume at the sewage plant. The actions of [Entergy] staff directly benefited hundreds of Portageville citizens." Since this letter was in direct contrast to Staff's observations of Entergy's responsiveness in southeast Missouri, Staff specifically talked with the three individuals listed above regarding the service they received from Entergy. None of the city or county officials that the Staff contacted had knowledge of the letter.



David McClarty of New Madrid County and Dennis Walker of Portageville confirmed that an Entergy line fell across facilities of the sewer plant in Portageville, Missouri. Staff's understanding is this line ties Entergy's system to a substation near Associated Electric Cooperative's New Madrid Generating Plant. Although this line does not serve Portageville, its location delayed efforts to make repairs to the sewer plant. Once effective communication with Entergy was established, which took several days, these officials stated that Entergy removal of the line occurred in a reasonable amount of time. Even so, Portageville and Campbell have since made changes to prevent similar problems in the future. When the line was repaired it was relocated to ensure that it did not present the same danger in the future with respect to contact with sewer facilities.

It should also be noted that AmerenUE is the electric service provider for Portageville. These officials believed that AmerenUE's restoration efforts were noteworthy.

Electricity was, and currently is, transmitted to the City of Campbell through an Entergy line. Mr. Baker, the City Clerk, told the Staff that when the City was purchasing wholesale electricity from Entergy, Entergy provided acceptable maintenance to the line into Campbell. A couple of years ago the long-term contract for wholesale electricity that Campbell had with Entergy ended. Entergy informed Campbell that it would no longer provide wholesale electricity to Campbell, so Campbell began purchasing energy through Missouri Public Utility Alliance. However, the only line to deliver energy into town was still an Entergy line. When Campbell experienced problems, Entergy would fix the line but Mr. Baker believed Entergy was no longer providing any ongoing maintenance to the line.

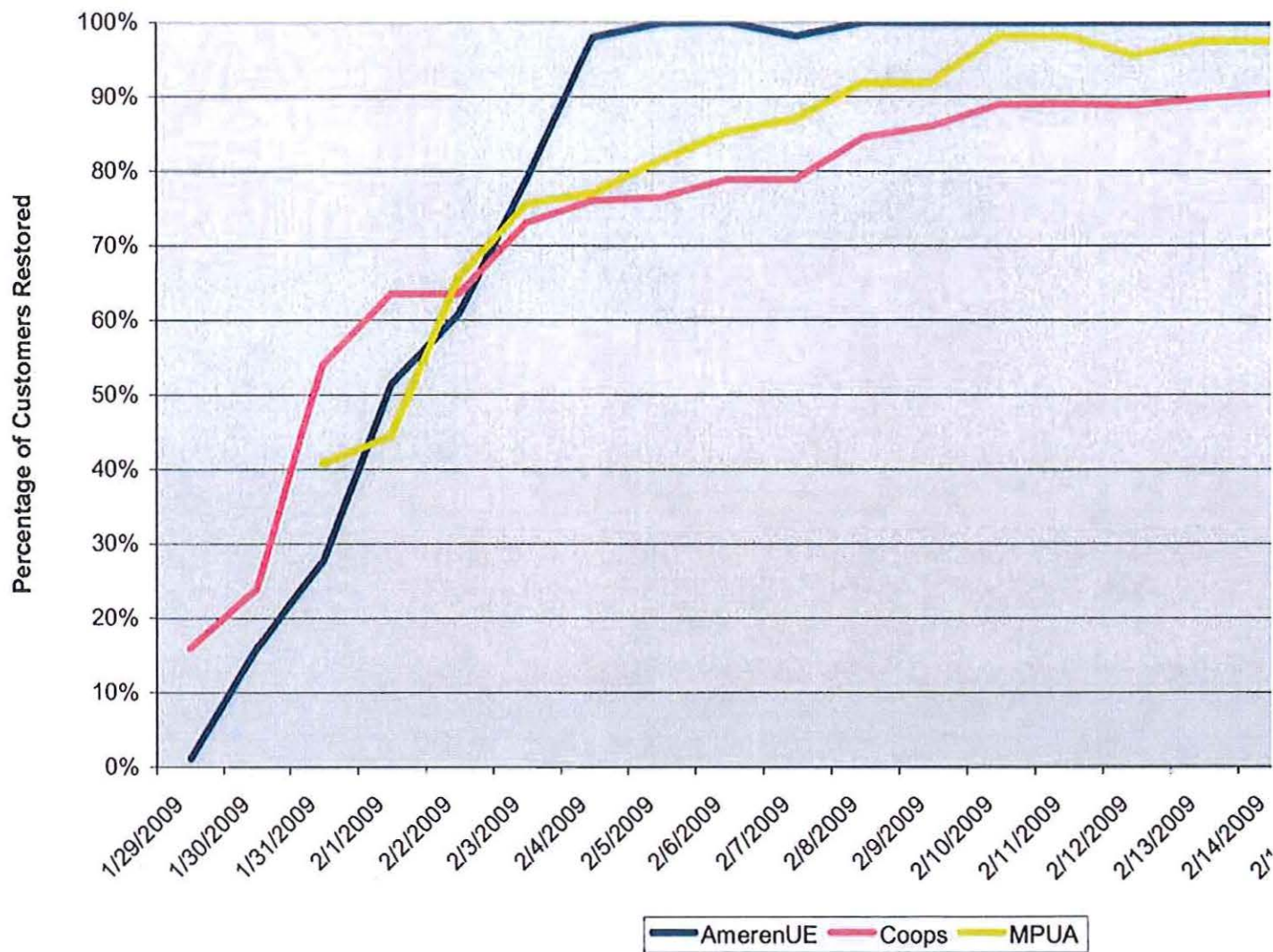
Campbell began looking for other alternatives for provision of electricity and the citizens of Campbell in April 2009 approved, through the ballot, selling the City's distribution to the local rural electric cooperative, Pemiscot-Dunklin Electric Cooperative (Pemiscot-Dunklin). This transfer will be presented to the Commission for its approval in the near future. Tentative plans are that Pemiscot-Dunklin will build a substation in Campbell and bring two lines into the city. Until the substation is built, Pemiscot-Dunklin will bring in a mobile substation. While this will allow two lines of service into Campbell, which should improve the reliability of electricity into Campbell, this

would not have necessarily resulted in quicker restoration to the city in the January 2009 ice storm. Pemiscot-Dunklin was especially hit hard by the ice storm. One hundred percent of the customers in Pemiscot-Dunklin's service territory were without power in the early days of the ice storm.

The Staff contacted the other investor owned electric utilities (IOUs) with outages during the ice storm that affected Missouri customers and it appears that Entergy is the only IOU that received a letter from SEMA similar to the April 27 letter. While Entergy's movement of their transmission line to avoid coming in future contact with Portageville's sewer system is noteworthy, the letter from SEMA appears to only refer to the "outstanding assistance" at Portageville in the days after the storm. Based on the Staff's experiences during the restoration process and the feedback received from various city and county emergency management personnel directly involved in the restoration process, AmerenUE was the IOU singled out for outstanding assistance in the days after the storm. (The Empire District Electric Cooperative had several hundred customers that were affected but the overall severity of storm damage in its service territory was not comparable to the devastation in Southeast Missouri.)

Just as utilities are expected to improve their storm response based on lessons learned, the same is true for the Staff. This storm highlighted the fact that some Missouri electric customers are served, directly or indirectly, by Arkansas electric utilities and that communication with these utilities is important to these customers. Specifically, the Carroll Electric Cooperative Corporation (Carroll) serves some customers in Southwest Missouri. In addition, some customers along the Missouri-Arkansas border receive power from Entergy's sub-transmission and distribution lines, as a result of an agreement between AmerenUE's and Entergy's predecessor. In addition, this storm highlighted the fact that Missouri citizens can be impacted by lines that do not even serve them but are owned by Arkansas utilities. The Staff has identified contacts for Entergy, Carroll, and SWPA as well as the Arkansas Public Service Commission. The Staff hopes to cultivate the relationship with these entities to the benefit of both Missouri and Arkansas customers.

**Percent of Customers Restored By Day Based on SEMA Sit Reps**  
 (Note: No data available for MPUA for the first two days)



April 14, 2009

Ms. Natelle Dietrich  
Director, Utility Operations Division  
Missouri Public Service Commission  
200 Madison Street  
Jefferson City, MO 65102

Dear Ms. Dietrich:



The severe ice storm which began January 26, 2009, resulted in the most significant damage to the UE distribution system in history. In addition, the scope of power outages, extending from just south of Cape Girardeau to Hayti on the South (90 miles) and from Dexter to Charleston (35 miles west to east), presented many logistical challenges we had never faced in the past. Fuel, food, and housing were challenges that set new standards in this storm. The attached report gives a brief summary of the timeline and effort. We are proud of the response by our organization and those from outside who joined in this major effort. As always we will be happy to answer any questions you or the Commission may have about this storm.

Sincerely,

A handwritten signature in black ink, appearing to read "RC Zeller".

Enclosure

Cc: Lena Mantle  
Debbie Bernsen

Attachment B



## AmerenUE Customer Contact Center Call Stats

<b>Storm: 2009</b>	1/27	1/28	1/29	1/30	1/31	2/1	2/2	2/3	2/4	Total	Avg Daily Storm	Avg Daily '08
<b>Total Service Center Calls Offered</b>	19,667	20,997	13,628	13,150	4,265	2,989	14,359	12,774	9,972	111,801	12,422	
<b>Total Service Center Calls Handled</b>	19,213	20,724	13,557	13,042	4,254	2,984	14,057	12,672	9,927	110,430	12,270	
<b>Calls Handled VRU</b>	5,908	9,522	4,706	3,943	2,931	1,980	3,099	3,546	2,340	37,975	4,219	
ORS - Outage Orders	4,130	7,807	2,896	1,857	1,488	1,066	761	1,190	226	21,421	2,380	
CAIS - Account Info	1,574	1,522	1,619	1,912	1,373	775	2,024	2,105	1,942	14,846	1,650	
Duplicate Bill Requests	30	28	28	18	13	7	29	33	24	210	23	
Usage History Request	21	25	33	27	23	11	30	25	38	233	26	
External Transfers	133	106	103	95	13	110	223	156	82	1,021	113	
Paystation	19	34	27	34	21	11	32	37	28	243	27	
Overflow IVR	1	0	0	0	0	0	0	0	0	1	0	
<b>Total Calls Offered Agents</b>	13,759	11,475	8,922	9,207	1,334	1,009	11,260	9,228	7,632	73,826	8,203	5,755
AmerenUE Calls Offered	12,323	9,831	7,426	7,431	1,334	1,009	8,825	7,424	6,028	61,631	6,848	
Outsourced Calls Offered	1,436	1,644	1,496	1,776	0	0	2,435	1,804	1,604	12,195	1,355	
<b>Total Calls Handled</b>	13,305	11,202	8,851	9,099	1,323	1,004	10,958	9,126	7,587	72,455	8,051	5,502
AmerenUE Calls Handled	11,899	9,590	7,382	7,354	1,323	1,004	8,601	7,365	6,012	60,530	6,726	
Outsourced Calls Handled	1,406	1,612	1,469	1,745	0	0	2,357	1,761	1,575	11,925	1,325	
<b>% Answered AmerenUE Agents</b>	96.6%	97.5%	99.4%	99.0%	99.2%	99.5%	97.5%	99.2%	99.7%	98.2%		
<b>Average Speed of Answer - AmerenUE Agents</b>	0:22	0:24	0:04	0:17	0:09	0:03	0:43	0:11	0:03	0:11		
<b>% Answered IQor Agents</b>	97.9%	98.1%	98.2%	98.3%			96.8%	97.6%	98.2%	97.8%		
<b>Average Speed of Answer - Outsourced Agents</b>	0:02	0:02	0:02	0:03	0:00	0:00	0:12	0:02	0:02	0:01		
<b>% Answered All Agents</b>	96.7%	97.6%	99.2%	98.8%	99.2%	99.5%	97.3%	98.9%	99.4%	98.1%		
<b>Average Speed of Answer - All Agents</b>	0:19	0:20	0:03	0:14	0:09	0:21	0:00	0:00	0:00	0:09		
<b>Overtime (hours)</b>	232.9	359.9	242.9	142.2	166.7	158.1	138.3	106.4	45.3	1,592.7		
Ameren non-management	209.4	343.9	219.9	128.7	144.7	128.6	133.3	102.9	43.3	1,454.7		
Ameren management	23.5	16.0	23.0	13.5	22.0	29.5	5.0	3.5	2.0	138.0		
Outsourced group	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
<b>Number of people taking calls</b>	173	176	182	173	19	19	166	171	180	1258		
Ameren contact center employees	143	145.5	152	143	19	19	136	140.5	150	1048		
Ameren employee - other departments	0	0	0	0	0	0	0	0	0	0		
Ameren Illinois calltakers	0	0	0	0	0	0	0	0	0	0		
Outsourced group	30	30	30	30	0	0	30	30	30	210		

- Daily average includes all call types (outage, move, billing, other)

**AmerenUE**  
**January 26, 2009**  
**SEMO Ice Storm**

On Monday January 26, 2009, the possibility of a major ice/snow storm was forecasted for the middle to southern portion of Missouri. A band of ice was predicted for the southern third of the state and snow was probable north to I-70.

Based on the forecast and proactively before the ice storm hit, AmerenUE mobilized contractor resources from the St Louis Divisions to the Cape Girardeau area on the afternoon of 1/26/09. Line crews from the Missouri Valley Division (north of I70 and west of St Louis) were also mobilized due to their longer drive time to the Cape Girardeau area and the low possibility of snow/ice accumulation in their local area. Approximately 250 workers were staged in the Cape Girardeau area on Monday evening in preparation of potential restoration activities. One Mobile Command Center and 3 Storm Material Trailers were also sent to the area and strategically staged on Monday evening.

As predicted, in the late evening of Monday January 26, 2009, freezing rain began falling in the southern most portion of AmerenUE's service territory with snow in the St Louis Metropolitan area. The freezing rain and snow continued to fall all day Tuesday and into the day on Wednesday before stopping. By the time it was over, more than 2 ½ inches of ice covered most of the southeast portion of the state causing widespread devastation including tree damage in local communities. This caused over 3,800 AmerenUE poles to break due to heavy ice loading.

Due to the severity of the damage to the sub-transmission and distribution systems, AmerenUE initiated the Extensive Damage Recovery approach which allowed resources to be assigned specifically to substations and circuits. Most of the 34.5 KV sub-transmission system was severely damaged and AmerenUE was unable to restore distribution substations and their distribution circuits until the sub-transmission system was restored. Restoration of the 34.5 KV circuits was prioritized based on least amount of work required to restore the most number of customers. Sufficient resources were available to allow simultaneous effort on most sub-transmission circuits and many distribution circuits.

AmerenUE, for the first time during a storm restoration, installed large diesel powered generators at 2 substations to power the local communities they served. The 34.5 KV circuits that supplied these substations were extremely long and among the most severely damaged. This allowed power to be restored to the communities several days sooner than would have been otherwise possible and also allowed the resources that would have been used to restore those communities to focus on other areas.

As a result of the extensive damage to the electrical distribution system, AmerenUE went outside of the damaged region to secure beds, food, and fuel for the thousands of workers involved in the restoration. A vendor was utilized to manage several staging sites, which provided beds and meals for approximately 4000 restoration workers, and fueling for restoration vehicles was procured from a vendor in Tennessee.

## Storm Restoration Summary

Storm Duration Tuesday January 27<sup>th</sup>, 2009 – Thursday February 5, 2009  
(9 Days total Duration)

Total of 36,500 Customers out of service

Hardest hit area Cape Girardeau and South to the Arkansas border, Hayti area hardest hit

Total of approximately 4000 individuals engaged during the restoration effort:

- 2400 Lineman
- 555 Tee trimming personnel
- 161 field checkers
- Several hundred Stores, logistics support people, supervisors and others

### Approximate Materials

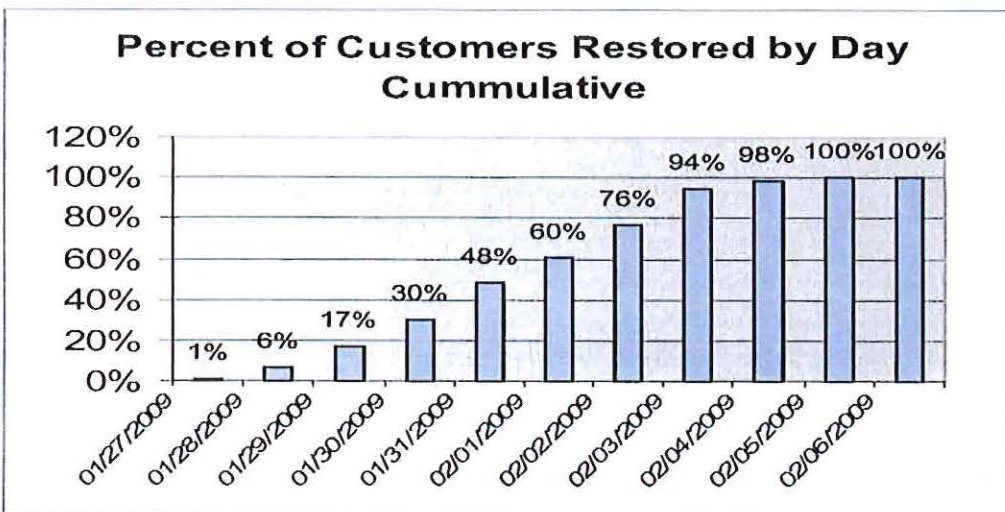
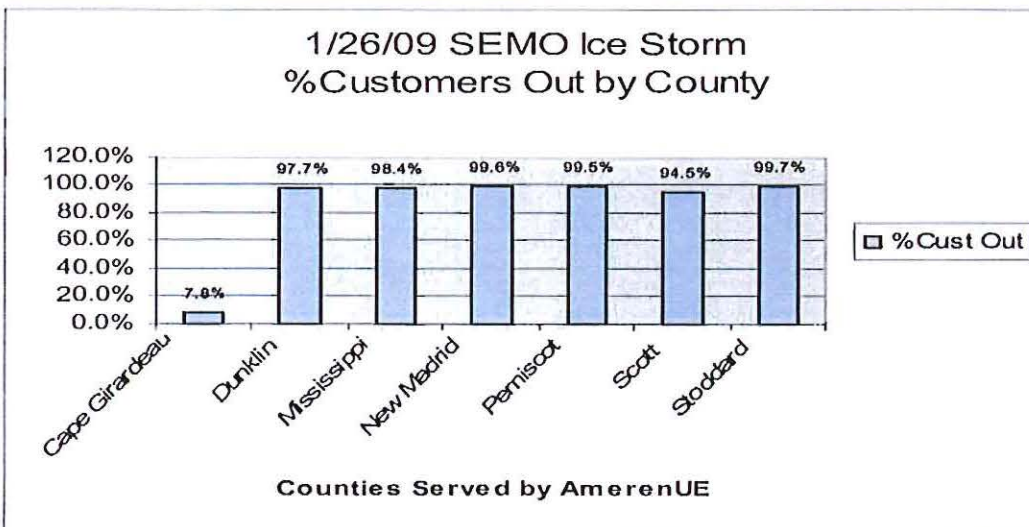
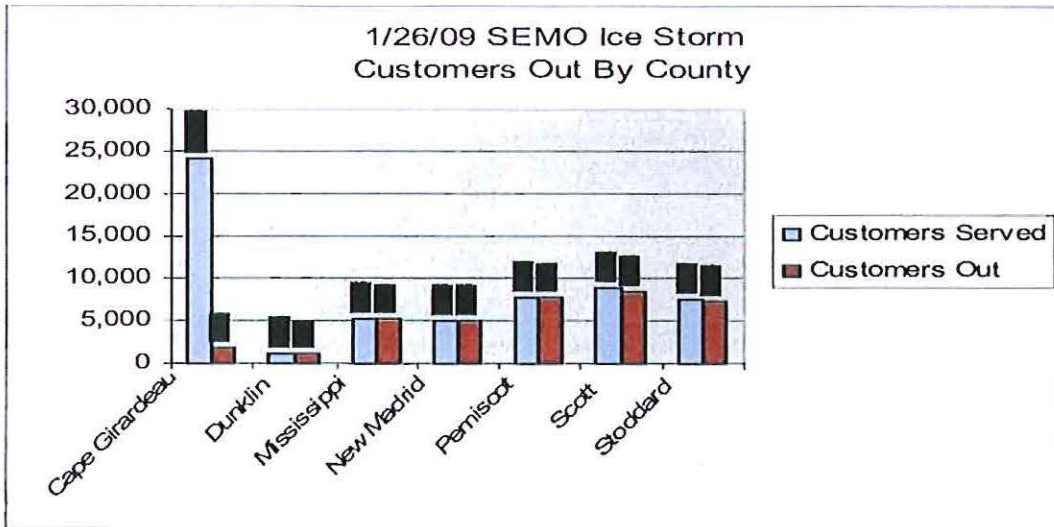
		Qty
Crossarms	EA	6,973
Poles	EA	3,771
Transformers	EA	659
Wire & Cable	FT	1,469,499

### Logistics

- 15,500 Hotel Rooms
- 2300 Other Sleeping arrangements (bunk trailers, dorms, etc.)
- Over 76,000 meals
- More than 1250 loads of laundry
- 44 buses

Used Base Logistics for support which included staging sites meals, bunk trailers, shower facilities





Utilization of KEMA Recommendations during January 2009 Ice Storm  
(attached to)  
November, 2008 Status Report on AmerenUE's Implementation of Recommendations  
in KEMA's November, 2007 Storm Adequacy Review

KEMA's report, released in November of 2007, identified 37 opportunities for improvement. These 37 recommendations were grouped into the following three categories:

1. Continue with AmerenUE identified improvements,
2. Modify existing processes and systems to better address severe storms, and
3. Develop new processes and systems to support Levels III and IV restoration efforts.

KEMA's recommendations are listed below along with an explanation of whether AmerenUE is adopting the recommendation and, if the recommendation is adopted, the implementation status of that recommendation as of July, 2008.

**Category One:** Continue with AmerenUE's already identified improvements. AmerenUE has already established a need for these 12 improvements and has incorporated them into current budgets. The numbers in parentheses (4.4.1) represents the recommendation number and section in the KEMA report.

- Continue emphasis on the vegetation management program to achieve the committed schedule by the 4<sup>th</sup> quarter of 2008 and to implement the program enhancements. Address the out of easement tree removal issues and review total budget periodically with the anticipation of the growing tree canopy. (3.4.1)

AmerenUE remains on track to fulfill its commitment to establish a four year urban and six year rural cycle on/before the end of 2008. By the end of 2007, the City of St. Louis was on a four year cycle (one year ahead of schedule).. YTD (2008) the operating centers of Potosi and Green Hills are already on the desired cycle lengths. AmerenUE has continued with the implementation of overall program enhancements i.e. broader clearances, more removals and for 2008 has scheduled 22 circuits to be included. Seventeen of the circuits have been completed with the remaining ones on track to be completed on/before the end of 2008. Effective January 1, 2008, the Company has also incorporated the Commission's vegetation management rules into the program, six months ahead of the effective compliance requirement.

Vegetation Management Program remains on cycle. The January Ice Storm put a strain on resources due to managing AmerenUE damage and requests from other utilities for assistance.



- Continue the revised pole inspection at the targeted inspection rate. The pole inspection planning, record keeping, analysis and auditing functions should be improved. (3.4.2)

AmerenUE is on track with the implementation of the overall circuit inspection program which includes a visual inspection of all facilities once every four years and a complete strength assessment of all poles once every 12 years. AmerenUE maintains inspection planning records within the newly developed Circuit and Device Inspection System (CDIS) database. This database is linked to the pole plant record in the AM/FM system, thus providing improved functionality. Planned enhancements for data analysis are being developed as data is gathered. These include standardized reporting functions as well as enhanced access to the data for analysis purposes. To address the auditing recommendation, CDIS now tracks completion of the pole replacement work through DOJM, AmerenUE's work management system.

The Circuit Inspection Program remains on cycle.

- Complete and distribute the automated pole loading calculation tool currently in development in the standards department. (4.4.1)

The Automated Pole Loading Calculation Tool is complete and has been distributed to users.

No changes

- Continue the evaluation of the enhanced vegetation management program and apply the same approach to pole inspection and distribution line equipment programs. (5.4.2)

AmerenUE continues to review both the vegetation management program and circuit inspection program on an annual basis. In addition, both programs are reviewed on a monthly basis for forecasted/ planned vs. actual work completed and adjustments are made accordingly.

The CDIS users group, consisting of field construction and engineering personnel as well as other subject matter experts, continues to meet on a regular basis to monitor the programs' effectiveness and to make recommendations as needed for program enhancements and/or clarifications.

No changes

- Continue with AmerenUE's plan to deploy additional weather recording sites and develop improved forecasting of potential damage capability. (8.4.1)

As of November 1, 2008, 40 weather stations have been installed. A total of 50 stations are planned to be installed and operational by the end of 2008. Up to an additional 50 stations are being considered for installation in 2009.

AmerenUE currently has 59 weather stations installed and operational. Quantum Weather was very valuable in the January Ice Storm in predicting storm path and timing. AmerenUE was proactive in mobilizing resources based on forecasts and predictions from Quantum Weather

- Continue with AmerenUE's practice for notifying, mobilizing, and managing foreign and mutual aid resources. (8.4.2)

AmerenUE continues to be involved in the Midwest Mutual Assistance Group and utilizes the resources of that group when the need arises. The acquisition, management and support of foreign and mutual aid resources continues to be a priority focus for AmerenUE.

AmerenUE utilized over 2000 outside contractors and mutual assistance resources. Most of those resources were procured and on site within 2 days of the onset of the storm.

- Expand the use of AmerenUE's leading practice of using Public Safety Advisors and Cut-and-Clear crews, permitting Field Checkers to focus on damage assessment while simultaneously ensuring the public is safeguarded from electric hazards. (9.4.2)

AmerenUE believes the use of these personnel is critical during storm restoration. When compared to 2005, the number of trained and fully equipped Public Safety Advisors has increased from 21 to 32.

Due to the widespread damage in this storm event, and the fact that almost all power was out in the 7 counties served by AmerenUE, there was little need for PSA's.

- Expand the number and use of Mobile Command Centers during Level III and IV events. (10.4.4)

The second Mobile Command Center is currently under construction and is scheduled for completion by the end of 2008.



Construction was complete on Mobile Command Center #2 and it was available for the January Ice Storm. Both units were deployed and were an integral part of the restoration effort.

- Continue nurturing the strong working relationship AmerenUE already has with the Missouri Department of Transportation, the State Emergency Operations Center and local emergency operations centers. (10.4.5)

AmerenUE continues to nurture these relationships. AmerenUE representatives attended an Earthquake Preparedness Conference held by State Emergency Management Agency (SEMA)/Federal Emergency Management Agency (FEMA). AmerenUE representatives maintained a presence in the St Louis County Emergency Operations Center (EOC) during the March, 2008 flood event and have participated in the SEMA conference calls during the June, 2008 flood event. The Company's Mobile Command Centers have been designed to provide communications with these agencies.

AmerenUE worked with MDOT extensively during the January Ice Storm to clear highways of downed power lines. AmerenUE had representatives stationed at the SEMA EOC for the duration of the restoration and participated in the daily conference calls.

- Continue with the practice of issuing information cards to foreign and mutual aid crews, as part of the overall orientation package, to streamline the interface with the Distribution Dispatch Office for clearance taking and ensure that the process is formalized in the Electric Emergency Restoration Plan (EERP). (10.4.6)

AmerenUE issues an orientation manual to all foreign crews during the orientation process. This manual contains safety information, detailed Workers Protection Assurance information, and contact information.

All incoming resources participated in an orientation before being assigned restoration work.

- Continue with the 24-hour coverage practice for vegetation restoration activities, where 20% of the tree crews work through the night on an as-needed basis. (10.4.8)

AmerenUE continues to provide appropriate shift coverage for personnel involved in vegetation management activities based upon the unique requirements of each restoration effort.

Vegetation crews were available when needed.

- Complete the review of the loss of customer call situations. (12.4.1)

AmerenUE has awarded a Stress Test contract to a vendor that will:

- 1) Determine the existing capabilities of its network provider and its virtual call center; and
- 2) Develop a series of realistic test scenarios.

The testing should be completed by the end of the 1<sup>st</sup> quarter 2009.

The Call Center Stress Test RFQ cannot test the network provider call gapping issues for the local AmerenUE numbers as we cannot test from all of the network provider's different St. Louis area central offices.

To eliminate the call gapping issue AmerenUE plans to move to an 800 number based system for outage calls.

AmerenUE is in the final design stage of an implementation plan for an all 800 number system. The full implementation plan will be complete by the end of 2008. It is expected to take 5 years to fully transition to the point where we no longer receive calls on the old system. The process will begin with a media campaign to make St Louis Area customers aware of the change along with changing the phone numbers on bills and other literature.

AmerenUE experienced no loss of customer call issues during the January Ice Storm. Call volume was manageable throughout the restoration.

**Category Two:** AmerenUE's current processes and structures are adequate for Levels I and II restoration efforts, but need to be modified to support the restoration efforts of Levels III and IV. The following 15 modifications will enable existing systems, processes and structures to better support more severe events.

- Make use of detailed pole loading analyses done for foreign attachment applications by cataloging the loading data by circuit, location or other identifier. The assembled information may then be used as a data sample in future studies of loading, pole condition, failure analysis, etc. (4.4.3)

AmerenUE will evaluate the usefulness of this recommendation and, if appropriate, use data for internal studies.

AmerenUE is still evaluating the usefulness of this recommendation. Ice loads during the January Ice Storm far exceeded NESC design criteria.



- Develop and maintain current knowledge of technological developments in pole and conductor materials and designs. (4.4.4)

Ameren's Standards Department is charged with keeping abreast of the industry's technological developments in pole and conductor materials and designs, and considers this part of its daily mission. This department has studied various composite materials associated with distribution facilities as well alternate design configurations. Among the more recent changes made in AmerenUE's construction standards has been the introduction of cambered poles, fiberglass crossarms for distribution voltages, and armless construction configurations for subtransmission voltages. As other opportunities present themselves that make economic sense to pursue, the standards group will give them due consideration.

No changes

- Redefine the existing storm level classifications to include at least one additional level. (7.4.1)

Storm Level IV has been added as part of a revision to the EERP that will be released on December 1, 2008.

No changes

- Integrate all subordinate emergency plans into the master EERP. (7.4.2)

All subordinate emergency plans have been integrated into the master EERP.

No changes

- Expand Section Six of the EERP to include the development of self-administered work islands during Level III and IV storms. (7.4.4)

Section 6 of the EERP has been expanded to adopt the use of self-administered work islands, including specific detail regarding initiation criteria, staffing requirements, and a systematic approach guideline.

During the January Ice Storm, the damaged region was divided into 7 separate "work islands." This method was extremely successful in managing the specific type of damage that occurred and the amount of resources required.

- Define the process and enhance the communications between AmerenUE's Emergency Operations Center (EOC), Resource Management and the Divisions

relating to resource volume and arrival times to assist the Divisions in improving efficient crew dispatching. (10.4.2)

Resources on Demand v3.2 is the primary communication tool for the EOC, Resource Management, and the Divisions relating to resource volume and arrival times. The EOC staff will include 2 people dedicated to managing resources and communicating resource status to the divisions.

Resources on Demand v3.4 was utilized along with other spreadsheets to effectively manage resource allocation and movement during the January Ice Storm.

- Refine the Certified Functional Agent program to secure more employee participation. (10.4.7)

The Certified Functional Agent Program has been refined as part of the revision to the EERP that will be released on December 1, 2008

The Functional Agents were not used during the January Ice Storm. Most sub-transmission and distribution circuits were covered by Out-of-Service WPA which allowed crews to work behind Hold Off Tags. The Distribution Control Office was able to manage partial feeder restorations as repairs were completed.

- Evaluate the AMI (Advanced Metering Infrastructure) system ability to support large scale restoration events. (11.4.3)

AmerenUE and Cellnet studied a number of software options given the limitations inherent in the existing one-way AMI technology, which is more than ten years old. Based upon this evaluation, AmerenUE and Cellnet have modified several system parameters to improve response times. AmerenUE and Cellnet have also monitored system conditions and identified several other areas for improvement opportunities. These improvements, for both Cellnet and AmerenUE, are in progress.

The following improvements have been completed relating to Cellnet outage reporting:

- Cellnet has replaced over 2000 batteries at their MCC (micro cell controller) and is replacing an additional 40 batteries per week (Cellnet is scheduled to finish battery replacement in late spring 2009). When the power goes out to a MCC, the battery is supposed to last upto 8 hours, but with some dead batteries, the communications to the MCC was down and it delayed AMR power outage reporting throughout the system.
- Cellnet has implemented a new process to monitor telephone communications loss to their Cellmasters to reduce telephone



communications downtime, and has been investigating why Cellmasters sometimes lose telephone communications when they have a power outage.

- Reduced the 12 minute (2 minute reclose and 2 five minute meter read intervals) power outage wait time to 7 minutes (2 minute reclose and 1 five minute meter read interval) for Dorsett district. Since false outages stay reduced, we are expanding to all other all MCCs on Cellmasters whose MCC's batteries have been replaced.
  - Installed a single outage verification process to check if customer's power is out before dispatching a truck.
  - Revised power outage and power restoration event message priority to properly process outage events prior to power restoration events (which eliminate false outage notifications)
  - Modified process of identifying bad TOMM meters to determine meter was bad and get it changed out.
  - Restoration verification changes are in progress to eliminate wasted communications to MCC if the MCC is down. This change will reduce delays on all other restoration verification requests. This should be installed around the end of the year.
- Due to the widespread nature of the outages during the January Ice Storm, Cellnet was not effective in managing outages

- Develop a process to deliver AmerenUE's restoration information and estimates directly to customers in a form under AmerenUE's control. (13.4.2)

AmerenUE is investigating the use of pre-planned information outlets, such as the purchase of radio time and newspaper ad space, so that it may deliver restoration information and statements directly to customers.

No changes

- Develop a critical facility list and define responsibilities and expected outcomes. (13.4.3)

A critical facility list has been developed for AmerenUE's operating territory. Maintenance and control of the critical facility list is the responsibility of the AmerenUE Distribution Operating Department. Dissemination of outage and restoration information regarding critical facilities during restoration events is a function of the AmerenUE EOC. An EOC staff member will be assigned the duty of monitoring the critical facility list and communicating outage information to the responsible division.

During the January Ice Storm, critical customers were part of the process when determining how circuits were prioritized.

- Develop and perform a realistic test for EMPRV, the system AmerenUE has for materials management. (14.4.1)

EMPRV's interfaces were replaced with faster interfaces. On March 28<sup>th</sup>, 2008, EMPRV moved to a faster computer platform and continues to refine the performance of the server and database. The system was tested at the end of July and performance met expectations. This system has been tested real time during recent storms.

EMPRV's performance during the January Ice Storm met expectations. This was an extreme test of the system.

- Develop an implementation plan for Resources on Demand (3.0) to support the logistics function and all contractors and mutual aid crews. (15.4.1)

Version 3.2 is installed and available for use during a restoration event.

Version 3.4 was utilized during the January Ice Storm. The system performed adequately.

- Develop a restoration communications process that uses the EOC informational dashboard and twice daily conference calls to obtain and provide timely and consistent information to all external communications stakeholders. (13.4.1)

The Company's restoration communications process now uses an informational dashboard, and the Company has developed multiple templates to help provide timely and consistent information. In addition, a task team has been formed to review the Estimated Restoration Time process.

Division ERT templates are available on the StormInfo SharePoint Site. An ERT Coordinator position is being added to the EOC staff to work with the divisions in developing ERT's and in turn communicating that information to the proper outlets.

ERT information was managed during a daily Operations Conference Call with Division Management and Field Superintendents assigned to "Work Islands." The Field Superintendents compiled ERT information from the field prior to the Call and that information was passed to the EOC for dissemination to external communications stakeholders and resource allocation purposes.

- Refine and formally adopt a Corporate Communications Strategy. (13.4.4)



AmerenUE has developed and implemented a Corporate Communications Strategy.

No changes

- Continue enhancing the outage determination business logic in the Outage Analysis System (OAS) to improve the estimation of Expected Restoration Times and resource requirements during Level III and Level IV restorations. (11.4.1)

A review has identified software enhancements that are required to the “grouping” logic in the outage management for Level III and Level IV restorations. IT has coded the corrections and tests are currently being run in preparation for installation by the end of 2008. Enhancements to the outage assessment process are being reviewed by the task team formed to review the Estimated Restoration Time process.

Due to the severity of the damage during the January Ice Storm and the fact that AmerenUE utilized the Disaster Recovery Method (work islands), OAS was not used for crew assignments or ERT information.

**Category Three:** The following 10 enhancements will help ensure that AmerenUE’s Transmission and Distribution (T&D) system is significantly robust to minimize future damage, and that future restoration efforts support the reasonable restoration of all AmerenUE customers in the shortest time possible.

- Develop, design, and implement an initial damage assessment methodology to be conducted during the first six hours of the event that provides the appropriate determination of the storm classification, estimated required restoration resources, and initial restoration time estimates appropriate for public communication. (9.4.1)

The EERP has been revised to require an initial damage assessment at the Division level. This process has been reviewed and discussed with the Divisions. Enhancements to this process will be integrated as part of the improvements in the Estimated Restoration Time process.

Divisions will review OAS to determine which feeders are damaged and assign field checkers to conduct initial, high level assessments of those feeders. Field checkers will drive out the feeders counting broken poles, wire downs, tree or limb on wire, etc. This information will be used to determine resource requirements and establish ERT’s.

Initial Damage assessments were limited due to ice continuing to fall for 2 ½ days and dangerous road conditions. Two helicopters were utilized on 1/29/09 to perform aerial surveys of the damage. This was very helpful in determining the extent of damage and location of the worst damage.

- Adopt a “Restoration Work Island” approach under Level III and IV emergency conditions. (10.4.3)

The EERP adopts the “Restoration Work Island” approach. Section 6 of the EERP has been expanded to provide additional guidance on this approach.

This approach was used in the January Ice Storm with great success. Although this particular storm “fit” this approach perfectly, best practice opportunities were identified that can be utilized in other storm events

- Use the 800 network in front of Customer Service System/IVRU (Integrated Voice Response Unit) to enhance call-taking capacity and information capabilities. (12.4.2)

AmerenUE agrees with this recommendation and plans to move outage calls to 800 number service. Budgets have been adjusted to include additional expenditures for AmerenUE switching to the use of 800 numbers only. The Company is evaluating further enhancements that can be implemented once the conversion to 800 number service is complete.

AmerenUE is in the final design stage of an implementation plan for an all 800 number system. The full implementation plan will be complete by the end of 2008. It is expected to take 5 years to fully transition to the point where we no longer receive calls on the old system. The process will begin with a media campaign to make St Louis Area customers aware of the change along with changing the phone numbers on bills and other literature.

The 800 network was not in place for the January Ice Storm. Call volume was manageable throughout the January restoration. The Call Center anticipated when heavier volume periods would occur and staffed appropriately to handle the increased volume.

- Modify the OAS data structure to capture outage root cause and affected components better, supporting post-storm infrastructure analysis or create a dedicated forensic database. (3.4.3)

AmerenUE accepts this recommendation and is continuing to work to improve the accuracy of field reporting. Modifications to Mobile Data Terminals, which will make it easier for field personnel to enter information into OAS, will have a positive affect on field reporting. Rollout of these modifications will include additional training for field personnel.

OAS was not utilized during the January Ice Storm for field checking.

- Institute a formal Forensic Analysis process to run concurrently with damage assessment. (7.4.3)

This procedure is being evaluated as part of the revision to the EERP which is scheduled for release December 1, 2008.

Still being evaluated

- Develop design standards and guidelines related to NESC construction grades (B or C) and to specific applications in the service territory. (4.4.2)

AmerenUE Distribution Construction Standards are in compliance with the 2007 edition of the National Electric Safety Code (NESC). The 2007 NESC requires the extreme loading condition to be applied to structures greater than 60 feet in height. As an enhancement, with the release of the automated pole loading program, AmerenUE designs now include the NESC extreme loading condition for structures 33 to 60 feet in height.

No Changes

- Develop a statistical analysis methodology to ensure that maintenance is optimal for different classes of line equipment. (5.4.1)

The circuit and device inspection program is currently in the implementation stage and enhancements to statistical analysis are planned.

No changes

- Enhance the internal informational dashboard displaying current and historical information during the progression of the storm that includes customer outage and restoration resource levels. (10.4.1)



AmerenUE has enhanced its manual informational dashboard that provides information as the storm restoration progresses. Further enhancements to the dashboard are being evaluated.

AmerenUE has initiated discussions with a vendor aimed at purchasing an informational dashboard that will interface with OAS to show current and historical information.

No changes

- Evaluate the benefits and risks of providing temporary repairs to customers' weather head equipment under emergency conditions. (10.4.9)

AmerenUE has determined that work on customer owned equipment is beyond the scope of a utility's responsibility.

No changes.

- Integrate the CellNet system into the restoration verification process during Level III and IV events to the extent of the current AMI technology's capabilities. (11.4.2)

AmerenUE continues to work with Cellnet to identify enhancements to the restoration verification functions. AmerenUE and Cellnet have made several changes to improve overall restoration verification functions by reducing some system limitations; we are performing additional testing of those changes, and we will be incorporating more automatic outage restoration verification processes throughout 2008 and 2009.

The following improvements have been completed relating to Cellnet outage reporting:

- Cellnet has replaced over 2000 batteries at their MCC (micro cell controller) and is replacing an additional 40 batteries per week (Cellnet is scheduled to finish battery replacement in late spring 2009). When the power goes out to a MCC, the battery is supposed to last upto 8 hours, but with some dead batteries, the communications to the MCC was down and it delayed AMR power outage reporting throughout the system.
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- Restoration verification changes are in progress to eliminate wasted communications to MCC if the MCC is down. This change will reduce delays on all other restoration verification requests. This should be installed around the end of the year.

No changes

Jeremiah W. (Jay) Nixon  
Governor

STATE OF MISSOURI

Paul D. Parmenter  
Director

## EMERGENCY MANAGEMENT AGENCY



DEPARTMENT OF PUBLIC SAFETY

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April 27, 2009

Hugh McDonald, President and CEO  
Entergy Electric  
P. O. Box 551  
Little Rock, AR 77203

Dear Mr. McDonald :

On behalf of the State Emergency Management Agency, I want to thank you, and your professional staff of Entergy Electric for their assistance to the people of southern Missouri during the January ice storm and the days that followed.

As you well know, the devastating storm left more than 130,000 utility customers without power, displaced thousands from their homes and closed hundreds of businesses. With more than 15,000 utility poles downed, some residents went without electricity for more than two weeks. Disasters can test the resolve of residents and the resources of government at all levels. But they also bring out the very best in people. Entergy Electric crews went above and beyond normal disaster duties for residents of Portageville in southern Missouri, where an electric line, heavy with ice, fell across the city's sewage plant causing operations to stop. Your staff isolated and removed the line so that treatment operations could resume at the sewage plant. The actions of your staff directly benefited hundreds of Portageville citizens.

Again, on behalf of SEMA and the State of Missouri, thank you for the Entergy Electric's outstanding assistance to the people of southern Missouri.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul D. Parmenter".

Paul D. Parmenter, Director  
State Emergency Management Agency

PDP/ss



A Nationally  
Accredited  
Agency

Attachment C