

Exhibit No.:
Issue(s): Extraordinary Nature of
2009 Ice Storm
Witness: David N. Wakeman
Sponsoring Party: Union Electric Company
Type of Exhibit: Surrebuttal Testimony
Case No.: EU-2012-0027
Date Testimony Prepared: April 12, 2012

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. EU-2012-0027

SURREBUTTAL TESTIMONY

OF

DAVID N. WAKEMAN

ON

BEHALF OF

**UNION ELECTRIC COMPANY
d/b/a Ameren Missouri**

**St. Louis, Missouri
April, 2012**

SURREBUTTAL TESTIMONY

OF

DAVID N. WAKEMAN

CASE NO. EU-2012-0027

Q. Please state your name and business address.

A. My name is David N. Wakeman. My business address is One Ameren Plaza,
1901 Chouteau Avenue, St. Louis, MO 63103.

Q. By whom and in what capacity are you employed?

A. I am employed by Union Electric Company d/b/a Ameren Missouri (“Ameren Missouri” or “Company”) as Vice President of Energy Delivery – Distribution Services. I have held this position since December of 2009.

Q. Please describe your employment history with Ameren Missouri.

A. In 1982, I was hired as a Mechanic's Helper in the Company's Motor Transportation Department. After receiving my bachelor's degree in Electrical Engineering in 1988, I became an Assistant Engineer in the Company's Substation Operating Department where I performed software development work related to engineering applications on the Company's Distribution SCADA system. In 1994, I transferred to the Service Test Department and performed Power Quality work and other activities. In 1999, I was promoted to Supervising Engineer of the Reliability Support Group. In 2003, I was promoted to Manager of Distribution Operating. And then, in December of 2009, I was promoted to Vice President Energy Delivery - Distribution Services.

1 **Q. Please describe your duties and responsibilities as Vice President of**
2 **Energy Delivery – Distribution Services.**

3 A. In my current position, I am responsible for gas and electric distribution
4 engineering, construction, operations and maintenance for Ameren Missouri. Eleven
5 managers report directly to me, including each of the Company’s eight Division Managers
6 and the Manager for Distribution Operating, as well as the Director of Labor Relations and
7 Administration. I am involved in negotiations with the various labor unions that represent
8 Ameren Missouri employees and I am responsible for the oversight of the Company’s efforts
9 to comply with the Missouri Public Service Commission’s (“Commission”) new vegetation
10 management, infrastructure inspection and reliability rules.

11 **Q. Please describe your educational background.**

12 A. I received a Bachelor of Science in Electrical Engineering from Washington
13 University of St. Louis in 1988.

14 **Q. What is the purpose of your surrebuttal testimony?**

15 A. The purpose of my surrebuttal testimony is to respond to the rebuttal
16 testimony filed by Lena M. Mantle on behalf of the Missouri Public Service Commission
17 Staff (“Staff”) which questioned (1) the characterization of the January 2009 Southeast
18 Missouri Ice Storm as extraordinary, (2) the devastation to Ameren Missouri’s (“Ameren
19 Missouri” or “Company”) sub-transmission and distribution system, and (3) the impact of
20 this ice storm on Noranda Aluminum, Inc. (“Noranda”).

21 **Q. Do you have any general response to the rebuttal testimony of**
22 **Ms. Mantle?**

1 A. Yes. I would like to clarify the date of the ice storm that Ms. Mantle assumed
2 to be “the January 28, 2009,” ice storm on page 2 in her rebuttal testimony. As Ameren
3 Missouri stated in its report to the Missouri Public Service Commission (“Commission”)
4 which was included in the Commission’s Final Report of Staff Investigation of the January
5 2009 Southeast Missouri Ice Storm (“2009 Final Report”), “a Canadian cold front pushed
6 into Missouri on Monday, January 26, 2009, bringing with it snow, sleet, and freezing rain.
7 These initial conditions were concentrated in Southeast Missouri, with sleet that also went
8 north to Central and Eastern Missouri. The winter storm continued with another round of
9 snow, sleet and freezing rain all day Tuesday and into Wednesday.” Therefore, the storm
10 occurred during a three-day period.

11 **Q. How do you respond to Ms. Mantle’s analysis of whether the 2009**
12 **Southeast Missouri Ice Storm was extraordinary?**

13 A. Ms. Mantle testified that extraordinary was “going beyond what is usual,
14 regular, or customary” as defined by Merriam-Webster.com. While this is interesting, it is
15 not the relevant definition for the purposes of this case. General Instruction No. 7 of the
16 Uniform System of Accounts (“USoA”) defines an “extraordinary event” as follows:

17 Those items related to the effects of *events and transactions which have*
18 *occurred during the current period and which are of unusual nature and*
19 *infrequent occurrence shall be considered extraordinary items.*
20 *Accordingly, they will be events and transactions of significant effect*
21 *which are abnormal and significantly different from the ordinary and*
22 *typical activities of the company, and which would not reasonably be*
23 *expected to recur in the foreseeable future.* (emphasis added)
24

25 **Q. Based on the USoA’s definition, would you characterize the January 2009**
26 **ice storm as extraordinary?**

1 A. Absolutely. Between January 26, 2009, and January 28, 2009, more than two
2 and one-half inches of ice covered most of the southeast portion of the state. As concluded
3 by the Commission Staff's 2009 Final Report, "this severe weather event presented
4 AmerenUE with challenges that it had not encountered previously. The intensity and
5 geographical concentration of the outages was more extensive than what the Company had
6 experienced in the past. The widespread damage of this outage and the extreme ice
7 accumulation brought unique conditions regarding an absolute unavailability of resources
8 within the area." Ms. Mantle established, on page 3 of her rebuttal testimony, "[t]he
9 magnitude of ice accumulation was definitely unusual." Consequently, based on Staff's own
10 assessment, the January 2009 ice storm meets the requirements of the definition of
11 "extraordinary" found in General Instruction No. 7 because the effect of the storm was of
12 "unusual nature" and "infrequent occurrence." Furthermore, the storm was "abnormal and
13 significantly different from the ordinary and typical activities of the [C]ompany." In
14 addition, I do not expect a storm of this type, size and severity to recur in the foreseeable
15 future.

16 **Q. Does Ms. Mantle's testimony provide any persuasive support for the**
17 **proposition that the storm did not qualify as "extraordinary?"**

18 A. No. Ms. Mantle stated that "as a measure of what a 'usual, regular, or
19 customary' storm would be, the Staff considered the number of customers affected, i.e.,
20 experienced an outage for the storms Ameren Missouri reported to the Staff since June
21 2002." Based solely on the number of customers who were affected by this storm compared
22 to the numbers of customers affected by other storms, Staff concluded that the January 2009
23 ice storm was not extraordinary. But I strongly disagree with Staff's conclusion. The

1 January 2009 ice storm was extraordinary because of the magnitude of damage to the
2 Company's system in the southeast portion of the state. It is essential to recognize that the
3 severity of damage to Ameren Missouri's system is of equal or greater importance than the
4 number of customers impacted by outages when classifying a storm as extraordinary.

5 The line loadings from the January 2009 ice storm were well beyond the design limits
6 of the sub-transmission system, which was designed to withstand severe conditions and thus
7 typically sustains less severe damage than the distribution system. As noted in the Staff's
8 2009 Final Report, "the majority of the 34.5 KV sub-transmission system sustained severe
9 damage" from the heavy ice accumulation. Ameren Missouri was required to rebuild much
10 of its sub-transmission system before the restoration of the distribution system could even
11 begin. Aerial patrols revealed 80 miles of sub-transmission circuits on the ground after this
12 storm, and to my knowledge, this is the most substantial damage Ameren Missouri's system
13 has ever experienced. The following pictures show some of the damage to the Company's
14 aerial facilities that I just mentioned.



1



2

1 **Q. The Staff’s 2009 Final Report concluded that “this weather event**
2 **presented AmerenUE with challenges that it had not encountered previously. The**
3 **intensity and geographical concentration of the outages was more extensive than what**
4 **the Company had experienced in the past.” How does the January 2009 ice storm**
5 **compare to other storms experienced by Ameren Missouri that the Commission has**
6 **characterized as extraordinary?**

7 A. The Company’s report to the Staff regarding the January 2009 ice storm
8 characterized the storm as follows:

9 The severe ice storm which began January 26, 2009,
10 resulted in *the most significant damage to the UE*
11 *distribution system in history*. In addition, the scope of the
12 power outages, extending from just south of Cape
13 Girardeau to Hayti on the South (90 miles) and from Dexter
14 to Charleston (35 miles west to east), presented *many*
15 *logistical challenges we had never faced in the past*.
16 (emphasis added).

17
18 Staff’s own 2009 Final Report appears to share Ameren Missouri’s assessment of
19 how extraordinary the January 2009 ice storm was compared to prior storms. That report
20 states:

21 Over two and one-half inches of ice covered most of the
22 southeast portion of the state. Heavy ice accumulation
23 loading on lines caused over 3,800 AmerenUE transmission
24 and distribution poles to break. (One measure of the
25 severity of the damage to an electric utility system is the
26 number of poles replaced per 1000 outages. For this ice
27 storm, over 100 poles per 1000 outages was experienced
28 from this ice storm. In contrast, the summer storm of 2006,
29 which affected approximately 645,000 Ameren UE
30 customers, had a 2 pole per 1000 outages average.

31
32 Staff’s report also noted that “[s]everal issues within this severe weather event presented

33 AmerenUE with challenges it had not encountered previously” and that “[t]he intensity and

1 geographical concentration of the outages was more extensive that what the Company had
2 experienced in the past.” These comments, by both Ameren Missouri and the Staff, clearly
3 show that the January 2009 ice storm was one of the most, if not *the* most, severe storm that
4 the Company has ever experienced. The following photographs of damage caused by the
5 January 2009 ice storm help illustrate my point.



6



1

2 **Q. Did the Commission direct Staff to prepare a special report on the**
3 **January 2009 Southeast Missouri ice storm?**

4 A. Yes, it did. On March 26, 2009, the Staff requested Ameren Missouri to
5 provide detailed information about its experiences during this particular storm to the Director
6 of Utility Operations, and the information the Company provided was included as part of
7 Staff's Final Report.

8 **Q. Does the Commission regularly ask for special reports on all storm-**
9 **related outages?**

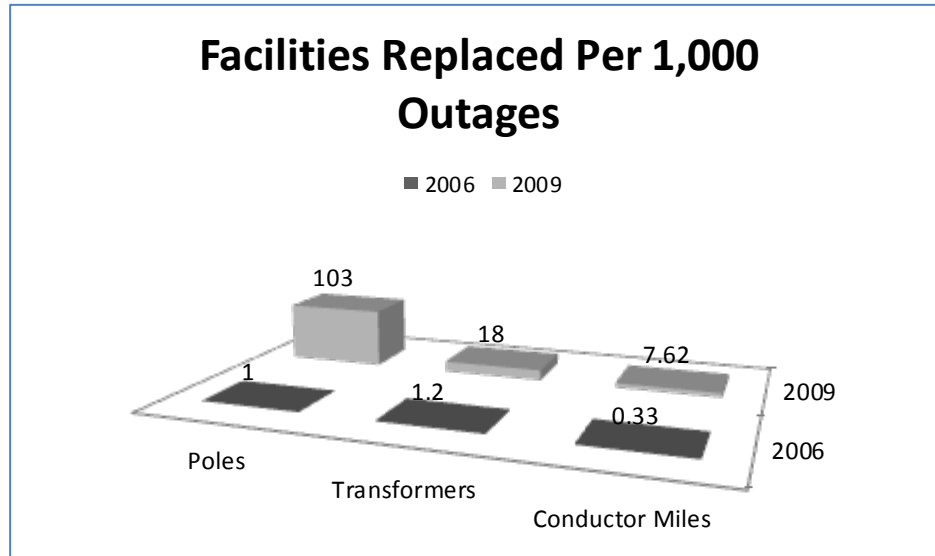
10 A. No. In fact, it has been my experience that the Commission has only asked
11 for a special report when it considered an event to be unusual or extraordinary. Historically,
12 the Commission has not requested its Staff to submit a report on an event deemed ordinary.

1 **Q. How does the damage from the January 2009 ice storm compare to the**
2 **damage documented in the 2006 Final Report which the Staff did classify as**
3 **extraordinary?**

4 A. From a standpoint of system damage, the January 2009 ice storm was much
5 more severe than the damage that occurred in the storms of July 2006. To illustrate this point
6 let me compare the damage between the July 2006 storms, which affected 646,200 customers
7 in the St. Louis Metropolitan Area and the January 2009 ice storm, which affected 36,500
8 customers in a rural area.

9 As I noted previously, Staff's 2009 Final Report pointed out that one measure of the
10 severity of damage to an electric utility system is the number of poles replaced per 1,000
11 outages. The July 2006 storms required replacement of 663 poles (1 pole per 1,000 outages)
12 compared to the 3,771 poles (103 poles per 1,000 outages) replaced in the January 2009 ice
13 storm. Additionally, approximately 6,970 cross arms were replaced in the 2009 storm as
14 well.

15 In the 2006 Final Report, the Staff also looked at the number of transformers and
16 conductor miles that were replaced per 1,000 customers experiencing an outage. The number
17 of transformers replaced during the July 2006 storms was 781 (approximately 1.2
18 transformers per 1,000 outages) compared to 659 transformers being replaced in the January
19 2009 ice storm (approximately 18 transformers per 1,000 outages). Wire and cable replaced
20 as a result of the July 2006 storms amounted to 1,130,000 feet (or 214 miles which is
21 one-third mile per 1,000 outages) while 1,469,499 feet (or 278.3 miles which is 7.62 miles
22 per 1,000 outages) required replacement following the January 2009 ice storms. The
23 following graph summarizes this comparison:

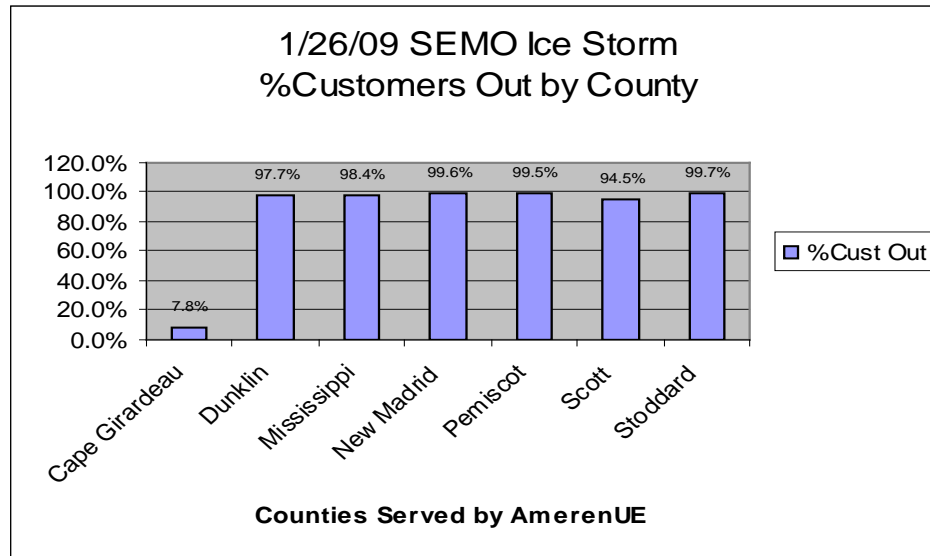


Q. Ms. Mantle referenced the shorter duration of Ameren Missouri’s restoration effort in comparison with the restoration effort of the rural electric cooperatives and the municipal utilities in the area. Was Ameren Missouri’s faster restoration time an indication that the damage to its system was less severe than the damage to the systems of the other utilities in the area?

A. No. Ameren Missouri’s restoration being completed well before that of the other utilities in the area is not an indication that the devastation to the Company’s system was less severe. Rather, it is, as the Staff concluded in its 2009 Final Report, that “AmerenUE applied the lessons learned from previous storm restoration efforts to the January 2009 ice storm as evidenced by the faster restoration times.” Ameren Missouri deployed resources, material, and aggressively executed their Electric Emergency Response Plan before the ice storm event to lessen the impact on its customers. In fact, Ameren Missouri had begun deploying resources and materials to the area the afternoon of January 26, 2009, based on the major ice storm prediction. Ameren Missouri also provided expertise and help to the other electric providers.

1 **Q. Is Ms. Mantle's inference accurate that the January 2009 ice storm was**
2 **not devastating to Ameren Missouri's total system?**

3 A. No. Ms. Mantle stated on page 3 of her rebuttal testimony "the magnitude of
4 ice accumulation was definitely unusual and devastating for the people and businesses in
5 Southeast Missouri who actually experienced it." That alone should be enough to classify
6 the event as extraordinary. The effect a storm has on our system and the effect it has on our
7 customers and communities determines the classification of the event much more than just
8 the number of customers impacted. The fact that a storm such as the January 2009 ice storm
9 affected a smaller number of customers is strictly a function of the density of the population
10 of the area affected by the storm. Under such circumstances, the number of customers
11 affected is not an accurate indicator of either the severity of the storm or its impact on the
12 Company. Ameren Missouri, as well as other utilities in the area, experienced the same
13 devastation. As I described earlier, the devastation to Ameren Missouri's system was
14 significant. In total, Ameren Missouri serves seven counties in the area impacted by this ice
15 storm. As shown in the following chart, nearly all of Ameren Missouri customers in six of
16 the seven impacted counties experienced an outage:



1

2 **Q. How does the January 2009 ice storm compare to storms experienced by**
3 **other utilities that the Commission has classified as extraordinary?**

4 A. The January 2009 ice storm was much more severe than storms experienced
5 by other Missouri utilities that the Commission has concluded were extraordinary. For
6 example, in Case No. EU-2008-0233, the Commission concluded that the December 2007 ice
7 storm that hit Aquila's Light and Power ("Aquila L&P") service area was an extraordinary
8 event.

9 **Q. Was the number of customers affected by outages relevant to the**
10 **Commission classifying Aquila's December 2007 ice storm as extraordinary?**

11 A. On page 3 of the Memorandum it filed in that case, Staff stated that "the type
12 of ice storm that hit Aquila's L&P service area was an extraordinary event." On page 4 of
13 that same Memorandum Staff stated that "Staff believes that the storm-restoration expenses
14 incurred by Aquila's L&P division are extraordinary and meet the materiality standard under
15 the USOA definition." But the number of customers was not even mentioned in the Staff
16 Memorandum. Thus it is clear that in that case Staff based its determination of whether an

1 ice storm was an extraordinary event not on the number of customers who experienced a
2 service outage but rather on the magnitude of the utility's storm restoration costs.

3 **Q. How does the magnitude of the restoration costs in that the Aquila L&P**
4 **case compare to the magnitude of the restoration costs following the January 2009 ice**
5 **storm?**

6 A. As stated in Staff's Memorandum in the Aquila L&P case, "Aquila estimates
7 that total costs, including capital costs will likely exceed \$13.5 million. Of the amount it
8 expects to defer as incremental operation and maintenance expense, an estimated \$10 million
9 for its L&P division and \$400,000 for its MPS division. As of January 24, 2007, Aquila has
10 incurred \$6.8 million for its L&P division and \$366,680 for its MPS division." In
11 comparison, Ameren Missouri's total restoration cost following the January 2009 ice storm
12 was \$82 million, which includes \$71 million in capital costs. Lost revenue from Noranda is
13 not included in this cost.

14 As described in both the direct and surrebuttal testimonies of Ameren Missouri's
15 witness Lynn Barnes, the January 2009 ice storm resulted in an outage to the Company's
16 largest customer, Noranda, which was out of service for approximately 14 months. As a
17 result of that outage, Ameren Missouri was unable to collect approximately \$36 million in
18 revenue and all of the fixed costs that had been assigned to Noranda's rate class during the
19 period Noranda was out of service. Obviously, the January 2009 ice storm had a much
20 greater financial impact on Ameren Missouri than the December 2007 storm had on Aquila
21 L&P.

1 **Q. How does the January 2009 ice storm compare to storms that the**
2 **Commission characterized as extraordinary in two recent cases, Case Nos.**
3 **EU-2011-0387 and GU-2011-0392?**

4 A. Both Case No. EU-2011-0387 and Case No. GU-2011-0392 related to damage
5 caused by the May 2011 tornado that struck Joplin, Missouri, and the surrounding area. In
6 Case No. EU-2011-0387, the Commission determined that the May 2011 storm was an
7 extraordinary event because The Empire District Electric Company (“Empire”) incurred
8 O&M-related restoration and repair costs of approximately \$1.85 million and capital-related
9 restoration costs of approximately \$1.95 million. In Case No. GU-2011-0392, the
10 Commission determined the same storm was an extraordinary event because the Missouri
11 Gas Energy Division of Southern Union Company incurred O&M-related restoration and
12 repair costs of approximately \$1.042 million and capital-related costs of \$497,000. Those
13 amounts in each case are significantly less than the costs Ameren Missouri incurred as a
14 result of the January 2009 ice storm.

15 **Q. On January 27, 2009, the ice storm downed the electric transmission lines**
16 **of Associated Electric Cooperative, Inc. (“AECI”) which delivers Ameren Missouri’s**
17 **power to Noranda’s New Madrid aluminum smelter. What effect did the loss of supply**
18 **facilities have on Noranda?**

19 A. Noranda’s January 29, 2009, press release reported “the outage affect[ed]
20 approximately 75% of New Madrid’s plant capacity.”

21 Noranda Aluminum Holding Corporation Announces Outage. Franklin,
22 Tennessee – January 29, 2009 – As a result of the major winter storm in
23 Southeastern Missouri on January 28, 2009, Noranda’s New Madrid,
24 Missouri, smelter facility experienced a power outage. The interruption
25 was managed safely with no on-site incidents recorded. The outage
26 affects approximately 75% of New Madrid’s plant capacity. Based on

preliminary information and management's initial assessment, restoring full capacity may take up to 12 months, with partial capacity phased in during the 12 month period. At this time, the cost of the outage is unknown. Over the next several weeks, we will be assessing the impact on our operations. We will be contacting customers as further information becomes available.

[\[http://investor.norandaaluminum.com/phoenix.zhtml?c=220051&p=irl-newsArticle\]](http://investor.norandaaluminum.com/phoenix.zhtml?c=220051&p=irl-newsArticle)

Q. Do you have an understanding of how the 75 percent reduction in production capacity was ascertained?

A. Yes. Noranda's smelter consists of three potlines. Each potline is made up of 176 reduction pots. Two potlines were completely shut down when the plant lost its power supply; the other potline lost 46 reduction pots. Therefore, 398 of the 528 reduction pots were inoperable, resulting in a 75% capacity reduction.

Q. Did Noranda's reduction in capacity significantly impact its electric usage?

A. Yes. Because Noranda's load factor is nearly 99 percent, it resulted in a significant reduction in its usage. This is because smelting is an energy-intensive process. The electric current passes through the bath in the pot at low voltage, but it has very high amperage. In fact, Ms. Mantle acknowledged on page 7 of her rebuttal testimony that Noranda's "usage did drop 95%, resulting in the damage at the plant described by Ms. Barnes on page 3 of her direct testimony." Prior to the ice storm, Noranda consistently had a demand of approximately 470 megawatts.

Q. Was the damage to Noranda's plant significant?

A. Yes. The metal in the reduction pots froze when the power supply was lost. This required many of the pots to be removed by jackhammering so they could be replaced. As the International Aluminum Institute (AIA) explains "the smelting process is continuous.

1 A smelter cannot easily be stopped and restarted. If production is interrupted by a power
2 supply failure of more than four hours, the metal in the pots will solidify, often requiring an
3 expensive building process.”

4 [\[http://www.world-aluminium.org/About+Aluminium/Production/Smelting\]](http://www.world-aluminium.org/About+Aluminium/Production/Smelting).

5 **Q. When did Noranda’s production recover or return to pre-outage**
6 **capacity?**

7 A. Noranda’s electrical demand returned to pre-ice storm levels in April 2010. It
8 took Noranda 14 months to make repairs and for the plant’s production to reach pre-ice storm
9 capacity. Noranda’s initial plan was to try to restore three reduction pots per day. While
10 some pots took minimal effort to recover, others had to be totally rebuilt. Following is an
11 account of the recovery progression as documented in the quarterly results press releases for
12 Noranda Aluminum Holding Corporation as found at <http://investor.norandaaluminum.com>:

13 On May 6, 2009, Noranda Aluminum Holding Corporation announced in its First
14 Quarter 2009 Results press release: “Noranda’s smelter is currently operating above 50
15 percent of capacity. Although the Company has the capability to restart all lines by year-end,
16 management continues to assess damage to the potlines and is managing the restart timeline
17 to optimize the effective return to capacity.”

18 Second quarter results, announced on August 4, 2009, indicated “the smelter operated
19 above 55 percent capacity throughout the second quarter.”

20 Third quarter 2009 results, announced on November 6, 2009, reported “[i]n
21 September 2009, the Company announced it had initiated activities to restart remaining
22 potlines at New Madrid and expected to return to full capacity for first quarter 2010. The
23 New Madrid smelter was operating above 65% capacity by the end of third quarter.”

1 Fourth quarter 2009 results reported “[o]ver 80% of the New Madrid smelter pots
2 were operating at the end of December 2009.”

3 First quarter 2010 results reported “New Madrid smelter returned to producing at full
4 capacity at the end of March 2010.”

5 **Q. Would you characterize the damage caused by the January 2009 ice**
6 **storm to Noranda’s New Madrid smelter and the resulting operational impact as**
7 **extraordinary?**

8 A. Yes. The significant effect of the ice storm event on Noranda’s plant and the
9 operational impact thereto was certainly unusual and extraordinary. As Ms. Mantle indicated
10 on page 5 of her rebuttal testimony, the storm was extraordinary from the perspective of the
11 impact that Noranda’s significant reduction in electricity usage had on Ameren Missouri.

12 **Q. Please summarize your testimony.**

13 A. The January 2009 ice storm that the Company experienced was
14 unquestionably an extraordinary weather event which had an extraordinary impact on
15 Ameren Missouri’s system and its customers. The impact of the ice storm on Noranda was
16 uniquely extraordinary, in that it prevented the plant from operating at full capacity for
17 14 months, and significantly reduced the plant’s power consumption during that period.

18 **Q. Does this conclude your surrebuttal testimony?**

19 A. Yes it does.

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of Union)
Electric Company d/b/a Ameren Missouri)
for the Issuance of an Accounting)
Authority Order Relating to its Electrical)
Operations.)

Case No. EU-2012-0027

AFFIDAVIT OF DAVID N. WAKEMAN

STATE OF MISSOURI)
) ss
CITY OF ST. LOUIS)

David N. Wakeman, being first duly sworn on his oath, states:

1. My name is David N. Wakeman. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a Ameren Missouri as Vice President Energy Delivery – Distribution Services.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Ameren Missouri consisting of 18 pages which has been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.



David N. Wakeman

Subscribed and sworn to before me this 12th day of April, 2012.



Notary Public

My commission expires:

