**BEFORE THE STATE CORPORATION COMMISSION**

**OF THE STATE OF KANSAS**

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**DIRECT TESTIMONY**

**OF**

**MARTIN JONES**

**WESTAR ENERGY**

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**DOCKET NO. _____**

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## I. INTRODUCTION

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. Martin Jones, 818 S. Kansas Avenue, Topeka, Kansas.

**Q. BY WHOM AND IN WHAT CAPACITY ARE YOU EMPLOYED?**

A. Westar Energy, Inc. (Westar). I am Executive Director, Distribution Operations.

**Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.**

A. I received a Bachelor of Science degree with a major in Electrical Engineering from Kansas State University in 1981. I have worked for Westar Energy for 35 years. During this time, I have worked in and led our distribution and substation engineering groups, been responsible for major substation and transmission construction, led our property accounting group and held a wide variety of field

distribution operations positions. My present position is Executive Director of Distribution Operations, which includes responsibility for all distribution plant and operations.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A. I will update the Commission on the status and success of the grid resiliency improvement projects we have completed as a result of the Stipulation and Agreement (S&A) approved in Docket 15-WSEE-115-RTS (115 Docket). As of March 1, 2017, the deadline for the projects set in the 115 Docket, we will have successfully completed all of the grid resiliency investment contemplated by the S&A in the 115 Docket, and we believe that customers are already beginning to see positive impacts from these projects. We hope to get the opportunity to work with Staff and other parties in the future on a method to embark on a full programmatic grid resiliency effort similar to the EDGR program we proposed in the 115 Docket. We believe Staff has seen the potential for such a program through this limited pilot.

## II. BACKGROUND

**Q. WHAT DID WESTAR PROPOSE CONCERNING GRID RESILIENCY IN THE 115 DOCKET?**

A. We proposed to implement a grid resiliency program to address issues related to aging infrastructure, to improve the reliability of our service to customers, and shorten recovery times when outages inevitably occur (the “Electric Distribution Grid Resiliency” or “EDGR”

program). We also asked the Commission to approve a mechanism that would have ensured timely and accurate recognition in our rates to cover costs associated with EDGR-related capital investments.

**Q. WHY DID WESTAR PROPOSE THE EDGR PROGRAM?**

A. A safe, reliable electric system is expected by our customers, even more so today than in past decades. Our society and economy rely on it. As the electric distribution system ages, modern upgrades and improved resiliency need to be built into the system to meet those expectations.

In the 115 Docket, we explained that the EDGR program would be the next logical step in improving system reliability, following Westar's implementation of the ReliabiliTree® program, which the Commission had the foresight to authorize in 2011. Westar witness Bruce Akin explained this in his direct testimony in the 115 Docket:

> As stated by my predecessor, Caroline Williams, in Docket No. 08-WSEE-1041-RTS
>
> > Once we are on a more robust vegetation management program, the "true" infrastructure issues will be more identifiable and repairable. With this information we can plan a systematic strategy to address the remaining reliability challenges.
>
> Direct Testimony of Caroline Williams, Docket No. 08-WSEE-1041-RTS, at 20.
>
> Because of the Commission's foresight in approving ReliabiliTree® in 2011 and the strong results of the program, we are now ready to take that next step –

> implementing a system hardening[1] and grid resiliency[2] program to further enhance the reliability and resiliency of our distribution system.
>
> Akin Direct Testimony, at ¶ 11-12, 115 Docket.

In the 115 Docket, Westar witness Jeff Cummings explained that absent the next step of implementing a systematic grid resiliency program, customers will – over time – begin to see reductions in reliability and economic losses, primarily due to a degrading infrastructure. *See* 115 Docket, Cummings Direct, Exhibit JC-1, at page 4.

Never before have our customers and our economy been so dependent on reliable electricity. Reliable electric service is increasingly central to the quality of our customers' lives – their safety, convenience, productivity and comfort – and the smooth functioning of our state's economy. Despite the growing dependence on reliable electric service of our society, we continue to deliver power in much the same way as we have for decades. The use of modern technology to monitor systems and provide near real

[1] System hardening is defined as making physical changes to the utility's infrastructure to make it less susceptible to storm damage, such as high winds, lightning, or flying debris. Hardening "improves the durability and stability of infrastructure to withstand the impacts of severe weather events with minimal damage." Edison Electric Institute, "*Before and After the Storm*," January 2013.

[2] Grid resiliency refers to the utility's ability to recover quickly from damage, when it does inevitably occur. Resiliency "measures do not prevent damage; rather they enable facilities to continue operating despite damage and/or promote a rapid return to normal operations." Edison Electric Institute, "*Before and After the Storm*," January 2013.

time operational controls will greatly improve reliability to the levels required by today's heavy reliance on electricity.

As we have previously stated to the Commission, like virtually all other electric utilities across the country, we have an aging system. Nearly 80% of our substation distribution transformers and nearly 60% of our distribution poles are 30 years old or older. We have extracted greater value from this equipment than we could ever have imagined, but that does not mean it does not eventually require replacement.

**Q. SPECIFICALLY, WHAT DID WESTAR PROPOSE IN THE 115 DOCKET?**

A. We proposed a long-term, systematic program involving the installation of new equipment and technologies and system maintenance. EDGR was designed to make our distribution system more resistant to outside forces, allow us to respond to outages more quickly, have shorter restoration times, and to diagnose and fix developing problems before they cause outages. Our proposal included 41 initiatives addressing all aspects of our distribution infrastructure, including such mundane elements as a comprehensive pole inspection, followed by pole treatment and replacement/reinforcement as well as more technical solutions involving such things as installing communicating equipment to enhance supervisory control and data acquisition (SCADA)

capabilities. We hired the UMS Group to prepare a study that outlined the specifics of the proposed grid resiliency program. That study was sponsored in the Direct Testimony of Jeff Cummings in the 115 Docket. A complete list of the program elements as initially proposed by Westar is contained in the UMS report at pages 11-16.

Although the EDGR program developed by UMS was a 15-year project, in the 115 Docket, we proposed to focus on the first five years of the plan. We planned to evaluate the results and make necessary improvements based on what we learned along the way after the initial five-year period, before asking the Commission to approve the remainder of the program.

**Q. WAS THE EDGR PROGRAM ULTIMATELY APPROVED BY THE COMMISSION IN THE 115 DOCKET?**

A. No. Through the settlement process, after learning that the other parties involved in the case were not supportive of implementing the EDGR program, Westar and the parties agreed to a much more limited investment level than what had been initially proposed –a scaled down, pilot version of the proposal. With respect to grid resiliency, the S&A filed in the 115 Docket provided:

> The Parties agree that Westar will be permitted to recover up to $50 million of capital investment in grid resiliency improvements completed between October 28, 2015, and March 1, 2017, consistent with those improvements proposed as part of the EDGR program discussed in the Direct Testimony of Bruce Akin and the report sponsored in testimony by Mr. Cummings. Such plant in service less the associated accumulated

> depreciation and deferred income taxes will be reflected in rates as a result of the abbreviated rate case discussed below in paragraphs 35-36. Westar will work with Staff to develop a process for periodic reporting regarding the investments being made and periodic update meetings to discuss those investments.

S&A, at ¶ 20, 115 Docket.

## III. WESTAR'S GRID RESILIENCY PILOT

**Q. HOW DID WESTAR REACT TO THE COMMISSION'S APPROVAL OF A "PILOT" VERSION OF ITS EDGR PROGRAM?**

A. We worked to get the best value for our customers from the $50 million of capital investment we were authorized to spend and to efficiently track the status and allocation of dollars to each of the project categories we chose to move forward with.

**Q. HOW DID WESTAR DETERMINE WHICH PROJECTS TO FOCUS ON WITH THE $50 MILLION AUTHORIZED IN THE 115 DOCKET?**

A. We selected the grid resiliency related items from our initial EDGR proposal that would be of the highest benefit and could be realistically designed and built in a 16-month time frame. We selected key focus areas for improvements which touch on many of the 41 actions identified in our original EDGR proposal. We used an in-house developed, web-enabled project database to initiate, prioritize, and track the grid resiliency projects as well as a cost reporting dashboard for tracking actual spending by initiative.

**Q. WHAT WERE THE KEY FOCUS AREAS THAT WESTAR SELECTED AND HOW WAS THE $50 MILLION ALLOCATED AMONG THOSE AREAS?**

A. Table 1 below identifies our key focus areas and the expected allocation of dollars among the areas as of October 15, 2016. Per the Commission approved S&A in the 115 Docket, Westar can incur costs related to these grid resiliency projects through March 1, 2017, and include those costs in rates through this abbreviated rate case. We expect the entire $50 million to be spent by that date, as such we have included a projected amount of $50 million in our filing. Data reflecting our actual expenditures through March 1, 2017, will be available to Staff and other parties prior to their direct testimony deadline in the docket. Westar witness Rebecca Fowler addresses the accounting issues related to the projected amount in her Direct Testimony.

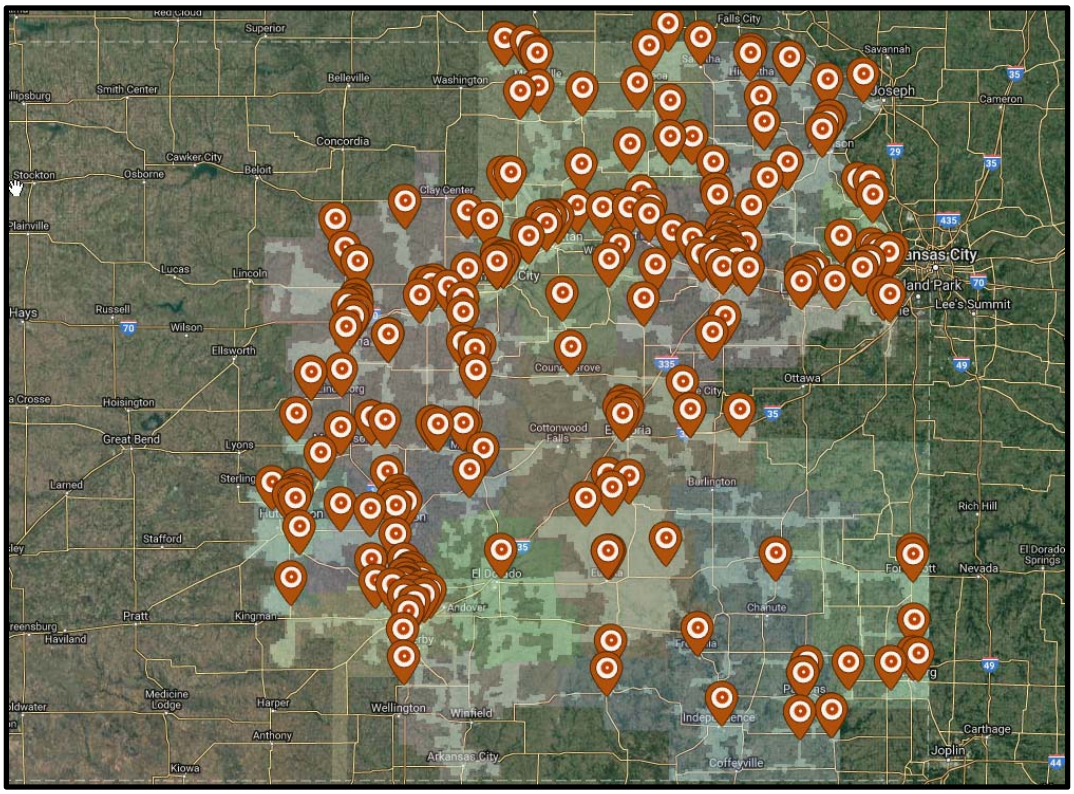
Table 1

| Focus Area | Updated Capital Expenditure as of 10/15/16 |
|---|---|
| **Overhead Line Projects** | |
| Pole Replacements | $8.0 million |
| Comprehensive Circuit Rebuilds | $6.2million |
| Circuit Ties and Overhead Line Rebuilds | $9.3 million |
| **Substation Improvements** | |
| 34.5/12.47 kV Substation Rebuilds | $4.0 million |
| Substation Recloser/Breaker Replacements | $5.3 million |
| Underground Direct-Buried Getaway Replacements | $7.1 million |
| Spare Substation Transformers | $1.6 million |
| Communicating Fault Indicators | $1.6 million |
| Substation Wildlife Protection | $0.2 million |
| **Total** | **$43.3 million** |

**Q. IN WHICH AREAS ACROSS WESTAR'S TERRITORY WERE PROJECTS COMPLETED?**

A. The map in Figure 1 below identifies the locations where grid resiliency projects have been completed.

Figure 1-EDGR Project Map (Pins Indicate EDGR Project Locations)




**Q. HOW DID WESTAR MANAGE THE GRID RESILIENCY PILOT?**

A. We formed an EDGR steering committee to provide overall project direction and oversight. The committee included representatives from key areas, including distribution operations management, design, engineering, construction, planning and scheduling, regulatory, and budget and forecasting. The steering committee in turn assigned in-house project managers to each of the key initiatives to provide direction and oversight throughout the duration of the project. The project managers provided the steering committee with routine updates on work progress and spending.

Work was managed through the use of Westar's in-house line crews as workloads allowed, with supplemental outside contract crew resources utilized as necessary to meet the work demand. We also developed a project tracking/prioritization database that we used for project selection and to track project status and developed a dashboard to monitor actual spending levels compared to the funding targets for each initiative.

**Q. HAS WESTAR BEEN KEEPING THE COMMISSION, STAFF, AND CURB UP TO DATE ON THE STATUS OF THE GRID RESILIENCY PROJECTS?**

A. Yes. We have been holding quarterly update meetings with Staff, where we provide them information regarding the status of the projects and the allocation of dollars among the key focus areas. We also hosted Commissioners, KCC Staff, CURB, and local media on tours of the Quinton Heights comprehensive circuit rebuild, both before construction commenced and during the construction period. In conjunction with these tours, we held educational sessions with KCC Staff to help those involved gain a better understanding of the inner-workings of the electrical distribution system. The local media attending the tours played an important role in educating the community about the work to improve reliability and infrastructure resiliency. Two of the news articles that were written describing the project are attached hereto as Exhibit MJ-1.

**Q. HOW HAVE CUSTOMERS RESPONDED TO THE GRID RESILIENCY WORK COMPLETED UNDER THIS PILOT PROGRAM?**

A. We have had very positive customer reactions overall, most being supportive and appreciative of our efforts in their areas. Many of the improvements were made with little to no impact on our customers and consequently, many customers are probably unaware improvements were on-going. However, those same customers will see improvements in their service reliability in future years due to improvements that were made as a part of the grid resiliency pilot initiatives.

**Q. HAVE YOU STARTED SEEING BENEFITS FROM THE PROJECTS THAT HAVE BEEN COMPLETED?**

A. Yes, already we have had several positive comments from our field personnel who indicated that they have seen notable reductions in equipment failures and emergent work. Since construction work is still on-going and only a few months have passed since improvements were made on select parts of our system, it is difficult to quantify the benefits at this time. We are confident that future tracking and trending of key performance indicators will reflect the realized benefits in the coming years.

**Q. ONE OF YOUR KEY FOCUS AREAS WAS A COMPREHENSIVE CIRCUIT REBUILD. CAN YOU PROVIDE SOME ADDITIONAL DETAIL ON THIS COMPONENT OF THE PROGRAM?**

A. We completed a comprehensive circuit rebuild in the Quinton Heights neighborhood in Topeka, Kansas. We selected this neighborhood for the circuit rebuild because the circuit had demonstrated a history of poor reliability (among the worst in all of Westar service territories), was difficult to identify problem sources/faults when they occurred, and had long outage durations due to limited access to the lines. A large part of the circuit was constructed through backyards making access difficult. The circuit selection was validated through conversations with linemen in the area who also confirmed it as a top candidate for major equipment replacement to better serve customers in the area.

The rebuild included a near total replacement of all poles, transformers, conductors, and associated hardware. It also included the addition of new communicating equipment, including line reclosers and fault indicators, to provide increased sectionalizing capabilities as well as increased situational awareness and control for the Westar Distribution System Operators. These devices allow us to minimize the impact to customers when faults do occur, sectionalizing off fewer customers to isolate the faulted section while allowing restoration to the other customers on the unaffected

portions of the line. Additionally, communicating equipment will provide the Distribution System Operators with the ability to remotely perform isolation as well as identify problem areas remotely to aid in locating problems in a timelier manner. These improvements will result in better reliability and resiliency for customers. These new, more efficient equipment upgrades in the area and the replacement of street lighting with LED technology will also result in efficiency gains and lower system electrical load losses, delivering power in a more efficient and cost effective manner.

**Q. HOW DID YOU COMMUNICATE WITH AFFECTED CUSTOMERS ABOUT THE QUINTON HEIGHTS PROJECT?**

A. We were very proactive with our communications with customers in the area and took steps to ensure that they were informed of the work being done and why. On February 11, 2016, we held an open house for customers in the neighborhood. We had very good attendance at the open house, with about 40 customers attending to gain a better understanding of the project. In an effort to communicate with customers, a combination of letters, door hangers, phone calls, and face-to-face conversations were utilized at the properties where work was done, providing information about the project and a contact number for questions and concerns.

**Q. HOW WILL THE QUINTON HEIGHTS PROJECT BENEFIT CUSTOMERS?**

A. The Quinton Heights comprehensive circuit rebuild will positively impact about 1,200 customers by providing them with more reliable and resilient service due to a reduction in outages, faster response times to events, and shorter outage events. Customer response to this project has been very positive.

This component of the EDGR pilot is an example of the benefits that can result from proactive maintenance and strategic replacements of aging infrastructure which result in positive impacts for Westar customers. The pilot also demonstrated that although extensive work was performed in a highly populated area in customer yards, the work can be conducted in a minimally disruptive manner while maintaining good customer relations and will ultimately result in a reduction in unplanned maintenance with improved service for Westar's customers.

## IV. CONCLUSION

**Q. DO YOU HAVE ANY CONCLUDING REMARKS FOR THE COMMISSION?**

A. Westar's grid resiliency pilot has been well-executed and successful, providing benefits to customers across our territory. Westar continues to believe that a larger-scale, longer term grid resiliency program similar to what we proposed in the 115 would be beneficial to meet customers' expectations with respect to the reliability and resiliency of the electric system.

**Q. THANK YOU.**

Exhibit MJ-1



# Quinton Heights area sees significant upgrades to aging electrical infrastructure

## Westar spending $8 million to replace poles, transformers, lower outage rates

Posted: April 24, 2015 - 2:45pm

By Morgan Chilson
morgan.chilson@cjonline.com

Westar Energy is investing $50 million to upgrade aging infrastructure over the next year, and about 1,200 services in the Quinton Heights area are already seeing significant changes.

Literally seeing the changes, in fact. One of the most popular things being done in the area, as indicated by customer comments they have received on-site, is switching out the old mercury vapor street lights for newer LED styles, said Martin Jones, executive director of distribution operations.

"The customers have loved this," Jones said. "We're about 25 percent done out here, and the biggest comment we've had is, 'What have you done? The lights are fantastic.' "

The work being done stands out even to the untrained eye along the tree-lined streets and behind the houses throughout Quinton Heights and into the Knollwood area. Leaning, clearly older telephone poles are being replaced with new poles sporting upgraded equipment.

Updating and replacing infrastructure throughout its system, which includes everything from installing new transformers to planting new utility poles in the ground, began Feb. 15 in the Quinton Heights district. This week, Jones and Westar representatives showed Kansas Corporation Commission staff and Commissioner Pat Apple the progress made since the company began an Electric Distribution Grid Resiliency program funded in its 2015 rate plan.

In 2015, Westar proposed creating the EDGR program that would spend $886.8 million over 15 years to make capital investments to refurbish or replace aging infrastructure and legacy assets, company testimony in KCC hearings said. The company asked for $216.7 million over five years to fund the program; it received $50 million to utilize over 14 months.

"Everyone agreed that we would file in October 2016 to adjust prices based on completing the environmental projects including LaCygne and upgrades to Wolf Creek and on proactive investment in power grid improvements up to $50 million," said Westar spokeswoman Gina Penzig. "The proactive investments are a pilot program to examine the cost-benefit of the grid resiliency program that we proposed in the 2015 review."

Penzig and Jones both compared the EDGR program to Westar's ReliabiliTree program, which was a proactive approach to trimming trees and doing other maintenance in an effort to reduce outages related to trees.

Westar customers will start to see the costs of this phase of EDGR in bills in June 2017, Penzig said, and will cost most households 60 cents or less per month.

A tour of the Quinton Heights Substation at S.W. 21st St. and Buchanan showed a diverse mix of electrical components spanning many years. Jones said the purpose of this initial phase of EDGR would be to determine the most efficient way to do the work and what the benefits of doing it will be.

"What is the best way to figure out programmatically ways to go in and replace aging infrastructure as opposed to waiting for end of life and failure kind of things," Jones said of what the company wants to learn during this 14-month venture. The Quinton Heights area was selected because Westar officials wanted to tackle an area that was aging and experiencing outages as a result. Before the ReliabiliTree program, most outages were caused by downed trees, he said. After a focused effort to clean up the landscaping, the number one problem became equipment failure.

Nine objectives were outlined for EDGR projects, including replacing power poles, which is something the company has been tackling in its system for the last four or five years, Jones said. Overall, they plan to inspect about 31,000 poles, with the goal of replacing 2,500 to 3,000 poles. Westar has 750,000 to 800,000 poles in its system.

About 1,200 households in the Quinton Heights project, which comes with an $8 million pricetag, have been contacted about this EDGR process and how it will affect them. The area is treed and difficult to access in many places, Jones said, requiring Westar employees to go through backyards and be creative in their approach to the work. That is also why it is challenging during an outage — several times Jones mentioned how difficult it was to access lines along the creek bed in the rain and dark.

Jones said Westar is excited about some of the new technology to be put in place, including communicating fault indicators that utilize cell communications to send out information about trouble on the lines. About 1,500 of those will be put in place system-wide.

Many of the changes will make Westar operations more efficient. For instance, the new transformers have an efficiency factor in the high 90s, while the ones they are replacing, typically installed in the late 1950s, have 80 percent efficiency factors, Jones said.

Other changes include switching out the wooden T-bar at the top of utility poles with one made of Fiberglas, which is lighter for employees to handle and durable as well, he said.

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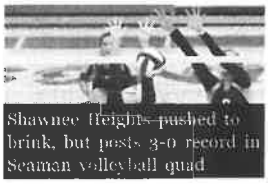
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Exhibit MJ-1



# Editorial: Westar project is commendable

## Equipment improvements will make electric service in Topeka more reliable

Posted: April 25, 2016 - 8:58pm

By The Capital-Journal Editorial Board

If you were running a business, would you participate in a project to reduce the demand for your product?

That is what Westar Energy seems to be doing with a $50 million project of improvements in Topeka.

Called the Electric Distribution Grid Resiliency program, it is beginning in the Quinton Heights area between S.W. Topeka Boulevard, 27th Street, Washburn Avenue and 21st Street, moving later across Washburn west into the Knollwood area.

It includes equipment improvements to make the service more reliable. For example, devices will be installed to use cell communications to send information to a central location indicating trouble on a line. It also provides streetlights that use LED technology that uses less electricity to produce the same amount of light.

So, there you have it. The company is addressing at least two issues of concern to many Topekans: reducing the impact of energy production on the environment and making the service more reliable.

The program is commendable, but, based on the company's past efforts to improve its system, this project isn't likely to please everyone. Remember the frustration over those 100-foot-tall transmission line poles running through the western part of the city? Remember the complaints from some people that Westar's tree-trimming program in the easements was overly aggressive?

Both programs were to improve the reliability of the service.

The new high-power lines on those poles assured areas of southwest and west Topeka will continue to have adequate power in the future. That project also is expected to make the company's operations more efficient, by eliminating five small substations built in the 1950s. Trimming the trees will reduce the number of outages caused by tree limbs falling on power lines.

Westar should be commended for doing what is best for the community and the world, rather than what might make the most money for the company.

Also, the Kansas Corporation Commission deserves credit for authorizing a small rate increase for Westar to begin the program. The increase would add about 60 cents a month to the average residential customer's bill.

Westar actually had requested approval of a larger program, but the term was reduced in negotiations between Westar and the KCC. Westar originally had proposed spending $216.7 million over five years to fund EDGR; it received $50 million to be spent over 14 months.

We can only hope the program will be allowed to continue into the rest of the Westar service area — subject, of course, to a reasonable pace to keep electric rates reasonable.

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