

## Greenjacket® precise fit cover-up delivers significant reduction in customer outage minutes: **Westar Energy, Inc.**



Close-up of Greenjacket installed.

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*Dave Claussen, Westar Executive Director System Maintenance*

Westar Energy, Inc. is Kansas' largest electric utility. Headquartered in Topeka, Kansas, Westar has provided Kansans with safe, reliable electricity required to power their businesses and homes for more than a century.

Westar has 7,200 megawatts of electric generation capacity fueled by coal, uranium, natural gas, wind, and landfill gas. It also owns approximately 6,400 miles of transmission lines, 24,000 miles of overhead distribution lines, and 4,900 miles of underground distribution lines. It retails electricity to about 700,000 residential, commercial, and industrial customers as well as local and municipal government for the lighting of public streets and highways. The company provides its services throughout the eastern third of Kansas including the cities of Wichita, Topeka, Lawrence, Salina, Hutchinson and Manhattan.

Wildlife outages ranked as Westar's second-leading cause of outages primarily from European Starlings, but also from Eurasian doves, owls, hawks, squirrels, snakes and larger mammals such as raccoons. A generic cover-up product was initially selected as a potential solution; however, the outages continued. Westar measures the statistical impact of outages by tracking customer outage metrics and duration of outage minutes, among others. At five key substations, bird and animal-caused outages resulted in an average of 500,000 Customer Interruption Minutes annually, and Westar knew their customers expected and deserved better. With a renewed determination to eliminate wildlife outages, the team was challenged to find an effective, precise-fit solution. During an IEEE conference, one of Westar's standards engineers found Greenjacket® and brought information back to the Westar team for consideration.

In 2013, Westar selected a substation that serves part of Manhattan, Kansas, as the initial pilot project. Greenjacket Inc. was called in to solve Westar's issue with ongoing wildlife-caused outages. Utilizing photogrammetric imaging, Greenjacket® precise-fit cover-up was designed and manufactured for Westar. Greenjacket® is made from a highly dielectric, polyurea material that meets the IEEE 1656 industry guideline for bird and animal cover-up. Unlike generic covers, the Greenjacket® precise-fit cover up is made to order and designed to exacting dimensions.

According to Dave Claussen, Executive Director System Maintenance at Westar, "In 2013, Westar selected five substations where we expected Greenjacket would provide the most benefit. In the three years leading up to that, animal and bird-caused customer outage minutes at those five locations averaged about 500,000 annually. In 2014, after Greenjacket was installed those outage minutes dropped significantly to 50,000, and then to zero minutes in 2015."



In addition to the precise-fit solution applied to existing substation equipment, Greenjacket Inc's design team worked to develop barriers for their 12kV gang-operated disconnects. The barriers are mounted to the support structure between each phase of the disconnects without affecting their operation. With the barriers in place, phase-to-phase contacts by birds and animals are prevented. Westar is considering adding the new product as a standard mitigation measure going forward.



To assist Westar further with the prevention of outages, Greenjacket Inc's services team provided installation training, both on-site and through online videos. Greenjacket Inc. has worked as Westar's partner in both products and service support to become their go-to resource for animal outage mitigation. This partnership has resulted in the Greenjacket product being written into the Westar Engineering Standard for wildlife protection products going forward.

The Greenjacket product is highly visible by crews, installers and customers. The visible presence of the new protection assists in demonstrating to customers that actions are being taken to improve reliability. In addition, it provides opportunities for employees to educate customers about the benefits of wildlife covers when questioned about the green colored covers.

"Greenjacket has proved to be a valuable investment and an effective solution in reducing wildlife-caused outages at Westar. Their thorough approach to surveying and applying coverage at vulnerable locations coupled with detailed installation practices have yielded a precise-fit coverage option that has significantly improved customer reliability where it has been applied."

*Bryson Cyphers, Westar, Director of Substation Maintenance*

When asked about the installation process, Bryson Cyphers, Director of Substation Maintenance commented that "the Greenjacket crews were very thorough, detailed, and educated Westar installers on the value of the precise-fit covers, and the importance of layering and ensuring complete coverage. We couldn't have asked for better solution or more timely response."

Mr. Cyphers added, "Greenjacket has proved to be a valuable investment and an effective solution in reducing wildlife-caused outages at Westar. Their thorough approach to surveying and applying coverage at vulnerable locations coupled with detailed installation practices have yielded a precise-fit coverage option that has significantly improved customer reliability where it has been applied."

For further information, please contact:

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Thus far, the Greenjacket solution has been implemented at 15 substations, with more on the horizon.