NRECA Legal Reporting Service

LRS

Volume 52 | Number 12 | December 2016

EDITORIAL

Understanding Avian Liability— What Do Cooperatives Need to Know?

This month's editorial was written by Janelle Lemen, Senior Principal, ESA Avian & Land Management, NRECA Government Relations

With the growing expansion of renewable energy sources and potential changes to regulations, increased scrutiny of industry impacts to birds is expected. There is no better time than now to understand how utilities, including cooperatives, are affected and review opportunities to reduce liability. There are several anthropogenic causes of avian mortality, including collisions with windows, predation by cats and poisonings. Birds can also be injured or killed due to interactions with power lines, substations, communication towers, and renewable energy facilities. Several federal laws afford protection to most avian species, making even these accidental interactions with electric utility infrastructure unlawful. Avian interactions can also cause outages, reduce system reliability and increase the costs to serve electricity to consumers.

What this means for the electric industry is that it is important to understand compliance responsibilities and strategies. With increasing energy demands and aging infrastructure that will require rebuilding, there is a growing need to manage avian interactions across the power grid. Decades of research have resulted in the development of industry-proven methods that greatly reduce avian risk and improve system reliability, while allowing utilities to provide affordable power to consumers.

The Issue—Industry Threats to Birds

In order to better understand the legal responsibilities utilities have to protect birds and tools that can be used to mitigate avian risk and improve reliability, it is important to first know the issues at hand. One of the first documented cases in the U.S. of human-caused bird mortality was in 1876 with telegraph wires.[1] Since the early 1880s, power lines have rapidly expanded across the U.S. landscape. Reports of avian electrocutions by contact with transmission lines were documented as early as the 1920s, followed shortly thereafter by similar reports on distribution lines. Avian-caused outages were first noted in the 1940s. It was not until the 1970s, however, that the magnitude of avian interactions with electric infrastructure was realized.

That is when nearly 1,200 eagles were found dead beneath power lines in Wyoming and Colorado over one winter. Investigations revealed that the eagle mortalities were caused by poisoning, shooting and electrocution. Across western states, similar electrocution problems were discovered involving other bird species in addition to eagles. For example, remains of 461 raptors were discovered in six western states under 24 different five-mile sections of power lines.[2] Another investigation

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found 594 raptor carcasses, some up to five years old, beneath 36 distribution lines spanning approximately 250 miles in Utah.

These findings sparked serious concerns among regulators, environmental groups and industry. In response, much research has been performed to understand the factors influencing avian risk with electric infrastructure. However, few comprehensive field studies exist, making it difficult to quantify avian risk and compare it to other sources of mortality. In addition, avian risk is not equal across the landscape.

Electrocutions. There are inherent hazards with overhead transmission and distribution lines. Avian electrocutions, of various species, continue to be a source of human-caused mortality. There are several components that influence electrocution risk including biological, engineering and environmental aspects. Biology of the bird, power pole configuration, habitat, weather, and food availability are just some of many factors that may cause bird electrocutions.

Each avian species uses utility infrastructure differently and therefore, have differences in susceptibility to electrocution. Power poles are commonly used by birds for hunting, resting, roosting, and nesting. Electrocution occurs when a bird or other animal simultaneously touches two energized phases or has a phase-to-ground contact. Tall birds and birds with larger wingspans have a higher risk of electrocution because they can more easily bridge distances to make contact. Although transmission lines present risks to birds, electrocution hazards are more prevalent on distribution lines due to closer separations between energized and grounded parts. Power line electrocutions account for thousands of bird deaths each year.

Collisions. Electrocutions are not the only source of avian mortality on electrical infrastructure. Injury or mortality also occurs when birds collide into conductors, static wires, or make impact with the ground after colliding with power lines. An estimated 174 million birds have died from colliding with power lines. Factors that influence collision risk are similar to those regarding electrocution risk. Collisions are more problematic, however, because they are harder to predict and identify where they may happen across a system.

Collisions can occur anywhere along the length of a conductor span, but typically occur near the center. Power line collisions may pose a greater threat than electrocution for some bird species. Generally, larger bodied birds are more susceptible to collisions because they have less maneuverability than smaller bodied birds. Studies also suggest that juvenile birds have increased collision risk due to poor flight ability.

In addition to power lines, communication towers can cause collision problems as well. Migratory birds are particularly at risk where towers are constructed near migration pathways and stopover habitats. Avian mortality at communication towers is estimated at 4 to 50 million birds. Tower lighting is considered the primary factor for collisions because it appears to attract or confuse birds, especially at night during low visibility, heavy fog or storms. In 1963, more than 12,000 birds were collected from the base of one tower in Wisconsin during a single-night strike.[3]

The number of wind, solar and other renewable energy sources continues to grow in the U.S. each year. However, development of renewable energy facilities has had unintended consequences on avian species. Birds collide with wind turbines, killing an estimated 250,000 to 500,000 annually. In regards to solar facilities, bird injuries and mortality have been documented from collisions with photovoltaic solar panels. Also, intense beams of sunlight are produced at some concentrating solar power facilities resulting in bird injuries and mortalities. Additional research is needed to better understand how renewables affect birds and other wildlife.

*** LRS Editor:** Tyrus H. Thompson
LRS Assistant Editor: Jessica Healy
LRS Production: Melissa DePuy
LRS Design: Exarte Design, Inc.
NRECA General Counsel: Rich Meyer

LEGAL REPORTING SERVICE (USPS 025-271) is published monthly, with an additional issue in January, by NRECA, 4301 Wilson Blvd., Arlington, VA 22203-1860. Periodicals postage paid at Arlington, VA and additional mailing offices. POSTMASTER: Send address changes to *Legal Reporting Service*, c/o NRECA, 4301 Wilson Blvd. Arlington, VA 22203-1860. *Communications to the editor should be addressed to Tyrus H. Thompson Editorial Phone: (703) 907-5855 Email, tyrus.thompson@nreca.coop Subscription and name/address changes: lrs@nreca.coop. Annual subscription price of *LRS:* $170.

Nesting. Some avian species will use utility infrastructure for nesting, although nest location can vary by species and structure type. Studies indicate that raptors commonly build nests on both transmission and distribution structures unlike smaller birds, which typically cause nesting issues within substations. There are several recognized advantages for birds to nest on utility structures including protection from the elements, opportunity for range expansion, and availability of suitable areas to build nests when natural nest sites are not present. Some studies suggest raptors, for example, have increased nest success when nests are built on power line structures. However, nest management is important to reduce electrocution risk, as well as prevent equipment damage and outages.

Reliability Concerns. Power reliability problems can arise from bird interactions with electric infrastructure. This is concerning for many utilities, including cooperatives. Bird-related outages can be caused by a variety of interactions such as electrocution, collision, nest material contact, and contamination of equipment from bird feces. These outages do not always result in avian mortality. Outages may also occur when birds drop items onto energized areas or a large group of birds perching on a power line suddenly flies away, causing conductor-to-conductor contact when line galloping is started. Notably, birds may also cause momentary power disruptions which do not cause outages.

Regardless, there are significant costs incurred by utilities related to outages. Costs associated with bird-related outages include, but are not limited to, lost revenue, power restoration, equipment repair, lost service to customers, negative public perception, and reduced system reliability. In California, wildlife-related outages are estimated to cost $3 billion annually. According to Eaton's Blackout Tracker Annual Report for 2015, there were more than 3,500 "significant" power outages reported in the U.S., affecting 13.2 million people and totaling $150 billion in lost revenue.[4] In early 2015, one Canadian goose collided with a power line in Wyoming causing a three-hour outage for more than 600 customers. Dominion Virginia Power reported more than 4,700 animal-related outages in 2015. However, Eaton's report does not capture the impacts of all outages that occurred in 2015. Many times outages on rural electric cooperative systems do not meet the reporting criteria used in Eaton's report. Also, bird-related outages are often reported by utilities as an unknown cause, meaning estimates of cost and numbers of people impacted are likely much higher.

Regulatory Risk

In the U.S., there are three federal laws that protect most avian species. These laws are applicable to all individuals, companies and agencies. Each prohibits the "taking" of birds and carries penalties for "take" violations. There may also be state-level regulations, not discussed here, that provide protections for bird species that utilities should be aware of.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) of 1918, implements four international treaties aimed at protecting migratory birds.[5] Considered the legal cornerstone for migratory bird protection, the MBTA is administered by the U.S. Fish and Wildlife Service (USFWS). The MBTA covers nearly all birds, over 1,000 native species regardless of whether they are migratory or resident species.[6] For example, MBTA protections are given to waterfowl, shorebirds, songbirds, raptors, wading birds, and seabirds. Insurances are extended to adult birds, their young, eggs, and active nests. Species not native to the U.S. including house sparrows, European starlings, rock doves (pigeons), and monk parakeets are not covered under the MBTA. It also does not afford legal protections to any recently listed unprotected species in the *Federal Register* and non-migratory upland game birds such as grouse and turkey.

The MBTA makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued by the USFWS. The regulations define "take" as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect" or to attempt any of these acts.

The risk for utilities, including all cooperatives, is that the MBTA is a strict liability statute. This means companies or individuals engaged in activities that result in "take" of migratory birds may be liable, regardless of any proof of intent, knowledge or negligence. Companies or individuals who violate the provisions of the MBTA may face criminal penalties. Individuals may be found guilty of a misdemeanor and be subject to fines up to $15,000, imprisonment up to six months, or both. A felony conviction holds fines up to $250,000, imprisonment up to two years, or both. For companies, fines may be doubled. Penalties increase greatly for offenses involving commercialization and/or the sale of migratory birds and/or their parts.

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The USFWS has enforcement discretion when it comes to interpreting what constitutes an MBTA violation and federal courts have handled prosecutions differently.[7] There are various contradictory court findings on whether the MBTA "take" provisions are limited to conduct directed against migratory birds or if they extend to any activity that kills or injures a migratory bird. The USFWS typically uses a broader definition of "take."

For example, in the landmark *U.S. v. Moon Lake Electric Association* case, the court found the cooperative guilty of 13 misdemeanor violations under the MBTA and Bald and Golden Eagle Protection Act (BGEPA).[8] The basis of the court decision was that the cooperative "failed to install inexpensive equipment" on power poles "causing [ ] death or injury to 38 birds of prey."[9] Moon Lake was sentenced to a probationary period, required to pay fines, enter into a Memorandum of Understanding with the USFWS, and develop and implement a comprehensive avian protection plan. This case represents the first time an electric utility had been criminally prosecuted for electrocuting protected bird species.

More recently, Duke Energy and PacifiCorp entered plea agreements for violations of the MBTA due to deaths of protected birds at wind facilities. Both prosecutions of wind energy corporations occurred in Wyoming and carry with them significant monetary penalties and planning requirements. PacifiCorp agreed to pay $2.5 million and Duke Energy $1 million.

Bald and Golden Eagle Protection Act. The BGEPA of 1940 provides legal protection of the bald and golden eagles.[10] It is enforced by the USFWS. The BGEPA prohibits the "take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit." Here "take" is defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." A "take" violation under the BGEPA can result in criminal or civil penalties, or both. Civil penalties are interpreted under strict liability and carry fines up to $12,500 for each violation. Criminal penalties are pursued when violations are done knowingly or with wanton disregard for the consequences of the BGEPA. These fines are assessed up to $100,000 for individuals, $200,000 for organizations, imprisonment for one year, or both, for a first offense. Penalties increase substantially for additional offenses, and a second violation of the BGEPA is a felony. Similar to the MBTA, the USFWS uses enforcement discretion. The USFWS generally focuses their effort on individuals and companies that "take" eagles or migratory birds without regard for their actions. For example, the USFWS especially focuses on companies that have avian protection plans developed, but are not implementing its conservation measures.

Endangered Species Act. The Endangered Species Act (ESA) of 1973, as amended, is administered by the USFWS and National Marine Fisheries Service (NMFS).[11] The ESA protects fish, wildlife and plants listed as threatened or endangered and their designated critical habitat. It provides protections for over 90 bird species. Similar to the MBTA and BGEPA, there is a definition of "take" under ESA. "Take" is defined as, "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." ESA violations may carry civil and/or criminal penalties. Any person or business who knowingly violates the ESA may be assessed a civil penalty of up to $49,467 per violation. Under strict liability, any person who otherwise violates the ESA may be fined up to $1,250 per violation. Criminal penalties are steeper. Any person who knowingly "takes" a threatened species faces a fine of up to $25,000, one-year imprisonment, or both. "Take" of an endangered species includes the possibility of one-year imprisonment and/or a fine of up to $100,000 per individual or $200,000 per organization.

Risk Reduction Strategies

Permits. The USFWS has the ability to issue permits under the various avian protection laws to ensure an individual or entity can conduct otherwise lawful activities in a manner that safeguards protected birds. Depending on the type of permit, liability for "take" may either be reduced or absolved. Therefore, anyone who believes that their otherwise lawful activities may violate the MBTA, BGEPA or ESA should evaluate the need and benefit of obtaining applicable permits. Since utilities, including cooperatives, have the exposure under these laws, permits may be a tool used to reduce avian risk.

Under the ESA, the USFWS and NMFS can issue incidental "take" statements or permits for activities that will likely result in "take" of threatened or endangered species. If the anticipated "take" is a result from a federal action, the agencies will issue an incidental "take" statement under Section

7 of the ESA. Otherwise, permits for non-federal activities require applicants to develop a Habitat Conservation Plan before the permit will be issued under Section 10 of the ESA.

A permit is available for incidental "take" of eagles and eagle nests under the BGEPA.[12] There are no legal requirements to obtain these permits, but eagle "take" and eagle nest "take" without a permit is illegal. Revisions to the eagle permitting program were proposed by the USFWS on May 6, 2016 and are awaiting finalization.[13]

There is currently no permit available, however, for the take of other migratory birds, even though "take" is prohibited under the MBTA. This makes it challenging for a utility to ensure compliance with the MBTA. On May 26, 2015, the USFWS announced its intent to evaluate approaches for developing an authorization mechanism for the incidental "take" of migratory birds.[14] The goal of the rulemaking is to establish permits for certain industries that have established mitigation measures that can be implemented to prevent or reduce incidental bird deaths. This signals the desire of the USFWS to move away from relying on prosecutorial discretion and informal agreements, and instead move towards providing regulatory certainty through permits. Electric transmission and distribution utilities are specifically identified as an affected industry.[15] The USFWS also intends to revise the definition of "take" under MBTA. The schedules for these proposed revisions have not been released.

In absence of an MBTA incidental "take" permitting mechanism, there are other permitting options available for utilities to address avian interactions. A Special Purpose Utility Permit (SPUT Permit) authorizes utilities to temporarily collect, transport and possess migratory birds found dead on utility property, structures and rights-of-way (ROW) for avian mortality monitoring or disposal purposes.[16] Some USFWS field offices may issue depredation or salvage permits to utilities to achieve similar purposes of a SPUT Permit. In 2003, the USFWS issued a memorandum to clarify the application of the MBTA to non-eagle, migratory bird nest destruction.[17] This provides useful guidance for utilities when addressing the removal of active and inactive bird nests found on electric infrastructure and within utility ROW.

System Design. Voluntarily integrating avian-friendly design and construction techniques for utility infrastructure, including substations and power lines, is a key strategy to reducing avian mortality. For example, installation of underground lines would drastically reduce avian risk, almost eliminating exposure to electrocution hazards. However, installing underground facilities in most cases is not practical or financially feasible. For overhead power line design, industry best practice is to allow for 60-inch horizontal and 40-inch vertical separations between energized and/or grounded parts. This rule of thumb generally works to mitigate avian risk in most areas because it is considered sufficient spacing to protect eagles and smaller birds from electrocution. Areas within the range of California condors should use increased spacing to mitigate electrocution risk. In a substation setting, there are a multitude of animal guards available that can be installed in a seemingly endless number of combinations, tailored to mitigate risk at a particular asset. The Avian Power Line Interaction Committee (APLIC) has developed suggested practices for different new construction configurations to mitigate avian electrocution and collision risk.[18] In regards to reducing avian risks at renewable energy facilities, the USFWS has developed guidance for wind energy.[19] Avian interactions with utility-scale solar development are not well understood at this time. Various agencies and stakeholders are working together to develop guidance that can be used to better inform siting of solar facilities to reduce impacts to birds.

System Retrofits. For existing electric infrastructure, retrofitting efforts can greatly reduce the frequency of avian electrocutions and related outages. Manufactured coverings and other types of avian protection products are available for use on energized and/or ground parts of electric infrastructure. When installed per the manufacturer's instructions, birds and other animals should be able to safely make incidental contact. The 2006 APLIC Suggested Practices for Avian Protection on Power Lines provides examples of successful retrofitting techniques, as determined by utilities, research and manufacturer testing.[20] For example, APLIC research has found that perch discouragers are not effective and are no longer recommended as a management technique to reduce avian mortality. APLIC-developed guidance also exists for reducing avian collisions with power lines.[21] Various types of line markers are available for use to mitigate avian collision risk.

Avian Protection Plans. An Avian Protection Plan (APP) is a voluntary, utility-specific framework for addressing avian risk. Considerations for APP development should include size of territory, avian species in the area, and frequency of avian/utility infrastructure interactions. Guidelines for developing

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an APP were developed by APLIC and USFWS in 2005 to help utilities manage operational and avian risks that result from avian interactions with electric utility facilities.[23] The overarching theme of APPs is to reduce bird mortality and improve service reliability.

APPs do not absolve individuals or companies from liability under the MBTA, BGEPA or ESA. However, the USFWS strongly encourages utilities and others to adhere to agency- and industry-accepted suggested practices that protect avian species. When exercising enforcement discretion, the USFWS focuses on those individuals or companies that "take" protected birds without implementing appropriate risk reduction measures. Developing and implementing a comprehensive APP is a recognized strategy to demonstrate to the USFWS that a utility is committed to reducing avian impacts. It is not enough for a utility to just have an APP; it must be implemented.

Benefits of having an APP include reducing avian and regulatory risk, improving service reliability, cost savings, favorable public perception, and positive working relationships with regulators. APPs should be considered "living documents" that are continually modified over time to improve effectiveness. A successful avian protection program is generally dependent on management support, agency involvement, funding, employee awareness, and engagement by key affected personnel.

Although APPs are company-specific, they should have certain common elements such as a company commitment, training program, risk assessment methodology, and measures that will be taken to reduce avian mortality. Tracking outages is one way a utility can identify and rank problem areas, justify costs associated with bird protection efforts, target retrofitting efforts, and evaluate effectiveness of conservation measures. Since there are common core elements of all APPs, cooperatives are uniquely positioned for developing APPs. For example, 22 of Montana's rural electric cooperatives have developed a statewide plan to address avian risk.

APLIC. As discussed above, another resource available to utilities is APLIC. Established for over 25 years, it is a group of utility professionals that works with various agencies, including the USFWS, to address avian issues. APLIC provides a "toolbox" of resources including, among other things, guidance documents, training workshops and short courses, and research projects. APLIC provides a forum for sharing experiences in addressing avian issues that apply to all utilities, including cooperatives.[23]

Looking Ahead

With looming changes to MBTA and BGEPA permitting, it will be increasingly important for cooperatives to develop and implement APPs. NRECA is working with cooperatives to draft an APP template that can be utilized by electric cooperative state associations and/or individual cooperatives. In addition, NRECA will continue providing educational outreach on the issue to allow cooperatives to more clearly understand their responsibilities under current and future avian protection laws. It will be necessary for cooperatives and NRECA to continue working with agencies and other stakeholders to ensure regulations are developed that conserve avian resources while enhancing affordable and reliable energy delivery. If you have questions or comments about avian protection measures, please contact me at janelle.lemen@nreca.coop or 703-907-5790.

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2 P. C. Benson, Large Raptor Electrocution and Power Pole Utilizations: A Study in Six Western States, 98, (Ph.D. dissertation Brigham Young University, Provo, UT 1981).

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4 U.S. Energy Information Administration, Blackout Tracker U.S. Annual Report 2015, http://www.sustainablepowersystems.com/wp-content/uploads/2016/03/US_BlackoutTracker_2015_Final.pdf

5 16 U.S.C. §§ 703-712.

6 *See* 50 C.F.R. § 10.13 for a list of migratory bird species protected by the Migratory Bird Treaty Act.

7 *See, e.g., U.S. v. Corrow*, 119 F.3d 796, 805 (10th Cir. 1997); *U.S. v. Engler*, 806 F.2d 425, 431 (3d Cir. 1986); *U.S. v. Manning*, 787 F.2d 431, 435 n.4 (8th Cir. 1986); and *U.S. v. FMC Corp.*, 572 F.2d 902, 907 (2d Cir. 1978).

8 *U.S. v. Moon Lake Elec. Ass'n*, 45 F. Supp. 2d 1070 (D. Colo. 1999).

9 *Id.* at 1071.

10 16 U.S.C. § 668; 50 C.F.R. § 22.

11 16 U.S.C. §§ 1531-44.

12 USFWS, What You Should Know about Federal Permit for Eagle Take Necessary to Protect an Interest in a Particular Locality (Feb. 20, 2014), https://www.fws.gov/forms/3-200-71.pdf; USFWS, What You Should Know about a Federal Permit for Eagle Nest Removal (Feb. 20, 2014), https://www.fws.gov/forms/3-200-72.pdf.

13 Eagle Permits; Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests, 81 Fed. Reg. 27,933 (May 6, 2016) (to be codified at 50 C.F.R. Pts. 13 and 22).

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[19] *See* USFWS, U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines (Mar. 23, 2012), https://www.fws.gov/ecological-services/es-library/pdfs/WEG_final.pdf.

[20] Suggested Practices for Avian Protection on Power Lines, *supra* note 18 at 51.

[21] APLIC and USFWS, Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (2012).

[22] *See* APLIC and USFWS, Avian Protection Plan Guidelines (2005), http://www.aplic.org/uploads/files/2634/APPguidelines_final-draft_Aprl2005.pdf.

[23] Electric cooperative state associations can join APLIC at a reduced fee, with access to resources granted to all electric cooperatives within the state.