Appendix M-2
USFWS BA Concurrence Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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September 14, 2017

U.S. Department of Energy
Golden Field Office
Attn: Kristin Kerwin
15013 Denver West Parkway
Golden, CO 80401

TAILS# 03E15000-2017-I-1867

Re: Section 7 Informal Consultation for DOE's Proposed Funding of Project Icebreaker

Dear Ms. Kerwin:

This is in response to your July 24, 2017 Biological Assessment for the Lake Erie Energy Development Corporation's (LEEDCo's) proposed Project Icebreaker, which involves the construction and operation of six 3.5 MW wind turbines, 12 miles (mi) (19.3 kilometers (km)) of transmission cable, and a substation. The turbines would be installed in Lake Erie, 8-10 mi (12.9-16.1 km) offshore of Cleveland, Cuyahoga County, Ohio. The transmission cable would run from the turbines, across the lake bottom, to the shore, where they would connect to a new substation to be located at the Cleveland Public Power substation. Additionally, 150 feet (ft) (45.7 m) of overhead transmission lines would be constructed to link the new and existing substations. The turbines are expected to operate for 25 years. Each turbine has a rotor diameter of 413 ft (126 m), yielding a rotor-swept area of 3.08 acres (0.012 km^2) per turbine, and 18.48 acres (0.075 km^2) for the total project. At its closest point, each blade will be approximately 65 ft (20 m) above water level. LEEDCo plans to conduct post-construction monitoring to assess all-bird and all-bat mortality and to monitor avoidance/attraction/displacement that may occur. The methods for post-construction mortality monitoring have yet to be determined. LEEDCo also plans to develop a Bird and Bat Conservation Strategy that would outline conditions for adaptive management implementation based on the results of post-construction monitoring.

Funding for the project may be provided by the U.S. Department of Energy (DOE). Additionally, the U.S. Army Corps of Engineers may permit the project under sections 404 and 408 of the Clean Water Act and section 10 of the Rivers and Harbors Act, while the U.S. Coast Guard will assess the impact of the project on navigation. Thus a federal nexus exists for the project, and on behalf of the Federal agencies involved, DOE prepared and submitted a Biological Assessment (BA) to assess the potential for the project to take federally-listed endangered and threatened species. The BA was prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA).

The BA indicates that five federally listed species may be affected by the proposed project. These include:

- Indiana bat (*Myotis sodalis*) – Endangered
- Northern long-eared bat (*Myotis septentrionalis*) – Threatened
- Kirtland's warbler (*Setophaga kirtlandii*) – Endangered
- Piping plover (*Charadrius melodus*) – Endangered
- Rufa red knot (*Calidris canatus rufa*) – Threatened

DOE has determined that the proposed project may affect, but is not likely to adversely affect these species, and has requested U.S. Fish and Wildlife Service (Service) concurrence with this determination. Because no designated or proposed critical habitat occurs within the vicinity of the project area, there would be no effect on critical habitat. This letter constitutes the Service's review of the BA, and fulfills the requirement to consult under section 7 of the ESA.

ENDANGERED SPECIES COMMENTS:

Section 9(a)(1)(B) of the ESA, 16 U.S.C.§ 1538 (a)(1)(B), makes it unlawful for any person to "take" an endangered species. Take of threatened species is prohibited pursuant to 50 C.F.R. § 17.31, which was issued by the Service under the authority of sections 4(d) and 9(a)(1)(G) of the ESA, 16 U.S.C. §§ 1533(d) and 1538(a)(1)(G), respectively. "Take" is defined by the ESA as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct" 16 U.S.C. § 1532(19). Harm and harass are further defined by regulation. Harm includes habitat modification or degradation that results in death or injury. Harass means to cause injury by disrupting normal behavior patterns such as breeding, feeding, or sheltering. Take that is incidental to an otherwise lawful activity can be authorized through one of several mechanisms, for example an incidental take statement via an ESA section 7 consultation process. When all potential effects to listed species are expected to be insignificant (unlikely to be meaningfully measured, detected or evaluated), discountable (extremely unlikely to occur), or entirely beneficial, a project is not likely to adversely affect listed species (Service 1998). Projects that are not likely to adversely affect listed species require concurrence from the Service during section 7 consultation.

Indiana bat

All projects in the State of Ohio lie within the range of the federally endangered Indiana bat. In Ohio, presence of the Indiana bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥5 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 ft (305 m) of other forested/wooded habitat. In the winter, Indiana bats hibernate in caves and abandoned mines.

Indiana bats show strong site fidelity to both summer habitat and hibernation sites, returning to the same locations every year.

In the spring and fall, Indiana bats migrate between their summer and winter habitats. Migration may include regional movements ranging from 50-357 mi (80.5-574.5 km) (Sanders *et al.* 2001; Hicks 2004, Gardner and Cook 2002; Butchkoski and Turner 2006; Winhold and Kurta 2006; USFWS 2007; Butchkoski *et al.* 2008). Knowledge of the migratory behavior of Indiana bats is limited.

Take of a total of 10 Indiana bats has been documented during spring and fall migration at operating wind projects in Ohio, Indiana, Illinois, Iowa, Pennsylvania, and West Virginia (Service unpublished database). This amounts to much less than 1% of detected all-bat mortalities at wind power projects in the range of the species.

Male and female Indiana bats have been documented during the summer in Cuyahoga County, and in neighboring Summit and Medina Counties, indicating that Indiana bats likely occur in this portion of Ohio in spring, summer, and fall. While the Indiana bat range includes all of Ohio as well as neighboring states (e.g., IN, WV, KY, and portions of PA, MI), the species' range does not include Ontario, Canada (Arroyo-Cabrales and Ospina-Garces 2016, Patterson *et al.* 2003) (Figure 1).

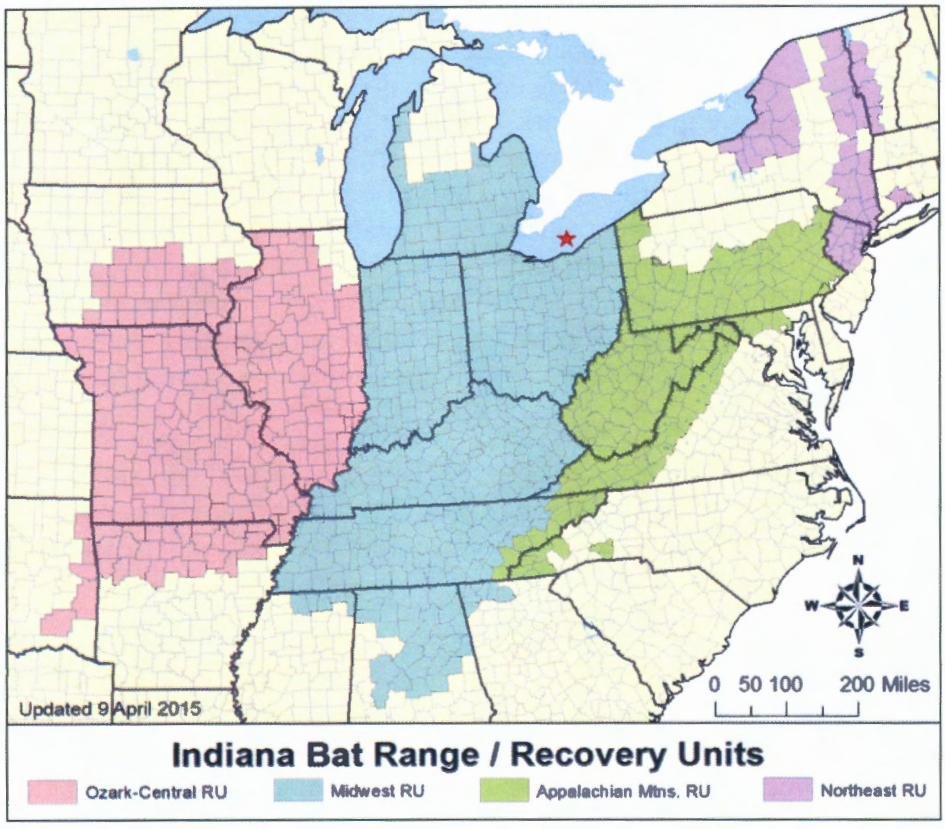


Figure 1. Indiana bat range map. LEEDCo Project Icebreaker is indicated by a red star.

None of the project area provides forest suitable for Indiana bat summer habitat, nor does it provide caves or mines suitable for winter habitat. Thus, Indiana bats would not likely occur in

the project area during summer or winter. Indiana bats may migrate through the portion of the project area on land during spring and/or fall, however they are unlikely to be affected by construction or operation of a substation or transmission lines in unsuitable habitat. Though Indiana bats have been killed by operating wind turbines during spring and fall migration at some locations, they are unlikely to migrate 8-10 mi (12.9-16.1 km) offshore of Cleveland over the open water of Lake Erie because their range does not include Ontario (nearest land north of Cleveland and Lake Erie). Rather, Indiana bats that occur in and around Cuyahoga County, Ohio are likely to migrate south, southeast or southwest.

Thus, as the proposed project does not provide suitable summer or winter habitat and Indiana bats are unlikely to migrate over Lake Erie and encounter wind turbines because their range does not include land areas north of Cuyahoga County, Ohio, DOE has determined that the proposed project is not likely to adversely affect Indiana bats. The Service concurs with this determination.

Northern long-eared bat

All projects in the State of Ohio lie within the range of the federally threatened northern long-eared bat. In Ohio, presence of the northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 ft (305 m) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, northern long-eared bats hibernate in caves and abandoned mines.

In the spring and fall, northern long-eared bats migrate between their summer and winter habitats. Little is known about migration for northern long-eared bats. Some studies have reported movements ranging between approximately 30 and 60 mi (approximately 50 to 100 km) from hibernacula to summer habitat (Caire *et al.* 1979; Griffin 1945), suggesting they are regional migrants.

Mortality of northern long-eared bats has been detected at a number of wind facilities throughout the range of this species in the United States and Canada. However, the number of northern long-eared bat fatalities reported has been low relative to other bat species. Overall, 43 northern long-eared bat fatalities have been documented during post-construction monitoring studies at 86 different wind projects, amounting to less than one percent of all known bat fatalities (Service unpublished database). Compared to other parts of their range, the eastern portion of North America has had the highest number of northern long-eared bat fatalities; only eight of the 43 northern long-eared bat fatalities were found in the Midwest. Northern long-eared bat fatalities

have been documented in the late spring, summer, and fall.

Male and female northern long-eared bats have been documented during the summer in Cuyahoga County, and in all neighboring counties, indicating that northern long-eared bats likely occur in this portion of Ohio in spring, summer, and fall. A northern long-eared bat hibernaculum is located in Summit County, roughly 19 mi (30.6 km) from the proposed substation, and 27-29 mi (43.5-46.7 km) from the proposed turbines.

The range of the northern long-eared bat includes much of the eastern and Midwestern U.S., extending north into Canada. Prior to the eruption of the disease white-nose syndrome (WNS) in Ohio, northern long-eared bats were among the most commonly captured bats in Ohio in summer. Since WNS reached Ohio in 2011, northern long-eared bat captures have declined significantly, and they are rarely detected during surveys now. Prior to WNS the Summit County hibernaculum northern long-eared bat population probably numbered in the thousands, but cursory observations post-WNS indicate a possible absence of this species as of 2014 (M. Johnson, Summit Metroparks, personal communication).

Acoustic bat surveys were conducted for the proposed project during spring-fall 2010 along the Cleveland shoreline and on the City of Cleveland Water Intake Crib (crib), located approximately 3.3 mi (5.3 km) offshore of downtown Cleveland in Lake Erie. A standardized index of bat activity documented substantially higher rates of bat calls on the shore compared to the crib (14 times higher in the spring and about 7 times higher in the summer/fall) (Svedlow *et al.* 2012). Additionally, much higher call rates were detected during summer/fall than spring at both the onshore and crib detectors (Svedlow *et al.* 2012). In general, bat fatality rates tend to be much higher during fall migration than spring or summer (Arnett *et al.* 2008), though researchers are uncertain why this occurs. All bat acoustic calls that were detected were visually vetted to determine if any were from northern long-eared bat. No northern long-eared bat calls were detected in spring or summer/fall, on the shoreline or on the crib. Northern long-eared bats belong to the genus *Myotis*, and some *Myotis* calls that could not be distinguished to species were detected on both the shoreline and the crib in spring and in summer/fall. While it is possible that these could be northern long-eared bat calls, they could also be from other *Myotis* species such as the little brown bat (*Myotis lucifugus*). Little brown bat calls were detected in spring on the shoreline and in summer/fall on both the shoreline and the crib. Additional bat acoustic surveys are currently ongoing at the crib and on buoys located within and near the project area. Results of these surveys may help to inform our understanding of northern long-eared bat distribution relative to the offshore environment. If northern long-eared bat acoustic calls are detected at any of the offshore detectors during the ongoing surveys, further coordination with this office will be necessary.

None of the project area provides forested habitat suitable for northern long-eared bat summer habitat, nor does it provide caves or mines suitable for winter habitat. Thus, northern long-eared bats would not likely occur in the project area during summer or winter. Northern long-eared bats may migrate through the portion of the project area on land during spring and/or fall, however they are unlikely to be affected by construction or operation of a substation or transmission lines in unsuitable habitat. Though northern long-eared bats have been killed by operating wind turbines during spring and fall migration at some locations, they are unlikely to migrate 8-10 mi (12.9-16.1 km) offshore of Cleveland over open water of Lake Erie because they tend to be regional migrants, with a maximum recorded migration distance of 60 mi (97

km). At the project location, Lake Erie is approximately 53 mi (85.3 km) wide, so it is unlikely that northern long-eared bats would migrate their maximum distance over open water. Rather, it is more likely that the northern long-eared bats that occur in and around Cuyahoga County, Ohio are likely to migrate to the documented hibernacula in Summit County, Ohio or to other hibernacula over land south, southeast or southwest of the project area.

Wind energy facilities in various habitats across the U.S. and Canada have been documented to cause "widespread and often extensive fatalities of bats" (Arnett *et al.* 2008). At this time, research into the mechanisms that cause mortality of bats at wind power sites is ongoing but collision associated with moving turbine blades are clear proximate causes of death. Also, research on how to avoid fatalities is continuing. Currently, only a few operational tools have shown success at avoiding or minimizing take. Feathering of turbines (changing the orientation of the blades out of the direction of the wind in order to stop the blades from turning during low wind speeds) during times when bats are most at risk has been shown to reduce mortality in some situations.

To further minimize the risk of mortality for all bats, including the northern long-eared bat, LEEDCo has proposed to feather turbine blades until the manufacturer's cut-in speed of 3.0 m/s has been reached at night during fall migration. At a study at Fowler Ridge, IN, feathering below the manufacturer's cut-in speed (3.5 m/s) reduced all-bat mortality by 36% (Good *et al.* 2012). The Service's recommended dates for fall migration are August 1-October 31.

Thus, as the proposed project does not provide suitable summer habitat, no acoustic calls of northern long-eared bats were detected during the survey in 2010, northern long-eared bats are unlikely to migrate over Lake Erie and encounter wind turbines, northern long-eared bats generally comprise less than 1% of all bat fatalities found at wind power projects, and a 3.0 m/s cut-in speed and feathering will be implemented at night during fall migration, DOE has determined that the proposed project is not likely to adversely affect northern long-eared bats. The Service concurs with this determination. Should new information from the 2017 bat acoustic study reveal effects of the action that have not been considered, DOE should contact the Service to ensure this determination is still appropriate.

Piping plover

The proposed project lies within the range of the federally listed endangered piping plover. Piping plover habitat includes sand or pebble beaches with sparse vegetation along the shore of Lake Erie. While piping plovers have not nested in Ohio in the recent past, migrating plovers can be expected to stop over along the shore of Lake Erie and other inland sand beaches during the period of time between April 1-May 31 and July 15-October 31 each year, which incorporates spring and fall migration periods. The vast majority of Great Lakes piping plovers nest in Michigan, and a few pairs occur in Wisconsin and Ontario. Piping plovers from the Great Lakes overwinter on the Atlantic and Gulf coasts.

Little is known about the migration behavior of Great Lakes piping plovers. While band return data shows some stopover locations, there is no information regarding the altitude at which plovers migrate and whether they migrate over open water, close to the shore, over land or a combination of shore, water and land. Piping plovers migrate both during day and night (O'Brien *et al.* 2006). They migrate as individuals (not in flocks) and they tend to stay at most

stopover locations during migration for only one day (Pompei and Cuthbert 2006). They appear to "opportunistically visit stopover sites" with no clear migration pathways or consistent use of specific stopover locations (Pompei and Cuthbert 2006).

In 2016 there were 68 nesting pairs of piping plover in the Great Lakes population (Service 2016). This number of pairs has been fairly consistent over the past 4 years (Service 2015a, 2016). During the period of 2003-2008 the average fledging rate for Great Lakes piping plovers was 1.76 (Service 2009). Piping plover individuals have been documented along the shoreline of Lake Erie in Cuyahoga County during migration in 1971, 1984, 1986, 1987, and 2017 (Service unpublished database). They have also been documented along the shore of Lake Erie in neighboring Lorain County in 1997, and in neighboring Lake County at a large beach and nature preserve in 1994, 2007, 2010, 2012, 2013, and 2014 (Service unpublished database). Thus, we know that individual piping plovers occasionally occur near the land-based portion of the project area, though no suitable nesting or stopover habitat will be impacted by the project. Pre-construction bird studies for the project are unlikely to detect this species even if it is present because it would be migrating at night, offshore, and would not linger in the project area. It is plausible that migrating piping plovers may cross Lake Erie, including the proposed project area during their spring or fall migration.

Birds are known to collide with tall stationary structures such as buildings, power lines, and communication towers. It is estimated that between 100 million and 1 billion birds are killed annually in the U.S. from striking man-made structures (Klem 1990; Manville 2000). Wind turbines pose an added threat to birds which may collide with the stationary base, or may be struck by the spinning blades. Erickson *et al.* (2014) evaluated 116 post-construction mortality studies from wind power projects and based on these estimated that 368,000 birds are struck by turbines each year. Of the observed bird mortality, shorebirds (which would include piping plover) comprised 1% and waterbirds comprise 0.2% (Erickson *et al.* 2014). Rates of avian collision mortality at existing wind facilities in the east and upper Midwest of the United States have been documented to range from zero to approximately 10 bird fatalities per turbine per year (Erickson *et al.* 2001), and post-construction studies at land-based wind projects in Ohio from April-November fall within this range (USFWS unpublished data).

Canada recently analyzed post-construction collision data for 37 wind power projects in Ontario over multiple years ranging from 2006-2014. Data collection was standardized to occur within 50 m of the turbine from April 1-October 31. Based on this data, the estimated mortality for non-raptors was 6.14 +/- 0.31 birds/turbine, with a range of 0-44.31 birds/turbine (Bird Studies Canada *et al.* 2016). Passerines accounted for the most mortality (69%) across wind projects in all of Canada, while waterbirds (which would include shorebirds such as piping plover) accounted for 3.2% of mortality (Bird Studies Canada *et al.* 2016).

Although avian collision mortality can occur at any time of year, patterns in avian collision mortality at tall towers, buildings, wind turbines, and other structures suggest that the majority of fatalities occur during the spring and fall migration period (NRC 2007). Data from Ontario indicated slightly higher bird mortality during fall (mid-July-Oct. 31) (Bird Studies Canada *et al.* 2016). Erickson *et al.* (2014) also found a peak in mortality in fall, and a smaller peak in spring but cautioned that peaks may be influenced by species-specific behaviors (e.g., horned larks are often found as mortalities in spring, when aerial mating displays may result in more flights into the rotor-swept zone of the turbine). Limited data from existing wind facilities suggest that

migrant species represent roughly half the fatalities, while resident species represent the other half (NRC 2007). There are no records of piping plover collisions with wind turbines.

None of the project area provides suitable nesting or migration stopover habitat for piping plover. Thus, piping plovers would not likely occur in the project area during summer nor would they be likely to stop over at or near the turbines. Piping plovers may migrate through the portion of the project area on land during spring and/or fall, however they are unlikely to be affected by construction or operation of a substation or transmission lines in unsuitable habitat. It is possible that piping plovers could migrate through the offshore portion of the project area where the wind turbines occur during spring or fall migration. However, there are very few piping plovers in the Great Lakes population—68 nesting pairs (136 individuals) that would migrate in the spring, plus an estimated 120 offspring that would also migrate each fall (68 pair x 1.76 fledglings/pair). Thus, the likelihood that one of these 256 birds would encounter the 18.48 acres (0.075 km^2) of airspace occupied by turbines during the two times per year that the individuals are migrating through this region is very small.

To further minimize the risk of mortality for all birds, including the piping plover, LEEDCo has proposed to utilize only flashing red and yellow lights on the turbines and work platforms, respectively. Gehring *et al.* (2009) found that communication towers lit at night with only flashing lights, as opposed to steady-burning lights resulted in 50–71% fewer avian fatalities.

Thus, as the proposed project does not provide suitable habitat for piping plover, shorebirds are rarely documented as mortalities at wind power projects, flashing lights will be used to minimize risk to migrating birds, and the small number of piping plovers that may cross Lake Erie during migration are unlikely to encounter the 18.48 acres (0.075 km^2) occupied by spinning turbine blades, DOE has determined that the proposed project is not likely to adversely affect piping plover. The Service concurs with this determination.

Rufa Red Knot

The proposed project lies within the range of the rufa red knot, a federally listed threatened species. The red knot is a shorebird that migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the Southeast United States (Southeast), the Northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America (79 FR 73706). Shorebird migration typically occurs at night. During the day the birds stop over to rest, though they will make short distance flights during the day, from one patch of habitat to another. The red knot is known to migrate through Ohio during the spring and fall. Red knot migratory stopover habitat in Ohio includes sand, gravel, or cobble beaches, and mudflats along the shore of Lake Erie. A small number of transient red knots can be expected to stop over along the shore of Lake Erie in Ohio between April 1 and October 31 each year, which incorporates spring and fall migration.

Small numbers (1-3) of red knot have been documented near the shore of Lake Erie in Cuyahoga County in 1944, 1945, 1972-73, 1983-87, 2011-12, 2015, and 2017 (ebird.org, accessed 9/8/2017). Thus, we know that individual red knots occasionally occur near the land-based portion of the project area, though no suitable nesting or stopover habitat will be impacted by the project. Pre-construction bird studies for the project are unlikely to detect this species even if it is present because it would be migrating at night, offshore, and would not linger in the project

area. It is plausible that some migrating red knots may cross Lake Erie, including the proposed project area, during their spring or fall migration.

As described above for piping plover, shorebird and waterbird mortality at wind projects is rarely documented; species in these groups comprise 1.2-3.2 % of all bird mortality (Bird Studies Canada *et al.* 2016, Erickson *et al.* 2014). There are no records of red knot collisions with wind turbines.

None of the project area provides suitable nesting or migration stopover habitat for red knot. Thus, red knots would not likely occur in the project area during summer nor would they be likely to stop over at or near the turbines. Red knots may migrate through the portion of the project area on land during spring and/or fall, however they are unlikely to be affected by construction or operation of a substation or transmission lines in unsuitable habitat. It is possible that red knots could migrate through the offshore portion of the project area where the wind turbines occur during spring or fall migration. However, there are very few red knots that occur in and around Cuyahoga County each year (1-3, only in some years). Thus, the likelihood that one of these few birds would encounter the 18.48 acres (0.075 km^2) of airspace occupied by turbines during the two times per year that the individuals are migrating through this region is very small.

To further minimize the risk of mortality for all birds, including the red knot, LEEDCo has proposed to utilize only flashing red and yellow lights on the turbines and work platforms, respectively. Gehring *et al.* (2009) found that communication towers lit at night with only flashing lights, as opposed to steady-burning lights resulted in 50–71% fewer avian fatalities.

Thus, as the proposed project does not provide suitable habitat for red knot, shorebirds are rarely documented as mortalities at wind power projects, flashing lights will be used to minimize risk to migrating birds, and the small number of red knots that may cross the project area during migration are unlikely to encounter the 18.48 acres (0.075 km^2) occupied by spinning turbine blades, DOE has determined that the proposed project is not likely to adversely affect red knot. The Service concurs with this determination.

Kirtland's warbler

The proposed project lies within the range of the Kirtland's warbler, a federally listed endangered species. The Kirtland's warbler is a small blue-gray songbird with a bright yellow breast. This species migrates through Ohio in the spring and fall, traveling between its breeding grounds in Michigan, Wisconsin, and Ontario and its wintering grounds in the Bahamas. While migration occurs in a broad front across the entire state, approximately half of all Kirtland's warbler observations in Ohio have occurred within 3 mi (4.8 km) of the shoreline of Lake Erie (Service, unpublished database). During migration, individual birds usually forage in shrub/scrub or forested habitat and may stay in one area for a few days. Kirtland's warblers are most likely to occur in Ohio during spring migration April 22nd – June 1st, or fall migration August 15th – October 15th.

The Kirtland's warbler population was at its lowest in the 1970's and 1980, but has steadily increased in recent decades. Surveys on the breeding grounds resulted in a record high of 2,365 singing males in 2015 (Service 2015b). Occasionally individual Kirtland's warblers are

observed in Cuyahoga County during spring or fall migration. Records exist for the late 1800's, 1930's, 1940's, 1969 and 1970 (Service unpublished database). In the last few decades, Kirtland's warblers have only been observed in Cuyahoga County in 2002, 2004, 2009 and 2011 (Service unpublished database, ebird.org accessed 9/8/2017). Similar spotty records of individuals exist in neighboring Lorain and Lake Counties. Thus, we know that individual Kirtland's warblers occasionally occur near the land-based portion of the project area, though no suitable nesting or stopover habitat will be impacted by the project. Pre-construction bird studies for the project are unlikely to detect this species even if it is present because it would be migrating at night, offshore, and would not linger in the project area.

A recent migration study by Cooper *et al.* (2017) used light-level geolocators attached to 27 male Kirtland's warblers to estimate their spring and fall migration pathways. They found that most Kirtland's warblers exhibited a loop migration pattern, following a more eastern pathway through the western portions of mid-Atlantic states on prevailing winds in the fall, and using a more western pathway that included Ohio during the spring (Cooper *et al.* 2017). While the geolocators do not provide exact locations, the figures and videos accompanying the Cooper *et al.* (2017) paper indicate that it is likely that some Kirtland's warblers crossed Lake Erie during migration. Videos show most passes of central and western Lake Erie occurring during the spring, and most passes of eastern Lake Erie/western Lake Ontario occurring during the fall. Thus, it is plausible that migrating Kirtland's warblers may cross the proposed project area during their spring and/or fall migration. No information on flight height during migration is available.

Warblers as a group are particularly susceptible to collision mortality. Erickson *et al.* (2014) indicate that wood warblers (which includes Kirtland's warbler) comprise 10.8% of all bird mortalities, second only to larks which comprise 13.7% and are dominated by horned lark mortalities. Horned larks have aerial breeding displays which may make them particularly susceptible to wind turbine collisions (Erickson *et al.* 2014). No Kirtland's warbler mortalities have been documented at wind turbines.

None of the project area provides suitable nesting or migration stopover habitat for Kirtland's warbler. Thus, Kirtland's warbler would not likely occur in the project area during summer nor would they be likely to stop over at or near the turbines. Kirtland's warblers may migrate through the portion of the project area on land during spring and/or fall, however they are unlikely to be affected by construction or operation of a substation or transmission lines in unsuitable habitat. It is possible that Kirtland's warblers could migrate through the offshore portion of the project area where the wind turbines occur during spring or fall migration. The population of Kirtland's warbler is 2,365 pairs, or 4,730 individual adults, plus additional offspring each year, and the population has been on a long-term increasing trajectory. Thus, there is some likelihood that one or more of these birds would encounter the 18.48 acres (0.075 km^2) of airspace occupied by turbines during the two times per year that the individuals are migrating through this region, over the 25 years of project operation.

To evaluate collision risk of Kirtland's warbler at the proposed project, Kerlinger and Guarnaccia (2013) used a communication tower strike estimation method with blackpoll warblers as a surrogate. They found that a 6-turbine project operating for 30 years was likely to result in take of 0.06 Kirtland's warblers, indicating that take was extremely unlikely to occur.

To further minimize the risk of mortality for all birds, including the Kirtland's warbler, LEEDCo has proposed to utilize only flashing red and yellow lights on the turbines and work platforms, respectively. Gehring *et al.* (2009) found that communication towers lit at night with only flashing lights, as opposed to steady-burning lights, resulted in 50–71% fewer avian fatalities.

Thus, as the proposed project does not provide suitable habitat for Kirtland's warbler, a collision risk model indicated that collisions were extremely unlikely to occur, and flashing lights will be used to minimize risk to migrating birds, DOE has determined that the proposed project is not likely to adversely affect Kirtland's warbler. The Service concurs with this determination.

POST CONSTRUCTION MONITORING

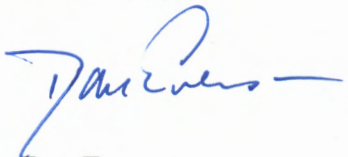
Because of the potential risk of all-bird and all-bat mortality, and because this project is designed to be a demonstration project to evaluate offshore wind installation in the Great Lakes, post-construction mortality monitoring is a necessary component of the project that LEEDCo proposes to implement. Because birds and bats are most likely to be at risk at night over the open water environment during short periods of time in spring and fall migration, it will likely be difficult to detect carcasses struck by turbines. Nevertheless, developing methods for generating robust mortality estimates for bats and birds, and testing methods to collect and identify carcasses at offshore wind projects is critically important if this demonstration project is to inform future offshore wind development in the Great Lakes and elsewhere and evaluate take of listed species at future projects. We strongly recommend that DOE condition the funding of the project on inclusion of a robust post-construction fatality monitoring protocol approved by the Service, and that specific funding be targeted for this project component

SUMMARY

As detailed above, DOE has determined that LEEDCo's Project Icebreaker is not likely to adversely affect Indiana bat, northern long-eared bat, piping plover, rufa red knot, and Kirtland's warbler. The Service concurs with these determinations. This concludes consultation on this action as required by section 7(a)(2) of the Endangered Species Act. Should, during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be reinitiated to assess whether the determinations are still valid.

Thank you for the opportunity to provide comments on this proposed project. Please contact Megan Seymour at extension 16 in this office for further information.

Sincerely,



Dan Everson
Field Supervisor

Cc: Erin Hazelton, ODNR Division of Wildlife, Columbus, Ohio via e-mail

Citations:

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