

**BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN**

Joint Application of American Transmission)
Company, ITC Midwest LLC, and Dairyland)
Power Cooperative, for Authority to)
Construct And Operate a New 345 kV)
Transmission Line From the Existing) 5-CE-146
Hickory Creek Substation in Dubuque)
County, Iowa, to the Existing Cardinal)
Substation in Dane County, Wisconsin, to be)
Known as the Cardinal-Hickory Creek)
Project)

**DIRECT TESTIMONY OF TERRENCE INGRAM
ON BEHALF OF
DRIFTLESS AREA LAND CONSERVANCY
AND WISCONSIN WILDLIFE FEDERATION**

INTRODUCTION

1

2 **Q: Please state your name, business, and address.**

3 A: My name is Terrence N. Ingram. I am the Owner of Ingram Insurance Services, Owner of
4 Apple Creek Apiaries, Owner of Apple Creek Farm Supply, Owner of Eagleland
5 Environmental Consultants, and President and Executive Director of the Eagle Nature
6 Foundation. My addresses are 8384 North Broadway Road and 300 East Hickory Street,
7 Apple River, IL 61001.

8 **Q: On whose behalf are you testifying?**

9 A: I am testifying on behalf of the Driftless Area Land Conservancy and the Wisconsin
10 Wildlife Federation.

11 **Q: Please summarize your relevant education, background, and experience.**

1 A: I have a Bachelor of Science and Arts from the University of Wisconsin – Platteville,
2 with majors in Physics and Math and minors in History, Biology and Education. I have
3 taught several subjects, including physics, math, and biology, at both the high school and
4 university level. I also have significant experience as a crop insurance adjuster and
5 insurance agent.

6 I have devoted much of my life to studying, saving, and teaching about the natural
7 world, which includes bald eagles, honeybees, as well as other birds, animals, and
8 insects, and have been a leader in this field. I served as the director (1964-70) and Vice
9 President (1970) of the Illinois Audubon Society. In 1972, I helped found Eagle Valley
10 Environmentalists which changed to The Eagle Foundation in 1983, now the Eagle
11 Nature Foundation, and I have served as President and Executive Director since its
12 founding.

13 My research on bald eagles and other birds has been extensive. I was a Master
14 Bird Bander for the U.S. Fish and Wildlife Service for over 50 years. I was the Research
15 Director of the North Central Audubon Council in the 1960's, which included flying over
16 Osprey nests with Department of Natural Resource (DNR) pilots in both Wisconsin and
17 Minnesota to monitor reproduction. I have conducted over 20 research studies of the bald
18 eagle for many different agencies and businesses. I received the largest faculty research
19 grant from the University of Wisconsin Board of Regents in 1967 to put radio
20 transmitters on Red-tailed Hawks and to study the bald eagle in Southern Wisconsin and
21 Northern Illinois. In 1964-65, I received research grants from Southwestern Wisconsin
22 Audubon Club and the American Ornithologists Union to study the bald eagles. I have
23 coordinated the Eagle Nature Foundation's Annual Midwinter Bald Eagle Count since

1 1982. In 1984, I developed a captive breeding facility for 21 injured bald eagles at Eagle
2 Valley Nature Preserve.

3 I also have used numerous opportunities to share my knowledge and love of the
4 natural world. For example, for over 20 years, I taught and directed one week Nature
5 Camps in Wisconsin and Canada for which students could receive college credits from
6 Silver Lake College, Manitowoc, WI. In 1967, I coordinated the nation's first Bald Eagle
7 Days event at Cassville, WI, and I have organized and conducted International Bald
8 Eagle Days for close to 20 years. I have been a bird instructor at both the Wisconsin
9 Audubon Camp and the Federation of Ontario's Summer Camp. I am certified by the
10 Wisconsin Extension Service as a Wisconsin Field Trip Leader Trainer.

11 I have also published several books and been involved with other publications. In
12 1998, I wrote the coffee table book "EAGLE." In 2018, I produced the photographic
13 book, "The Plight of the Bald Eagle," (Terrence N. Ingram, *The Plight of the Bald Eagle*,
14 Eagle Nature Foundation, 2018) as well as "Silent Fall" (Terrence N. Ingram, *Silent Fall*,
15 Union-Hoermann Press, 2018). I have edited and published the Bald Eagle News for over
16 25 years and the Small Beekeepers' Journal for over 27 years.

17 **Q: What awards or recognitions have you received for your conservation-related**
18 **work?**

19 A: I have received numerous awards and recognitions, including the Albert Nelson Marquis
20 Lifetime Achievement Award in 2018 from the Marquis Who's Who Publication Board;
21 Outstanding Alumnus Award from the University of Wisconsin – Platteville in 2015; the
22 Illinois Environmental Hero Award in 2006; the Protector of the Environment Award
23 from the Chicago Audubon Society in 1983; and the Sol Feinstone Environmental Award

1 from Syracuse University in 1976.

2 **Q: Have you ever served as an expert witness in court or administrative proceedings?**

3 A: Yes and here are some examples. In the 1960s, I testified on behalf of Illinois DNR as an
4 expert witness on bald eagles in a proceeding in which the DNR was trying to stop a ski
5 lift that was proposed for Pere Marquette State Park. The proposed lift, which was
6 ultimately cancelled, would have affected the bald eagles roosting there at night.

7 In 1982, I was an expert bald eagle witness in a lawsuit challenging the proposed
8 construction of the Central Illinois Expressway through Napoleon Hollow in Central
9 Illinois, which resulted in a permanent injunction of the project.

10 In 1983, I was an expert bald eagle witness in a proceeding where the Illinois
11 DNR was planning to allow strip mining at Rice Lake Natural Area in Illinois. The final
12 decision was that the area could not be strip mined until a five year in-depth study of the
13 bald eagles using the area had been completed. The strip mine was never carried out.

14 More recently, I was an expert bald eagle witness in a case where the Illinois
15 Attorney General stopped a company from strip mining 600 acres at the north end of Rice
16 Lake.

17 **Q: What is the purpose of your testimony?**

18 A: My testimony will provide my expert opinion on whether the proposed transmission line
19 and towers will comply with various applicable standards, such as whether they will have
20 an undue adverse impact on environmental values and whether the routing and design of
21 the transmission line and towers minimizes environmental impacts. More specifically, my
22 testimony explains and evaluates the problems that this proposed Cardinal-Hickory
23 Creek high-voltage transmission line and very high towers will have on migrating bald

1 eagles, hawks and many other birds that live in or migrate through the area. Many of
2 these species are already struggling, and the impacts of this proposed transmission line
3 and towers could be very detrimental to their survival. I will explain what damages will
4 be done to the natural resources of the area by the construction of this transmission line,
5 including impacts to various habitats and endangered plants and animals. I have been
6 studying some of these areas through which the transmission line would run for over 50
7 years. My testimony also identifies the lack of proper studies that need to be done to
8 document what these damages will be.

9 **Q: Please summarize your testimony.**

10 A: The construction and operation of this proposed transmission line would have
11 devastating—and certainly undue—adverse impacts on the natural environment. I am
12 especially concerned about the impacts to bald eagles and other migratory birds, which
13 will include both destruction of nesting and feeding habitat during construction, as well
14 as bird collisions if the proposed Cardinal-Hickory Creek transmission line and very high
15 towers are built. The construction and existence of this high-voltage transmission line
16 would likely directly cause the death of numerous individual birds, which could in turn
17 reduce the populations of these birds to such levels that would make it difficult for their
18 populations to survive. The routing and design of the proposed transmission line and
19 towers does not successfully minimize these impacts.

20 I am also concerned about the impact from the construction of access roads. These
21 access roads will affect many different habitats, with their unique plants and animals,
22 making the impact from the construction much broader than just at the locations of the
23 towers themselves.

1 Our nation’s iconic bald eagle is already undergoing significant stresses and this
2 proposed transmission line would increase stressors.

3 **Q: What information and/or documents from this case did you review in preparing this**
4 **testimony?**

5 A: I have looked at the DEIS (PSC REF#: 360500), potential route maps, and the
6 Applicants’ direct testimony (Direct-Applicants-Lee), all of which were of limited use in
7 learning anything about what specific species of birds or plants or habitats would be
8 directly impacted, or in what way they would be impacted. These materials were general.

9 I have lived and studied the birds and plants in this area of Southwestern
10 Wisconsin for over 50 years while teaching at the University of Wisconsin – Platteville
11 for four years and then operating Eagle Valley Nature Preserve for 16 years. The Eagle
12 Valley Nature Preserve, over 1400 acres, was the first known bald eagle roost to be away
13 from a river and as such is listed on the National Register of Historic Places. The Eagle
14 Valley Environmental Center that was on this Preserve was the center for environmental
15 studies, workshops, classes and camps, which I organized and directed for years. I have
16 banded and studied bald eagles, hawks and other birds throughout the area. I have
17 witnessed the decline of all bird species in this area, including the hawks and bald eagles
18 that live in or migrate through this region. In the early 1980's, on four different years I
19 witnessed over 36,000 Broad-winged Hawks migrating overhead in a single day. At that
20 time we could also document over 400 bald eagles migrating past the preserve on a single
21 day. Today very few of either of these birds are seen. Many of these birds do not need
22 another potential stress added to their already stress filled lives. Most of the unique
23 prairie habitats have already been destroyed.

1 **Q: Are you sponsoring any exhibits with your testimony?**

2 A: Yes, I am sponsoring the following exhibit:

3 Exhibit A – Resume of Terrence N. Ingram

4 **Q: Please briefly describe why the Driftless Area and Upper Mississippi River National**
5 **Wildlife and Fish Refuge are important habitat for bald eagles and other birds.**

6 A: Southwestern Wisconsin—specifically the area from the Southern Wisconsin River south
7 to the Potosi /Platteville area—is and has been very important to many migrating birds,
8 including bald eagles and many different hawks. Southwest Wisconsin is one of the best
9 migration routes in the nation for bald eagles and many different hawks. In fact, in this
10 area, the hawk, owl and eagle populations have in the past been greater than in the
11 National Birds of Prey Area in Idaho.

12 Over the years, we have found at least five winter bald eagle roosts in this area
13 from Cassville to Lancaster. Eagles forage for food up to 8.5 miles from their winter
14 roosts, meaning that the area that they cover is significant and eagles that roost several
15 miles away from the proposed transmission line route could still be affected. Over the
16 years there have also been many bald eagle nests scattered around within this area and
17 near the right of way.

18 **IMPACTS ON BIRDS**

19 **Q: What bird species will be impacted by the line?**

20 A: The proposed transmission line would negatively impact bald eagles, broad winged
21 hawks, roughlegged hawks and many varieties of shore birds that migrate through the
22 area. All of these species are now having trouble surviving and do not need another stress
23 on their populations. A major migration route for shorebirds was on a line from East of

1 Apple River to East of Glen Haven right across the right of way, or alternate right of way,
2 as if they were flying along the front edge of the glacier which was present 10,000 years
3 ago. In the late 1970's and early 1980's, I would see thousands and thousands of them on
4 this migration line. Today, we are really pressed to see just one bird.

5 In the 1970's, we used to have communities of roughlegged hawks wintering
6 south of Platteville with one of their nighttime roosts being located almost on the
7 alternative right of way. When they were migrating, we used to see as many as 80 of
8 these hawks flying along their migration route past the right of way just southeast of
9 Lancaster. Now, we are pressed to even see one of these birds during the winter
10 anywhere in the region.

11 Because these birds migrate north/south, the proposed transmission line and high
12 towers cuts perpendicularly right across the migration path of the birds. I expect that the
13 number of bird collisions with the transmission line, if built, will have a significant
14 impact on the overall species populations. There will be tremendous numbers of bird
15 collisions with the transmission line, if built. Many of the bald eagles and hawks, as well
16 as other birds, migrate during the night and may not see the transmission line, especially
17 during foggy, rainy, or stormy days or nights. Eagles can fly more than 80 miles per hour,
18 and this speed makes it especially difficult to avoid obstacles.

19 In addition, we do not know if the electric fields that are created near these high
20 transmission lines will attract the birds during dark nights or during inclement weather
21 when the birds have to rely on their internal compasses as they navigate north or south.
22 These electric fields may even affect those birds that would be nesting near the right of
23 way.

1 The construction of the access roads will also impact many other species of bird
2 life, such as shrikes. Detailed information on what other bird species are living in the area
3 should be determined.

4 **Q: Please briefly describe the harmful impacts that the transmission line's cables and**
5 **tower structures will have on birds.**

6 A: In my opinion, there will be tremendous numbers of bird collisions with the cables and
7 tower structures, especially when the birds migrate in the fog, at night, and during
8 inclement weather. We know that collisions at a TV tower in Eau Claire, Wisconsin
9 killed approximately 30,000 birds in a single night and on many other nights more than
10 1,000 birds were killed. The birds were attracted to the towers in the fog by the light, or
11 perhaps by the electric field, and they collided with the towers' support cables. I
12 personally camped out beneath these cables, and we could hear a bird strike the ground
13 every minute or so all night long. Dr. Charles Kemper wrote this up for the Wisconsin
14 Society of Ornithology newsletter at the time. We need to know if these proposed
15 transmission lines will attract birds during such inclement weather. I have seen migrating
16 lines of roughlegged hawks going right across the proposed high-voltage transmission
17 line route.

18 **Q: What harmful impacts will clearing and maintaining the right of way have on**
19 **birds?**

20 A: As I stated above, the clearing of the right of way, as well as construction of access roads,
21 will cause the destruction of their nesting and feeding habitat. The right of way, access
22 roads, and other construction areas will destroy hundreds of miles of habitat which
23 produces food for the birds nesting there and for the migrating birds. Certain bird species

1 are very specific as to what habitat they use for nesting and what plants need to be near
2 the nests so they can find the proper kind and amount of insects to feed their young.

3 **Q: Please explain the basis for your opinion.**

4 A: Studies have been done by bird banders in Kentucky as to how much body weight is
5 gained when birds stay in the correct habitat for several days during migration. These
6 have been published in the Bird Bander, which is the joint publication of the Eastern,
7 Inland and Western Bird Bander Associations. These papers have also been presented at
8 the Annual Meetings of the Inland Bird Banding Association. This energy may be
9 needed as they continue on their migration south. Without this extra energy, the birds
10 may not survive the migration. This opinion is also based on knowledge I gained when I
11 was an officer of the Inland Bird Banding Association (1961-66 and 1983-85), and
12 Coordinator for the Bird Bander (1984-1989) and my own bird research while teaching at
13 the University of Wisconsin – Platteville (1961-65, 1967-68).

14 **Q: Please discuss the degree or severity and duration of the harmful impacts to birds**
15 **described above.**

16 A: Once the transmission line is in place, if approved, the collision risk would affect
17 migrating birds every spring and fall. I consider this to be a very major risk to migrating
18 birds, especially during cloudy, rainy, and windy nights with inclement weather. Many
19 habitats take 15 to 20 years to develop into productive habitat, but once that habitat is
20 destroyed by this right of way, it would not be allowed to regrow during the time the
21 transmission line is in operation. This could be very devastating to certain birds that
22 require certain varieties of insects that are produced in this habitat. Some of these birds
23 and insect species may not have that much time for their populations to recover.

1 **Q: Will the proposed transmission line and high towers have undue adverse impacts on**
2 **environmental values, such as habitat and/or ecological balance?**

3 A: Yes.

4 **Q: In your professional opinion, does the routing and design of this transmission line**
5 **and high towers minimize environmental impacts?**

6 A: No, the currently proposed routing and design does not minimize environmental impacts.
7 The proposed right of way from Cassville east, northeast to Middleton is cutting right
8 across the main known migration route of many bald eagles, hawks, song birds and
9 shorebirds. Many of these birds, when migrating south, funnel down along the Wisconsin
10 River and then turn south before they reach the Mississippi River. This brings them right
11 across the right of way and the alternative right of way. I have seen many birds,
12 especially eagles, hawks and shorebirds, when migrating northward, flying right over my
13 home in Apple River heading northwest right into this same area of the right of way.

14 **Q: Could bird impacts be reduced through routing or design changes?**

15 I would expect bird impacts to be less severe if the transmission line crossed the
16 Mississippi River near Dubuque, or even farther south. Based on first-hand observations,
17 migrating birds are less concentrated in this area. Bird collisions and electrocutions could
18 be eliminated if the transmission line were built underground.

19 **SPECIES OF CONCERN**

20 **Q: Please briefly explain the importance of protecting species of concern, including**
21 **endangered and threatened species of birds.**

22 A: Every single species—bird, plant and animal—is important to the environment. It is
23 unique because it has a unique place and job in the environment. It has been developed

1 over the ages because it does a unique job. If some other bird could do the job better, the
2 other bird would have developed. There is a very good reason for certain species to be
3 found in certain habitats.

4 **Q: Do bald eagles live in, nest in, or migrate through the area of the planned
5 transmission line and high towers?**

6 A: Yes and they have for many, many years.

7 **Q: How do you know?**

8 A: I have been studying them ever since 1961. In 1963, I documented that there were more
9 bald eagles in Cassville than anywhere else in the Nation during the National Audubon
10 Society's Annual Christmas Count. For the next four years, I had a crew of persons with
11 me as we documented the bald eagle movements and habits every weekend. Then, in
12 1966 – 68, we studied them the same way. We were able to document the movements,
13 feeding territories, migrations and how they migrated in communities. I developed the
14 ability to look at an eagle and be able to tell if it was migrating or just flying around in its
15 feeding territory. I found out how to find an eagle roost within a matter of several hours.

16 **Q: Have you reviewed the applicants' Endangered Resource Review (ER Review)
17 provided in Ex.-Applicants- Application-Appx. J: Ex. 1 and the follow-up actions it
18 requires for the proposed transmission line and high towers if threatened and/or
19 endangered species are present?**

20 A: Yes, I have.

21 **Q: What concerns do you have based on the information contained in the ER Review
22 regarding the proximity of known locations of special concern species to the
23 proposed routes?**

1 A: The ER Review does not discuss the fact that there are several bald eagle nighttime
2 winter roosts within just a few miles of the right of way or the alternate right of way, and
3 thus are within the feeding territory of those eagles. Each day within the feeding territory,
4 the bald eagles will fly around at the approximate height of the transmission line looking
5 for food, thereby creating a significant risk of collision. This risk is greatly enhanced near
6 a communal roost where there may be as many as 50 -100 eagles flying in that area.

7 **Q: What is your professional opinion of the adequacy of the environmental review and**
8 **its proposed follow-up actions?**

9 A: It is very inadequate. It does list some the birds and animals and some plants that may be
10 impacted. But in every instance they claim that if the construction of this proposed
11 transmission line would "take" (kill) a species, all the power company has to do is file for
12 a take permit for the killing of that individual species.

13 **Q: In your professional opinion, are the Applicants' proposed avoidance, mitigation,**
14 **and minimization measures for impacts to endangered and threatened species**
15 **adequate and sufficient?**

16 A: No. The required distance of a 660 foot buffer from an active bald eagle nest is
17 inadequate. It should be at least one-quarter mile (1,320 feet) from January 15 to July 30.
18 In the 1960's, the National Forest Service began to require a one-quarter mile buffer in all
19 of their National Forests and at that time more immatures were then raised each year by
20 the nests. The right of way should be more than one-half mile from any nighttime eagle
21 roost. We can have anywhere from 40 or 50 bald eagles up to hundreds of bald eagles
22 using a communal roost.

23 **Q: Will the proposed transmission line and high towers have undue adverse impact on**

1 **Q: Does the DEIS fail to disclose negative impacts to the cultural and natural resources**
2 **of the Driftless Area, or mischaracterize the scope, intensity, or duration of**
3 **impacts?**

4 A: Yes.

5 **Q: Please explain.**

6 A: The DEIS only provides general statements and does not explain adverse impacts in
7 sufficient detail. For example, it does not address each access road and its impacts on the
8 environment. It does not explain what birds will be impacted by each access road, nor
9 what specific plant species will be destroyed in the right of way, or by the construction of
10 the access roads.

11 **Q: Is there information missing from the DEIS that is critical to analyzing the actual**
12 **species and habitat impacts?**

13 A: The DEIS states that a qualified biologist should conduct studies to determine what
14 species actually are living in the right of way to determine if any endangered species will
15 be affected. These should be qualified field biologists with specialties in each field: an
16 experienced field ornithologist to look for the birds; an experienced field bat specialist to
17 look for bats; an experienced moth and butterfly specialist to look for moths and
18 butterflies; an experienced field botanist to study the plants, etc.

19 Repeated field studies should be carried out. For example, there should be definite
20 three-week plant studies by field experts done on each access road and tower location as
21 well as nesting and migration bird studies done for each tower location. Plant life changes
22 every three weeks on a prairie and if these studies are not done every three weeks we will
23 not know for sure what is going to be affected.

1 Q: Does this conclude your direct testimony?

2 A: Yes.