



ENVIRONMENTAL LAW & POLICY CENTER
Protecting the Midwest's Environment and Natural Heritage

January 4, 2019

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RE: Docket No. 5-CE-146 – Driftless Area Land Conservancy's and Wisconsin Wildlife Federation's Comments on the Scope of the Environmental Impact Statement

Dear Ms. Burtley, Ms. Craft and Mr. Callan:

The Driftless Area Land Conservancy and Wisconsin Wildlife Federation hereby submit their attached Comments on the Scope of the Environmental Impact Statement for the proposed Cardinal-Hickory Creek High-Voltage transmission line and tall towers in Docket No. 5-CE-146. We appreciate the Public Service Commission's and the Department of Natural Resources' consideration of these Comments and would be pleased to address any questions or suggestions that may arise. Thank you for your and the Commission's and the Department's consideration.

Sincerely,

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**COMMENTS OF THE DRIFTLESS AREA LAND CONSERVANCY
AND WISCONSIN WILDLIFE FEDERATION TO THE
PUBLIC SERVICE COMMISSION OF WISCONSIN
ON ITS SCOPING OF THE ENVIRONMENTAL IMPACT STATEMENT
FOR THE PROPOSED CARDINAL-HICKORY CREEK HIGH-VOLTAGE
TRANSMISSION LINE THROUGH WISCONSIN'S DRIFTLESS AREA**

Submitted on behalf of the
Driftless Area Land Conservancy
and Wisconsin Wildlife Federation
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OVERVIEW AND SUMMARY OF COMMENTS

The Driftless Area Land Conservancy and the Wisconsin Wildlife Federation, and their members, submit these comments to inform the Public Service Commission of Wisconsin's ("PSC") scoping process for the Environmental Impact Statement ("EIS") on its decision whether or not to grant a Certificate of Public Convenience and Necessity ("CPCN") for American Transmission Company's ("ATC"), ITC's and Dairyland Power Cooperative's ("Dairyland") controversial proposed Cardinal-Hickory Creek high-voltage transmission line and 17-story tall towers, which would cut a large damaging swath through the vital natural resources of the scenic Driftless Area in Wisconsin. The applicants have also requested approval of permits from the Wisconsin Department of Natural Resources ("DNR") and from federal agencies for this proposed transmission line and very tall towers. The Driftless Area Land Conservancy and the Wisconsin Wildlife Federation submit these scoping comments to identify how the state's EIS must rigorously explore and objectively evaluate impacts before the CPCN and Wisconsin DNR permitting processes can get under way.

Why should the PSC and DNR approve a CPCN for this costly huge interstate transmission line and very high towers that would: (1) cause great environmental damage to the Driftless Area landscape and communities, (2) raise utility rates, and (3) allow eminent domain takings of private property, (4) especially when this transmission line is not needed "to keep the lights on" in terms of reliability, and (5) when there are better cost-effective alternative transmission solutions that would provide more clean energy development, job creation and economic growth in Wisconsin instead of bearing the burdens of transferring an out-of-state mix of fossil fuel, wind and nuclear energy going through Wisconsin to somewhere "out east"?

The proposed huge Cardinal-Hickory Creek high-voltage transmission line and 17-story tall towers are not needed to provide for reliable electricity services in Southwest-Central Wisconsin. Over the past decade, electricity demand and sales have been flat in Alliant-WP&L's and MGE's service territories even as the utilities have gained more customers. For the next decade, many energy experts forecast flat and declining electricity demand and sales as: (1) energy efficient lighting ("LEDs"), refrigerators and other appliances, HVAC, pumps and motors improve and continue their market penetration; and (2) solar energy combined with energy storage gains increased market share as the technology rapidly improves and prices drop for residential, commercial and industrial, and governmental customers. The electricity services market is transforming as rapidly as wireless services transformed the telecommunications market from landlines to smart phones, changing the ways that we live and work.

In short, there is no apparent shortage of electricity supply in Southwest-Central Wisconsin that requires importing more out-of-state power and building the costly and environmentally destructive proposed Cardinal-Hickory Creek high-voltage transmission line with Wisconsin as a pass-through state. ATC's CPCN request to the PSC does not make the case that this huge high-voltage transmission line is somehow needed, in the vernacular, "to keep the lights on." Instead, ATC is arguing that the proposed transmission line will provide economic benefits based on skewed assumptions as the electricity produced by fossil-fuel (coal and natural gas), wind and nuclear power plants in the Dakotas, Iowa and Minnesota is transported across Wisconsin, to unspecified power purchasers to the east somewhere.

By law, the proposed transmission line would be an "open access" transmission line for which all power generators could bid to reserve capacity. Surplus lignite coal plant generators in North Dakota, surplus nuclear power generators in Minnesota and Iowa, and surplus wind power

generators are all eligible to bid in order to keep running as each of the states (e.g., Illinois, Iowa, Minnesota, North Dakota) has surplus generating plants that they are subsidizing through utility rates and other charges with hopes to export the surplus energy to somewhere else. Nuclear power plants and fossil-fuel power plants can run 24/7, while wind energy runs mostly at night, instead of during the day when electricity demand and sales are highest. Wind energy and nuclear power generators economically prevail during the night-time power market, but natural gas-fired, coal-fired and nuclear power plants supply most of the day-time market. Solar energy generation is starting to grow in Wisconsin and will serve the day-time market; combined with energy storage, it can provide 24/7 power. That technological change is accelerating now and over the next five years before the proposed Cardinal-Hickory Creek transmission line would even begin to operate in 2023 or 2024 at the earliest, if ATC and its partners were to obtain all of the required approvals and withstand appeals to the courts.

Under the Wisconsin Environmental Policy Act (“WEPA”), Wis. Stat. § 1.11, the EIS must fairly evaluate the “purpose and need” for the proposed action (PSC 4.30(3)(am)), assess whether the purported “need” is substantiated, and then “[s]tudy, develop, and describe appropriate alternatives.”¹ Wis. Stat. § 1.11(2); PSC 4.30. The EIS must be “detailed” and address: (1) the environmental and economic impacts of the proposed Cardinal-Hickory Creek transmission line, and (2) the indirect and cumulative impacts of past projects, such as the Badger Coulee transmission line and towers, and (3) the indirect and cumulative impacts of reasonably foreseeable future projects. The EIS must identify and evaluate methods for “avoiding or minimizing environmental impacts.” PSC 4.30(1)(a).

¹ WEPA also incorporates the Council on Environmental Quality’s (“CEQ”) environmental review guidance, and Wisconsin courts have recognized that CEQ guidance and National Environmental Policy Act (“NEPA”) case law are relevant to a proper interpretation of WEPA’s requirements. *Wisconsin’s Env’tl. Decade, Inc. v. Pub. Serv. Comm’n*, 79 Wis. 2d 161, 174 (1977); *Family Farm Defs., Inc. v. Wisconsin Dep’t of Nat. Res.*, 2014 WI App 24, ¶ 19, 352 Wis. 2d 754, 843 N.W.2d 710 (unpublished).

ATC's, ITC's, and Dairyland's controversial proposed Cardinal-Hickory Creek high-voltage 345 kV transmission line and its very tall towers would run for up to 135 miles starting in Dubuque County, Iowa, cross the Mississippi River at Cassville, cut through the protected Upper Mississippi River National Wildlife and Fish Refuge, and then run through various proposed corridors, through which it would cut a wide swath through designated conservation areas and some of Wisconsin's most scenic landscapes before terminating in Middleton, just west of Madison. This proposed transmission line and towers would run by and through parklands and conservation areas such as the Military Ridge Prairie Heritage Area, which the Wisconsin Department of Natural Resources identifies as the highest priority for landscape-scale grassland protection and management in Wisconsin, and the continentally significant Dodgeville and Wyoming Oak Woodlands/Savanna Conservation Opportunity Area.

Applicants ATC et al. have projected that the proposed high-voltage transmission line cutting a wide swath through the scenic Driftless Area will cost at least \$500 million to build, plus financing costs and then the guaranteed annual "rate of return" (i.e., profit) that would be charged to consumers, as well as future operating and maintenance and retrofitting costs. Over time, consumers will apparently be charged much more than \$1 billion on their electricity bills for the proposed Cardinal-Hickory Creek transmission line if it is approved.

The Driftless Area

The Driftless Area is the Midwest's most unique eco-region and special scenic landscape. The Driftless Area is recognized internationally and by the Departments of Natural Resources in four states as a region of vital conservation opportunity and concern. Because this area was untouched by glaciers over the past roughly 2 million years, the landscape was not impacted by glacial drift, and thus unique and ancient natural communities remain. The special and beautiful

Driftless Area topography contains hundreds of rolling hills with deep river valleys nestled in woodland, prairie and riparian habitats. More than 1,200 streams, including world-class trout fishing streams, traverse more than 4,000 river miles and create a network of 600 spring-fed creeks that flow through porous limestone bedrock, sustaining many uncommon species and serving as a rest stop for more than half of North America's migratory bird species.

The U.S. Department of Agriculture recognizes that the Driftless Area's "diversity of habitat provides critical habitat for dozens of species of concern in the State Wildlife Action Plans, and has been cited as one of North America's most important resources."² The proposed route for the proposed high-voltage transmission line and 17-story tall towers would run through and damage the Upper Mississippi National Wildlife and Fish Refuge, multiple conservation areas and parklands, the Military Ridge Prairie Heritage Area and the Black Earth Creek Watershed Area, among other places. The Nature Conservancy, for example, states on its website that:

The Military Ridge Prairie Heritage Area (MRPHA) is a 95,000+ acre grassland landscape in Dane and Iowa counties in southwest Wisconsin. The area provides habitat for 14 rare and declining grassland bird species and contains more than 60 prairie remnants, representing one of the highest concentrations of native grasslands in the Midwest. The agricultural history of the area has helped keep the landscape much as it was when the first settlers saw it and has made it possible for plants and animals like grassland birds, which have disappeared in more developed parts of the Midwest, to survive.

The MRPHA has been identified as the highest priority for landscape-scale grassland protection and management in Wisconsin by the Wisconsin Department of Natural Resources and represents one of the best opportunities in the Midwest to protect prairie remnants and area sensitive species, such as grassland birds.³

² U.S. Department of Agriculture, Regional Conservation Partnership Program, *Investing in Wisconsin – 2016*, http://www.nrcs.usda.gov/wps/PA_NRCSCconsumption/download?cid=nrcseprd623814&ext=pdf.

³ <https://www.nature.org/en-us/get-involved/how-to-help/places-we-protect/priority-area-military-ridge-prairie-heritage-area/> (as of January 2, 2019).

The proposed Cardinal-Hickory Creek transmission line and very tall towers would run right through the Military Ridge Prairie Heritage Area for many miles from around Dodgeville to around Mt. Horeb. “State, Federal and local governments have invested over \$100 million dollars in [Driftless Area] lands for fish and wildlife habitat, public access and recreational purposes including hunting, fishing, trapping, biking, hiking and birdwatching which generate scores of millions of dollars into the local and state economies,” according to George Meyer, former Secretary of Wisconsin DNR. Meyer, Att. C at 1.

Wisconsin Natural Resource and Conservation Experts: Excerpts of Attached Comments

Because of the extraordinarily important natural resources threatened by this proposed transmission line in Wisconsin’s Driftless Area, some of Wisconsin’s leading conservationists and scientists are joining with the Driftless Area Land Conservancy and Wisconsin Wildlife Federation to oppose the Cardinal-Hickory Creek transmission line. Their comments are incorporated by reference and attached as exhibits hereto:

- **Catherine Bleser**, (retired) Wisconsin DNR environmental analyst and conservation biologist (served 1985-2014) whose responsibilities during nearly 30 years with the DNR included Endangered Resources impact analysis for statewide utility corridors and other projects, WEPA/NEPA coordination and compliance for DNR’s Southern Region (now District), DNR liaison to WisDOT for transportation corridor projects in that Region; and Regional Conservation Ecologist for the Southern Region. Ms. Bleser states in part:

“The EIS should not only address all the biological and conservation land issues . . . but just as significantly, perhaps most significantly, the impact on the overall integrity of this unique prairie landscape.”

Bleser, Att. A at 2.

- **Steve Born**, Professor Emeritus and former Chair of the Urban and Regional Planning

Department at the University of Wisconsin. Mr. Born explains in part:

The Driftless Area has a “a psychic identity in the minds of people and institutions . . . so much so that it has taken on a brand name in promoting ecotourism, the regional economy, and the overall quality of life. The maintenance of this regional character will be increasingly important to the growth of recreation, tourism, and sustainable agriculture in the future.”

Born, Att. B at ¶ 1.

- **George Meyer**, current Executive Director of Wisconsin Wildlife Foundation, and former Secretary of Wisconsin DNR from 1993 to 2003, after having served in other capacities at DNR starting in 1970. Mr. Meyer states:

“The Driftless Area and specifically the locations proposed to be traversed by the Cardinal-Hickory Creek transmission line provide critical habitat for fish and wildlife in this state. The landscape in the Driftless Area provides a unique combination of wetlands, streams, forests and prairies that is not replicated in the United States. State, Federal and local governments have invested over \$100 million dollars in lands for fish and wildlife habitat, public access and recreational purposes including hunting, fishing, trapping, biking, hiking and birdwatching which generate scores of millions of dollars into the local and state economies. The value of these public lands will be significantly degraded by the construction of the proposed Cardinal-Hickory Creek transmission line.”

Meyer, Att. C at 1.

- **Curt Meine**, Senior Fellow at The Aldo Leopold Foundation, and Adjunct Faculty at the University of Wisconsin. Mr. Meine explains in part:

“Many have found in the Driftless Area a place to create more sustainable ways to live, and to make a living, on the land, and to build a more resilient future for ourselves and for generations to come. All of this depends on *the quality of our Driftless landscape* and on *our capacity as citizens to influence the decisions* that shape it.”

Meine, Att. D at 1.

- **Don Waller**, J.T. Curtis Professor of Botany and Environmental Studies (former Department Chair) at the University of Wisconsin. Professor Waller explains in part:

“As a professional conservation biologist, I am concerned about the environmental impacts of this proposed transmission line as I know this project would have both immediate and sustained deleterious impacts on plant, bird, and other animal populations in the region.”

Waller, Att. E at ¶ 1.

The Driftless Area Land Conservancy and the Wisconsin Wildlife Federation

The Driftless Area Land Conservancy (“DALC”) was named Wisconsin’s 2017 Land Trust of the Year. DALC is a not-for-profit conservation organization with many local members who work to maintain and enhance the health, diversity and beauty of Southwest Wisconsin's natural and agricultural landscape through permanent land protection and restoration and other preservation actions, and to improve people's lives by connecting them to the land and to each other. DALC protects land and other natural resources in the Southwest Wisconsin area throughout the proposed Cardinal-Hickory Creek transmission line corridors. Over the past 10 years, DALC has protected over 6,000 acres of natural lands, including nearly 5,000 acres in Iowa County alone. The proposed huge transmission line and very tall towers will directly affect several of DALC’s conservation lands, including a historic barn on Wisconsin’s State Register of Historic Places. DALC has serious concerns about the significant adverse environmental impacts of the proposed transmission line and very high towers in the Driftless Area. DALC’s members and volunteers live in, own property in, and use and enjoy the Driftless Area near the proposed transmission line corridors. DALC members hike, bike, fish, camp, hunt, swim, boat, ski, picnic and otherwise enjoy the state parks, natural areas, recreation areas, conservation lands and waterways, scenic landscapes and other resources that would be harmed by the proposed high-voltage transmission line and 17-story tall towers.

The Wisconsin Wildlife Federation (“WWF”) is a conservation group including hunters, anglers, trappers, and other individuals that are actively engaged in the outdoors.

Formed in 1949, WWF has individual and organizational members who reside or operate within Wisconsin. WWF seeks to protect long-term sustainability of fish and wildlife populations, a goal which depends on clean water, clean air, and healthy forests and grasslands. WWF advances its mission through conservation education and promotion of sound conservation policies on the state and federal level.

Scope of the EIS under WEPA

The PSC's scoping of the EIS must fully and fairly consider a number of key issues and alternatives under the applicable laws:

1. The “purpose and need” section of the EIS must determine whether the proposed transmission line is needed to “satisf[y] the reasonable needs of the public for an adequate supply of electric energy,” Wis. Stat. 196.491(3). The PSC's EIS is required to inform its decision on whether to issue a CPCN for the proposed Cardinal-Hickory Creek transmission line. Accordingly, the “purpose and need” that must be demonstrated is the legal standard for need set out in the CPCN statute—is the project necessary to assure an adequate supply of electric energy to Wisconsin consumers? The PSC must evaluate the need for the project based on current data, and may not, for example, rely on outdated projections of ever-growing demand for electricity, when the facts show that electricity demand in Wisconsin (and northern Illinois) is flat or declining. *See* 40 C.F.R. § 1500.1 (“The information [in EIS documents] must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing [WEPA].”). The PSC cannot frame the purpose and need narrowly so as to foreclose reasonable alternatives. *E.g., Simmons v. United States Army Corps of Engineers*, 120 F.3d 664, 666 (7th Cir. 1997).

2. **The EIS must “study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources,” and must evenhandedly and fairly compare alternatives to the proposed action.** Wis. Stat. § 1.11(2)(e); PSC 4.30. The PSC has a duty to develop and evaluate reasonable alternatives to the proposed transmission line, including: (1) a no-build alternative, (2) alternative transmission solutions, (3) non-transmission alternatives, and (4) alternative routes that would bypass the Driftless Area, including the Upper Mississippi National Wildlife and Fish Refuge. Furthermore, these alternatives must be “rigorously explore[d] and objectively evaluate[d].” 40 C.F.R. § 1502.14. This obligation is “greater than the simple taking into account of alternatives by the agency in its decision-making. The agency must ‘study, develop, and describe’ alternatives. Thorough agency action is required.” *Wisconsin's Env'tl. Decade, Inc. v. Pub. Serv. Comm'n*, 79 Wis. 2d 161, 175 (1977). Alternative transmission solutions, which the Rural Utility Service’s draft EIS erroneously fails to meaningfully evaluate, include distributed solar and wind generation, energy storage, and demand response, among other viable approaches. The PSC’s EIS must consider portfolios of these solutions, in combination with low-voltage options, transmission upgrades, and non-transmission alternatives like energy efficiency. Furthermore, the EIS must fairly compare the costs and benefits of these alternatives to the proposed actions on a fair basis.

3. **The EIS must address the full range of all significant direct, indirect and cumulative environmental and socioeconomic impacts**, including “short-term and long-term effects,” “irreversible and irretrievable commitments of resources,” “socioeconomic effects,” “archaeological, architectural and historic significant of any affected resources,” and agricultural impacts. PSC 4.30(3). The EIS must also evaluate impacts on “ecological balance, public health

and welfare, historic sites, geological formations, the aesthetics of land and water and recreational use,” and on land use and development plans for the area. Wis. Stat. § 196.491(3)(d).

The proposed Cardinal-Hickory Creek transmission line will have significant adverse effects on the environment in the Driftless Area. It would run by and cut through parklands and conservation areas such as the Military Ridge Prairie Heritage Area, the continentally-significant Dodgeville and Wyoming Oak Woodlands/Savanna Conservation Opportunity Area, and the Upper Mississippi River National Wildlife and Fish Refuge. It would impact the Pecatonica State Trail, Military Ridge State Trail, Blue Mound State Park, and Governor Dodge State Park, and cause habitat destruction that would impact many species. It would harm many trout streams and exceptional and outstanding water resources. The proposed transmission line would also negatively impact and impair the value of privately-held conservation easements, including several held by DALC. It will also have significant aesthetic impacts—a visual blight against the scenic and rural character of the area—and will harm tourism and outdoor recreation in the area. It will impair organic farming and family farms in the area.

The PSC and DNR must also examine the “cumulative impacts” of the new Badger-Coulee transmission line, other energy projects and non-energy projects, and the proposed Cardinal-Hickory Creek transmission line and very tall towers in the Driftless Area. The PSC and DNR must analyze these and additional impacts of the proposed project and compare them to the impacts of all reasonable alternatives. Wis. Stat. § 1.11(2); PSC 4.30(1), (3).

4. The EIS must consider and analyze alternatives against Wisconsin’s siting and energy priorities law for proposed new high-voltage transmission lines. The Wisconsin Energy Priorities Law, Wis. Stat. § 1.12, establishes a clear, specific priority order for siting all new

transmission lines and related facilities, and many segments of the proposed routes for the Cardinal-Hickory Creek transmission line do not comply with this standard.

The law also requires that in meeting energy needs, energy conservation and efficiency and renewable resources must be prioritized. Development of local resources that advance Wisconsin's clean energy economy must therefore be prioritized above importing a mix of electricity from the Dakotas, Iowa and Minnesota, which will include electricity generated by a mix of coal plants, gas-fired plants, wind plants and nuclear power plants.

The USDA - Rural Utilities Service's ("RUS") draft federal EIS for the proposed Cardinal-Hickory Creek transmission line does not comply with the National Environmental Policy Act in multiple respects, as DALC and WWF will explain in our comments that are due to be filed on February 5, 2019, and the draft federal EIS does not comply with WEPA and the PSC environmental review rules. It therefore falls to Wisconsin's PSC and DNR to do a full and fair EIS that complies with applicable laws and serves the public's interests in this important case.

I. THE EIS "PURPOSE AND NEED" MUST DEMONSTRATE THAT THE PROPOSED TRANSMISSION LINE IS NEEDED TO SATISFY THE REASONABLE NEEDS OF THE PUBLIC FOR AN ADEQUATE SUPPLY OF ELECTRIC ENERGY, AND MUST EVALUATE ALL REASONABLE ALTERNATIVES TO MEET ANY SUCH DEMONSTRATED NEED.

The purpose and need statement is a key part of the EIS process: it frames the issues that need solving and the realm of possible alternatives. Wisconsin law provides that the applicant for a CPCN must demonstrate and the PSC must determine that a transmission line is needed to "satisf[y] the reasonable needs of the public for an adequate supply of electric energy," Wis. Stat. 196.491(3). The EIS must therefore evaluate whether the proposed action is actually needed to provide an adequate supply of electricity to the public in Wisconsin. This analysis must rely on current objective data and facts about the specific proposed action. The EIS must also develop

and analyze all reasonable alternatives, including alternative transmission solutions and non-transmission alternatives, to meet any demonstrated need. As a matter of law, the purpose and need may not be written so narrowly so as to preclude consideration of alternatives such as local renewable generation, energy efficiency, energy storage, demand response, and distribution system upgrades.

A. There Is No Need for the Proposed Transmission Line Because Electricity Demand Is Flat or Declining, and the PSC Cannot Simply Rely on MISO's Outdated and Non-Specific Analysis.

ATC et al.'s application fails to demonstrate that the proposed line is needed to provide enough electricity to meet demand in Wisconsin. In fact, the utilities' own actual data over the past decade show that electricity demand and sales are flat and potentially declining in southwest and central Wisconsin (and much of the Midwest). The PSC's analysis of whether there is a need for the transmission line cannot, as the RUS draft EIS does, just rely on the Midcontinent Independent System Operator's ("MISO") multi-value project portfolio ("MVP") analysis conducted nearly a decade ago—which, for example, projected annual electricity demand growth of 1.25%—that is inconsistent with the actual facts as the Wisconsin and Midwest energy market have since significantly changed.

First, MISO analyzed the benefits of the MVP portfolio as a whole. MISO did not examine the benefits and value of individual transmission lines. MISO never found a separate need for the Cardinal-Hickory Creek transmission line in 2011 or, needless to say, in today's electricity market. Nor did MISO conduct a cost-benefit analysis of the proposed Cardinal-Hickory Creek transmission line or analyze alternative transmission solution or non-transmission alternatives. Moreover, the Cardinal-Hickory Creek transmission line is the last of the MVP lines, and therefore the question of whether this last line is still needed in Wisconsin today must be rigorously explored and objectively evaluated in the EIS.

Second, the MISO MVP data is outdated. The proposed Cardinal-Hickory transmission line is the last and most expensive of the 17 lines in the MVP portfolio designated by MISO in 2011. The Midwest electricity market, especially in Illinois, Michigan, Minnesota, Ohio and Wisconsin, however, has greatly changed since 2011. Electricity demand and sales have flattened or declined because of energy efficiency, demand response, distributed generation, and due to the continued overall economic transition from energy-intensive heavy manufacturing to information technology and service-focused businesses. MISO based its MVP transmission lines analysis on forecasts that energy demand would increase by about 0.78% – 1.28% annually from 2012 – 2021. What has actually happened is quite different in the MGE and WP&L service areas, and in neighboring Illinois and Minnesota, too. Both MGE's and WP&L's total electricity sales have stayed essentially flat (or decreased) over the past decade, even as the utilities gained additional net new customers.

MGE's highest retail electricity sales were in 2007 (pre-economic recession) and in 2011 (post-economic recession). From 2007 to 2017, MGE retail electricity sales fell by roughly 3.2%. Total electricity sales decreased by roughly 2.27% over the same period, notwithstanding a growing economy and an 11.03% increase in the number of customers.

Alliant-WP&L's second-highest retail electricity sales were in 2007 (pre-economic recession) and declined steadily for nearly a decade before reaching a slightly higher level in 2016 and then declining again in 2017. Between 2007 and 2017, total electricity sales decreased notwithstanding economic growth and a 4.03% increase in the number of customers.

Therefore, there has, in fact, been much lower electricity sales and demand in MGE's and WP&L's service areas than in MISO's regional forecast when it included the proposed Cardinal-Hickory Creek transmission line in its overall project portfolio based on electricity demand

projections that were made almost a decade ago. The Wisconsin economy has grown, but more energy efficiently. The delta between actual electricity sales and MISO's projected electricity sales is substantial. The declining/flat electricity sales trend line is clear. The charts below provide MGE's and WP&L's self-reported data in their filings with the U.S. Securities & Exchange Commission:

<u>MG&E</u>	<u>Retail Electricity Sales (MWh)</u>	<u>Diff. f/Prior Year</u>	<u>Total Electricity Sales (MWh)</u>	<u>Diff. f/Prior Year</u>	<u>Customers</u>	<u>Cooling Degree Days Norm-665</u>	<u>Heating Degree Days Norm-7,047</u>	<u>Summer Peak (MW)*</u>	<u>Winter Peak (MW)*</u>
2017	3,237	(2.6)	3,354	(4.4)	151,000	580	6,569		
2016	3,323	0.1	3,507	4.5	149,000	780	6,417		
2015	3,289	(0.3)	3,357	(0.3)	146,000	666	6,395		
2014	3,298	(0.5)	3,366	-	143,000	620	7,887	690	525
2013	3,314	(0.9)	3,365	(0.3)	141,000	709	7,658	734	507
2012	3,343	(0.3)	3,374	(1.2)	140,000	1,068	5,964	767	499
2011	3,353	0.8	3,415	1.4	139,000	814	6,993	778	483
2010	3,327	4.1	3,368	4.9	139,000	829	6,798	714	498
2009	3,195	(4.0)	3,210	(5.1)	138,000	368	7,357	694	507
2008	3,327	(0.5)	3,381	(1.5)	137,000	538	7,716	673	515
2007	3,344	2.8	3,432	2.5	136,000	781	6,935	684	516
2006	3,253	(0.7)	3,348	(3.3)	135,000	637	6,520	742	508
2005	3,277		3,464			847	6,840	689	508

*2015, 2016, 2017 data unavailable
Data from MGE SEC 10-K Filings
2017 Data: <https://www.mgeenergy.com/documents/sec-reports/sec-forms-10k-10q/20171231-10k.pdf>
<https://www.mgeenergy.com/documents/annual-reports/2017-annual-report.pdf>

<u>WP&L</u>	<u>Retail Electricity Sales (MWh)</u>	<u>Diff. f/Prior Year</u>	<u>Total Electricity Sales (MWh)</u>	<u>Diff. f/Prior Year</u>	<u>Customers</u>	<u>Cooling Degree Days Norm-663</u>	<u>Heating Degree Days Norm-7,046</u>	<u>Summer Peak (MW)</u>	<u>Winter Peak (MW)</u>
2017	10,739	(0.7)	13,629	(1.7)	471,526	578	6,569	2,476	2,100
2016	10,816	2.5	13,868	(4.0)	468,451	780	6,420	2,681	2,131
2015	10,556	(0.2)	14,437	3.0	463,346	665	6,667	2,564	2,153
2014	10,572	2	14,023	(1.6)	465,416	620	7,884	2,594	2,202
2013	10,364	(0.2)	14,246	0.5	462,679	709	7,627	2,752	2,120

2012	10,384	1.4	14,179	(0.8)	460,446	1,070	5,964	2,851	1,964
2011	10,241	1.7	14,291	4.1	458,894	814	6,992	2,761	1,991
2010	10,068	2.8	13,733	(4.1)	457,042	829	6,798	2,654	2,104
2009	9,795	(6.4)	14,396	1.4	455,752	368	7,356	2,558	2,265
2008	10,464	(3.1)	14,203	(5.2)	455,331	538	7,754	2,583	2,210
2007	10,801	0.6	14,985	0.4	453,051	781	6,935	2,816	2,316
2006	10,738	0.4	14,921	(1.5)	458,517	637	6,499	2,941	2,362
2005	10,698		15,144		452,679	847	6,796	2,854	2,280
Data from Alliant Energy SEC 10-K Filings. 2017 data: https://alliantenergy.gcs-web.com/node/24641/html									

These overall flat or lower demand trends (and the consequent surplus electric generating supply) are not isolated to Wisconsin, but are occurring throughout most of the Midwest.

Third, the PSC must consider the purported need for this additional controversial proposed huge Cardinal-Hickory Creek high-voltage transmission line in light of other new high-voltage transmission lines recently built in the area. For example, the PSC recently approved a Certificate of Public Convenience and Necessity for the new Badger-Coulee 345 kV high-voltage transmission line—connecting Minnesota and La Crosse to Middleton, Wisconsin—that will likewise import out-of-state electricity supply from Iowa, Minnesota, North Dakota and South Dakota.

Fourth, ATC et al.’s application does not provide any meaningful new or additional information that this additional huge transmission line is needed to meet electricity demand in Wisconsin. Rather, ATC’s application claims that the line may bring in more out-of-state electricity supply which will reduce prices in the market, but at what costs in terms of harmful environmental and economic impacts to Wisconsin? Even the applicants’ claimed benefits must be compared to those offered by alternative transmission solutions that can be less expensive and create more in-state jobs and economic development.

Fifth, ATC claims that the transmission line would be used to bring wind power into Wisconsin, but that is just one part of the fuller picture. This is an “open access” transmission line that would also carry fossil-fuel generated electricity from underutilized coal plants and gas-fired plants in Minnesota, Iowa and North Dakota. The PSC must analyze the possibility that this proposed transmission line may actually help prop up fossil-fuel plants to the west that would otherwise retire.

Wind generation in the Midwest runs mostly at night when electricity demand is low as opposed to during the day when electricity demand spikes and peaks. The fossil-fuel plants and nuclear power plants are running during the daytime. Wisconsin solar energy development is accelerating, and this generation occurs during the day when demand is highest. Moreover, when distributed solar generation is combined with storage, it is a 24/7 energy supply.

Sixth, a legally-permissible “purpose and need” must do more than lock in significant private profits (i.e., rate of return) for ATC and others, and give privately-owned electricity generators from outside of Wisconsin—coal, gas, wind, or nuclear—greater access to profit by selling their power to private electricity buyers somewhere in the eastern United States. That raises serious statutory and, indeed, constitutional, questions as to whether there is a sufficient Wisconsin “public use” or “public purpose” involved here to justify condemning private property by eminent domain.

B. The EIS Purpose and Need Must Not Foreclose Consideration of Reasonable Alternatives, Including Alternative Transmission Solutions.

The “purpose and need” for the project as laid out in the developers’ application and adopted without analysis in the RUS’s draft EIS, is also flawed because it is impermissibly narrow. The PSC’s purpose and need must be written broadly enough not to foreclose reasonable alternatives. As explained in *Simmons v. United States Army Corps of Engineers*, 120 F.3d 664,

666 (7th Cir. 1997), in the context of an EIS under NEPA, which served as a template upon which WEPA was designed, an agency must consider “all reasonable alternatives” in an Environmental Impact Statement, and “[n]o decision is more important than delimiting what these ‘reasonable alternatives’ are. . . . To make that decision, the first thing an agency must define is the project’s purpose. . . . The broader the purpose, the wider the range of alternatives; and vice versa.”

A project’s purpose and need may not be defined so narrowly as to preclude a genuine analysis of a reasonable range of possible alternatives:

[A]n agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency’s power would accomplish the goals of the agency’s action, and the EIS would become a foreordained formality. Nor may an agency frame its goals in terms so unreasonably broad that an infinite number of alternatives would accomplish these goals and the project would collapse under the weight of the possibilities.

Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 198 (D.C. Cir. 1991) (internal citations omitted); *see also Simmons*, 120 F.3d at 666 (“[I]f the agency constricts the definition of the project’s purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role.”); *Van Abbema v. Fornell*, 807 F.2d 633 (7th Cir. 1986) (“[T]he evaluation of ‘alternatives’ mandated by NEPA is to be an evaluation of alternative means to accomplish the *general* goal of an action; it is not an evaluation of the alternative means by which a particular applicant can reach his goals.”) (emphasis in original).

The application’s “purpose and need” is not appropriate, nor is the purpose and need discussion in RUS’s draft EIS. The “Project Need” section asserts that the massive transmission line “fulfills a well-recognized and longstanding need to tie-in the 345 kV electric transmission systems in southwest and southcentral Wisconsin and Iowa,” alleging that the existing

transmission lines are “inadequate to serve future needs.” Application at 32. The PSC must determine: (1) whether there is an actual need to assure reliability – i.e., “keeps the lights on” in southwest and southcentral Wisconsin – and (2) whether the proposed action would meet that need, and (3) whether there are better ways to meet the need. The PSC may not write a purpose and need statement essentially arguing that a new transmission line is needed. Defining the need so narrowly would impermissibly create a self-fulfilling prophecy under which only that proposed transmission line could meet the purpose and need. The application’s narrow focus would eliminate reasonable alternative transmission solutions and non-transmission alternatives that could meet the broader underlying needs just as well, such as building more local distributed renewable energy generation to reduce greenhouse gas emissions, implementing more energy efficiency to reduce energy costs, upgrading or repairing existing transmission lines, and deploying energy storage to reduce congestion. Accordingly, the PSC cannot, as a matter of law, simply adopt the applicant’s alleged purpose and need, but must instead carefully, fully and fairly develop its own purpose and need statement that does not practically foreclose alternatives.

II. THE PSC MUST “STUDY, DEVELOP AND DESCRIBE APPROPRIATE ALTERNATIVES” AND MUST EVEN-HANDEDLY AND FAIRLY COMPARE ALTERNATIVES TO THE PROPOSED ACTION.

The PSC’s EIS must include “[a]n evaluation of the reasonable alternatives to the proposed action . . . , including those alternatives that could avoid some or all of the proposed action's adverse environmental effects and the alternative of taking no action.” PSC 4.30. Indeed, the PSC has an affirmative duty to develop alternatives. Wis. Stat. § 1.11(2)(e) (agency must “[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources”). “The obligation imposed is greater than the simple taking into account of

alternatives by the agency in its decision-making. The agency must ‘study, develop, and describe’ alternatives. Thorough agency action is required.” *Wisconsin's Env'tl. Decade, Inc. v. Pub. Serv. Comm'n*, 79 Wis. 2d 161, 175 (1977). The PSC and DNR must independently develop and consider alternatives in comparison to the proposed action, and may not rely on the wooden alternatives offered in the application.

The Council on Environmental Quality’s (“CEQ”) federal regulations, which are incorporated into Wisconsin law, explain in detail what is required with respect to alternatives.

An agency must:

- (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
- (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
- (d) Include the alternative of no action.
- (e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
- (f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

40 C.F.R § 1502.14.

There is no question that the scope of the PSC’s EIS must include a full and fair analysis of “the alternative of no action” – namely, the “no-build” alternative. PSC 4.30(3)(c); 40 C.F.R §§ 1502.14(d), 1502.16, 1508.25(b)(1). The PSC’s alternatives analysis, however, cannot be limited to simply comparing transmission line corridors and a no-build alternative as the RUS’s draft EIS does. An EIS must instead “[i]nclude reasonable alternatives not within the jurisdiction of the lead agency.” 40 C.F.R. § 1502.14(c). The EIS must consider reasonable alternative transmission solutions and non-transmission alternatives, including combinations of both Wisconsin utility-scale renewable energy generation and distributed solar energy and wind

power generation with energy storage technologies, energy efficiency and demand response. The EIS must also analyze these alternatives in combination with upgrades to the current electric system.

The transmission developers' application describes a situation in which wind power in states to the west of Wisconsin (Iowa, Minnesota, North Dakota, and South Dakota) outstrips energy demand, creating "transmission congestion" and requiring additional transmission capacity to move the energy to the east. Demand in Wisconsin and much of the rest of the Midwest is flat or declining, however, so the power is not needed there either. Yet in several cases, states with surplus wind generation are nonetheless supporting and subsidizing the continued operation of otherwise uneconomic fossil fuel and nuclear power generating plants through various rate mechanisms, rather than better matching supply to demand, reducing transmission congestion, and eliminating the need to keep sending power farther and farther away with more and more transmission lines. For example, in Iowa, MidAmerican Energy continues to buy and build additional wind energy capacity while it continues to keep running its several coal plants that are in its rate base and then export the surplus power to the east. In North Dakota, more wind energy is being developed while rate-based lignite coal plants keep running. In Minnesota, Xcel Energy is developing more wind power, but is proposing to build a large new gas-fired power plant to replace the Sherco coal plant when it retires, and to keep running its rate-based Monticello and Prairie Island nuclear plants. In Illinois, the Legislature approved consumer subsidies for ten years to support continued operation of three otherwise uneconomic nuclear plants for which retirements were announced while at the same time also supporting 4,350 megawatts of new in-state (or close by) solar energy and wind power development; in

combination, that increased Illinois' current surplus generating capacity. The PSC must fully consider the alternatives of fossil fuel plant shutdowns. 40 C.F.R. § 1502.14(c).

The EIS alternatives analysis must also thoroughly and fairly consider and analyze reasonable alternatives on an “apples to apples” basis. The developers here “stack the deck” in favor of their transmission line proposal by playing a numbers game. The application considers the cost of the proposed massive transmission line to be only \$66.2 million, a fraction of the total cost of roughly \$500 million estimated construction, plus financing costs, plus the annual approximately 10% rate of return, plus future operations and maintenance, and retrofitting costs over the next 40 years. Because MISO has approved cost-sharing of the transmission line across MISO's Midwest footprint, Wisconsin electricity customers may pay significantly less than the full costs of the huge transmission line (14.5%), which is much more than \$66.2 million in any event.

By contrast, when the applicant developers consider alternative transmission solutions, such as the development of local distributed renewables, demand response, and energy storage, the developers do not follow this same model. Instead, they assume that Wisconsin ratepayers would foot the entire bill for alternative transmission solutions. Essentially, they claim to look at what alternative transmission solutions would be available for the same price as what Wisconsin will contribute to the total cost of the transmission line, rather than comparing “apples to apples.”

To meet the requirements of WEPA, the PSC must develop and analyze alternative transmission solution packages that can be compared on an “apples to apples” basis. Specifically, the PSC must consider combinations of alternative transmission solutions that, like the proposed transmission line, can be cost-shared across MISO. As explained in the developers' application, MISO's FERC-approved MVP tariff allows for cost-sharing projects that meet three criteria:

- Criterion 1: The MVP must enable the transmission system to deliver energy reliably and economically in support of documented federal or state energy policy mandates or laws.
- Criterion 2: The MVP must provide multiple types of economic value across multiple pricing zones with a total cost/benefit ratio prescribed in Attachment FF of the Tariff.
- Criterion 3: The MVP must address at least one transmission issue associated with a projected violation of a North American Electric Reliability Corporation (NERC) or Regional Entity standard and at least one economic-based transmission issue that provides economic value across multiple pricing zones.

September 2018 Application at 66.

Alternative transmission solutions can meet these criteria and accordingly be cost-shared, as recognized by FERC in Orders 890⁴ and 1000.⁵ The PSC must therefore compare what alternative transmission solutions could be implemented for the same total cost as the proposed transmission line, and may not limit its analysis to what alternative transmission solutions could be achieved for 14.5% of the total cost.

To develop alternative transmission solution portfolios, a suite of different technologies (e.g., distributed renewables include solar generation in Wisconsin, energy storage, energy efficiency and demand response, etc.) must be fully examined.

More specifically, ATC's application did not fully analyze energy storage as part of the alternative transmission solution⁶, thus considerably lowering the potential benefits of such a solution. Adding storage to a system can lower energy costs by relieving congestion and allowing arbitrage between hours that electricity marginal costs are high and those hours that

⁴ Order 890, Federal Energy Regulatory Commission, at ¶ 479 (Feb. 16, 2007), <https://www.ferc.gov/whats-new/comm-meet/2007/021507/E-1.pdf?csrt=4501289794127783429> (“We therefore find that, where demand resources are capable of providing the functions assessed in a transmission planning process, and can be relied upon on a long-term basis, they should be permitted to participate in that process on a comparable basis.”).

⁵ Order 1000, Federal Energy Regulatory Commission, at ¶ 148 (July 21, 2011), <https://www.ferc.gov/whats-new/comm-meet/2011/072111/E-6.pdf?csrt=17842257593214718131> (“When evaluating the merits of such alternative transmission solutions, public utility transmission providers in the transmission planning region also must consider proposed non-transmission alternatives on a comparable basis.”).

⁶ ATC refers to the alternative transmission solution in their filing as the non-transmission alternatives (NTA).

such costs are low. It could also deliver environmental benefits by: (1) facilitating the integration of renewable energy projects, (2) provide grid services, and (3) at the same time, contribute to capacity savings by avoiding the construction of peaker plants. “In market structures that more comprehensively value services provided to the grid, demand-side resources and storage could provide low-cost grid services, allowing more efficient grid operations and avoiding generation or transmission investments.”⁷ Energy storage can also lower ancillary services prices, because of its fast responding ability, a benefit that has not been addressed within the ATC analysis.

Additionally, the investigation of load reduction opportunities through demand response and energy efficiency programs, as those presented by the applicants ATC et al. is superficial. A more thorough examination of the addressable market for such programs could reveal significant additional opportunities for load reduction without the need for expensive construction. Lazard’s Levelized Cost of Energy Analysis⁸ and many other studies have found that energy efficiency and demand response (such as interruptible rates) are by far the least costly way to meet overall energy needs. A recent report on Wisconsin’s Focus on Energy program found that in 2015 and 2016, each dollar invested in the program lead to \$4.77 in economic and noneconomic benefits.⁹ In addition, demand response can be deployed exactly when it is needed.

Finally, distributed renewable generation capacity can lower energy and congestion cost. It is not reliant on expensive large new transmission lines, is more flexible in meeting localized power needs, and can provide reliability benefits when strategically located. According to the

⁷ Quadrennial Energy Review: Energy Transmission, Storage, and Distribution Infrastructure, http://energy.gov/sites/prod/files/2015/04/f22/QR_Ch3.pdf (April 2015) at 3-12.

⁸ Lazard, *Lazard’s Levelized Cost of Energy Analysis*, <https://www.lazard.com/media/2390/lazards-levelized-cost-of-energy-analysis-90.pdf>.

⁹ Cadmus Group LLC, Focus on Energy Economic Impacts 2015-2016, PSC of Wisconsin, <https://focusonenergy.com/sites/default/files/WI%20FOE%202015%20to%202016%20Econ%20Impact%20Report-%20Final.pdf> (Jan 2018).

ATC et al., no reliability benefit has been assigned to the alternative transmission solutions; that omission matters.

Given the multitude of alternative transmission solution portfolios that could be examined, a careful selection should be performed so that alternative transmission solutions are treated fairly (instead of being designed to fail as in the case of the ATC et al. analysis). An initial set of alternative transmission solutions comparable in size with the proposed transmission line, can be simulated in the production cost model used by ATC. The customer benefit metric for different alternative transmission solution portfolios could be calculated and the portfolio with the highest benefits could be compared to a reference scenario with and without the proposed transmission line. The optimal portfolio could be considered for cost-sharing as an MVP if it meets the required criteria. A steady state analysis could reveal the reliability benefits of having distributed generation capacity close to load and storage that can respond when needed. The EIS must include enough information about the various alternative transmission solutions “so that reviewers may evaluate their comparative merits.” 40 C.F.R. § 1502.14(b).

The EIS should also consider the fact that the costs of many alternative transmission solutions, including renewable energy and energy storage technologies are decreasing rapidly and will likely continue to do so. Moreover, these clean energy resource create jobs and economic development in Wisconsin.

The EIS should also consider alternatives based on changes to how the power system is run. A 2015 Department of Energy Report explains:

Changes to power system operations and markets can provide significant existing flexibility, often at lower economic costs than building new transmission infrastructure. Operations examples include more frequent dispatch (which

reduces the time frame over which a generator must follow a specified output level), smart network technologies, and increased plant cycling.¹⁰

Finally, the EIS must consider alternative ways of building a transmission line, including route alternatives to bring power from the west to the east that do not cut a wide swath through the scenic and natural resource-rich Driftless Area.

III. THE PSC MUST ANALYZE AND EVALUATE ALL DIRECT, INDIRECT, AND CUMULATIVE IMPACTS FROM THE PROPOSED TRANSMISSION LINE AND ITS ALTERNATIVES.

The PSC must thoroughly analyze all direct, indirect, and cumulative impacts from the construction, operation, and maintenance of the proposed transmission line, and must evaluate effects not just on ecology, but on all aspects of the human environment. “Each EIS shall evaluate reasonably foreseeable, significant effects to the human environment and significant socioeconomic effects of the proposal and its alternatives.” PSC 4.30(1)(b).

The EIS must describe “the proposed action and the affected environment,” as well as an analysis of impacts, including “direct, indirect and cumulative environmental effects” and both “short-term and long-term effects.” PSC 4.30(3). The analysis must include “socioeconomic effects,” “effect on energy usage,” “the archeological, architectural and historic significance of any affected resources,” and “[a]n evaluation of the effects of a proposed action on agriculture.” PSC 4.30(3).

These impacts must be described and evaluated in a way that is clear and understandable to decision-makers and the general public. The EIS “should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public.” 40

¹⁰ *Quadrennial Energy Review: Energy Transmission, Storage, and Distribution Infrastructure*, http://energy.gov/sites/prod/files/2015/04/f22/QER_Ch3.pdf (April 2015) at 3-12.

C.F.R. § 1502.14. In addition, “[t]he information [in NEPA documents] must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.” 40 C.F.R. § 1500.1(b).

The EIS must include a thorough discussion of impacts to geology and soils, vegetation, surface water, groundwater, floodplains, wetlands, wildlife, endangered and threatened species, woodlands, agricultural lands, aesthetics, noise, cultural resources, air quality, land use, archeological and historical sites, conservation areas, recreation areas and health and safety. The Cardinal-Hickory Creek transmission line would cut directly through the Driftless Area and damage important natural and historical resources, adversely impact endangered species, and disrupt scenic landscapes.

A. Ecological Impacts

The construction, operation, and maintenance of high-voltage transmission lines have significant negative impacts on habitats, species, and ecosystems, and these impacts will be particularly devastating in the unique and scenic Driftless Area.

As explained above, the Driftless Area is recognized internationally and by the Departments of Natural Resources in Illinois, Iowa, Minnesota and Wisconsin as a region of vital conservation opportunity and concern. This region contains multiple rare habitats, and it is the largest contiguous area of fish and wildlife habitat in the Upper Mississippi River basin area. This special region was untouched by glaciers over the past 2 million years, with wind and water erosion shaping this ancient landscape and the rare natural communities found within. “The distinctive Driftless Area landscape through which the proposed Cardinal-Hickory Creek Transmission Line will cut has been more than 450 million years in the making. There is

nothing like it anywhere else in North America,” as explained by expert Curt Meine, Ph.D, Att. D at 1.

The unique and beautiful Driftless Area topography contains hundreds of rolling hills with deep river valleys nestled in woodland, prairie and riparian habitats. More than 1,200 streams, including world-class trout fishing streams, traverse more than 4,000 river miles and create a network of 600 spring-fed creeks that flow through porous limestone bedrock, sustaining many uncommon species and serving as a rest stop for more than half of North America’s migratory bird species. As explained by University of Wisconsin Professor Don Waller:

The Driftless Area’s rolling countryside harbors a remarkable diversity of habitats that support a remarkable diversity of plant communities and wildlife. These habitats include ravines and ridges; meandering rivers and associated floodplains; dry, mesic, and wet prairies (including the largest prairie east of the Mississippi), rolling farmlands and hayfields; and a remarkable mix of forest types including the largest extent of contiguous forested land in southern Wisconsin in the Baraboo Hills.

Waller, Att. E at ¶ 4.

There are a number of concerns raised by large transmission line projects generally, and those must be carefully considered and fully disclosed in the EIS. For example, transmission lines not only require the destruction of habitat, but also fragment remaining habitat and increase the relative amount of edge habitat—harming species that require large areas of consistent habitat, and allowing competitor species that thrive in edge habitat to cause further decline. Transmission lines also spread invasive species, both through direct transfer of species on equipment and personnel, and by creating and maintaining disrupted corridors. “Most invasive species are also quick to occupy open, disturbed habitats. This means that constructing the power line towers and corridor will surely enhance these invasions.” Waller, Att. E at ¶ 5. Maintenance of the right-of-way may include spraying chemicals that damage the ecosystem and

surrounding vegetation, and may run off into nearby waterways and wetlands. The proposed high-voltage transmission line will have numerous additional impacts to various resources, which are raised in detail below.

These impacts must be compared to those of various alternatives, including alternative transmission solutions. As noted by expert Curt Meine, “We must strive together for energy solutions that do not sacrifice other conservation goals and degrade the quality of our land.” Att. D at 1-2.

1. Impacts to Species

The proposed transmission line and tall towers would impact many high-quality habitats that are home to threatened, endangered and other important species and species of concern. The area’s southern sedge meadows, oak openings and barrens, pine relicts, dry prairies, mesic and dry-mesic forests, fast and cold streams, dry and moist cliffs, and forested seeps shelter and nurture diverse populations of birds, insects, amphibians, reptiles and plants. If the proposed transmission line were to be built through these special areas, many species could be put at risk.

The developers’ proposed Endangered Resource (“ER”) Review, which has been submitted to WDNR and included in Appendix J to their application, identifies numerous threatened and endangered species and species of concern in the area of the proposed routes. First, ATC et al.’s ER Review is insufficient because it appears to rely entirely on data from the Natural Heritage Inventory. However, there may be occurrences of species of concern that are not included in the NHI database. For example, there are many remnants of savanna, pine relict, oak forest, and wetland in and around the proposed corridors, which are likely not catalogued. Many of these remnants are likely home to rare species, which similarly may not be documented. The PSC should work with local consultants and experts to inventory these remnant habitats and

rare species so that the impacts to them from the proposed transmission line can be included in the EIS.

Specifically, the Loggerhead Shrike is a state endangered species and a federal species of concern and it is found in 2 of the 16 townships or ranges in Dane and Iowa Counties. The state threatened Lake Sturgeon and Pugnosed Shiner have been identified in at least one township or range that the proposed transmission line would impact. None of these species are mentioned in the ER Review document.

The ER Review also does not mention potential impacts to federally endangered whooping cranes. According to sitings and satellite telemetry data, whooping cranes have a range that includes areas in Clayton and Dubuque Counties in Iowa and in Grant, Iowa, Sauk, and Dane Counties in Wisconsin. Many of the data points are very close to the proposed transmission line corridors. “[C]ollision mortality from power lines is considered biologically significant” for whooping cranes, and one study found that “in the migratory Wisconsin population, 3 out of 18 mortalities (17%) were from collisions with power lines.”¹¹ The EIS must consider and evaluate impacts to whooping cranes from the massive transmission line.

The proposed transmission line might also impact bald eagles, which are protected under the federal Bald and Golden Eagle Protection Act, and are listed as a species of Special Concern in Wisconsin. There are 51 known active bald eagle nests in four Wisconsin counties where the proposed transmission line would run, and 26 of the nests are within townships in the transmission corridors. The PSC must evaluate the effectiveness of mitigation measures, such as flight diverters. For example, they may not be particularly effective near nests, where fledglings learning to fly are more likely to collide with lines.

¹¹ Edison Electric Institute, *Reducing Avian Collisions with Power Lines*, http://www.aplic.org/uploads/files/15518/Reducing_Avian_Collisions_2012watermarkLR.pdf at 33- 34 (2012).

Second, the analysis of species impacts included in the developers' application is not adequate for an EIS, and the PSC and DNR must gather additional information and perform additional analysis. For example, for impacts to threatened and endangered bird species, the Endangered Resource Review simply states that "[i]f the Project cannot completely avoid all areas of suitable habitat or take of these species," the developers must "discuss possible project-specific avoidance measures" and an Incidental Take Permit may be necessary. Appendix J, Exhibit 1, p.7. This provides little to no actual information about what the impacts will be, and more specific information must be provided in the EIS.

Third, the EIS also must analyze impacts to species that are not specifically protected by law. Particular concern should be paid to bird species. For example, the proposed transmission line would cut directly through the Upper Mississippi River National Wildlife and Fish Refuge, which is a Ramsar Convention Wetland of National Importance and Globally Important Bird Area, specifically for waterfowl. According to the U.S. Fish and Wildlife Service, "during peak fall migration...hundreds of thousands of canvasbacks, common mergansers, goldeneyes, mallards, shovelers, blue-winged teal, and coots gather on the refuge."¹² The line will also fragment red-shouldered hawk habitat along the river. The proposed routes also cut through other important grassland bird habitat. "Many of the state's best remaining habitats for grassland birds occur in Driftless Area and in proximity to the proposed Cardinal-Hickory Creek transmission line. This is highly relevant as the grassland birds are declining at precipitous rates in Wisconsin and many other states and faster than any other group of birds." Waller, Att. E at ¶ 6. The Military Ridge Prairie Heritage Area ("MRPHA") "provides habitat for 14 rare and declining grassland bird species. . . . [and] represents one of the best opportunities in the Midwest to

¹² U.S. Fish & Wildlife Service, *Upper Mississippi River: Seasons of Wildlife*, https://www.fws.gov/refuge/Upper_Mississippi_River/seasons_of_wildlife/index.html.

protect prairie remnants and area sensitive species, such as grassland birds.”¹³ The proposed transmission line could destroy habitat and directly disrupt grassland bird activity, as well as increase perches for both predator birds and birds that engage in nest parasitism, like the brown-headed cowbird. The proposed transmission line would also affect the ability of organizations or agencies to manage grassland areas through the use of prescribed burns. The EIS must fully analyze these impacts.

2. Waterways, Wetlands, Grasslands, and Woodlands

The EIS must also evaluate specific impacts to various ecosystems, including impacts on waterways, wetlands, grasslands, and woodlands. This analysis must go beyond simply listing the numbers of acres of each area that will be impacted. To be meaningful, the EIS must explain the type, scope, and intensity of impacts. The bare-bones information on natural resource impacts provided in the application is far from sufficient. For example, the section on woodlands impacts explains the construction process, but not how that will impact the woodland ecosystem, how it will reduce habitat and increase edge habitat, or how it will affect woodland species. Professor Don Waller explains in his comments that:

the environmental impacts of the ATC power line project on forest plant communities will scale directly with the area disturbed, the amount of additional edge habitat generated, and with any declines in forest patch area and increases in forest patch isolation that occur as a consequence of this project. **Given the large number of understory plant species experiencing region-wide declines, these represent significant and long-lasting environmental impacts.**

Waller, Att. E at ¶ 9 (emphasis added).

For grasslands, the application only mentions impacts in the context of what measures will be taken to minimize impacts, without fully describing and assessing the likely scope and

¹³ The Nature Conservancy, *Wisconsin: Military Ridge Prairie Heritage Area*, <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/wisconsin/placesweprotect/priority-area-military-ridge-prairie-heritage-area.xml>.

degree of those impacts. Similarly, the section on wetlands states how many transmission line poles will be placed in a wetland, but not what the actual impacts of this placement would be.

The EIS cannot legally assume that there are no impacts outside of the right-of-way. For example, contaminated runoff from a construction site or from an area treated with herbicide may harm wetlands or waterways some distance from the actual transmission line. Or if an invasive species is introduced to a new area by a construction crew, that may quickly spread far beyond the right-of-way. “When herbicides are sprayed, chemicals often drift beyond the right-of-way in ways that are likely to affect surrounding vegetation.” Waller, Att. E at ¶ 9.

The EIS cannot legally assume that avoidance and mitigation measure can entirely, or even meaningfully, reduce impacts. The PSC and DNR must analyze specific actions and measures that the Applicants have committed to. The PSC cannot rely on nonbinding assertions of good faith to determine that environmental impacts will be reduced or eliminated to determine that impacts will be minimal. For example, the developers’ application section on endangered and threatened species essentially says they will deal with any problems as they arise. In the section on wetlands impacts, the application states that “[a]ccess within wetlands may include conducting work during dry or frozen conditions, using low ground pressure equipment or placing temporary construction mats.” Application at 114 (emphasis added). The applicants do not provide any specific commitments, nor even set out what objective standards will be used in determining which avoidance and mitigation measures are appropriate.

Even if mitigation measures or best practices were binding, or the specific activity is subject to a permit, the PSC must independently investigate whether the measures and practices are truly effective in reducing impacts, over the short- and long-term. For example, the PSC and

DNR should evaluate the degree of success obtained in mitigation and restoration areas using similar methods for other high-voltage transmission lines that have been built in the area.

Similarly, it would be entirely inadequate for the PSC and DNR to simply find that because certain activities have been or will be subject to a government permit, then that necessarily means that there will be no significant environmental impact. For example, the application states that dewatering of the deep holes excavated for the placement of the 17-story tall towers, and subsequent discharge of that water will be done in accordance with regulations and permit requirements. Application at 104. The PSC cannot assume that there will be minimal, or no impacts, but must carry out its statutory duties under WEPA and independently analyze and disclose all impacts.

3. Conservation and Recreation Areas

The proposed Cardinal-Hickory Creek transmission line would also harm a large number of lands of great conservation, ecological and scenic importance, and these impacts must be fully considered in the EIS. For example, one of the proposed corridors for this transmission line would cut through the northern edge of the Military Ridge Prairie Heritage Area, which is the Wisconsin Department of Natural Resources' highest priority for landscape-scale grassland protection and management in Wisconsin. The Nature Conservancy states and explains:

The Military Ridge Prairie Heritage Area (MRPHA) is a 95,000+ acre grassland landscape in Dane and Iowa counties in southwest Wisconsin. The area provides habitat for 14 rare and declining grassland bird species and contains more than 60 prairie remnants, representing one of the highest concentrations of native grasslands in the Midwest. The agricultural history of the area has helped keep the landscape much as it was when the first settlers saw it and has made it possible for plants and animals like grassland birds, which have disappeared in more developed parts of the Midwest, to survive... [It] represents one of the best

opportunities in the Midwest to protect prairie remnants and area sensitive species, such as grassland birds.¹⁴

Catherine Bleser, a retired WDNR environmental analyst and conservation biologist who was the lead staff for the Southern District including this area states: “This landscape boasts the highest concentration of prairie remnants and unplowed prairie sod in the Upper Midwest.” Bleser Comments, App. A at 1.

The Military Ridge Prairie Heritage Area is also part of a larger 490,000-acre “Southwest Wisconsin Grasslands and Stream Conservation Area” (“SWGSCA”) macrosite established by the Wisconsin Department of Natural Resources in partnership with “local, state, federal, non-profit organizations, landowners, and individual citizens, all working together towards the common goal of sustaining functional grasslands, savannas, and stream habitats.”¹⁵ “This area of Southwest Wisconsin contains some of the best historic native prairies, wildlife diversity, and compatible land-use practices in the state. It also harbors regionally important populations of grassland birds, which have seen declining numbers in recent decades.”¹⁶ “The SWGSCA project’s northern boundary and highest, most visible ridge, is USH 18/151 from western Dane County out to Montfort following the Military Ridge, exactly where the proposed CHC transmission line would be constructed.” Bleser Comments, App. A at 1 (emphasis in original). The line would cut through the savannah ecosystem and would provide an optimal opportunity for owls and raptors to perch and locate rare grasslands birds to hunt and kill.

Ms. Bleser explains that the EIS must analyze and discuss the transmission line’s impact “**on the overall integrity of this unique prairie landscape**” and consider the resources invested

¹⁴ The Nature Conservancy, *Wisconsin: Military Ridge Prairie Heritage Area*, <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/wisconsin/placesweprotect/priority-area-military-ridge-prairie-heritage-area.xml>.

¹⁵ *Who We Are*, Southwest Wisconsin Grasslands and Stream Conservation Area, <http://www.swgsca.org/About.html>.

¹⁶ *Why Southwest Wisconsin*, Southwest Wisconsin Grasslands and Stream Conservation Area, <http://www.swgsca.org/About.html>.

in conserving this area by numerous government and nonprofit entities. Bleser Comments, App. A at 2-3 (emphasis in original).

The northern proposed route for this huge transmission line would also cut through the Dodgeville and Wyoming Oak Woodlands/Savanna Conservation Opportunity Area as it runs along the steep and winding County Roads ZZ and Z. The Wisconsin Wildlife Action Plan states that this Conservation Opportunity Area has “continental significance” and notes that parts of the Driftless Area have high biodiversity and a significant number of rare species.¹⁷

The proposed transmission line would also impact state recreational trails. One of the proposed transmission line corridors would impact a significant part of the Pecatonica State Trail, which has wildlife and scenic significance, and it is an important recreational area enjoyed by hikers and bikers. Another of the proposed corridors for the huge transmission line and tall towers would run along and cross over the Military Ridge State Trail. About 25 miles of this 40-mile biking and hiking trail, which passes by state parks, forested areas, wetlands and grasslands, would be impacted by the transmission line. Because the trail runs along the top of Military Ridge, around the highest elevation in the area, transmission lines built there would be very visible. The proposed line would also adversely affect a proposed recreation/hiking trail, which seeks to connect Blue Mounds, Governor Dodge, and Tower Hill State Parks with other public and private conservation areas and local communities.

The proposed Cardinal-Hickory Creek transmission line and tall towers would also disrupt and harm a large section of the Upper Mississippi River National Wildlife and Fish Refuge, which is “unmatched” for its scenic and wildlife value.¹⁸ This National Wildlife Refuge

¹⁷ Wisconsin Department of Natural Resources, *Wisconsin's Wildlife Action Plan*, http://dnr.wi.gov/topic/wildlifehabitat/documents/wap_implementation.pdf.

¹⁸ U.S. Fish & Wildlife Service, *Upper Mississippi River: About the Refuge*, https://www.fws.gov/refuge/Upper_Mississippi_River/about.html.

has wooded bluffs hundreds of feet high and is a crucial migratory pathway and breeding location for birds, such as bald eagles and great blue herons, and is home for many additional species of wildlife, fish and plants. *Id.*

As explained above, the Upper Mississippi River National Wildlife and Fish Refuge is a Ramsar Convention Wetland of National Importance and Globally Important Bird Area, specifically for waterfowl. *Id.* According to the U.S. Fish and Wildlife Service, “during peak fall migration...hundreds of thousands of canvasbacks, common mergansers, goldeneyes, mallards, shovelers, blue-winged teal, and coots gather on the refuge.”¹⁹ Even if the proposed transmission line would replace an existing line crossing the Mississippi River and the total number of crossings of the Mississippi River would not increase, that should not be the end of the inquiry. The EIS may not simply assume that if the number of lines crossing the Upper Mississippi River National Wildlife and Fish Refuge is the same, there is no impact on the refuge. First, there will undoubtedly be impacts from the construction activity itself. Further, the EIS should consider whether the existing line that the Cardinal-Hickory Creek transmission line would “replace” would be decommissioned soon any way. The purpose of the U.S. Fish & Wildlife Service, a consulting agency for this EIS, is to not only maintain the status quo, but also to “conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.”²⁰

In addition to the impacts on the Military Ridge Prairie Heritage Area, the Southwest Wisconsin Grasslands and Stream Conservation Area, the Dodgeville and Wyoming Oak Woodlands/Savanna Conservation Opportunity Area, the Pecatonica State Trail, the Military Ridge State Trail, the Driftless Trail, and the Upper Mississippi River National Wildlife and Fish

¹⁹ U.S. Fish & Wildlife Service, *Upper Mississippi River: Seasons of Wildlife*, https://www.fws.gov/refuge/Upper_Mississippi_River/seasons_of_wildlife/index.html.

²⁰ U.S. Fish & Wildlife Service, *Who We Are*, <https://www.fws.gov/who/> (emphasis added).

Refuge summarized above, the proposed huge Cardinal-Hickory Creek transmission line and tall towers will impact: Governor Dodge State Park, Nelson Dewey State Park and Blue Mound State Park; Barneveld Prairie State Natural Area, Belmont Prairie State Natural Area, Ridgeway Pine Relict State Natural Area and other preserves; scenic and recreational rivers such as Black Earth Creek, Grant River and the Platte River; wetlands including those adjoining Black Earth Creek and Pecatonica River; the Black Earth Creek Watershed Area; numerous trout streams and exceptional and outstanding resource waters; and numerous other critical natural resources and wildlife habitat along the proposed transmission line corridors.

“There has been a high level of investments by state and local governments, non-profit conservation organizations, local sports clubs, and private interests and landowners in stream improvement projects, wetland protection and restoration, prairie and woodland restoration, fisheries management, and public access.” Born Comments, Att. B at ¶ 3. For example, the DNR spends almost a million dollar every year on just Blue Mound State Park, Governor Dodge State Park, and Nelson Dewey State Park. Combined visitorship for Blue Mound State Park, Governor Dodge State Park, Military Ridge State Heritage Trail, and Nelson Dewey State Park in financial year 2018 was more than 850,000.

The PSC should also consider privately protected conservation easements and restoration efforts. For example, the EIS should analyze impacts on DALC’s conservation easement lands and properties being restored through U.S. Fish & Wildlife Service’s Partners for Fish & Wildlife Program and the Wisconsin DNR’s Landowner Incentive Program (“LIP”). Several DALC easements are either directly in or close to a proposed corridor. For example, DALC holds a conservation easement on part of the Thomas Farm on US 18/151 just west of Barneveld, within one of the proposed corridors. The easement was purchased with funds from both federal

(USDA Farm and Ranch Lands Protection Program) and state (Knowles-Nelson Stewardship Program) programs, and the stone barn on the property is listed on the National and State Register of Historic Places. Nonetheless, this very property and easement is not listed in the developers' application as an impacted easement because the developers state that the transmission line will be located within the US 18/151 highway right-of-way. The EIS must analyze all impacts and cannot ignore impacts simply because the transmission line would be directly adjacent to, rather than directly within, a specific property or resource area. The impacts of the proposed transmission line on all of these areas must be considered in the EIS and compared to the impacts from all reasonable alternatives.

The PSC and DNR must also consider impacts to *planned* recreational uses and conservation activities in the area. Wis. Stat. § 196.491(3)(d) (PSC may only grant CPCN if “[t]he proposed facility will not unreasonably interfere with the orderly land use and development plans for the area involved.”). For example, DALC is currently working to develop the “Driftless Trail,” which would be an approximately 50 mile-long footpath trail connecting Governor Dodge, Blue Mount, and Tower Hill State Parks, as well as the Ridgeway Pine Relict State Natural Area, two fishery areas, and cultural sites in between. The trail would run primarily on privately-owned land, making a large, previously inaccessible area available to many more people. The trail would foster health, strengthen community ties and local businesses, enhance learning, and support restoration and conservation efforts in this beautiful, nationally significant landscape. Both the preferred and alternative routes for the proposed transmission line would affect the area in which the Driftless Trail is being developed, and would likely negatively impact the success of the Driftless Trail project.

The agencies must also consider compatibility of the proposed transmission line with other local land use and development plans in the area, many of which call for protection of environmental, scenic, cultural, and recreational values. For example, the Southwest Wisconsin Regional Planning Commission's *Grow Southwest Wisconsin* plan (2013)²¹ envisions:

The Driftless Area of southwestern Wisconsin will have plentiful, clean surface and groundwater, fresh, clean air, and numerous outdoor recreational opportunities and venues. Local, healthy food options will abound as sustainable, diverse, and alternative farms will supply all sorts of markets from local niche markets to national commodity crops. Forests will be healthy and managed for multiple uses including timber, wildlife, and habitat. Wind, solar, and other regionally produced energy sources will power southwestern Wisconsin homes, businesses, and transportation systems. The native vegetation and habitats will be invasive-free, high in biodiversity, with larger and more plentiful natural communities integrated across the landscape.

PSCW and DNR should also consider interference with the objectives of the Iowa County Comprehensive Plan, master plans for Governor Dodge and Blue Mount State Parks, DNR's Wildlife Action Plan, and comprehensive plans for townships in the area.

B. Aesthetic Impacts

“One of the greatest losses associated with a major transmission line across this special region is



the degradation of scenic and amenity resources.” Born, Att. B at ¶ 4. The aesthetic impacts of this massive proposed transmission line, with 175-foot towers, will be monumental and far-reaching. The towers and line will be visible from miles away, especially where it crosses the Mississippi River and runs along Military Ridge. They will stand in striking contrast to its scenic and rural

²¹ *Grow Southwest Wisconsin*, Southwest Wisconsin Regional Planning Commission, <https://www.swwrpc.org/Content/Documents/Grow-Southwest-Wisconsin.pdf> (2013).

surroundings, creating visual blight that will detract from otherwise stunning vistas for locals and visitors alike.

The PSC must carefully and comprehensively analyze the aesthetic impacts of the transmission line and massive towers, and how this will affect quality of life, recreation, tourism, etc. “While the beauty of the area can be taken for granted, it is central to the region’s character and life.” Born, Att. B at ¶ 4. People choose to live in, visit, and recreate in southwest Wisconsin in large part because of how beautiful and scenic it is. “The lighter-impact outdoor recreational activities—canoeing, kayaking, hiking, biking, birding, and angling—have found a “home” in the Driftless and are growing. These activities are dependent on the natural resource and scenic characteristics of the area, and have a positive consequential economic impact for people and communities within and near the region.” Born, Att. B at ¶ 2.

The experience of hiking in a state park, canoeing or kayaking or fishing on an Exceptional Resource Water stream, biking along the Military Ridge State Heritage Trail, or driving along a scenic byway will be greatly impacted by the presence of 175+ foot transmission towers. Importantly, the aesthetic impacts will reach far beyond the right-of-way of the line. The developers’ application states that the preferred route will only impact 3 parks or recreation areas or trails, presumably because only 3 of these areas are directly within the right-of-way. Yet the visual impact of the line will impact many other areas, including parks and recreation areas like the Nelson Dewey State Park and Blue Mound State Park.



The applicants have provided photograph simulations of the proposed line and towers, but use every trick in the book to minimize the visual impact. For example, the applicants place the towers in the background rather than the foreground, use an angle looking down at the line from above, use pictures when there is full tree foliage to hide the line, and undoubtedly utilized a wide-angle lens. Rather than providing full-page “before” and “after” images, the applicants split each page horizontally, cutting off the towers in the few images where they are in the foreground. Similarly inadequate representations are included in the RUS’s Draft EIS. A fair representation of the transmission line and towers would show much greater aesthetic impact than suggested by applicants’ simulations.

Photos like the ones included here, which show the CapX2020 transmission line in western Wisconsin give a much better understanding of the enormous size of the towers and type of visual disruption that another high-voltage transmission line will create.

It is also important to note that aesthetic impacts are not just visual, and the PSC must consider noise that will be generated not only during construction, but also by the transmission line while it is in operation. Noise emitted from high-voltage power lines is caused by the release of energy produced when the field of electricity from the conductor is greater than the ‘strength’ of the air that surrounds the conductor. This release is responsible for an energy loss known as coronal loss, the intensity of which is directly correlated with the outside humidity, density of air, water (rain, snow, or fog), and wind. Corona-related noise is usually perceived as a hissing sound followed by a hum.

Owners of high-voltage transmission lines have attempted to improve their processes, like making corona-free conductors in model conditions. However, despite these improvements, noise exists—especially when conductors or lines are wet. Today, a 500-kV transmission line emits an average noise level of 49 dBA. As voltage for these lines increase, so does the average noise level. Based on meteorological records from the Portland International Airport, corona-inducing weather occurs roughly 20% of the time. Ambient noise from these high-voltage lines can be harmful to human health and deserve consideration, especially for those residents living closest to the lines, and in areas where people may go for peace and quiet.

The aesthetic impacts of the proposed line and massive towers will be quite significant, and the EIS must fully analyze and disclose these impacts.

C. Cultural and Historic Resources

The PSC must also analyze what impacts the proposed transmission line and alternatives would have on cultural and historical resources in the area. PSC 4.30(3); Wis. Stat. § 196.491(3)(d). The Driftless Area includes many important cultural and historical sites that could be adversely affected by the proposed Cardinal-Hickory Creek transmission line. Curt Meine

explains that “Native peoples came into the Driftless twelve millennia ago and have been here all along, adapting their lifeways, through good times and hard, to the characteristic and changing conditions of the land. Over the last three and half centuries, European explorers and settlers and new migrants have made homes here, drawn by the region’s wealth of natural assets, opportunity, and beauty.” Att. D at 1.

There are archeological sites located within the region that date back to the Archaic, Woodland and Mississippian periods, and many include pottery, arrowheads, and artificial mounds, among other important historical relics. Wisconsin specifically “has the highest concentration of prehistoric mounds in the country, and is the epicenter for effigy mounds.”²² Transmission line construction in or around archeological sites is of particular concern. As the Public Service Commission stated: “Transmission line construction and maintenance can damage sites by digging, crushing artifacts with heavy equipment, uprooting trees, exposing sites to erosion or the elements, or by making the sites more accessible to vandals.”²³

Rock art is common throughout the Driftless Area, and fragile and soft sandstone carved rock formations would be especially vulnerable to vibrations from various construction activities, including pile-driving, drilling, and the use of vibratory hammers. The PSC must consider whether construction will impact nearby petroglyphs and/or cave systems.

D. Socioeconomic Impacts

The PSC must also fully consider the socioeconomic impacts of the proposed line, including impacts to property values, agricultural and other businesses, tourism, the economy, and the additional cost to ratepayers on their electricity bills. “Driftless Area landowners have for generations been leaders in conservation, developing new ways to work on and with the land in

²² *Archeological Sites*, Wisconsin DNR, <https://dnr.wi.gov/topic/Lands/CulturalRes/arch.html>.

²³ *Environmental Impacts of Transmission Lines*, Wisconsin DNR, <https://psc.wi.gov/Documents/Brochures/Environmental%20Impacts%20TL.pdf>.

ways that do not deplete, but regenerate, the resources that sustains us. Innovative farmers, food processors, business owners, artists, educators, service providers, and place-based entrepreneurs with a thousand different ideas, have created an emerging Driftless economy that is as distinctive as the region's topography. This emerging economy and culture depend in every way—is motivated in every way—by the quality of this, our, special landscape.” Att. D at 1.

To begin with, RUS must analyze negative impacts on property values and conservation easements from the construction and operation of the proposed high-voltage transmission line. High-voltage transmission lines have a statistically significant negative impact on property values. A valuation guidance report by Appraisal Group One, which included a review of many empirical studies, including several from Wisconsin, concludes that “it can be stated with a high degree of certainty that there is a significant negative effect ranging from -10% to -30% of property value due to the presence of the high voltage electric transmission line.”²⁴ A well-regarded study from Montana analyzing the effects of large transmission lines on property values found properties up to 1,000 feet from a transmission line had values fall by 15%.²⁵ There are also detrimental impacts on the quality of life of people whose scenic views are disrupted and who sometimes report being bothered by buzzing and crackling sounds produced by transmission lines.²⁶

²⁴ Kurt C. Kielisch, Appraisal Group One, Inc., *Valuation Guidelines for Properties with Electric Transmission Lines*, <http://fieldpost.org/StarkEnergy/Studies/Valuation%20Guidelines%20for%20Properties%20with%20Electric%20Transmission%20Lines%201.pdf> at 6.

²⁵ James A. Chalmers, *Transmission Line Impacts on Rural Property Value*, Right of Way (May/June 2012), https://www.irwaonline.org/eweb/upload/web_mayjune12_Transmission.pdf.

²⁶ There have been studies that have reached somewhat different results. The findings in the case studies cited in this memo, however, are supported by another study conducted by Colwell and Foley in Central Illinois, which a literature review by Mountain View Research listed as especially methodologically sound compared to the many other studies they had evaluated. A multivariate regression analysis of selling prices based on ten variables, including proximity to the transmission line, found “a significant negative relation between selling price and proximity to the transmission line for properties within 200 feet.” Lita Furby et al., *Electric Power Transmission Lines, Property Values, and Compensation*, Journal of Environmental Management (1988), <http://sds.hss.cmu.edu/risk/articles/ElectricPowerTransLines.pdf>. Another study vetted by the same organization and

Transmission lines can interfere not only with property owners' enjoyment of their property, but also with their practical use of their land. Many DALC members are involved in agriculture on some scale. Transmission towers and lines can interfere with farming operations by limiting movement of farm vehicles and irrigation equipment, preventing or limiting the use of planes for spraying, interfering with rotational grazing, and by causing the removal of wind breaks. The actual erection of the towers and placement of the line requires the use of heavy machinery, which can compact dirt, leave ruts in fields, and introduce contaminated soils. The spraying of chemicals to manage a transmission line corridor can interfere with nearby organic farming operations. Some local organic farmers have expressed concerns that this spraying could potentially result in loss of their organic certification. High-voltage lines can also cause disruptions to animal herds due to stray voltage issues.

DALC members and other local businesses are located on the proposed corridor. For example, Uplands Cheese Company, a DALC member, produces award-winning cheeses from grass-fed cows and sells to international markets, is especially environmentally sensitive. Botham Vineyards, also a DALC member, is a destination winery because of the quality of the produce and its setting in the beautiful Driftless Area. The Deer Valley Lodge and Golf Course has fairways built around natural native prairies and woodlands. It provides habitat to several threatened and endangered species, including the federally-listed Regal Fritillary butterfly, and attracts golfers because of its natural setting. These and other businesses would be severely negatively impacted by the proposed transmission line.

Impacts on property values have subsequent impacts on the amount of revenue local governments bring in through property taxes. The EIS should consider that decreased property

conducted by the University of Waterloo found, with a sample size of more than 1,000 sales, that property values near transmission lines were 16% – 29% lower than those of similar properties, and that smaller properties in particular were disproportionately impacted. *Id.*

values will mean local governments in the area will have less money to spend on schools, roads, and other important infrastructure.

The EIS must also consider effects on recreation and tourism. The harmful visual impacts are magnified in the Driftless Area where many people choose to live, buy properties, recreate, and visit in part because of the scenic landscape views. Tourism is growing in the Driftless Area and becoming an important driver of economic growth.²⁷ According to the Wisconsin Department of Tourism, in 2017, total tourism business sales were over \$2 billion in Dane County alone, about \$83 million in Grant County, and approximately \$57 million in Iowa County. The tourism sector employed over 23,000 people in these three counties.²⁸ The proposed huge new transmission line and very tall towers will disrupt the scenic landscapes and park areas that attract visitors to the unique and special Driftless Area. The proposed transmission line would be especially visible if it is built along a ridge, as is indicated in one of the proposed corridors.

E. Health and Safety

The DEIS must consider possible health and safety impacts from the proposed high-voltage transmission line, including fire hazards and electromagnetic fields (“EMFs”). Fires caused by high-voltage transmission lines generally stem from four major causes: downed lines, conductor slaps, repetitive faults, and apparatus failures.²⁹ Downed lines are the most common cause. Protective devices on power distribution systems designed to detect and clear short-circuit faults can fail upwards of 30% of the time. When this occurs (known as a HiZ fault), the faulty line can

²⁷ See Wisconsin Dep’t of Natural Resources, *Economic Impacts of the Wisconsin State Park System*, <http://dnr.wi.gov/topic/parks/documents/EconImpact2013.pdf> at 24-25 (Nov. 2013).

²⁸ <http://industry.travelwisconsin.com/research/economic-impact>

²⁹ <https://wildfiremitigation.tees.tamus.edu/faqs/how-power-lines-cause-wildfires>

https://www.researchgate.net/publication/234058061_The_threat_caused_by_fires_under_high_voltage_lines
<https://www.theatlantic.com/technology/archive/2018/05/power-lines-are-burning-the-west/561212/>

remain energized for an extended period of time, typically until a customer calls the utility. An arcing, downed line can easily ignite its surroundings.

Power lines are also at risk of conductor slaps, when line conductors slap together and create an arc that spreads hot metal particles capable of creating a fire from ground-based combustibles. And repetitive faults, where some faults will occur multiple times without corrective action. These faults can be caused by conductor slaps, undergrowth, or failing/faulty equipment.

Finally, apparatus failures can cause significant risks for wildfires. As the components of a high-voltage power line age and eventually fail, they enter into what is known as a pre-failure period. These components will continue to serve load until they completely fail, arcing (and sparking) with growing intensity. Under the right conditions, arcing can ignite surrounding vegetation or, more dangerously, grow into large-scale arcing that burns conductors and sending energized wires to the ground.

Fires caused by transmissions lines have been a large-scale societal problem for years, killing residents and causing billions of dollars in damage nation-wide.³⁰ A new report by the California Department of Forestry and Fire Protection directly links power lines to 12 fires that killed 18 people after wind gusts spread the fire faster than first responders could contain.³¹ In California alone, the failure of power lines and other electrical equipment has frequently ranked among the top three outstanding sources of California wildfires. In 2015, electrical power

³⁰ <https://www.latimes.com/business/la-fi-utility-wildfires-20171017-story.html>
<https://www.bostonglobe.com/metro/2017/11/14/downed-power-lines-spark-fire-wayland/u0ONcQyNhqtHtPfMuaXgZJ/story.html>
<https://www.oregister.com/2016/08/31/fires-from-downed-power-lines-lead-laguna-beach-to-pursue-legislation-for-underground-utilities/>

<https://www.deseretnews.com/article/765589205/Report-Arcing-power-lines-caused-Utah-wildfire.html>

³¹ http://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf

problems accounted for the burning of 149,241 acres — more than twice the amount from any other cause.

F. Greenhouse Gas Impacts

The EIS must also include a discussion of greenhouse gas and climate change impacts from the proposed Cardinal-Hickory Creek transmission line or that might affect the proposed line, and must compare these impacts to those related to the alternative transmission solutions discussed above. *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008) (failure to adequately consider greenhouse gas impacts was arbitrary and capricious).

First, the EIS must fully and fairly analyze the greenhouse gas impacts of the proposed Cardinal-Hickory Creek transmission line. Second, RUS must consider indirect greenhouse gas emissions and activities that will result from the proposed action. Therefore, the EIS must analyze the carbon emissions related to the electricity generation mix carried on the line and ways in which the proposed line would impact the electricity market. For example, if the proposed transmission line is built, it will be “open access” under Federal Energy Regulatory Commission rules and will likely be used by a mix of fossil fuel, nuclear power and renewable generation. The line may provide access to new markets to existing struggling coal plants in the western MISO states, and thereby make these plants economical when otherwise they would shut down. The environmental consequences of these circumstances, including greenhouse gas impacts, should be addressed in the EIS.

G. Cumulative Impacts

The scope of the EIS must also include cumulative actions and cumulative impacts. 40 C.F.R. §§ 1508.25(a)(2) and (c)(3). This means that the EIS must discuss past and reasonably

foreseeable projects in the area and explain how these projects and other circumstances may, in combination with the proposed transmission line, cause cumulative impacts in the region. For example, RUS must consider the new Badger-Coulee transmission line, a high-voltage line that would run from Minnesota to La Crosse, Wisconsin and then to the same Cardinal substation in Middleton, Wisconsin. The EIS should also consider the extensive road construction and improvements along US 18/151 from Dodgeville to Verona, which will impact areas that would also be directly impacted by one of the proposed corridors for the Cardinal-Hickory Creek transmission line. For example, the roadwork includes an intersection modification near the Thomas stone barn property, on which DALC has a conservation easement, and which the transmission line would run adjacent. The EIS must also consider other significant projects, facilities, and infrastructure in the area, including the new Vortex Optics industrial park in Barneveld, and new renewable energy facilities in the area.

As with every type of impact, RUS must compare the cumulative impacts from the proposed transmission line with the impacts from all reasonable alternatives.

IV. PSC’S EIS MUST CONSIDER ALL REASONABLE ALTERNATIVES, INCLUDING ALTERNATIVE TRANSMISSION SOLUTIONS, UNDER WISCONSIN’S SITING AND ENERGY PRIORITIES LAW.

The PSC must also analyze and determine compliance with Wisconsin state laws when comparing alternatives. The Wisconsin Energy Priorities Law establishes a clear, specific priority order for siting all new transmission lines and related facilities:

In the siting of new electric transmission facilities, including high-voltage transmission lines, . . . it is the policy of this state that, to the greatest extent feasible that is consistent with economic and engineering considerations, reliability of the electric system, and protection of the environment, the following corridors should be utilized in the following order of priority: (a) Existing utility corridors. (b) Highway and railroad corridors. (c) Recreational trails, to the extent that the facilities may be constructed below ground and that the facilities do not significantly impact environmentally sensitive areas. (d) New corridors.

Wis. Stat. § 1.12(6).

The Public Service Commission of Wisconsin recognizes that “this statute prefers corridor sharing because it imposes only an incremental addition of impacts to an area that is already affected by a cleared corridor, instead of the larger burdens caused by siting a transmission line in a new corridor.” Application of American Transmission Company, 2006 Wisc. PUC LEXIS 309, *40 (June 30, 2006). Many segments of the proposed Cardinal-Hickory Creek transmission line corridors do not comply with these Wisconsin statutory requirements.

When running through recreational trail areas such as the Military Ridge State Trail and Pecatonica State Trail, transmission lines should be placed underground – not overhead – and should not significantly harm environmentally sensitive areas. The Public Service Commission of Wisconsin has explained:

The plain wording of the priorities in that subsection are intended to protect recreational corridors from being used as routes for overhead transmission lines. The statute requires any transmission line located in a recreational trail corridor to be placed underground, if the corridor is to be used in the identified priority list. Further, a transmission line in a recreational trail corridor cannot significantly impact environmentally sensitive areas. . . . If an overhead segment is proposed, it should be designed to minimize the impact on the trail corridor and then it may be considered among the lowest priority of all the options listed, including new corridors.

Application of American Transmission Company, 2006 Wisc. PUC LEXIS 384, *29-30 (August 10, 2006). Siting overhead new transmission lines along recreational trails should “among the lowest priority of all the options listed.” The developers’ application seems to claim that the line complies with this law because much of the proposed routes follow existing rights-of-way. However, there are significant areas where the preferred route would follow both an existing right-of-way and a recreational trail, such as along US 18/151 and the Military Ridge State Trail.

Building a line along this route, which would significant impact the state trail, cannot be considered consistent with the siting priority law.

The Wisconsin Energy Priorities Law also requires that “[i]n meeting energy demands, the policy of the state is that, to the extent cost-effective and technically feasible, options be considered based on the following priorities, in the order listed: (a) Energy conservation and efficiency. (b) Noncombustible renewable energy resource. (c) Combustible renewable energy resources. . . . (d) Nonrenewable combustible energy resources . . .” Wis. Stat. § 1.12(4). Furthermore: “It is the goal of the state to reduce the ratio of energy consumption to economic activity in the state.” Wis. Stat. § 1.12(3)(a). The Legislature directed the Commission to follow the priorities set out in Wis. Stat. § 1.12(4) in making energy-related decisions. Wis. Stat. § 196.025(1)(ar). The PSC must consider whether energy conservation, efficiency, and local renewables can be implemented to meet any need, rather than construction a massive new high-voltage transmission line, which would carry power from a mix of generation sources. In sum, the EIS must fully analyze the extent to which the proposed action and reasonable alternatives meet the standards set out by the Wisconsin Energy Priorities Law.

CONCLUSION

The Driftless Area Land Conservancy and Wisconsin Wildlife Federation appreciate the Public Service Commission’s and Department of Natural Resources’ consideration of these comments on the lawful and appropriate scope for the Environmental Impact Statement in this case. We would be pleased to meet with the agencies to discuss questions or suggestions involving the above comments. Thank you for your and the Commission’s and the Department’s consideration.

Date: January 4, 2018

Respectfully submitted on behalf of the
Driftless Area Land Conservancy and
Wisconsin Wildlife Federation by:

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REVISED: January 4, 2019

Comments to the Wisconsin Public Service Commission (copied to the WI DNR) on EIS Scoping for the proposed Cardinal-Hickory Creek Transmission Project, 5-CE-146.

From: Catherine Bleser, Mt. Horeb, WI

I submit these comments as a private concerned citizen residing in Mt. Horeb, WI, and also as a retired environmental analyst and conservation biologist with the WI Dept of Natural Resources (WDNR) (served 1985-2014).

My responsibilities during my near-30 years with the WDNR included Endangered Resources impact analysis for statewide utility corridors and other projects, WEPA/NEPA coordination and compliance for DNR's Southern Region (now District), DNR liaison to WisDOT for transportation corridor projects in our Region; and Regional Conservation Ecologist for the Southern Region.

My comments follow, organized under 3 main headings:

1. Southwest Savanna Landscape Conservation Investments Impacted:

A major part of my work as DNR Regional Ecologist was to coordinate planning for the official 2009 establishment of the *SW Grasslands and Stream Conservation Area (SWGSCA)*. This large landscape-scale conservation project area was made possible by the combined efforts of more than 20 public and private partner groups. Among its goals are to sustain the natural and agricultural landscape, and promote recreation and nature-based tourism in an area of the state that has very few public recreation lands yet is close to major population centers. See this link for more information and maps: <https://dnr.wi.gov/topic/Lands/grasslands/swgrassland.html>

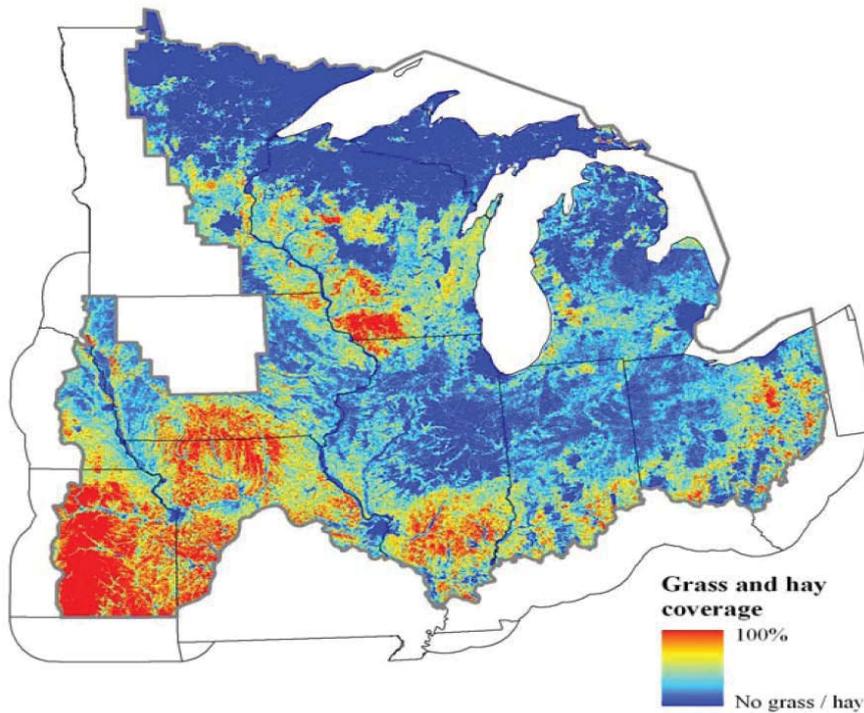
The SWGSCA project's northern boundary and highest, most visible ridge, is USH 18/151 from western Dane County out to Montfort following the Military Ridge, exactly where the proposed CHC transmission line would be constructed.

In addition, this SWGSCA includes the long-established *Military Ridge Prairie Heritage Area (MRPHA)*. This MRPHA partnership has since the 1960s protected 95,000+ acres of prairie, savanna and stream corridor through decades of effort by The Nature Conservancy, The Prairie Enthusiasts and others, in cooperation with the rural farming families of the region. This landscape boasts one of the highest concentrations of prairie remnants and unplowed prairie sod in the Upper Midwest, further distinguished by this fact: These prairies persist upon an extraordinary larger open grassland and agricultural landscape, where the ecosystem developed, and where human and native plant/animal inhabitants still, today, may enjoy the open horizons of the state's original prairie landscape. Many species, in fact, such as our declining grassland birds and the state-Endangered Regal Fritillary butterfly, depend upon these open horizons for survival, mating and dispersal.

As our state's new 2015 *Ecological Landscapes of Wisconsin* publication fully details, the Southwest Savanna Ecological Landscape has some of the best potential for upland grassland birds in Wisconsin and beyond. See esp. pp. V-26 and -27 in this handbook, to read about how critical this area is for declining grassland birds and other species.

<https://dnr.wi.gov/topic/landscapes/documents/1805Ch20-low.pdf>

Representatives from the WI DNR will certainly provide thorough input on the many natural communities, wildlife and endangered resources found near this proposed CHC project. On the map I've included below from the cover of the SWGSCA Feasibility Study, this entire Ecol. Landscape pops when satellite maps are configured according to percent grass cover (highest in red). This shows in an instant how unique this area of the Upper Midwest is.



Map from US Fish & Wildlife Service 2007 Upper Mississippi / Great Lakes Joint Venture Plan

Recreational / Aesthetic Values / Ecological Landscape Experience:

The EIS should not only address all the biological and conservation land issues summarized or referenced above, but just as significantly, **perhaps most significantly, the impact on the overall integrity of this unique prairie landscape.**

Because the Military Ridge along USH 18/151 marks a major geological escarpment boundary, where more resistant dolomites begin sloping gently southward from the high Military Ridge all the way to the Illinois border, the Ridge is visible from great distances across Southwestern Wisconsin, well down into Lafayette and Green Counties. The proposed CHC line would install high towers upon this most prominent regional feature, all along its length from Mt. Horeb to Montfort, directly through the top of the MRPFA and part of the SWGSCA.

The value of all the lands conserved, and all the money and management that has been invested by numerous groups such as The Nature Conservancy, The Prairie Enthusiasts, Driftless Area Land Conservancy, Pheasants Forever, the US Fish & Wildlife Service, NRCS, FSA and the Farm Bill programs, WI DNR and others, can be quantified, at least approximately. This should be done and should be presented in the EIS. Major investments have been made over many

years, across many acres. More and more visitors come to the area to recreate and enjoy it. Here's a link to one brochure on the hiking, auto-tours and other nature-based opportunities in the area:

<https://dnr.wi.gov/topic/Lands/Grasslands/documents/swgscatour.pdf>

There is a larger and central issue, that no doubt generates the overwhelming concerns we've seen from so many people across this area, and can't be quantified and isn't regulated. However it should be addressed in the EIS. This is the human experience of knowing this unglaciated, ancient Driftless Area landscape. This Southwestern Savanna region of the Driftless is one of the few remaining places where people can drive out on USH 18/151, and enter a high, open, largely undeveloped plateau unlike any other in the state. Whether one lives here or visits the area's farms and conservation lands, it is still possible to stand on this landscape and feel like you've stepped back in time. Here people can come walk through a native prairie surrounded only by uninterrupted rolling fields while seeing and hearing grassland birds who still return here in numbers to nest as they have for millennia. People can learn and enjoy unique rare plants or butterflies, look out across open horizons all the way up to Blue Mounds, and feel the genuine and authentic sense of a true prairie space.

In 2008, while plans for this MISO MVP portfolio high-voltage line from Dubuque to Middleton were being developed at high multi-state levels and entirely unknown to us (more on this issue below), we at DNR with our many Partners were out on this same landscape conducting public scoping meetings and final EIS hearings required under our WEPA code, to establish this SWGSCA. The vast majority of commenting residents and stakeholders supported the new land conservation project, many enthusiastically, and indicated that retaining the rural and scenic character of the area was among their very topmost concerns. This public input data is still available and can be provided.

The impact that the Preferred Alternative CHC Line would have on the ability to experience a whole, intact prairie-savanna landscape, is by far my greatest concern among all impacts of the proposed CHC project. I would hold that it is the central environmental impact concern to be addressed. A series of high-voltage towers marching along this highest ridge, therefore seen from far and wide, would greatly diminish, or even from many spots, obliterate this opportunity to fully enjoy one of the best remaining prairie-savanna landscapes in the Upper Midwest.

The EIS should thoroughly address the impacts to the public's ability (and native prairie/grassland species' ability) to experience this. The EIS should extend this recognition beyond the typically cursory or narrow aesthetics and visual analyses and faint, distant simulation pictures given. Often such analyses also are limited mostly to the landowners immediately impacted by the construction and towers, not to all users and residents across the entire affected viewshed.

If the EIS does not fully address and acknowledge these larger ecological and cultural indirect, irreversible, and cumulative impacts, it is not complete in my view. This would include addressing whether portions of the line could be relocated off this high ridge, or buried. When discussing the costs of measures like burying lines, the full extent of the benefits that hiding or moving the lines would give us all, needs to be understood and acknowledged in these larger, non-quantifiable and non-material terms. The CHC federal Draft EIS now out for comment and found on Dairyland Power's website includes a section on Buried Lines in Sec. 2.2.2.6. A new technology called 'solid dielectric cable' requiring no fluids or gas is only briefly mentioned. The section of the DEIS is brief and given little discussion. The PSC's state DEIS should thoroughly explore this option for the portion along the Military Ridge, especially through the high points

along the northern border of these conservation projects. As noted in the federal DEIS, underground lines avoid the aesthetic and property value concerns and reduce magnetic fields. The PSC's DEIS should add that underground lines also remove ecological and cultural impacts of introducing high vertical towers across the highest ridge of a dissected plateau landscape prized for its open horizons, and largely treeless natural value.

Finally, I would respectfully remind reviewers and public decision-makers of the very worthy clauses in Chapter 274, Laws of 1971, the enabling legislation for our WEPA law and the Environmental Impact analysis requirements. See especially Section 1 (3) (b) and (f), where our legislature with great foresight provided that among the four stated purposes of the law are the state's responsibility to 'use all practicable means' to 'Assure ... aesthetically and culturally pleasing surroundings,' and to 'Enhance the quality of renewable resources.' This leads to my overarching comments on WEPA compliance, below.

2. WEPA/NEPA Compliance and its Main Elements: Early Public Input Before Decisions Made, a Genuine and Meaningful Alternatives Analysis

A. Predetermined Outcome with MISO MVP Portfolio and Interconnected Agreements

As stated in my introduction, for many years between 2000 and retirement in 2014 it was my job to review and certify compliance of various DNR actions with the Wisconsin Environmental Policy Act (WEPA), s. 1.11 Wis. Stats., in my assigned Southern Region counties. I also reviewed WEPA/NEPA analyses of other agencies and provided WDNR input, especially those by WisDOT since I was the DNR Liaison for given counties. Nevertheless, I expect the PSC will receive similar comments from a number of people, whether referencing formal WEPA experience, statutes and code, or not. This concern is overarching above the more specific comments I'm offering.

PSC's and DNR's environmental analysts of course are well-versed in this, but I include to remind all of us and for public benefit:

The fundamental elements of s. 1.11, stats., or WEPA, and its federal model, NEPA are (I'm quoting here from the state law):

- To provide **details of beneficial aspects of the project**, both short term and long term (generally in the 'Purpose and Need' chapter of an EIS)
- Irreversible or irretrievable commitments of resources that would be involved should it be implemented
- Alternatives to the proposed action
- **Prior to any detailed statement** (EIS) the responsible official shall consult with and obtain the comments of any agency which has jurisdiction or special expertise with respect to any environmental impact involved.
- Public input and a public hearing are to be provided 'before a final decision is made.'
- Initiate and utilize ecological information in planning
- WEPA should substantially follow the guidelines issued by the U.S. Council on Environmental Quality (under NEPA)

I would submit that this process has, so far, not been in reasonable compliance with WEPA or NEPA, specifically with most of the provisions listed above, and would ask how the responsible

parties will remedy this. I also question its compliance with FERC Order 890 for the following reasons:

The establishment of this proposed CHC High-Voltage line was for all intents and purposes, already decided under the **MISO MVP multi-state portfolio**, adopted in 2011 by the MISO Board of Directors, with the final report issued January 2012. The decision to build a High-Voltage line from Dubuque to Middleton has been predetermined, and is part of an interconnected set of 17 MVPs and agreements that assumed it would be built. There are multiple statements repeating this throughout the ATC application, ATC's Planning Analysis, Dairyland Alternatives Analysis Study, and now its NEPA Draft DEIS.

For example: Dairyland's Alternatives Evaluation Study states on p. 41 that 'Fourteen of the other [17] projects within the MVP Portfolio have been or are in the process of being built,' and selecting a different portfolio is 'not to be considered'; that this 2011 plan took 'hundreds of hours of computer time, and months working with stakeholders, with approximately 35,000 hours of staff time and more than 200 stakeholder meetings.' ATC's application states on p. 61 that there are a variety of 'planning studies, models and generator interconnection agreements that have assumed the Project will eventually be constructed.' The federal DEIS just released states plainly that MISO has informed at least 10 of 13 wind generators in Iowa and Minnesota their connection agreements are 'conditional' on this CHC line being built. These wind generators already in service are 'explicitly dependent upon completion of the CHC project.'

Also cited in the ATC Application p. 37 and the Badger Coulee EIS p. 45: Governors of the five Upper Midwest states in 2008 formed an 'Upper Midwest Transmission Development Initiative (UMTDI)' which identified this CHC Line as one of five 'no regrets' or likely 'first mover' projects (Badger Coulee was another). MISO's study arrived at similar conclusions, it states.

Any reasonable person must ask: how can the federal and state DEIS comply with WEPA/NEPA and at the same time accommodate such prejudicing agreements and assumptions, made without a transparent, coordinated, open process providing for regional participation here in the affected area of SW Wisconsin? Indeed, several documents quote the FERC Order 890 requirement for that very coordination, transparency, information exchange, and regional participation. Where was the opportunity for such participation, information exchange and transparency with the WDNR, the public, and major conservation partners working in this area and all those affected by the CHC project? Apparently it did not occur despite '200 stakeholder meetings.' Yet decisions were being made on this line that had quite foreseeable general landscape impacts.

The WEPA/NEPA laws exist to inform decision makers early in the planning process and to provide full disclosure, wherein reasonable Alternatives are considered without limiting which ones are chosen (CFR s. 1506.1). Affected agencies with jurisdiction and the larger public must have opportunity to provide meaningful input before a final decision is made and as WEPA and NEPA (CFR S. 1502.5) stipulate, provide it "early enough so that it can serve practically as an important contribution to the decision-making process and will not be used to rationalize or justify decisions already made."

B. Meaningful Alternatives Analysis

Further examples of how, in effect, the prior plans and investments preclude a genuine, open and transparent Alternatives Analysis in the state (and federal) DEIS documents include: ATC states on p. 25 of its Planning Analysis while discussing a Low Voltage Alternative (LVA), that 'MISO stated is has no reason to reconsider its decision and would not consider' the LVA alternative

under the existing 2011 MVP Plan; the plan would have to be revisited, MISO said. This doesn't seem out of the question, it seems, given that this plan undergoes a 'Triennial Review' as was done in 2014, 2017, and will come up in 2020.

ATC (p. 23, Planning Analysis) states further re: the Non-Transmission Alternative (NTA), that ATC assumed the NTA would have the same cost to Wisconsin customers as the proposed HVA Line. This does not make sense intuitively, please explain. This HVA cost is \$500 million (\$66 million for WI with the multi-state cost-sharing). This NTA cost assumption was used in order to perform a cost-benefits analysis and seems faulty and disingenuous by my read. As FERC required that costs match benefits, especially, this seems faulty. The NTA certainly would seem to better comply with the provisions in PSC's State Energy Policy, s. 1.12 (4) and (5), requiring highest priority be given to energy conservation and efficiency improvements and renewable energy projects.

In sum, while the LVA and NTA are presented as though they have been real Alternatives, they do not appear to actually be real, seriously considered Alternatives. The actual Alternatives seem to be only the choice between a HVA along USH 18/151 'Preferred' or a HVA across the northern route through the Driftless terrain. This would make the only real third Alternative the 'No Action' alternative.

Please include in the EIS a thorough and clearly understandable impact and cost/benefit analysis of the 1) LVA and 2) NTA alternatives, and of 3) burying the line at least for critical sections along the MRPHA / SWGSCA boundary

To cite the Code of Federal Regulations governing NEPA (on which our state's WEPA law is modeled): CFR 1506.1:

(f) Agencies shall not commit resources prejudicing selection of alternatives before making a final decision (§ 1506.1).

(g) Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made.

Attorneys will be familiar with the well-known NEPA-related 'Simmons' case where the court indicated a 'proponent cannot define purpose so narrowly as to define competing reasonable alternatives out of consideration.'

The CHC project has indeed been defined so narrowly, with interconnected and interdependent projects and agreements already in place or underway (Badger-Coulee) that it has ruled other genuine and reasonable alternatives out of existence.

The MVP Portfolio planning began in 2008. This is when we in Southwestern Wisconsin simultaneously were planning the SWGSCA landscape-scale conservation project, and also were investing considerable public agency staff and non-profit organizations' time over these years, plus significant public dollars in conservation and land management, and seeking wide public input. This would have been the time for us to be coordinating and exchanging information. In addition, had several earlier broad state plans for this region of the state been consulted, such as the Wisconsin Biodiversity Plan, the Military Ridge Prairie Heritage Area plans and the Wisconsin Land Legacy project, ATC and MISO planners would have easily learned of the significance of this landscape.

PLEASE NOTE: I have been told that the specific corridor footprint had not yet been selected therefore coordination on impacts would have been premature. And also, I understand from discussions with agency staff that this MISO MVP Plan contained no actions that formally ‘trigger’ or require a NEPA analysis under the law. However: There is a limited number of likely corridors for siting the line between Dubuque and Middleton; especially given PSC’s state law, s. 1.12 (6), Wis. Stats. that requires top siting priority be given first, to existing utility corridors, followed next, to highway and railroad corridors. Broad likely impacts along these most likely candidate rights-of-way could have been foreseen (the USH 18/151 corridor is an obvious choice) and information on general environmental ‘red flags’ could have been gathered during this MISO MVP Portfolio planning process. Even a review of the general project area would have revealed the existence of the MRPHA and SWGSCA.

3. Purpose and Need

The needs analysis for this project seems lacking. The information provided by ATC in the Purpose and Need section of the ATC application (and the federal DEIS) is not written in a way that is completely understandable and convincing to those of us outside of the utility industry. Generalities are given, e.g., it will improve reliability; but how is our current system unreliable and to what extent? I cannot discern, so far, a clear picture of need for additional electricity and reliability in the area to be served.

It appears that the CHC project’s proposed purpose and justification is economic, mainly in the form of lower rates to customers. Please state how much lower this would be per customer, on average. Please also separate out the residential customer data from the commercial/industrial users, which I understand comprise about 65% of total electricity use. The cost savings amounts provided by ATC state that net benefits to Wisconsin customers would be between \$23.5 million and \$350.1 million. This is an extremely wide range. Please thoroughly, and clearly to the non-utility lay person, discuss what factors will determine where in this range the net benefits would fall under our current energy situation (not that of 2008 for example). Please translate into average savings per year per average customer, including the amount to be saved by commercial/industrial customers. Residents need to know approximately how much they would see in savings on their bill, in exchange for the impacts of this project. I am told by PSC staff that the most likely net economic benefit amount would be approximately \$200 million (once accounting for the cost). The cost is \$500 million total but due to the MISO MVP cost-sharing agreement, Wisconsin customers would pay only \$66 million. So, in the end, please state: what is the net savings the average customer would see on their bill?

It’s critical that the DEIS put all these cost and megawatt numbers in the larger context for the average reader and consumer. For example: it’s stated the line would bring about 1300 MW of wind energy from states west. What fraction of total energy now available on the existing grid is this? What fraction of total energy would the new line carry? We need a frame of reference for this. How does it compare to the amounts currently and potentially generated by our own conventional power plant generators, and from our own wind and/or solar farms in Wisconsin?

I understand Wisconsin’s total annual electricity use is 70 million MW hours/year. This begins to put 1300 additional MW in context as a very tiny fraction. I further understand that

ATC's total costs for energy over 40 years are approximately \$32 billion. This, too, begins to put a savings of \$23 – 350 million in context.

Renewables benefits: As I also understand from my conversations with PSC staff: the proposed CHC project provides more connections to the larger grid and thereby greater access to lower cost electricity. Only a portion of that will be the Wind brought in from the west; for example, when it's calm in Iowa and the turbines aren't turning, this line will carry traditionally produced (fossil fuel plant generated) electricity. It will not, then, function only to bring wind energy into the state. I also understand that the new solar facility proposed near Montfort would not require this 345 kV line. Finally, I understand that the utilities have met their renewable requirements in Wisconsin and that the energy situation here has changed since MISO planned for this MVP.

Please discuss how this CHC line might be deferred, to assess future need, in light of rapidly evolving solar and battery technologies. Please present in an open, full disclosure, forthright manner, how much the 2008-11 MISO MVP agreements, tariff, and prior construction of related plan elements may be driving this project, which I believe is the last of the 17 MVPs to be built?

Thank you very much for the opportunity to provide this input. I'm happy to discuss further with PSC or DNR staff, as well as other concerned citizens.

Catherine A. Bleser
Mt. Horeb, WI
cbhomewis@gmail.com

Public Comment
PSC 5-CE-146
(Submitted by US Postal Service)

The regional character of the Driftless region in southwestern Wisconsin - through which the Cardinal-Hickory transmission line would transect - is unique, not only ecologically and geologically, but also in terms of the region's people and communities. Having taught regional planning at the University of Wisconsin-Madison for many years, the importance of a region having a psychic identity in the minds of people and institutions is a critical factor in regional definition. The Driftless region exhibits that key characteristic - so much so that it has taken on a brand name in promoting ecotourism, the regional economy, and the overall quality of life. The maintenance of this regional character will be increasingly important to the growth of recreation, tourism, and sustainable agriculture in the future. I cannot imagine any way that the proposed large-scale transmission corridor can do anything but diminish the regional character and identity of the Driftless.

The lighter-impact outdoor recreational activities - canoeing, kayaking, hiking, biking, birding, and angling - have found a "home" in the Driftless and are growing. These activities are dependent on the natural resource and scenic characteristics of the area, and have a positive consequential economic impact for people and communities within and near the region. Trout fishing is a good example. Trout depend on cold, clean and productive waters. The spring creeks laced through Driftless watersheds are one of the rarer and most vulnerable types of surface water resources in the world, and yet are abundant in the region, with thousands of miles of such streams available to recreationists (Born, Mayers and others, "Exploring Wisconsin Trout Streams", University of Wisconsin Press, 2014). A 2016 report released by the national conservation organization Trout Unlimited ("The Economic Impact of Trout Angling in the Driftless Area") indicates that total spending and economic impacts of recreational angling in the Driftless largely of Wisconsin, Iowa and Minnesota exceeds \$1 BILLION annually, and is growing.

The environmental resources underpinning such recreational activities have been sustained, enhanced and restored by many partners over past decades. There has been a high level of investments by state and local governments, non-profit conservation organizations, local sports clubs, and private interests and landowners in stream improvement projects, wetland protection and restoration, prairie and woodland restoration, fisheries management, and public access. Millions of dollars and many thousands of hours of "sweat equity" by people who love and use the Driftless in myriad ways are part of the region's heritage.

One of the greatest losses associated with a major transmission line across this special region is the degradation of scenic and amenity resources. While the beauty of the area can be taken for granted, it is central to the region's character and life. Damage to these resources would diminish the recreational user and tourist's experience, as well as property values for many landowners **Because these highly-valued scenic resources are among the surest victims of a huge transmission line, those impacts should be thoroughly and carefully assessed in the review process for the transmission line. These resources are not only in the eye of the beholder; they can be objectively measured based on research methods employed in the designation of the Wisconsin Riverway, among other studies.**

Finally, as a former Wisconsin State Energy director back in the 1970s, I hope the PSC will be especially diligent in its review of the need for this line, given flat demand and a changing energy picture in the imminent future. Thank you for the opportunity to comment on this proposed project.

Stephen M. Born
December 18, 2018

Cardinal-Hickory Creek Transmission Line
PSC Docket No. 5-CE-146
Public Comments

I am the current Executive Director of Wisconsin Wildlife Foundation. I previously worked at the Wisconsin Department of Natural Resources from 1970 to 2003, serving as Secretary of DNR from 1993 to 2003.

The Driftless Area and specifically the locations proposed to be traversed by the Cardinal-Hickory Creek transmission line provide critical habitat for fish and wildlife in this state. The landscape in the Driftless Area provides a unique combination of wetlands, streams, forests and prairies that is not replicated in the United States. State, Federal and local governments have invested over \$100 million dollars in lands for fish and wildlife habitat, public access and recreational purposes including hunting, fishing, trapping, biking, hiking and birdwatching which generate scores of millions of dollars into the local and state economies. The value of these public lands will be significantly degraded by the construction of the proposed Cardinal-Hickory Creek transmission line.

January 4, 2019

George Meyer
Executive Director
Wisconsin Wildlife Foundation

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COMMENTS ON THE PROPOSED CARDINAL-HICKORY CREEK TRANSMISSION LINE

The distinctive Driftless Area landscape through which the proposed Cardinal-Hickory Creek Transmission Line will cut has been more than 450 million years in the making. There is nothing like it anywhere else in North America. Over the eons this ancient plateau of sandstones and limestones was eroded by its own waterways, carving out the folded topography we see and enjoy today. The multiple advances and withdrawals of continental glaciers over the last two and a half million years missed the Driftless, creating this distinct island of irregularity in the otherwise flat Midwest. Native peoples came into the Driftless twelve millennia ago and have been here all along, adapting their lifeways, through good times and hard, to the characteristic and changing conditions of the land. Over the last three and half centuries, European explorers and settlers and new migrants have made homes here, drawn by the region's wealth of natural assets, opportunity, and beauty.

These deep layers of natural and cultural history provide the foundations upon which the diverse human communities of the Driftless are now developing new ways to coexist with and within this ever-changing landscape. As distinctive as the landscape is, so too is the culture of innovation and creativity that has taken hold here, inspired by the land's geological, ecological, and aesthetic qualities. Driftless Area landowners have for generations been leaders in conservation, developing new ways to work on and with the land in ways that do not deplete, but regenerate, the resources that sustains us. Innovative farmers, food processors, business owners, artists, educators, service providers, and place-based entrepreneurs with a thousand different ideas, have created an emerging Driftless economy that is as distinctive as the region's topography. This emerging economy and culture depend in every way—is motivated in every way—by the quality of this, *our*, special landscape.

We live in a time of rapid, even disorienting, social and environmental change—in our local communities, in our nation, and around the world. This generation is being called upon, as none before, to be effective stewards of our soils and waters and wildlife, our cityscapes and oceans and atmosphere. Many have found in the Driftless Area a place to create more sustainable ways to live, and to make a living, on the land, and to build a more resilient future for ourselves and for generations to come. All of this depends on *the quality of our Driftless landscape* and on *our capacity as citizens to influence the decisions* that shape it. The proposed Cardinal-Hickory Creek Transmission Line is a challenge to, and a test of, that quality and that capacity.

We know that climate change requires that we expand the availability of energy from renewable sources. But we also know that resilience in the greatest sense *requires* that we not attempt to solve one problem by creating others. There are multiple options before us—ways to conserve and to develop clean and sustainable energy—that can serve the Driftless Area and all the landscapes beyond it. We must strive together for energy solutions that do not sacrifice other

conservation goals and degrade the quality of our land. The decision on this proposed powerline is a test. It will show if we as a society are willing to resist the easy path of expediency and short-term profit. It will show that we can do the hard and necessary thing: meeting current needs in innovative ways that also and simultaneously protect the quality of the land that sustains us.

Curt Meine
January 3, 2019

SCOPING COMMENTS
CARDINAL-HICKORY CREEK TRANSMISSION LINE
PSC DOCKET 5-CE-146

Submitted by: Donald M. Waller, J.T. Curtis Professor of Botany and Environmental Studies

Thank you for the opportunity to provide comments on the scope of the Public Service Commission of Wisconsin's (PSC) and Wisconsin Department of Natural Resources's (DNR) Environmental Impact Statement (EIS) for the proposed Cardinal-Hickory Creek transmission line. As a professional conservation biologist, I am concerned about the environmental impacts of this proposed transmission line as I know this project would have both immediate and sustained deleterious impacts on plant, bird, and other animal populations in the region.

I am a professional ecologist and conservation biologist and serve as the J.T. Curtis Professor of Botany and Environmental Studies at the University of Wisconsin – Madison. I received my PhD in Biology/Population Biology from Princeton University in 1978 and then did postdoctoral work at Harvard University before coming to Madison. My own recent research focuses on threats to population viability, effects of habitat loss and fragmentation, mechanisms of community assembly (and disassembly), trophic cascades (e.g. wolves → deer → plant communities), biological invasions, and long-term ecological change. I have chaired the undergraduate major in Conservation Biology for many years and helped found UW's Nelson Institute graduate program in Conservation Biology and Sustainable Development in 1990. I also originated and continue to teach UW's Conservation Biology course (Botany / Zoology / Wildlife Ecology / Environmental Studies 651). I have published two books (*Wild Forests: Conservation Biology and Public Policy*, Island Press, and *The Vanishing Present: Wisconsin's changing lands, waters, and wildlife*. Univ. of Chicago Press) and over 160 scientific papers. I have testified several times before U.S. Congress, U.S. Senate, and the State Assembly committees on matters related to conservation and biological diversity and serve on the policy panel for the Ecology Society of America. I currently serve on the Natural Areas Preservation Council working with professional staff from the Wisconsin DNR to oversee this country's oldest and largest state natural area program. Many of these Natural Areas including its first (Parfrey's Glen near Devil's Lake) and my favorite (the J.T. Curtis Natural Area in Wyalusing State Park) are located in the Driftless Area.

As a professional ecologist, I have done considerable research in several parts of the Driftless Area, working in the region since my first field season in 1979. My experiences and landowner contacts there have given me many opportunities to provide informal advice on managing grassland, forest, and aquatic communities on private lands in the region, services that I have always provided gratis. I also enjoy spending recreational time in the Driftless Area, hiking its many trails, birding, canoeing the Wisconsin, Sugar, and Kickapoo Rivers, exploring woodlands and prairies, and bow- and gun-hunting white-tailed deer in the Fall in recent years. I know this area well and my experiences have given me perspective on the ecological changes this region is experiencing and the biological challenges it faces.

The Driftless Area's rolling countryside harbors a remarkable diversity of habitats that support a remarkable diversity of plant communities and wildlife. These habitats include ravines and ridges; meandering rivers and associated floodplains; dry, mesic, and wet prairies (including the largest prairie east of the Mississippi), rolling farmlands and hayfields; and a remarkable mix of forest types including the largest extent of contiguous forested land in southern Wisconsin in the Baraboo Hills. This remarkable natural beauty attracts a growing number and diversity of human visitors and residents, generally increasing ecological impacts on the region. Mitigating this general increase has been the growing emphasis on wise ecological stewardship of many landowners in the region. Their concerns and efforts are reflected in many regional land conservancies and the substantial private efforts many landowners embrace to restore native prairie, savanna, wetland, and forest vegetation. The Driftless Area is a hotbed for this concern and these activities.

These diverse habitats support a similarly diverse array of wildlife populations, including many that are declining, threatened, or endangered. It is the threatened communities and wildlife populations that most concern me as a conservation biologist. It is therefore the specific impacts this set of electric transmission lines and towers would have in the Driftless Area that are the focus of my comments below.

Basic question

My understanding is that it is the role of the PSC to approve particular projects like the proposed Cardinal-Hickory Creek transmission line when there is clearly both a commanding public need for the project and when any countervailing environmental costs or impacts are deemed minor, redressable via mitigation, or at least far lower than the commanding public need. I am not an economist or utility expert, so I will not comment on the economic case the utility is making regarding the commanding public need they see here. Rather, it is my duty as a conservation biologist to instead testify as to the likely anticipated environmental impacts and ecological costs that this project would entail. These are considerable, wide-ranging, and likely extend to species groups that have not yet been studied. As a scientist, I focus here on known and likely threats anticipated to be important. These clearly underestimate the full range and extent of the impacts that would occur.

Edge, area, and isolation effects – forests

The PSC and DNR must thoroughly and carefully consider and discuss the numerous ecological impacts from the proposed transmission line. For example, the line and towers will have significant impacts on forests. Clearing a 150 foot right-of-way through a wooded area not only directly destroys habitats, but also fragments the remaining habitat and creates extensive edge habitat. This leads to diminished local diversity of both animal and plant species. In addition, many meso-predator species that opportunistically prey on native birds—including raccoons, skunks, blue jays, and crows—thrive by foraging in the edge habitats created by development like power lines, gaining access to nests and nestlings in both the open and adjacent closed habitats. The more edge habitat is created, the more these native species tend to suffer such predation.

Our own research into the mechanisms driving long-term population declines in forest understory plant communities in southern Wisconsin indicate clearly that these are most closely

linked to human disturbances including roads, trails, forest patch size, habitat fragmentation, the creation of additional edge habitats, and proximity to human development (Rogers et al. 2008, 2009). These declines and impacts are already established, both as an anticipated and predictable impacts from general ecological theory and for this particular region where we have exceptionally detailed and extensive historical data. Thus, these impacts are not hypothetical or projected – they have already occurred and continue to occur (e.g., as the “extinction debt” incurred by fragmentation is paid).

I can therefore state unequivocally that the environmental impacts of the ATC power line project on forest plant communities will scale directly with the area disturbed, the amount of additional edge habitat generated, and with any declines in forest patch area and increases in forest patch isolation that occur as a consequence of this project. Given the large number of understory plant species experiencing region-wide declines, these represent significant and long-lasting environmental impacts. That is, as species decline and are lost from individual forest fragments, they are also less likely to re-colonize as seed sources become scarcer and more widely dispersed (Rogers et al. 2009). Given that plant species are primary producers, they provide both the structure and the sources of food and energy needed by all other organisms present. Given that dozens of animal species and probably hundreds of smaller organisms are associated with each plant species, any force or activity that threatens plant species and their persistence will necessarily have cascading negative effects on many other species.

Invasive species

Transmission corridors often act as avenues of invasion for species that thrive in open, disturbed habitats. These include not only the opportunistic meso-predators mentioned above but also weedy species of plants and other species (e.g., Eurasian earthworms). Many of these species are dispersed directly on heavy farm or industrial equipment or on workers’ clothing. Most invasive species are also quick to occupy open, disturbed habitats. This means that constructing the power line towers and corridor will surely enhance these invasions. Invasive species, in turn, have a wide range of deleterious impacts on native species by competing for open space and thereby displacing native species and they resources they provide to the animal species adapted to them. Non-native species lack most of these coevolutionary relationships, favoring particular traits that allow them to compete aggressively, e.g., by poisoning the soil for many native plant or mycorrhizal fungal species via allelopathy (Waller and Maas 2013). Such activities disproportionately affect more specialized native species, reducing their populations and overall biodiversity (Waller et al. 2016).

Grassland birds

Many of the state’s best remaining habitats for grassland birds occur in Driftless Area and in proximity to the proposed Cardinal-Hickory Creek transmission line. This is highly relevant as the grassland birds are declining at precipitous rates in Wisconsin and many other states and faster than any other group of birds (Sample and Mossman 2008). Bobolinks, dickscissels, eastern and western meadowlarks, and grasshopper, Henslow’s, savanna, and vesper sparrows are obligate grassland birds. All are experiencing precipitous declines in abundance and many are now threatened. Threats to their persistence include dramatic losses in grassland habitats and declines in the frequency of fires that maintain these habitats. The proposed high-voltage line will have significant negative impacts on natural resources along the proposed corridors

including the hayfields and prairie grasslands these birds depend on. Sample and Mossman (2008, p. 317) note that:

Changes in landscape structure including exurban development and fragmentation of grasslands . . . impact grassland birds . . . sometimes indirectly. Fragmentation of grassland habitat patches negatively impacts birds by excluding species that require large areas for nesting and foraging and by lowering both nest density and nest survival. Populations of common nest predators, including racoon, have benefited from these same changes i landscape structure. . . additional perils faced in winter or during migration . . . compound their population declines.

In reviewing 14 studies of power-line effects on bird populations, Loss et al. (2016) note that power lines kill an estimated 12 to 64 million birds each year in the U.S. The large uncertainty expressed in this range reflects the large amount of variation present among this relatively small number of studies. This and the fact that most studies only provide data for one or a few species prevented them from being able to infer impacts on individual species or in particular regions of the country. Loss (2016) concludes that we cannot conclude that “low observed mortality in a particular study, or a paucity of information, negates biologically significant impacts or obviates a need for action, or to develop mortality mitigation strategies when little information exists to inform the balancing of risks.” With so much uncertainty and so few studies yet very large numbers for these impacts, the utility must assume the burden of proof before assuming or asserting that their project will not have significant impacts on sensitive and declining birds in our region.

Other migrating birds

Given that the power line corridor crosses the Mississippi River flyway and large upland areas, it is inevitable that many migrating birds could also be at risk from this project. This risk is most acute near areas where birds are landing or taking off as most birds migrate far above the height of the towers. However, birds also descend often during times of inclement weather and poor visibility, putting them at risk, too. Any adequate analysis of environmental risks for this transmission line should include a comprehensive cobnsideration of these migration risks for particular species including migrating grassland birds and vulnerable or threatened waterfowl including the Whooping Crane.

Ongoing management of the right-of-way

Beyond the immediate acute impacts of constructing the transmission towers and right-of-way, maintaining and managing this right-of-way will add additional impacts. Vegetation under high-voltage transmission lines is typically controlled not with fire (a practice that might benefit many wildlife species including grassland birds) but instead with a combination of cutting (usually involving a ‘brush hog’) and herbicides. Heavy equipment impacts on invasives were mentioned above but they also act to kill some sensitive species and compact the soil. When herbicides are sprayed, chemicals often drift beyond the right-of-way in ways that are likely to affect surrounding vegetation. Many prairie species are highly sensitive to herbicides. Regional dramatic declines in the populations of many pollinating insects, including the rusty patched bumble bee and Monarch butterflies, are often associated with increases in the use of herbicides. The rusty patched bumble has already been listed as federally endangered species (<https://www.fws.gov/midwest/angered/insects/rpbb/>) and the Monarch is currently being

considered for listing as endangered by the U.S. Fish & Wildlife Service (<https://www.fws.gov/savethemonarch/SSA.html>). Herbicide can also run off with rain water and pollute nearby wetlands and other water bodies, potentially threatening amphibians, insects, and other species.

Conclusion

The Driftless Area and its unique features present unusual challenges to the PSC and DNR in considering the full range of environmental impacts likely to accompany construction and maintenance of the proposed Cardinal-Hickory Creek transmission line. I urge the PSC and DNR to fully consider and disclose all these impacts including those mentioned above for all the proposed transmission corridors as well as the no new transmission line option. The public will need to be fully convinced of the compelling need for this line if they are to accept its many environmental impacts as acceptable. Completing a full-scope EIS analysis should also make clear just how substantial and diverse these impacts will be.

References Cited:

- Loss, S.R. 2016. Avian interactions with energy infrastructure in the context of other anthropogenic threats. *The Condor* 118: 424–432. DOI: 10.1650/CONDOR-16-12.1
- Loss, S.R., T. Will, and P.P. Marra. 2016. Refining Estimates of Bird Collision and Electrocution Mortality at Power Lines in the United States. *PLoS- ONE* 9(7): e101565. doi:10.1371/journal.pone.0101565.
- Rogers, D.A., T.P. Rooney, and D.M. Waller. 2008. Shifts in southern Wisconsin forest canopy and understory richness, composition and heterogeneity. *Ecology* 89: 2482–2492.
- Rogers, D.A., T.P. Rooney, T. Hawbaker, V. Radeloff, and D.M. Waller. 2009. Paying the extinction debt in southern Wisconsin forest understories. *Conservation Biology* 23: 1497-1506.
- Sample, D.W. and M.J. Mossman. 2008. Two centuries of changes in grassland bird populations and their habitats in Wisconsin. Chap. 21 in *The Vanishing Present: Wisconsin's changing lands, water, and wildlife*, D.M. Waller and T.P. Rooney, eds. Univ. of Chicago Press.
- Waller, D.M. & L.I. Maas. 2013. Do white-tailed deer and the exotic plant, garlic mustard, interact to affect the growth and persistence of native forest plants? *Forest Ecology and Management* 304: 296-302.
- Waller, D.M., E.L. Mudrak, K.L. Amatangelo, S.M. Klionsky, and D.A. Rogers. 2016. Do associations between native and invasive plants provide signals of invasive impacts? *Biological Invasions* 18: 3465-3480.

Potentially relevant but a lot to review:

The Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) worked with the U.S. Fish and Wildlife Service to develop a

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/electric-utility-lines.php>

and in its AVIAN PROTECTION PLAN (APP) guidelines first issued in 2005 and periodically updated since then:

http://www.aplic.org/uploads/files/2634/APPguidelines_final-draft_Apr12005.pdf

**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 Hickory Creek Substation in)
Dubuque County, Iowa, to the Existing) 5-CE-146
Cardinal Substation in Dane County,)
Wisconsin, to be Known as the Cardinal-)
Hickory Creek Project)

CERTIFICATE OF SERVICE

I hereby certify that a copy of the *Scoping Comments* has been served by electronic mail (e-mail) to all parties listed on the Service List.

/s/ Rachel Granneman
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